DISTANCE LEARNING MIGRANT EDUCATION PROGRAM

GRADES 3-4

2014 GUIDE FOR TEACHERS

ESC 20 Serving the Educational Community

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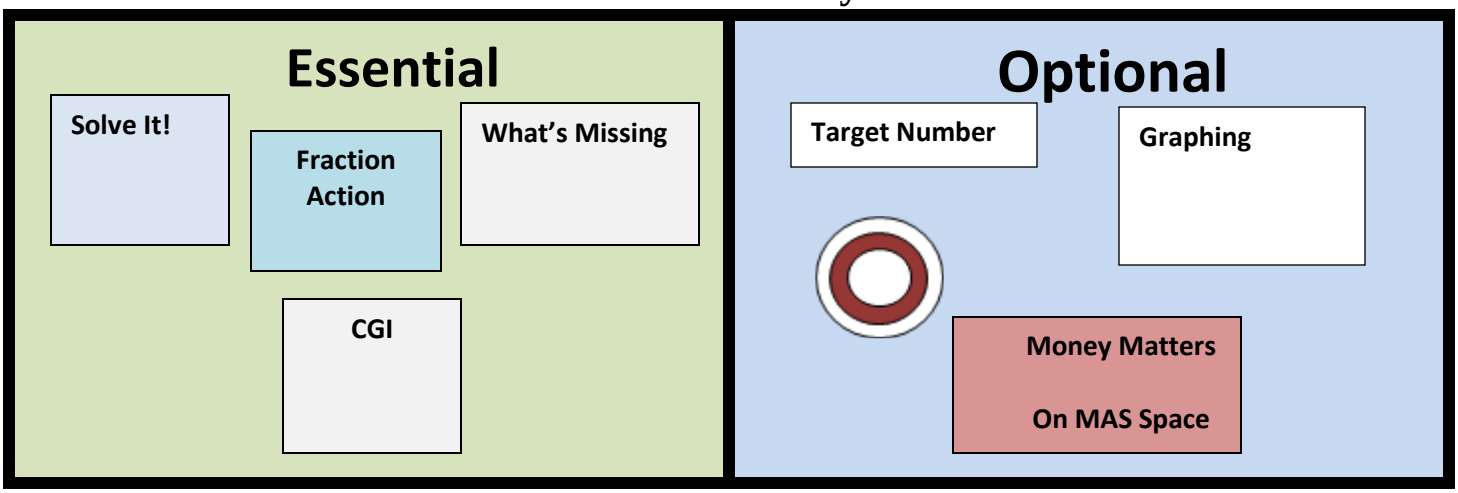
3rd – 4th Math MATTERS 2014 Daily Routines



3rd and 4th Grade Band Daily Routines Introduction

Third and fourth grade students will begin most days with these Daily Routine Activities. Unlike the primary grades that come to the Daily Routine Board for the tasks, students in the upper grades may sit in their seats. In fact, with the group work expected in the activities, desk work is probably more appropriate. The graphic above demonstrates a simple permanent display. You may, however, display the activities any way you wish. Suggested times for each activity are provided in the materials below. These are merely suggestions; however, blackline masters are provided as noted in the materials list.

The Daily Routines explained in this section are the base activities for every lesson of every unit. Specific materials for activities that change such as the Measurement Lab, CGI, or the Graphing Activity will be noted in the curriculum for that particular lesson. The complete problem set for Money Matters will be found at the end of this document along with the complete problem sets for STAAR Performance.

Language Objectives for Daily Routines

- Speak to partners, teacher, and class using vocabulary introduced in the Daily Routines.
- Listen to, read, speak, and write the labels of the graph using Interactive Writing.
- Discuss problem solving strategies in partners, small groups, and whole groups.
- Listen to, read, speak, and write to understand action in word problems.

Math Objectives for Daily Routines

- Find, complete, and create patterns.
- Solve word problems using a variety of strategies and defend their strategies.
- Compose and decompose values to show a new representation of the value.
- Use place value to group tens and ones.
- Construct concrete models of fractions.
- Compare fractional parts of a whole and sets in a problem situation using concrete models.
- Generate equivalent fractions.
- Model fraction quantities greater than one.
- Relate decimals to fractions that name tenths and hundredths.
- Measure to compare up to three items' length, weight, capacity, and area.

3rd – 4th Math MATTERS 2014 Daily Routines

- Generate picture and bar graphs from experiences in the classroom.
- *Explain the connection between human capital/labor and income.*
- *Identify the costs and benefits of planned and unplanned spending decisions.*
- *List reasons to save and explain the benefit of a savings plan, including for college.*
- *Identify decisions involving income, spending, saving, credit, and charitable giving.*
- *Compare the advantages and disadvantages of various savings options.*
- *Describe how to allocate a weekly allowance among spending, saving, including collecting and sharing.*
- *Describe the basic purpose of financial institutions, including keeping money safe, borrowing money and lending.*

3rd – 4th Daily Routines Materials List per Activity

Essential

- **CGI** (10 minutes)
  - BLM Poster of Activity
  - Problems are suggested in the main curriculum.
- **Fraction Action** (2 minutes)
  - BLM Poster of Activity
  - Problems are suggested in the main curriculum.
- **Solve It!** (15 minutes)
  - BLM Poster of Activity
  - Grade-Band Problems
  - See all of the problem sets are presented within the curriculum.
- **What's Missing** (2 minutes)
  - BLM Poster of Activity
  - Unknown Quantity Flash Cards – all operations
- **Measurement** (only when needed for the math lesson)
  - Teacher-created poster
  - Tasks are suggested in the main curriculum

Optional

- **Target Number** (4 minutes)
  - BLM (blackline master) Poster of Activity
  - Target numbers are provided in the main curriculum
- **Graphing** (only when needed for the math lesson)
  - Teacher/Student Created Title
  - Problems are suggested in the main curriculum
  - Gridded class-sized tablet and/or pre-made generic bar graph templates
- **Money Matters** (5 minutes)
  - On MAS Space

3rd – 4th Math MATTERS 2014 Daily Routines

ESSENTIAL – These activities are directly related to assessment items.

CGI Problems

One CGI problem per day.

There are 11 CGI problems written for each Unit. It will be the teacher's choice as to which problems to use on a daily basis. Numbers have been left out so that you can provide quantities that are reasonable for your students' abilities. Difficulty increases from Result Unknown to Start Unknown of each type; however, when students see the action in the problems and use manipulatives to physically act out the problem, all levels are attainable with even the youngest of children.

Using CGI with your students:
Read the word problem to the students. (For older students, have a copy for them to read.)

Ask students to solve the problem and to show their work on paper or to use manipulatives/counters.

As students are working, go around the room. Ask individual students to explain their strategy to you. This allows several more students than usual to have your attention and, what the researchers discovered, gives you more insight into how the students are thinking. Students who are struggling will also have a chance to overhear some strategies that might make sense to them.

When students are done, ask for a volunteer to demonstrate and explain their strategy to the class. Ask for one or two more volunteers who have a DIFFERENT strategy, as this helps students understand that there is more than one way to get to the correct answer. In addition, students become more comfortable with how to give an explanation, as well as helping their fellow students understand the math involved. When students share their solutions, encourage participation by calling on someone else to explain that student's strategy. It is also important to look for and point out connections between the strategies shared.

It does take a lot of time to cover one problem, but it gives students the time they need for *learning*, instead of just "covering" the concept.

Options:
There is a CGI graphic organizer that you can use.

If some students finish early, ask them to solve the problem again, but with a different set of numbers.

The curriculum provides three sets of numbers for each problem.

Write/scribe a student's explanation for the class to see.

Use this with your word wall. Hang a 12" x 18" piece of construction paper on the board. Ask the student to write his/her strategy on the paper instead of on the board. If the K-1 student uses counting as his/her strategy, this can be attached to his/her vocabulary word, "count," on the word wall. (If the student demonstrates with manipulatives, the teacher can draw the representation on the paper.)

When you and the students are comfortable with the process, you can start asking the students questions, based on situations you encounter with your group. For example: "Did you see any strategies for adding four groups of six that you would like to try the next time you have a problem like that?" ~or~ Draw a straight line of 23 circles, then draw four groups of six and ask the students, "Which has 24?" "Which is easier to check?" "Why?"

Problem Type

Join

- **Result Unknown:** These are the typical problems students are used to seeing in curriculum resources. Anna had 5 marbles. Marcos gave her 3 more. How many marbles did Anna have then?
- **Change Unknown:** These are the typical "missing addend" problems. Anna had 5 marbles. How many marbles did she need to have 8 marbles?
- ***Start Unknown:*** *These are the typical "work backward" problems. Anna had some marbles. Marcos gave her 3 more. Then she had 8 marbles. How many marbles did Anna have to begin with?*

Separate

- **Result Unknown:** Typical "take away" problems. Anna had 8 marbles. She gave 3 to Marcos. How many marbles did she have then?
- **Change Unknown:** Anna had 8 marbles. She gave some to Marcos. Then she had 3 marbles. How many marbles did she give to Juan?
- ***Start Unknown:*** *Typical "work backwards." Anna had some marbles. She gave 5 to Marcos. Then she had 3 marbles. How many marbles did Anna have in the beginning?*

Part-Part-Whole

- **Whole Unknown:** These are addition problems of items in a set. Anna had 5 green marbles and 3 blue marbles. How many marbles did she have?
- **Part Unknown:** These are subtraction problems of items in a set. Anna had 8 marbles. 5 of them were green. How many were NOT green?

Compare

- **Difference Unknown:** These are the typical comparison problems. Anna had 8 marbles. Marcos had 5 marbles. How many more marbles did Anna have?
- **Compare Quantity Unknown:** These comparison problems are a little more challenging in the verbiage. The action is actually counting on. Marcos had 5 marbles. Anna had 3 more marbles than Marcos. How many marbles did Anna have?
- ***Referent Unknown:*** *Again, challenging problems because of the verbiage, these problems are actually counting back. Anna had 8 marbles. She had 5 more marbles than Marcos. How many marbles did Marcos have?*

Grouping / Partitioning

- **Multiplication:** These problems are straight forward multiplication word problems.
- **Measurement Division:** Students are asked to divide, but the visualization is different from what they are used to reading in text books which traditionally tell you how many sets there are, and want to know how many of each there will be in a set. In measurement division, students know how many are in a set, but need to determine the number of sets there will be. EX. You have 35 widgets and want to package them 7 to a package. How many packages will you make?

- **Partitive or Divvy Out Division:** Students divide to find the number of items per set. EX: There are 35 widgets to be packaged in 7 packages. How many widgets will there be in each package?

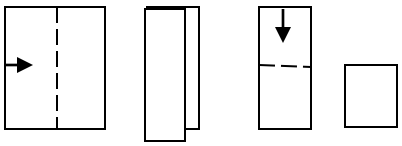
FRACTION ACTION
This area is designed for the students to practice basic fraction skills. You will find the daily tasks in the overview of the Daily Routine in the main curriculum.

MEASUREMENT
Measurement and Estimate are life skills which are poorly addressed in our society. Although there will not be a measurement activity for every lesson, certainly there will be many throughout the summer program. These will all be drawn from the mathematics and literature connection. Each lesson will have a list of materials needed within the main curriculum. See the master list of manipulatives for this year's manipulative needs.

WHAT'S MISSING?
Students use what they know about related addition and subtraction to discover the missing number needed in the box to make the number sentence a true statement.
Materials:
- Unknown Quantity Flash Cards (any flash cards with a symbol in the number sentence representing number – referred to as "What's Missing? cards in the directions – all operations)
- Individual answer boards or one piece of plain white paper per student
- Dark crayons

Unit 1 – Addition and Subtraction

Procedure:
- Shuffle the What's Missing? Cards and lay face down in front of you.
- Ask students to fold a piece of paper into fourths
  (Fold across portrait, fold down portrait so they have a sturdy display paper 1/4 the size of the paper. Students use the front and back, then open the last fold, and fold back to expose two new sides.)



- Draw one card at a time, showing to the class.
- Students are to write their answer in large print on their quarter folded paper or individual white boards and hold it in the air – no yelling out.
- When all answers are in the air, on the Teacher's count of three, everyone says the answer.
- Student volunteers then explain how they knew the number in the box.
- Repeat another three times, each time students using a new "face" on their quarter sheet.
- Teacher should be watching the class to see who knows the facts and who still needs help memorizing them, or at least using this type of thinking. These students need extra practice with the What's Missing? Cards. Be sure to make this a center activity. These cards can be made self-checking by writing answers on a Post-It-Note and attaching to the back.
- Be sure that you are using a variety of box placements each day so that sometimes the box is in the initial numeral position and sometimes the box is in the second numeral position.

Unit 2 – Addition and Subtraction

OPTIONS:

Option 1 - If the majority of your students need the controlled practice from Unit 1, then repeat that activity.

Option 2 – If the majority of your students are comfortable with finding the number in the box, divide the class into two Teams and have the old-fashioned relay activity.

What's Missing? Relay (Make sure that almost all of your students can get the correct answer before playing this game.)

- Students line up in two equal lines, facing the Teacher.
- When the Teacher shows the What's in the Box? Card, the student at the beginning of each line calls out the answer.
- First student who calls out the correct answer gets the card.
- Both students go to the back of their respective lines.
- Repeat the process until either all students have had a chance to play, or all of the cards are gone.
- Winning Team is the Team with the most cards at the end of the game.

3rd – 4th Math MATTERS 2014 Daily Routines

(Essential Daily Routines Continued)

What's Missing? continued
Unit 3 –Addition and Subtraction / Multiplication and Division

- **Lesson 1** – Addition and Subtraction, What's Missing? Relay
- **Lessons 2 –** Students work independently. Teacher shows one card at a time using 10 cards, and students write the answers on a piece of paper. No talking. Use as an Assessment of how well students can answer this type of basic fact practice. Teachers may want to select facts that have been difficult for the students. Do NOT use this as a speed test; however, you should be able to show the card and silently count four seconds. Students should be able to write the answer (answer only, not the problem) in that time.
- **Lesson 3** - Multiplication repeat Unit 1 Activity

Unit 4 – **Multiplication and Division –**

- **Lesson 1 –** Repeat Unit 1 Activity
- **Lessons 2 & 3 -** What's in the Box? Relay

Unit 5 – **Multiplication and Division –**

- **Lessons 1 & 2 -**What's in the Box? Relay
- **Lesson 3 –** Students work independently. Teacher shows one card at a time using 10 cards, and students write the answers on a piece of paper. No talking. Use as an Assessment of how well students can answer this type of basic fact practice. Teachers may want to select facts that have been difficult for the students. Do NOT use this as a speed test; however, you should be able to show the card and silently count four seconds. Students should be able to write the answer (answer only, not the problem) in that time.

Unit 6 – **Mixed Addition/Subtraction and Multiplication/Division**

- **All Lessons -** Students work independently. Teacher shows one card at a time using 10 cards, and students write the answers on a piece of paper. No talking. Use as an Assessment of how well students can answer this type of basic fact practice. Teachers may want to select facts that have been difficult for the students. Do NOT use this as a speed test; however, you should be able to show the card and silently count four seconds. Students should be able to write the answer (answer only, not the problem) in that time.

TARGET NUMBER

Every day there is a target number suggested in the overview of Daily Routines in the main curriculum. Simply hide this number from the students until you are ready to time them. Tell them that they have one minute (or 30 seconds, whatever you have) to represent the number in as many ways as possible. On your count, show the number and begin timing. When you call time, everyone must stop writing. They then group into threes or fours to share their representations with one another (give them about one minute to do that). They select one or two unusual representations to share with the class. Have the students share orally, explaining the representation if necessary; or if you are pushed for time, have all write them on the board and use a gallery walk to explore them.

You will see new and different representations as your students grow in their understandings of quantity in number.

(Essential Daily Routine Activities continue)

Solve It! for 3-4 and 5-6 (solve 2- and 3-step problems)

Being able to solve multi-step problems is a real-life skill. After all, most problems that we face day-to-day in our living involve having to solve several smaller problems before we arrive at the solution for the big one facing us.

In our Solve It! section this summer, we'll be working in small groups to recognize multi-step problems, solve and check each to make sure our solutions are accurate, and then use that information to solve the bigger problem.

The Set Up

- The class is divided appropriately into small groups for each lesson's problem according to the number of steps in solving the problem.
- 2-step problems are worked with a partner; 3-step problems are worked in a group of three or triad.
- There are three problems per unit, one to be given with each Lesson.
- The chart below shows you the number of steps to a solution for each grade band, and what the teaming structure is for each lesson's problem.

Units	Grade Band 1-2 OPTIONAL for 1-2	Grade Bands 3-4, 5-6, 7-8
1	2-step, all 3 lesson pairs	2-step, all 3 lesson pairs
2	2-step, all 3 lesson pairs	2-step, all 3 lesson pairs
3	2-step, all 3 lesson pairs	3-step, triad, triad, pairs
4	2-step, pair, pair, independent	3-step, pair, pair, independent
5	2-step, pair, pair, independent	3-step, pair, pair, independent
6	2-step, all lessons independent	2, 3-step, all lessons independent

Solve It! - The Rationale

The difficulty in solving multi-step problems is usually not the arithmetic; the difficulty is with the words and how they flow together to make a story. Once students understand that there is a series of actions taking place, each adding its own significance to the final solution, students will find the process much less daunting.

It's like the old elephant joke – Question: How do you eat an elephant? Answer: One bite at a time. So let's teach students to first recognize the "elephant" as needing more than one step to solve; then show them how taking the problem "one bite at a time" will get them to their final goal.

Each of the three lessons per unit has a very distinct approach. We'll look at those approaches in our next section.

3rd – 4th Math MATTERS 2014 Daily Routines

Varied Approaches of the Three Lessons

Set 1, Lesson 1 is a set of related problems (Units 1, 2, 3). *Subsequent solutions are dependent upon preceding answers.*

- Students work in teams composed of the same number of students as there are related problems; i.e., two related problems are solved in pairs, three related problems in groups of three or triad.
- All students are given the same set of problems. Each student signs his or her name at the top of the page.
- Work the first problem, and then rotate the problem page to the person on your left (clockwise).
- Look at the sheet you have been handed. Is the strategy the same or different from your strategy? Verify, or check the answer, even if the answer is the same as the one you calculated. Remember, errors do happen.
- Use the verified answer to solve Problem #2.
- Rotate the problem page to the person on your left and repeat the process.
- When all problems have been solved, rotate the problem sheet back to the person whose name is at the top of the problem sheet. Verify the final answer.

Now, discuss in your small groups the different strategies used to solve the problem.

- How are they different?
- How are they alike?
- Did you see a strategy that you had never thought to use? Explain how and why it worked.
- Did you see a strategy that you would like to have explained? Ask the person to explain it.

Set 2, Lesson 2 is a multi-step problem which needs pulling apart. **(Units 1, 2, 3)**
Students work in teams composed of the same number of students as there are steps in the problem; i.e., 2-step problems are solved in partners, 3-step problems in groups of three and so on.

- All students are given the same set of problems. Sign your name at the top of the page.
- Work as a group to break the problem apart into the smaller problems. What do you need to solve for each step of the problem? Send problem page back to the person whose name is at the top of the problem sheet. Verify the final answer.

Now, discuss in your small groups the different strategies used to solve the problem.

- How are they different?
- How are they alike?
- Did you see a strategy that you had never thought to use? Explain how and why it worked.
- Did you see a strategy that you would like to have explained? Ask the person to explain it.

Set 3, Lesson 3 is a multi-step problem which needs pulling apart. (All problems worked in Pairs for Lesson 3, Units 1, 2, 3; and Lessons 1 & 2, Units 4 & 5)

Students work in partners to solve the problem. There are two problems this time, one for each partner.

- Solve your own multi-step problem. Trade papers with your partner and check your partner's solution to a different problem.

Now, discuss the different strategies used to solve the problems.

- How are they different?
- How are they alike?
- Did you see a strategy that you had never thought to use? Explain how and why it worked.
- Did you see a strategy that you would like to have explained? Ask the person to explain it.

Independent Problem Solving (Lesson 3, Units 4 & 5, all Lessons Unit 6)

Naturally, the goal is for students to be independent problem solvers. Once students have practiced in small groups, it's time to see what they can do individually. These problems are great assessments for you as their Teacher. Everyone in the room has the same problem, but works independently to solve it. Once the problems are finished, it's time to discuss in large group:

- How did you solve the problem?
- Did someone solve it a different way?
- How are the strategies alike? How are they different?
- Did you see a strategy that you had never thought to use? Explain how and why it worked.
- Did you see a strategy that you would like to have explained? Ask the person to explain it.

3rd – 4th Math MATTERS 2014 Daily Routines

OPTIONAL Daily Routine Activities

GRAPHING
You will have a graphing activity suggested every day based on the curriculum needs for the day, usually drawn from the language lesson. The TV Math Lesson often uses the results from the graph as a springboard, so please don't skip it.

The first graph you will want to generate, however, is a birthday graph. If your students are able to create their own class graph (first a real graph, then a bar graph made from those results), please do so. Otherwise, help students generate the graph by giving them a sticky note with their birthday/year and name on it, then making a horizontal bar graph. You many need to help them find the months. You are simply graphing the months of the year (not the days within the months).

Questions to Ask

- ***First allow students to tell you what they notice about the graph.*** They will probably see the months that have many birthdays, and the months that have fewer. Let them use their observations skills first.
- ***How many students have birthdays in the month of (month)?***
- ***How do you know?*** (the graph has that many sticky notes in the (month) column)
- ***Which month has the greatest number of birthdays? How do you know?***
- ***Which month has the fewest number of birthdays? How do you know?***
- ***How many more birthdays does (month) have than (month)?*** Show students how to compare the rows.
- ***How many fewer birthdays does (month) have than (month)?***
- ***If you had a choice of the month to be born, which month would it be and why?***

MONEY MATTERS – now found on MAS Space
Money Matters is a new addition to the Daily Routines in response to the National plea and the State's new student expectations regarding Financial Literacy. Each day will provide a brief lesson written specifically to the expectations appropriate to the grade band, as outlined in the 2014-2015 K-8 Math TEKS.

3rd Grade Expectations
(from Obj 9, Personal Financial Literacy)

9(A) explain the connection between human capital/labor and income;
9(C) identify the costs and benefits of planned and unplanned spending decisions;
9(E) list reasons to save and explain the benefit of a savings plan, including for college; and
9(F) identify decisions involving income, spending, saving, credit, and charitable giving.

4th Grade Expectations
(from Obj 10, Personal Financial Literacy)

10(C) compare the advantages and disadvantages of various savings options;
10(D) describe how to allocate a weekly allowance among spending: saving; including for college; and sharing;
10(E) describe the basic purpose of financial institutions, including keeping money safe, borrowing money, and lending.

CGI Investigations!

Solve It!

Fraction Action

What's Missing?

Measurement Lab

Target Number

Sheltered Instruction Strategies

Daily Routines  **Objectives –**  **Vocabulary –**  **Student Interaction**  **Questioning**  **Graphic Organizers**	• Every activity has a specific **objective** as outlined in the Daily Routines Explanation of the Teacher's Guide. • Use and expect your students to use the **vocabulary** from your word wall as they work through the activities in this section. • **Students are to interact** through working in pairs, small groups and whole class during these activities. • Generic **questions** are found in the Daily Routines Explanation and in the graphing section of the curriculum. Questions are often provided in the Measurement Lab teacher overview in the curriculum. • **Graphic organizers** are provided for many of the Daily Routines, in particular Measurement Lab, STAAR Performance, Fraction Action.
Classroom Language Lesson  **Objectives**  **Vocabulary**  **Student Interaction**  **Questioning**  **Graphic Organizers**	• Begin and end each lesson by reading and explaining the lessons' **objective(s).** • New **vocabulary** will be introduced and explicitly taught in each unit. Students will also be given authentic opportunities to practice new words. • Lessons have been designed to provide students with the opportunity to interact one-on-one with a peer, in small groups, as well as, in a whole group setting. • **Questions** are imbedded in each lesson. Higher order questioning will engage students and ultimately provide a deeper level of understanding. Encourage students to explain their thinking. • **Graphic organizers** have been included to aid students in the organization and conceptualization of new information.
Transition to Math  **Objectives**  **Vocabulary**  **Student Interaction**  **Questioning**	• Read through the **objectives** before you begin the lesson, explaining what the skills are to be learned. At the end of the lesson, reinforce the students' learning by reading through the objectives again, having the students tell you what activities helped them to learn each skill. • **Vocabulary** is critical to the students' learning. Use and expect your students to use the vocabulary from this lesson and previous lessons as pertinent to the activity. • Pairs, small groups, whole class **student interaction** is built into the lesson so that students can discuss and learn through hands-on interaction. The point of all math lessons is for students to truly understand the mathematics behind the arithmetic, to use problem solving skills and to see and use patterns and relationships. • **Questioning** is written into the script so that the teacher has easy access to beginning questions. The students' answers will most

 **Graphic Organizers**	likely give you opening for other questions that lead to greater understanding. • **Graphing Organizers** are peppered throughout the curriculum in the form of graphs, charts, tables, cloze, record sheets. Check the blackline masters to use these important tools.
TV Lesson  **Objectives**  **Vocabulary**  **Student Interaction**  **Questioning**  **Graphic Organizers**	• The TV Teacher will read through the **objectives** before beginning the lesson, explaining what the skills are to be learned. At the end of the lesson, she will reinforce the students' learning by reading through the objectives again. It will be important for you to have the students tell you what activities helped them to learn each skill. • **Vocabulary** is critical to the students' learning. The TV Teacher will use the appropriate vocabulary during the TV Lesson. It is expected that your students will use the vocabulary from this lesson and previous lessons as they work with the TV Teacher. • As the TV Teacher works through the lesson, she will provide quick as well as more sustained pauses for **student interaction.** It is important that the students use this time to quickly respond to her questions and to learn through hands-on interaction. The point of all math lessons is for students to truly understand the mathematics behind the arithmetic, to use problem solving skills and to see and use patterns and relationships. • **Questioning** is written into the TV script. The Classroom Teacher will be the key factor in facilitating the answers from the students. It is important that the students are fully engaged in the lesson in all manner, including answering the questions. • **Graphing Organizers** are peppered throughout the curriculum in the form of graphs, charts, tables, cloze, record sheets. Check the blackline masters to use these important tools.
Follow-up Lesson  **Objectives**  **Vocabulary**  **Student Interaction**  **Questioning**  **Graphic Organizers**	• **Objectives** for the Follow up lesson are usually expanded from the TV Lesson. Reading them before the lesson and again after the lesson while students explain through what activity they experienced the objective is important. • **Vocabulary** is practiced and applied during this lesson. Use and expect to hear your students use appropriate and mathematically correct terms. • **Students Interact** through pairs, small group, and whole class experiences. • **Questions** are provided in the script as well as in a section titled "Questions" to help the Classroom Teacher clarify, to probe for deeper understanding, and to enrich their learning experiences. • Most lessons provide **graphic organizers** such as record sheet, game score sheets, tables to help students see patterns and relationships.

Snack Fractions	
 **Objectives**  **Vocabulary**  **Student Interaction**  **Questioning**  **Graphic Organizers**	• As with all of the portions of this curriculum, **objectives** are stated clearly at the beginning of the lesson and reviewed by you and your students at the end of the lesson. Snack Fractions will work on the same objectives through one unit. • **Vocabulary** is very specific in working with fractions. Use and expect your students to use the fraction vocabulary and the dialog as scripted to help them put mathematical language to what they are experiencing with their snacks and graphic organizers. • **Students interact** in partners during this activity. As you circulate the room, listen for their interaction – the fundamental understandings they have about fraction, and their use of fraction language. • **Questions** are provided as springboards to lead you into deeper discussions, to help clarify student understanding, to assist students in probing deeper into fractional relationships, and to extend their experiences. • Every snack fraction offers **a graphic organizer** in the form of record sheets accompanied by cut and paste models as appropriate to the lesson.

3rd-4th Overview

Unit 1 *The Everything Kids' Money Book*

This is a quick snapshot of the three math lessons for this unit. For detailed instructions, balance literacy objectives/extended activities, enrichment ideas refer to the complete lesson plans for each lesson. NOTE: All BLMs are per student unless otherwise indicated.

Lesson Segment	Math Objectives	Language Objectives	Activity	Manipulatives	Supplies
Unit 1 **Lesson 1** ***Daily Routine*** 30 – 45 minutes	**ESSENTIAL** **Pre-assessment Today** Students will be pre-assessed on skills to be learned this summer. **OPTIONAL**	**ESSENTIAL** **Pre-assessment Today** **OPTIONAL**	**ESSENTIAL** **Pre-assessment Today** **OPTIONAL**	**ESSENTIAL** **OPTIONAL**	**ESSENTIAL** **BLM** 3rd grade Pre-assessment **BLM** 4th grade Pre-assessment **OPTIONAL**
Classroom **Lesson 1** 1 to 1.5 hour	Represent hundredths using concrete and visual models and money.	**Language Objectives** Visually represent their knowledge of coins *(money)* by creating drawings on a Progressive Map. Describe what they have visualized about coins *(money history)* through the use of key phrases including: *In my head I see* _____. *I picture* _____ *because* _____. *I visualize* _____*because* _____. Use sequence words that represent time. Confirm and disconfirm predictions.	***The Everything Kid's Money Book*** by Brette McWhorter Sember, J.D. (Chapter 2)	• Large chart paper (optional) • Pencils, colored pencils • 1 sheet of 11x18 paper or chart paper for each small group of students	• **BLM** Word Cards • **BLM** Anticipation/Reaction

		Math Language Objectives
		Explain how fractions and decimals are related.
		Discuss activity with partner and group.
			Transition to Math Building Background
			Investigate the coins in the money set, identifying name, denomination, number in set and value of collection.
			
			Vocabulary
			coins, penny, nickel, dime, quarter, dollar, cents, decimals, decimal point, hundredths, tenths, compare, order
				Transition to Math
				• Student Money Sets in Ziploc (1 per student)
				  ○ five dollar bills
				  ○ four quarters
				  ○ ten dimes
				  ○ twenty nickels
				  ○ hundred pennies
					Transition to Math
					• **BLM TM** Word Cards
					• **BLM TM** Coins in the Money Set

TV
Lesson 1
 	
30 minutes
	Relate decimals to fractions that name (tenths and) hundredths.
	Represent decimals, including (tenths and) hundredths using (concrete and) visual models and money.
		Use the math vocabulary during the activity.
		Discuss answers and possible strategies with classmates.
			Vocabulary Building
			coins, penny, nickel, dime, quarter, dollar, cents, decimals, decimal points, hundredths, tenths, compare, order
			
			Comprehensible Input
			Discuss the chart they made in Transition to Math, then work carefully to represent fractional parts of a dollar in various numbers of pennies.
				• Ruler or straight edge (1 per student)
				• Student Money Sets in Ziploc (1 per student)
				  ○ Five $20 bill
				  ○ Ten $10 bills
				  ○ Twenty $5 bills
				  ○ Twenty $1 bills
				  ○ Four quarters
				  ○ Ten dimes
				  ○ Twenty nickels
				  ○ Hundred pennies
					• Completed BLM TM Coins in the Money Set (from Transition to Math Lesson)
					• **BLM** Making Sense of Cents

Follow-up and Snack Fraction **Lesson 1** .5 to 1 hour	Relate decimals to fractions that name hundredths. Represent decimals using visual models and money. Compare decimals using concrete and visual models to hundredths.	Listen and speak with a partner during our math activity. Use the math vocabulary during the activity. Write math sentences.	**Practice and Application** Continue TV Lesson as needed, extend to comparisons, then have students work in partners to find their own fraction – decimal relationships.	• Student Money Kits from Transition to Math • TV Lesson BLM if uncompleted during TV Lesson • Math Journal Spiral	• **BLM** Making My Own Cents

	SNACK FRACTIONS: Represent equivalent fractions using pictorial models. Compare two fractions having the same denominator. Determine if two given fractions are equivalent. Recognize hundredths and label in fraction and decimal form.	**SNACK FRACTIONS:** Discuss fraction comparisons. Discuss fraction equivalencies. Discuss fraction – decimal equivalents.	**SNACK FRACTIONS** **Building Background** Teacher walks students through activity today. **Vocabulary** one-half, one-fourth two-fourths, equivalent greater than, less than	**SNACK FRACTIONS:** **Per Partners:** • 1 large apple • 2 paper dessert plates • 2 paper towels • 2 plastic knives	**SNACK FRACTIONS:** • **BLM** Apple Snack Fractions per student

Lesson Segment	Math Objectives	Language Objectives	Activity	Manipulatives	Supplies
Unit 1 Lesson 2 ***Daily Routine*** 30 – 45 minutes	**ESSENTIAL** Construct concrete models of fractions. Compare fractional parts of whole in a problem situation using concrete models. Model multiplication using area and arrays. Solve word problems using a variety of strategies and defend their strategies. **OPTIONAL** Compose and decompose values to show a new representation of the value. Graph class responses and analyze data.	**ESSENTIAL** Speak to partners, teacher, and class using vocabulary. Discuss problem solving process and strategies. Explain how they compared fractions. **OPTIONAL** Discuss ways to compose and decompose values. Analyze graph results.	**ESSENTIAL** • Fraction Action • CGI • What's Missing? • Measurement Lab • *Solve It (begin in Unit 2)* **OPTIONAL** • Target Number • Graphing Money Matters is now found on MAS Space.	**ESSENTIAL** • Unknown Quantity Cards (add/subtract) **OPTIONAL**	**ESSENTIAL** • **BLM** Fraction Action Compare Us • **BLM** Teacher Directions, Compare (teacher copy) • **BLM** CGI Master • **BLM** Lesson 2, Penny Array/Square Area • **BLM** Teacher Directions, Equivalent • **BLM** CGI Problems (Teacher Only) **OPTIONAL** • Class graph • Sentence strips for graph labels
Classroom **Lesson 2** 1 to 1.5 hour	Relate decimals to fractions that name tenths. Represent tenths using (concrete and) visual models and money.	**Language Objectives** Visually represent their knowledge of coins (money) by creating drawings on a Progressive Map. Describe what they have visualized about coins *(money history)* through the use of key phrases including: *In my head I see* _____. *I picture* _____ *because* _____. *I visualize* _____*because* _____. Use sequence words that represent time. Confirm and disconfirm predictions.	**Language** ***The Everything Kids' Money Book*** by Brette McWhorter Sember, JD	• pencils, color pencils	• **BLM** Word Cards • **BLM** Progressive Map from Lesson 1 • **BLM** Anticipation/Reaction guide from Lesson1

		Math Language Objectives
		Explain how fractions and decimals are related.
		Discuss activity with partner and group.
			Transition to Math ™
			Building Background
			word, fraction, decimal, picture of tenths
			
			Vocabulary
			coins, penny, nickel, dime, quarter, dollar, cents, decimals, decimal point, hundredths, tenths, compare, order
				Transition to Math ™
				• Student Money Sets in Ziploc (1 per student)
				  ○ five one dollar bills
				  ○ four quarters
				  ○ ten dimes
				  ○ twenty nickels
				  ○ hundred pennies
					Transition to Math ™
					• **BLM TM** Word Cards
					• **BLM TM** Making Sense of Dimes

TV
Lesson 2
 	
30 minutes
	Relate decimals to fractions that name tenths.
	Represent decimals using visual models and money.
	Compare and order decimals using visual models to the hundredths.
		Use the math vocabulary during the activity.
		Discuss solution strategies.
			Vocabulary Building
			coins, penny, nickel, dime, quarter, dollar, cents, decimals, decimal point, tenths hundredths, compare, order
			
			Comprehensible Input
			Generate mixed decimals from bills and coin collections. Represent as mixed fractions. Compare and explain comparison.
				• Student Money Sets in Ziploc (1 per student)
				  ○ five one dollar bills
				  ○ four quarters
				  ○ ten dimes
				  ○ twenty nickels
				  ○ hundred pennies
					• **BLM** Comparing Fraction and Decimals pp 1 & 2

Follow-up and Snack Fraction **Lesson 2** .5 to 1 hour	Relate decimals to fractions that name tenths. Represent decimals using visual models and money. Compare and order decimals using visual models to the hundredths. **SNACK FRACTION** Construct pictorial models of fractions. Compare fractional parts of a whole. Use fraction names and symbols to describe	Listen and speak with a partner during our math activity. Use the math vocabulary during the activity. Write math journal response. **SNACK FRACTION** Discuss fraction comparisons. Discuss fraction equivalencies	**Practice and Application** Solve two word problems with a partner which uses skills of comparing and ordering. **SNACK FRACTIONS** **Building Background** Discuss Lesson 1 **Vocabulary** half, one-sixth,	• Student Money Sets **SNACK FRACTION** **Per Partners:** • 1 large ice cream sandwich • 2 paper dessert plates • 2 paper towels • 2 plastic knives	• **BLM** Using Sense to Solve Problems • **BLM**s from TV Lesson **SNACK FRACTION** • **BLM** ice cream sandwich Snack Fractions per student

	fractional parts of a whole. Use pictorial models to generate equivalent fractions. Compare fractions using pictorial models. Represent tenths in decimal and fractional forms.		three-sixths, equivalent, greater than, less than equal pieces		

Lesson Segment	Math Objectives	Language Objectives	Activity	Manipulatives	Supplies
Unit 1 Lesson 3 ***Daily Routine*** 30 – 45 minutes	**ESSENTIAL** Construct concrete models of fractions. Compare fractional parts of whole in a problem situation using concrete models. Model multiplication using area and arrays. Solve word problems using a variety of strategies and defend their strategies. **OPTIONAL** Compose and decompose values to show a new representation of the value. Graph class responses and analyze data.	**ESSENTIAL** Speak to partners, teacher, and class using vocabulary. Discuss problem solving process and strategies. Explain how they compared fractions. **OPTIONAL** Discuss ways to compose and decompose values. Analyze graph results.	**ESSENTIAL** • Fraction Action • CGI • What's Missing? • Measurement Lab • *Solve It (begin in Unit 2)* **OPTIONAL** • Target Number • Graphing Money Matters is now found on MAS Space.	**ESSENTIAL** • Unknown Quantity Cards (add/subtract) **OPTIONAL**	**ESSENTIAL** • **BLM** Fraction Action Compare Us • **BLM** Teacher Directions, Compare • **BLM** CGI Problems – Teacher only • **BLM** Lesson 2, Penny Array/Square Area • **BLM** Teacher Directions, Equivalent **OPTIONAL** • Class graph • Sentence strips for graph labels
Classroom **Lesson 3** 1 to 1.5 hour	Relate decimals to fractions that name tenths and hundredths. Represent tenths using concrete and visual models and money. Compare and order decimals using visual models to the hundredths.	**Language Objectives:** Visually represent their knowledge of coins (money) by creating drawings on a Progressive Map. Describe what they have visualized about coins (money history) through the use of key phrases including: *In my head I see* _____. *I picture* _____ *because* _____. *I visualize* _____*because* _____. Use sequence words that represent time. Confirm and disconfirm predictions.	**Language** ***The Everything Kids' Money Book*** by Brette McWhorter Sember, JD	• Progressive Map from Lesson 1 (teacher copy) • Pencils, color pencils • Blank 8 ½ x 11 paper for each student	• **BLM** Word Cards • **BLM** Anticipation/Reaction from Lesson 1

		Math Language Objectives Explain how fractions and decimals are related. Discuss activity with partner and group.	**TM Math** **Building Background** Investigate quarters as a fractional part of a dollar, and as fractional parts of 100 cents. **Vocabulary** coins, penny, nickel, dime, quarter, dollar, cents, decimals, decimal point, hundredths, tenths, compare, order	**TM Math** • Student Money Sets in Ziploc (1 per student) ○ five one dollar bills ○ four quarters ○ ten dimes ○ twenty nickels ○ hundred pennies	**TM Math** • **BLM** Equivalent Quarters – 1 per student • **BLM** Equivalent Quarters, TEACHER – 1 per teacher • scissors – 1 per student
TV **Lesson 3** 30 minutes	Relate decimals to fractions that name tenths and hundredths. Represent tenths using concrete and visual models and money. Compare and order decimals using visual models to the hundredths.	Use the math vocabulary during the activity. Discuss solution strategies.	**Vocabulary Building** coins, penny, nickel, dime, quarter, dollar, cents, decimal, decimal point, compare, order hundredths, tenths **Comprehensible** Find equivalent forms of quarter relationship to whole dollar and to 100 cents.	• Student Money Sets in Ziploc (1 per student) ○ five dollar bills ○ four quarters ○ ten dimes ○ twenty nickels ○ hundred pennies Glue sticks - 1 per student	• **BLM** Equivalent Quarters • **BLM** Equivalent Quarters, TEACHER
Follow-up and Snack Fraction **Lesson 3** .5 to 1 hour	Relate decimals to fractions that name tenths and hundredths. Represent tenths using concrete and visual models and money. Compare and order decimals using visual models to the hundredths.	Explain strategies. Listen and speak with a partner during our math activity. Use the math vocabulary during the activity. Write your math journal response.	Teach the family fun game.	• Student Money Kits from family fun game – 1 set for each student for class; 1 set for each student for home • Student Base Ten sets from Family Fun Game – 1 set for each student for class; 1 set for each student for home • Math Journal Spirals	1 set for 4 students of the following **PLUS** 1 set of each student to take home • **BLM** Family Fun Game Cards- green cards for 3-4 1 per pair for now and a full set to take home per student • **BLM** Family Fun Game Board - 1 per pair and 1 per student to take home. NOTE: All grade bands will be using this board. You might coordinate the board, generic movement cards, and all-level answer key so only one goes home per family. • **BLM** Family Fun Game

	SNACK FRACTIONS Construct pictorial models of fractions. Compare fractional parts of a whole. Use fraction names and symbols to describe fractional parts of a whole. Use pictorial models to generate equivalent fractions. Compare fractions using pictorial models.	**SNACK FRACTIONS** Discuss fraction and decimal equivalencies. Discuss fraction comparisons.	**SNACK FRACTIONS** **Building Background** Students should be able to work independently today; although teacher guidance is provided if you wish. **Vocabulary** half, one-eighth, four- eighths, equivalent, greater than, less than	**SNACK FRACTIONS** **Per Partners:** • 1 large string cheese* • 2 paper dessert plates • 2 paper towels • 2 plastic knives *(NOTE: half of a piece of string cheese is not a very large snack for 3rd-4th graders. Please feel free to give each their own string cheese when they have completed the fraction portion of the activity.)	Movement Cards printed on white (see note above) • **BLM** Family Fun Game Answer Key (again, 1 per family – see note above) **SNACK FRACITONS** • **BLM** string cheese Snack Fractions per student

Unit 1	**Lesson 1**		**Lesson 2**		**Lesson 3**	
	TV and Follow-up	**Snack Fractions**	**TV and Follow-up**	**Snack Fractions**	**TV and Follow-up**	**Snack Fractions**
3rd Grade Assessment Items • Lesson 1: 1, 6, 8 • Lesson 2: 1, 6, 8 • Lesson 3: 1, 6, 8 Daily Routines • Measurement (1) • What's Missing (2) • CGI (4) • CGI (5) • Fraction Action (8) Snack Fractions (6, 8) 4th Grade Assessment Items • Lesson 1: 1, 2, 5, 6 • Lesson 2: 1, 2, 5, 6 • Lesson 3: 1, 2, 5, 6 Daily Routines • Measurement (4) Snack Fractions (8)	**4.2(G)** relate decimals to fractions that name tenths and hundredths. **4.2(E)** represent decimals, including tenths and hundredths, using concrete and visual models and money. **4.2(F)** compare and order decimals using concrete and visual models to the hundredths.	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines. **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods.	**4.2(G)** relate decimals to fractions that name tenths and hundredths. **4.2(E)** represent decimals, including tenths and hundredths, using concrete and visual models and money. **4.2(F)** compare and order decimals using concrete and visual models to the hundredths.	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines. **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods.	*(3rd graders will be developing an understanding of fractions through decimals.)* **4.2(G)** relate decimals to fractions that name tenths and hundredths. **4.2(E)** represent decimals, including tenths and hundredths, using concrete and visual models and money. **4.2(F)** compare and order decimals using concrete and visual models to the hundredths.	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines. **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods.

Unit 1 CGI Problems for *The Everything Kids' Money Books*

Join	(*Result Unknown)* Rico's class was studying the development of money and was using wampum today as tokens to buy lunch. Rico had __ beads. His friend gave him __ beads. How many beads does Rico have now? (15, 20) (27, 33) (52, 59)	(*Change Unknown)* Rico's class was studying the development of money and was using wampum today as tokens to buy lunch. Rico had ____ beads to buy bread. How many more beads does Rico need to buy meat, if his sandwich cost ____ beads? (19, 49) (24, 52) (49, 107)	(*Start Unknown)* Rico's class was studying the development of money and was using wampum today as tokens to buy lunch. Rico has quite a few beads. He spent ____ beads on a sandwich and now he has ___ beads. How many beads did Rico have to start? (98, 27) (13, 52) (13, 98)
Separate	(*Result Unknown)* Suka's class was studying money and was bartering today. Suka had ___ bananas to barter. She bartered ____ of them for a new pencil case. How many bananas does she have now? (15, 9) (77,19) (100, 25)	(*Change Unknown)* Suka's class was studying money and was bartering today. She had ____ bananas to barter. After she bartered for new hair ribbons she had ___ bananas. How many bananas did she barter for the hair ribbons? (25, 3) (52, 19) (100, 25)	(*Start Unknown)* Suka's class was studying money and was bartering today. Suka was using bananas. She had some bananas. Unfortunately ____ were rotten, and she only had ____ good bananas. How any bananas did she have start with? (14, 12) (27, 52) (18,89)
Part-Part-Whole	(*Whole Unknown)* Rico's class was studying the development of money and was using wampum today as tokens to buy lunch. Rico used ____ beads to buy bread and ____ beads to buy meat for his lunch sandwich. How much did his sandwich cost? (15,24) (33, 75) (29, 94)		(*Part Unknown)* Pete's class was studying money and was using crayons as a commodity today because everyone had crayons. Pete had a total of _____ crayons. _____ were whole and the rest were broken. How many crayons were broken? (59, 21) (72, 59) (100, 56)

Unit 1 CGI Problems for *The Everything Kids' Money Books*

Compare	(*Difference Unknown)* Eva and Frank's class was studying money. They were using plastic lids for money. Eva had ___ plastic lids and Frank had ____ plastic lids. How many more plastic lids did Eva have than Frank? (27,15) (35, 29) (125, 97)	*(Compare Quantity Unknown)* Eva and Frank's class was studying money. They were using plastic lids for money. Eva had _____ plastic lids. Her friend, Frank, had ____ more plastic lids than Eva. How many plastic lids did Frank have? (39,15) (27, 15) (106, 15)	(*Referent Unknown)* Eva and Frank's class was studying money. They were using plastic lids for money. Eva had ___ lids. She had ___ more lids than Frank. How many lids did Frank have? (75, 3) (17, 25) (215, 27)
Grouping and Partitioning	**Multiplication** Carlos had ____ sets of pennies. There were ___ pennies in each set. How many pennies did he have in all? (4, 6) (9, 12) (12, 15)	**Measurement Division** Carlos had _____ pennies. He wanted to store them in money bags, ____ to a bag. How many bags did he need? (24, 6) (144, 12) (125, 5)	**Partitive Division** Carlos had ____ pennies he wanted to share equally among ___ bags. How many pennies will he put in each bag? (49, 7) (121, 11) (130, 6)

Project SMART/Math MATTERS 2014

Grade Level: 3-4	Unit 1 / Lessons 1 – 2 - 3

Daily Routine Math Objectives:
Use area model to multiply and divide.
Solve word problems using a variety of strategies and defend the strategies.
Model and solve 2-step word problems.
Determine a missing number in an equation.
Estimate and measure area in square inches.
Construct concrete models of fractions.
Compare fractional parts of whole in a problem situation using concrete models, fraction names and number representations.
Model fraction quantities greater than one.

Daily Routine Language Objectives:
Speak to partners, teacher, and class using vocabulary introduced in the Daily Routines.
Listen to, read, speak and write the labels of the graph.
Discuss problem solving strategies in partners, small groups and whole groups.
Listen to, read, speak and write to understand action in word problems.

Unit Math Objectives (Integrated Lesson including snack fractions):
Relate decimals to fractions that name tenths and hundredths.
Represent decimals, including tenths and hundredths, using concrete and visual models and money.
Compare and order decimals using concrete and visual models to the hundredths.
Represent equivalent fractions with denominators of 1, 2, 3, 6, and 8 using a variety of objects and pictorial models including number lines.
Compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects and pictorial models.
Determine if two given fractions are equivalent using a variety of methods.

Unit Language Objectives:
Think, pair, share questions throughout the unit.
Learn and use new vocabulary.
Listen to nonfiction writing for information and to develop an understanding of the vocabulary.
Listen to, speak, read and write unit vocabulary in a variety of group and individual settings.
Share-write math sentences.
Describe why a snack is or is not half.

Technology Objectives:
Use research skills and electronic communication, with appropriate supervision, to create new knowledge.
Technology suggested in this unit: iPad, SMART Board or other "smart" projection device, Internet

Key Vocabulary, MATH: penny, nickel, dime, quarter, dollar, cents, fractions, decimals, hundredths, tenths
Key Vocabulary, LANGUAGE: commodity, mint

Resources/Literacy Links
The Everything Kids' Money Book by Brette McWhorter Sember, J.D.
Related links: http://www.ixl.com/math/grade-1 See more activities in enrichment.

Lesson Sequence

- Daily Routine: 30 to 45 minutes
- Classroom Lesson: .5 to 1 hour
- TV Lesson: 30 minutes
- Classroom Follow-up including Snack Fractions: .5 to 1 hour

MATH WALK
Coin Animal Walk

Technology Connections

- **Math Practice**
  http://www.smartygames.com/igre/math/learnMoney.html
  Game to select coins to pay for various priced toys – easy to difficult levels
  iPad App – Count Money Four levels of difficulty; choice of 10, 25 or 50 problems
- **Science Connection**
  http://www.ehow.com/info_79http://www.ehow.com/info_8109377_science-floating-coin-different-liquids.html
  Will a coin float?
  http://www.usmint.gov/kids/games/
  Inventor's Challenge; When Pigs Fly
- **Social Studies Connection**
  http://www.usmint.gov/kids/games/
  Branches of Power
  http://www.usmint.gov/kids/games/
  Quarter Explorer
- **Probability**
  Set up a center for coin tossing – students flip a coin and keep record of heads or tails. How long will it take to get to the 50:50 chance of either coming up?
- **Art Connection**
  http://moneyandart.tumblr.com/
  Here are some really nifty highlighted art objects made from coins and bills. Perhaps students could use their play money to generate their own art projects.
  http://www.youtube.com/watch?v=RkRvuLfIYhI
  Folding an easy angelfish from a dollar bill.

Unit 1 OPTIONAL All-School Project

Because all grade bands will be reading, learning and researching within the same unit theme, we are offering OPTIONAL projects in which all ages can participate.

Unit Theme: Money

Unit 1: Money Project

Defined:
Students work as a full campus to decide upon a money making project to donate to a local need. Each grade band works within their own abilities to generate the money-making. This should not be a "candy" or "wrapping paper" sale. Products should be produced by the students rather than selling a vendor's materials.

Materials: (depends upon the money raising project you select)

Objectives: (add your own objectives to the project)

- Students gain empathy for a local need.
- Students learn about money, its uses, income and expenses.

Procedures:

1. Decide as a campus on a local need to which to donate.
2. Decide as a campus how to raise money during the summer session for the need.
3. Work toward the goal.
4. Once you've ended the collecting, tally the results and celebrate.
5. Advertise your results.

Online Resources:

- http://www.better-fundraising-ideas.com/recycling-for-charity.html
  Many recycling ideas. This could be an on-going collection, with the kick off during this unit.
- http://www.better-fundraising-ideas.com/school-calendars-fundraising.html
  Have students create their own calendars, and run them off at the school.
- http://www.better-fundraising-ideas.com/funny-fundraising-ideas.html
  So this one is a bit quirky, but could be interesting if you have the field room.

Project Title: _____

Student Name: _____

Date: _____ Teacher: _____

Math MATTERS Project Rubric

	1 point	2 points	3 points	4 points	Score
Amount of Project Completed	Little effort made, most items are unaddressed or incomplete	Some parts of the project were addressed and complete	Most of the project parts were addressed and complete, a few may be missing	All parts of the project were addressed and complete	
Quality of Work	Could not read project, project poorly organized	Project was partially organized, many parts were confusing or unrelated	Project was mostly organized, a few parts may be confusing or unrelated	Project highly organized and all parts clearly related to the topic	
Use of Time and Effort	Did not use time effectively	Used some time effectively, but was often off task	Used most time effectively, occasionally off task	Student used all available time to the fullest	
Presentation	Student could not explain own project	Student needed to be prompted to explain own project	Student explained project with little prompting	Student easily explained the project and could answer questions	
				Total	

A total score of 12 or more points is needed to consider the project complete.

Notes:

Rubric is an adaptation of Rcampus Math Project Rubric: Fraction Word Problems
http://www.rcampus.com/rubricshowc.cfm?code=F945W8&sp=true&

Materials
***(BLM** denotes Blackline Masters found in curriculum)*

Math Objectives
- Pre-assess summer skills.

Balanced Literacy Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.
- Explain how they decided to rename the target number.
- Discuss scarcity of money, choices and cost benefit.

TEKS (*denotes Texas Essential Knowledge and Skills that are taught in this unit)*
All three lessons focus on the same TEKS
3rd – 3.1C, 3.2A,B,C,D, 3.4A, C
4th - 4.1B, 4.2A,B,C,D, 4.4A,B,

Assessment Items
(As a result of experiencing this unit, students will be learning skills necessary to be successful on the following Assessment items.)

3rd - 1, 2, 4, 5, 6, **8** (*all DR*)
4th - 2, 4, **6**, **8**

ELPS (*English Language Proficiency Standard*)
1G, 2A, 2B, 2C, 4C, 4J,5D

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.A.1., I.C.2., I.C.3., II.D.1
ELA III.A.1., III.B.2., IV.A.3
MATH II.A.1., II.A.2., II.D.1., VI.C.2., IX.A.1., IX.A.3

Unit 1, Lesson 1 3-4

Daily Routine

Pre-assessment Today

Follow the directions for the 3-4 administration of the Pre-assessment. Please let the students know that they are not expected to know all of the skills on this assessment. You are going to teach them the skills they do not know. Daily Routines are omitted today.

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL
What's Missing? *(3rd assessment item 2)*
- **Lesson 1 - Omit for pre-assessment**
- Lessons 2 & 3 – follow directions in the Daily Routine Explanations

Solve It! *(fundamental problem-solving skills for all items)*
- **Begin in Unit 2**

Fraction Action
- **Lesson 1 – Lesson 1 – Omit for Pre-assessment**
- Lesson 2 - **BLM** Compare Us (*4th assessment item 4*)
  BLM Teacher Directions, Compare
- Lesson 3 – **BLM** Find Our Equivalent Fractions (*3rd assessment 6*)
  BLM Teacher Directions, Equivalent

CGI
- **Lesson 1 – Lesson 1 – Omit for Pre-assessment**
- Lesson 2 – Division, Measurement (*3rd Assessment item 5*)
- Lesson 3 – Division, Partitive (*3rd Assessment item 4*)

Measurement Lab (3rd Assessment 1)
- **Lesson 1 – Omit for pre-assessment**
- Lesson 2 – Penny Array / Square Area
- Lesson 3 - Penny Array / Square Area

TEACHERS:
Arthimus Portio's Corner is your class's opportunity to go online to MAS Space and interact with others across the United States who are working on Math MATTERS this summer. Please take the time daily to respond to the activity that Arthimus will share during the TV Lesson. Usually the activity will be quick, asking you to respond to and share one of the Daily Routine experiences. Today, however, it's a little more involved as we would like to know about your class. Please feel free to post a class photo if you wish!

Arthimus Portio's Corner
Lesson 1
Tell us about your class. Write a class paragraph that tells us:

- where you go to school
- your teacher's name and your names
- something about the weather where you live now
- what crops are growing in the fields
- what you love about math
- what is still confusing about math
- work as a class to create a word problem using vocabulary from the nonfiction book.

Unit 1, Lesson 1 3-4

Daily Routine - continued

OPTIONAL: *These activities, although not assessed, are fundamental skills that should be included in those sites providing five to six weeks of instruction.*

Target Number *(fundamental number sense for all items)*

- **Lesson 1 – Omit for Pre-assessment**
- Lesson 2 – Target Number 100
- Lesson 3 – Target Number 24

Graphing

- **Lesson 1** – Omit for pre-assessment
- Lesson 2 – Birthday graph detailed in Daily Routines
- Lesson 3 – Which US coin do you think is the prettiest? (bar graph)

Graphing Questions:
Before asking any questions, have the students give you their observations about the data shown on the graph. Always ask students to explain how they know.

These are generic questions. Simply reword them to fit your graph topics.

- How many more ____ than ____?
- How do you know?
- How many fewer ____ than ____?
- How do you know?
- Which (item) was chosen by most students?
- How do you know?
- Which (item) was chosen by the fewest students?
- How do you know?
- What job could use this type of information? Why?
- If we asked this same question to other age groups, how do you think their answers would compare to ours? Why?

Unit 1 CGI Problems for *The Everything Kids' Money Books*

Join	(*Result Unknown)* Rico's class was studying the development of money and was using wampum today as tokens to buy lunch. Rico had __ beads. His friend gave him __ beads. How many beads does Rico have now? (15, 20) (27, 33) (52, 59)	(*Change Unknown)* Rico's class was studying the development of money and was using wampum today as tokens to buy lunch. Rico had ____ beads to buy bread. How many more beads does Rico need to buy meat, if his sandwich cost ____ beads? (19, 49) (24, 52) (49, 107)	(*Start Unknown)* Rico's class was studying the development of money and was using wampum today as tokens to buy lunch. Rico has quite a few beads. He spent ____ beads on a sandwich and now he has ___ beads. How many beads did Rico have to start? (98, 27) (13, 52) (13, 98)
Separate	(*Result Unknown)* Suka's class was studying money and was bartering today. Suka had ___ bananas to barter. She bartered ____ of them for a new pencil case. How many bananas does she have now? (15, 9) (77,19) (100, 25)	(*Change Unknown)* Suka's class was studying money and was bartering today. She had ____ bananas to barter. After she bartered for new hair ribbons she had ___ bananas. How many bananas did she barter for the hair ribbons? (25, 3) (52, 19) (100, 25)	(*Start Unknown)* Suka's class was studying money and was bartering today. Suka was using bananas. She had some bananas. Unfortunately ____ were rotten, and she only had ____ good bananas. How any bananas did she have start with? (14, 12) (27, 52) (18,89)
Part-Part-Whole	(*Whole Unknown)* Rico's class was studying the development of money and was using wampum today as tokens to buy lunch. Rico used ____ beads to buy bread and ____ beads to buy meat for his lunch sandwich. How much did his sandwich cost? (15,24) (33, 75) (29, 94)		(*Part Unknown)* Pete's class was studying money and was using crayons as a commodity today because everyone had crayons. Pete had a total of _____ crayons. _____ were whole and the rest were broken. How many crayons were broken? (59, 21) (72, 59) (100, 56)

Unit 1 CGI Problems for *The Everything Kids' Money Books*

Compare	(*Difference Unknown)* Eva and Frank's class was studying money. They were using plastic lids for money. Eva had ___ plastic lids and Frank had ____ plastic lids. How many more plastic lids did Eva have than Frank? (27,15) (35, 29) (125, 97)	*(Compare Quantity Unknown)* Eva and Frank's class was studying money. They were using plastic lids for money. Eva had _____ plastic lids. Her friend, Frank, had ____ more plastic lids than Eva. How many plastic lids did Frank have? (39,15) (27, 15) (106, 15)	(*Referent Unknown)* Eva and Frank's class was studying money. They were using plastic lids for money. Eva had ___ lids. She had ___ more lids than Frank. How many lids did Frank have? (75, 3) (17, 25) (215, 27)
Grouping and Partitioning	**Multiplication** Carlos had ____ sets of pennies. There were ___ pennies in each set. How many pennies did he have in all? (4, 6) (9, 12) (12, 15)	**Measurement Division** Carlos had _____ pennies. He wanted to store them in money bags, ____ to a bag. How many bags did he need? (24, 6) (144, 12) (125, 5)	**Partitive Division** Carlos had ____ pennies he wanted to share equally among ___ bags. How many pennies will he put in each bag? (49, 7) (121, 11) (130, 6)

Unidos	(*Resultados desconocidos)* En la clase de Rico estaban estudiando el desarrollo del dinero y estaban usando wampum hoy como fichas para comprar almuerzo. Rico usó ____ cuentas. Un amigo le dio ____ cuentas. ¿Cuántas cuentas tiene ahora? (15,24) (33, 75) (29, 94)	(*Cambio desconocido)* En la clase de Rico estaban estudiando el desarrollo del dinero y estaban usando wampum hoy como fichas para comprar almuerzo. Rico usó ____ cuentas para comprar pan. ¿Cuántas cuentas más necesita para comprar carne el si sándwich cuesta ____ cuentas? (19, 49) (24, 52) (49, 107)	(*Inicio desconocido)* En la clase de Rico estaban estudiando el desarrollo del dinero y estaban usando wampum hoy como fichas para comprar almuerzo. Rico tiene bastantes cuentas. Gastó ____ cuentas en un sándwich y le quedaron ___ cuentas. ¿Cuántas cuentas tenía Rico al principio? (27, 98) (52, 13) (98, 13)
Separados	(*Resultados desconocidos)* En la clase de Suka estaban estudiando sobre el dinero y estaban haciendo trueque hoy. Suka tenía ___ plátanos para intercambiar. Intercambió ____ de los plátanos por un estuche de lápices nuevo. ¿Cuántos plátanos le quedaron? (15, 9) (77,19) (100, 25)	(*Cambio desconocido)* En la clase de Suka estaban estudiando sobre el dinero y estaban haciendo trueque hoy. Suka tenía ____ plátanos para intercambiar. Después que hizo trueque para conseguir adornos nuevos para el cabello, le sobraron___plátanos. ¿Cuántos plátanos intercambió por los adornos para el cabello? (25, 3) (52, 19) (100, 25)	(*Inicio desconocido)* En la clase de Suka estaban estudiando sobre el dinero y estaban haciendo trueque hoy. Suka usaba plátanos. Por desgracia, ____ plátanos estaban podridos y ya solo le quedaron ____ plátanos. ¿Cuántos plátanos tenía al principio? (14, 12) (27, 52) (18,89)
Parte-Parte-Entero	(*Entero desconocido)* En la clase de Rick estaban estudiando sobre el dinero y usaban wampum como fichas hoy para comprar el almuerzo. Rico usó ____ cuentas para comprar pan y ____ cuentas para comprar carne para el sándwich. ¿Cuánto costo su sandwich? (15, 20) (27, 33) (52, 59)	(*Partedesconocida)* En la clase de Pete estaban estudiando sobre el dinero y usaban creyones como mercancía hoy porque todos tenían creyones. Pete tenía un total de _____ creyones, _____ creyones enteros y algunos que eran casi enteros.¿Cuántos creyones casi nuevos tenía? (59, 21) (72, 59) (100, 56)	

Comparar	(*Diferencia desconocida)* En la clase de Eva y Frank estaban estudiando sobre el dinero. Usaban tapas plásticas como dinero. Eva tenía ___ tapas plásticas y Frank tenía ____ tapas plásticas. ¿Cuántas tapas plásticas adicionales tenía Eva? (27,15) (35, 29) (125, 97)	*(Cantidad comparativa desconocida)* En la clase de Eva y Frank estaban estudiando sobre el dinero. Usaban tapas plásticas como dinero. Eva tenía ___ tapas plásticas. Su amigo, Frank, tenía____ más que las que Eva tenía. ¿Cuántas tapas plásticas adicionales tenía Frank? (39,15) (27, 15) (106, 15)	(*Referentedesconocido)* En la clase de Eva y Frank estaban estudiando sobre el dinero y usaban tapas plásticas como dinero. Eva tenía___ más que las ____ que Frank tenía. ¿Cuántas tapas tenía Frank? (3, 75) (25, 17) (27, 215)
Agrupamiento y división	Multiplicación Carlos contó ____ sets de _____ centavos. Había ___ centavos en cada set. ¿Cuántos centavos tenía Carlos en total ? (4, 6) (9, 12) (12, 15)	División de medidas Carlos tenía ____centavos. Quería guardarlos en bolsas de dinero, ____ por bolsa. ¿Cuántas bolsas necesitaba? (24, 6) (144, 12) (125, 5)	División partitiva Carlos tenía ____ centavos que quería repartir igualmente entre ___ bolsas. ¿Cuántos centavos echará en cada bolsa? (49, 7) (121, 11) (130, 6)

Solve It! Problems Unit 1, Lesson 1 **Pairs**

First Problem

- Shari and Monica went to lunch at their favorite café. Shari had the lunch special which was $6.95 and Monica had the chef salad which was $8.95. Both lunches included the sales tax. What was the cost of the two lunches?

    - What is the answer to the question? Show your solution strategy.

Problem Solution (#1 Problem Solver) Name:	**Solution Verification (**#2 Problem Solver**)** Name:

Second Problem

- Shari paid for lunch with a $20. What was her change?

    - What do you need from Problem 1 to solve the problem?
    - Be sure to verify the answer to problem 1 before solving this problem.
    - What is the answer to the question? Show your solution strategy.

Problem Solution (#2 Problem Solver**)** Name:	**Solution Verification (**#1 Problem Solver**)** Name:

Solve It! Problems Unit 1, Lesson 1 **Pairs**

Primer problema

- Shari y Mónica fueron a comer a su café favorito. Shari pidió el almuerzo especial, que costaba $6.95, y Mónica pidió la ensalada del chef, que costaba $8.95. Ambas comidas ya incluían impuestos. ¿Cuál fue el costo de las dos comidas?
    - ¿Cuál es la respuesta a la pregunta? Muestra tu estrategia de solución.
    - ¿Cuál es la respuesta? Muestra tu estrategia.

Solución del problema (#1) Nombre:	**Verificación de la solución (**#2**)** Nombre:

Second Problem

- Shari pagó las comidas con un billete de $20. ¿Cuál fue su cambio?

    - ¿Qué necesitas del problema 1 para resolver este problema?
    - Asegúrate de verificar la respuesta del problema 1 antes de resolver este problema.
    - ¿Cuál es la respuesta a la pregunta? Muestra tu estrategia de solución.

Solución del problema (#1) Nombre:	**Verificación de la solución (**#2**)** Nombre:

Grade Bands: 3-4 and 5-6, Unit 1 and 2 Writing Workshop

- **Genre:** Informational Text
- **Writing Objective:** Students create an informational book about Creating a Business.
- **Audience**: people wanting to begin a business
- **Organization of text**: Broken into sections

Students choose what sections they want their book to have. Encourage students to have a minimum of **three sections** for grades 3-4 and a minimum of **five sections** for grades 5-6. However, for less proficient writers you may suggest they focus on fewer sections, and for more proficient writers you can push them to create more sections. The following are some possible topics for sections. Foster topics based on what students learned during the first week's lessons, as well as additional reading or research from the library or Internet. You may think of other topics based on what students have learned during the math portion of the curriculum this unit. If you prefer, you can create a web (or other graphic organizer) of ideas or begin with a freewrite.

- Importance of money (to businesses, individuals, country)
- What is a business all about?
- What are some business ideas?
- Business experience is great
- What is a business plan?

Option: Students can talk to at least two classmates about their topic and list of ideas. Take on notes on their peers' suggestions. Encourage students to listen to their peers' suggestions for the purpose of helping bring in the focus of their topic.

Week 1

Day 1: Brainstorm- Explain to students that many books are written to teach people about something. Since they are becoming experts in MONEY and next week they will be reading about an artist entrepreneur, they can write a book to teach other kids about some of the things they've learned this week. Ask students, "What are some things you've learned so far about money and business?"

Have students brainstorm (referring to class copies of the book will help with this). Jot down a list of student's ideas on chart paper. You may need to rephrase what students share so that it sounds like a heading in a book (such as the ones listed above). Have students choose three sections from the list, and write them down so they're ready for the next Writing Workshop.

Day 2 & 3: Research and Draft- ***Model*** for students how to create their informational books by doing one page together as a class. It's best to use paper that has a space for drawing a picture at the top, with lines underneath. This is particularly helpful for ELLs, but useful for all students, since illustrations are an important part of an informational text. Encourage students to write on every other line, allowing room for edits. When you model, you're showing students how you think aloud – "What do I know about this topic?" You can model listing the details you know aloud, or referring to a book or website (www.teachingkidsbusiness.com) to recall specific details. You're also modeling how to elaborate on sentences you've written so that in the end, the section is at least one well developed paragraph, if not two paragraphs.
Then provide time for your students to write independently. This writing time includes the illustrating.

Week 2

Day 1 & 2: Revise- Work on elaboration with students who are ready. What else could they add to this section? Are there other details from the book that they want to include? Could they explain a particular sentence more, perhaps using an example or describing one of their own experiences? Encourage students to make these personal connections to more deeply explain the money topics, since they had a lot of experiences during the Classroom Lessons.

If you notice that many of your students are making the same kind of errors, that's a sign that a whole-class mini-lesson is necessary. Provide examples from student drafts to assist with the lesson. One-on-one conferences may be necessary in order to assist particular students, continue to provide feedback and monitor the students' writing.

Day 3: Publish- Have students staple their pages together to create their book. They can read their book to a partner to share the information they have written. Or, team up with another grade band, and have your 3rd and 4th graders share their books with a student from that class. This works well because all of the grades are reading and learning about similar topics in both of these units. The other class could share their writing with your students as well.

Literature Selection
The Everything Kid's Money Book
by Brette McWhorter Sember, J.D. (Chapter 2)

Materials
(BLM stands for Blackline Masters. You will find the BLMs at the end of the lesson for which they are needed.)

Language Materials
- **BLM** Word Cards
- Large chart paper (optional)
- Pencils, colored pencils
- 1 sheet of 11x18 paper or chart paper for each small group of students
- **BLM** Anticipation/Reaction

Transition to Math Materials
- Student Money Sets in Ziploc (1 per student)
  - Four quarters
  - Ten dimes
  - Twenty nickels
  - Hundred pennies
- **BLM TM** Coins in the Money Set
- **BLM TM Teacher Key**

Literature Vocabulary
commodity
mint

Math Vocabulary
coins
penny
nickel
dime
quarter
dollar
cents
decimals
decimal point
hundredths
tenths
compare
order

ELPS (*English Language Proficiency Standard*) 2A, 2B, 3A, 3B, 4C, 4D, 4J, 5D

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR II.A.2., II.A.4., II.A.5
ELA I.A.1., II.A.2., II.A.4., III.A.2

Unit 1, Lesson 1 3-4

Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students should review to see if they have accomplished both math and language objectives.

Math Objectives:
- Represent hundredths using concrete and visual models and money.

Language Objectives:
- Visually represent their knowledge of coins *(money)* by creating drawings on a Progressive Map.
- Describe what they have visualized about coins *(money history)* through the use of key phrases including:
  In my head I see _____.
  I picture _____ *because* _____.
  I visualize _____*because* _____.
- Use sequence words that represent time.
- Confirm and disconfirm predictions.

BEFORE READING
Building Background- Literature and Vocabulary
Distribute **BLM** Anticipation/Reaction guide to each student. Read aloud each statement to the students without inflection in your voice *(to ensure no hints are given)*. Students individually mark their responses on the left side *(anticipation)* of the guide as either true or false. Students then share responses with a partner and make predictions about what they will be learning, which sets their purpose for reading. Request the students to set the guides to the side for after reading.

Ask, "What do you think the subject of our book this week is?" Have students share their predictions with the whole group. Show students the cover of the book ***The Everything Kids' Money Book*** and read aloud the title.

Read aloud **just the second paragraph** of the introduction on p. vii, beginning with, "Money has a long…"

Guided Reading Group & Independent Reading Connection:
If you conduct guided reading groups as part of your balanced literacy instruction, or provide time for independent reading, you can reinforce the strategy, cause and effect with students to improve their comprehension utilizing a T-Chart.

Cause	Effect

Listening Center: Independent Reading
Have students listen to a recorded version of Chapter 2 (p. 1-19) in a Listening Center as part of their independent reading time.
Beginning ELLs: Benefit from listening to a text repeatedly to connect oral and written language.

Classroom Lesson - continued

Explain: There are many different chapters, each about a different topic. *(Show the Table of Contents, reading aloud the title of each chapter.)* You can read any of the chapters you're interested in during Independent Reading Time. As a class, we will be reading Chapter 2 together this week: "Keep the Change." In Chapter 2, we're going to learn all about money through history and how money is made.

DURING READING
Comprehensible Input- Literature and Vocabulary
Throughout the reading, you will help students focus on cause and effect situations, as well as the sequential development of coins in the United States. Students will receive visual support to develop these skills through a progressive map. The map will be a class activity and the information added will be used throughout the classroom lessons this week.

The students will be completing a progressive map as a small group within teams of two, three, or four depending on the size of your class. See the model in BLM for a possible progressive map for unit 2 for you to follow.

Say, "We will be doing an activity called STOP, THINK, INK *(progressive map)*. It's a fun activity that you get to do a quick drawing or writing of what we have read."

p. 14 "Our Country in coins…" *(after reading the first two paragraphs)*
Monitoring for Comprehension

- Teacher Think Aloud: Hmmm…colonists had to use non-coin types of money. The author said colonists used wampum, tobacco, or other commodity money. I'm not sure I understand what commodity means. Since the author stated 'or other commodity money' tobacco and wampum must be an example. I remember reading in the Table of Contents that this book has a glossary. Since I cannot understand commodity from clues in the text, I will use the glossary.
  Model: Use the glossary to locate commodity and read aloud the definition. Continue to clarify the meaning using the definition.

Intermediate & Advanced ELLs: Benefit from listening to a text repeatedly to develop fluency. Students can choose their favorite section/paragraph, and record themselves reading it aloud. Then, they listen to that particular section/paragraph several times, reading along softly. When they feel they've had enough time to practice, they record themselves reading that page again. Have students compare their two recordings to see how their fluency has improved.

Partner Reading
During Independent Reading time you can have students use the class copies of ***The Everything Kids' Money Book*** to read any section from the Table of Contents that sounds interesting to them.

Classroom Lesson - continued

- Teacher Think Aloud: I get it! Tobacco and wampum were used for trading instead of using money. I'm going to INK the most important idea from this section on my chart.
  Model: Quick draw or use copies of clip art to represent colonies utilizing commodity money. Write the word commodity next to drawing. Guide students to do their quick drawing representing this section on their group's paper.

p. 14 "Mixed-up Money…" Pause after completing the reading of each sub-title section to think aloud the main events in the section. Then verbally state, "Time to INK" after reading both sections.

Monitoring for Comprehension

- Teacher Think Aloud *(Mixed up Money)*: Trade with the Spanish brought "pieces of eight" and gold doubloons. Oh- I understand why this section is named 'mixed up money,' it's because coins from other countries began mixing in with what was being used. "Time to INK," let's take one minute and INK.

p. 14 "Making Money…"

Monitoring for Comprehension

- Say, "There was not enough coinage to go around. What did colonies do?" Allow for response. Then, restate or state the answer. This is a cause and effect. The cause is the first event that led to the effect or the second event. The cause answers the 'why?' Let's try it . . . "Why did colonies mint their own coins?" Allow for response. That's correct! They did not have enough to go around.
- Say, "The author describes that colonists had to *mint* coins. What do you think mint means in this text?" Allow for response. The title is making money, so making must mean mint. "Time to INK;" take one minute and INK.

p.15 "Coin Confusion…"

Monitoring for Comprehension

- Say, "Why were things confusing with the coins in the colonies?" Allow for think time. The cause of coin confusion was because each state minted its own coins. This is another cause and effect event. "Time to Ink;" take one minute.

Classroom Lesson - continued

p.16 "U.S. Coins Are Born" and "Fresh Mint"
Monitoring for Comprehension

- Say, "Why was a national coin minted?" Guide students to determining because there were so many coins and it was confusing- relating to last section.
- Say, "Why was one of the first acts of Congress to create the U.S. Mint?" Allow for responses. Accept any that stand to reason. Then add, it allowed for the United States to have its own currency or money. "Time to Ink;" take one minute.

p.17 "Branching out" and "Money Trouble"
Monitoring for Comprehension

- Say, "Why were other mints set up in the United States?" Allow for response. Right, because the borders of the US had expanded and the one mint in Philadelphia was unable to keep up.
- Say, "Why were coins melted down and sold?" Encourage students to respond with: *The cause was the value of metals in other countries was more than the value of the coins in the US.*
- Say, "What do you visualize we should INK on this part?" Encourage students to respond and accept all reasonable suggestions. "Time to Ink;" take one minute.

p.18 "Coins Today" and "Penny"
Monitoring for Comprehension

- Say, "Why do you hear some people call a cent a 'penny'?" Allow for response. You hear this because 'penny' is a popular name from the days of British copper pennies. However today's pennies are not made of all copper.
- Say, "What do you think we should draw for the illustration of this last portion today?" Allow for responses and encourage groups to draw one that is reasonable. "Time to INK;" take one minute.

Unit 1, Lesson 1 3-4

Classroom Lesson - continued

AFTER READING
Practice and Application- Literature and Vocabulary

Guide the students to review today's reading by revisiting the class progressive map and posing cause and effect questions as needed. Preferably students summarize each section using cause and effect statements.
Example: The Congress created more mints because the mint in Philadelphia could not keep up.

Students mark their responses to the same Anticipation/Reaction statements on the right side of the guide *(Reaction)*. The class then discusses how the learning from what was read changed some of their responses.

Introduce ELL Routine: Explain to students that if they can't think of a word in English when they're talking, they should say it in their home language *(ex: Spanish)*. If you know the home language, you can help translate to English. If you don't, you can have other students help explain what the student is saying, or you can make an educated guess from the context. Building off of students' home languages helps your ELLs better understand new vocabulary in English. It also improves their oral language development in both languages, and shows that their home language plays an important role in their learning. Throughout the unit, continue to remind students to speak in their home language when needed.

Introduce Routine: Rug Partners
For each classroom lesson, you should have students gathered together at a rug for the reading. Take a moment today to explain to students that they will have a rug partner to whom they will always talk. You want to partner up students by English proficiency level, so that there is a mixture of proficiencies *(beginning ELL with an intermediate or advanced ELL, intermediate ELL with advanced or proficient speaker, etc.)*. If two beginning ELLs are partnered together, they won't have the linguistic support they need in English. Have partners sit next to each other on the rug – "shoulder to shoulder" – facing you. Then, teach your third and fourth graders how to turn to each other to talk: they should be knee-to-knee and eye-to-eye. Show students how they should each take a turn to talk by modeling this with a student. Finally, teach students a signal you will use to have them stop talking and return to the "shoulder-to-shoulder" position *(for example, "1-2-3, Eyes on me.")*. It is well worth your time to teach and practice this important routine now. Students will be much more productive and no time will be wasted.

BLM Unit 1, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

commodity

mint

producto básico

la casa de la moneda

Math Objectives
- Represent hundredths using concrete and visual models and money.

Transition to Math Materials
- Student Money Sets in Ziploc (1 per student)
  - five $20 bills
  - ten $10 bills
  - twenty $5 bills
  - twenty $1 bills
  - four quarters
  - ten dimes
  - twenty nickels
  - hundred pennies
- **BLM TM** Coins in the Money Set

ELPS (*English Language Proficiency Standard*)
1E, 2C, EG, 3C, 3D, 3F

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.D.3., I.E.1., I. F.1.
MATH I.A.1., I.A.2., V.A.1., IX.C.1.

Technology:
http://www.usmint.gov/kids/
Try "America the Beautiful Quarters Games" today.

TV Lesson Materials:
- Money Kits from TM Lesson
- Completed BLM from TM Lesson
- Ruler or straight edge
- **BLM** Making Sense of Cents

Unit 1, Lesson 1 3-4

Classroom Lesson - continued

TRANSITION to Math
Building Background, Math

Before we begin our introduction to the math lesson, let's read through our math vocabulary words. You'll need your Money Sets open and the coins out for this.

As we identify the different coins, we will also want to identify the denomination, or the value, in currency of each. (*Do so by having students read the word, use their Money Sets to show you the coin, and tell you the denomination or value in cents*.)
We have more words than those directly related to money.

Let's review these new words. (*decimal, decimal point, hundredth)*
Why do you suppose these words would be included in a unit about money? (*Accept all responses. Do not lead students to an answer. You will ask the question again at the end of the Follow-up Lesson.)*

And we have two more math words to review (*order, compare – define and have students give examples of each using whole single and double digit numbers such as: Order the numbers 1, 9, 7 from least to greatest; from greatest to least. Now compare two of the numbers: 9 is greater than 7; 7 is less than 9; 1 is less than 7; 7 is greater than 1; and so forth).*

So we have a lot of work to do with money in this unit. Let's begin by exploring our Money Sets. Let's concentrate on the coins today.

Sort your coins by like kind, and let's see what you have, and how many you have. As you sort and finish your count, record your findings on the Coins in the Money Set BLM.

(*Provide students enough time to sort the coins. Obviously it will take a while to count the pennies! When students have finished, have them share their findings.)*

(Answers)
Penny – 1 cent – 100 pennies - 100 cents
Nickel – 5 cents – 20 nickels - 100 cents
Dime – 10 cents – 10 dimes - 100 cents
Quarter – 25 cents –4 quarters - 100 cents

Objectives: Review the math and language objectives to see how they were accomplished.

Distribute TV Lesson Materials

BLM TM Unit 1, Classroom Lesson 1 **Math Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

coins

penny

nickel

dime

BLM Unit 1, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

quarter

dollar

decimal

decimal point

BLM TM Unit 1, Classroom Lesson 1 **Math Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

hundredths
compare
order
tenths

BLM TM Unit 1, Classroom Lesson 1 **Math Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

monedas
centavo
moneda de 5 centavos
moneda de 10 centavos

BLM Unit 1, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

moneda de 25 centavos

dólar

decimal

punto decimal

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

centésimos

comparar

ordenar

décimos

BLM TM Unit 1, Lesson 1 **Coins in the Money Set**
(One page per student)

Empty your money kits on your desks.
Sort your coins into like denominations.
Arrange them on your desk from the least value to the greatest value.
Record the coins in that order on your record sheet and complete the sheet for each.

Name of the Coin	Denomination (Value of Coins)	Number of Coins in the Set	Total Value of Collection of this Coin in Cents
			cents
			cents
			cents
			cents

BLM TM Unit 1, Lesson 1 **Coins in the Money Set**
(One page per student)

Vacíen sus juegos de dinero en sus escritorios.
Organicen sus monedas por denominación.
Acomódenlas en sus escritorios por orden de valor.
Registren las monedas en ese orden en su hoja de registro y llenen la hoja para cada una.

Nombre de la moneda	Denominación	Número de monedas en el juego	Valor total del conjunto de estas monedas en centavos
			centavos
			centavos
			centavos
			centavos

Literature Vocabulary
commodity
mint

Math Vocabulary
coins
penny
nickel
dime
quarter
dollar
cents
decimals
decimal point
hundredths
tenths
compare
order

Materials
- Completed BLM Coins in the Money Set
- Ruler or straight edge (per student)
- Student Money Sets in Ziploc (1 per student)
  - five $20 bills
  - ten $10 bills
  - twenty $5 bills
  - twenty $1 bills
  - four quarters
  - ten dimes
  - twenty nickels
  - hundred pennies
- **BLM** Making Sense of Cents

ELPS (*English Language Proficiency Standard*)
1E, 1F, 2F, 1I, 3A, 3D, 4C, 4E

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.C.1., I.D.1., I.D.3
ELA III.A.2., III.B.2., III.B.3.
MATH I.B.1., I.C.1., IV.B.1., VIII.B.2., IX.A.2., IX.C.1

Unit 1, Lesson 1 3-4

TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Relate decimals to fractions that name (tenths and) hundredths.
- Represent decimals, including (tenths and) hundredths using (concrete and) visual models and money.

Language Objectives:
- Use the math vocabulary during the activity.
- Discuss answers and possible strategies with classmates.

Building Background, Math

(*Introduce yourself and Arthimus to the students. Review the objectives and math vocabulary words.)*

You counted the coins in your Money Set today during your classroom lesson, and you used the word "cents" to describe the denomination of each coin as the total value of the collection of each coin.

You are probably very familiar with another set of symbols that we commonly use to note money. The dollar sign $ and the decimal point.

We are going to investigate how the dollar sign and decimal point divide the money amounts and how money is related to decimals and fractions.

Comprehensible Input
First, let's look at the quick activity you completed in your Transition to Math lesson *(show a completed copy of the BLM TM Coins in the Money Set)*.

I'm going to ask you some questions, and I want you to respond out loud in your classroom. Ready?

- What do you notice about all of the total values in the right hand column? (*The values are all equal to 100 cents.*)
- What is another name for 100 cents? *(one dollar*)
- Do you know how to write one dollar using a decimal point and dollar sign? *($1.00)*

CLASSROOM TEACHERS Please go back and complete the chart if necessary before going on to the Follow-up Activity.	**Unit 1, Lesson 1** **3-4**  **TV Lesson** - continued So, 100 cents in pennies is the same as $1.00. Please write $1.00 to the right of the table next to 100 cents for pennies. 100 cents in nickels is the same as $1.00. Record this amount also using the dollar sign and decimal point. (*Record as you did above, and continue for dimes and quarters.)* Now, let's talk about what that means. It means that we have the equivalent value of ONE dollar (*point to the $1)* and we have no cents left over (*point to the 00).* In other words, we have exactly ONE DOLLAR. That decimal point divides the money into WHOLE dollars and PARTS of a dollar. Let's look at our Making Sense of Cents BLM. We are going to identify different amounts of pennies as fractional parts of a whole dollar, and we are going to represent those fractional parts in four ways: in words, using a fraction bar, in decimals and as a picture. Please remember that as I ask a question, I want you all to answer out loud in your Classroom. I will give you time to answer before I answer the question. **one penny** • How many pennies does it take to make a dollar? *(100)* • What fractional part of a dollar is one penny? (*This is one out of 100 pennies, so it is one-hundredth.)* • Let's write "one-hundredth" as our word representation. • How would you represent one penny out of 100 pennies as a fraction? (*Please write a horizontal, not diagonal fraction bar. Write the fraction as you say it, one out of 100 – the "out of" being the fraction bar.)* • If you already know how to write this decimal, tell your teacher. *(pause)* • This is how one-hundredth is written: 0.01. This is written as zero point zero one; but we READ it as one-hundredth. This notation tells me that I have no wholes and I have no tenths, which is our first place to the right of the decimal point, and I have ONE-hundredth. • Our final representation is our picture. I have a grid here. How many spaces do you think there are on this grid? There are 100. Let's check it (*count by tens using either the rows or the columns).*

Unit 1, Lesson 1 3-4

TV Lesson - continued

- If we have one out of 100, or one-hundredth, how many little squares will we color in? *(one)* One – let's use our pencils to color that in. *(do so)*
- Well, that doesn't look like very much, does it? One penny is only worth this little part of one dollar! One-hundredth is only worth a little part of one whole.

(*Continue in this same fashion for the rest of the table. Be sure that you color in the COLUMNS each time so that you can make references to some equivalencies once the pictures are completed:*

- ***5 pennies*** *– Hmm, that's half of this column. Can you think of another coin that would be represented with this picture?*
- ***10 pennies*** *– This is a whole column. Can you think of another coin that would also be represented with this picture?*
- ***25 pennies*** *– What other coin would also be represented with this picture?*
- ***50 pennies*** *– What fractional part of the grid have I colored in now? Can you think of another fraction besides 50/100 that would also represent this fractional part? (1/2) Fractional parts can have many names and many representations.*
- ***75 pennies*** *– This is actually 3/4 of the grid. This grid could also be represented by the fraction 3/4.)*

100 pennies

- What do we know about the number of pennies in one dollar? (*There are 100.*) So if we have 100 pennies, what do we have? (*the WHOLE dollar*)
- We can represent this amount in words a couple of ways.
  - One hundred-hundredths
  - One whole
- What does that look like as a fraction? Again we can write this a couple of ways:
  - 100/100
  - And that equals one whole
- Now, what about our decimal? How do we represent a whole dollar with the decimal notation? *(1.00 – one whole and no extras)*
- Using this grid as our whole, what picture represents 100 pennies? *(color in the whole grid)*

Pirate's Corner
Lesson 1
Tell us about your class. Write a class paragraph that tells us:

- where you go to school
- your teacher's name and your names
- something about the weather where you live now
- what crops are growing in the fields
- what you love about math
- what is still confusing about math
- Work as a class to create a word problem using vocabulary from the literature book.

TV Lesson - continued

135 pennies

- This one is very different. What differences do you notice? (*more than 100 pennies – much larger grid*)
- First, let me tell you that there are two grids here – one on the top and one on the bottom. I would like for you to take your straight edge and draw a very dark line that separates the two grids. Remember, each grid should have 100 pieces in it. *(Wait, then demo.)*
- Let's continue our representation patterns. How do we represent this amount in words? One hundred thirty-five hundredths. We can represent that in words another way.
- We know that we have a WHOLE because we have 100. Let's represent that 100 as "one" *(write one)*.
- What do we have left? *(35)* That is our extra above the whole. We need a word to represent the decimal point. That word is AND *(write AND thirty-five hundredths)*. Read it with me, please; one AND thirty-five hundredths.
- What about as a fraction? 135/100 for sure. But we could also write 1 35/100.
- Our decimal is pretty simple. It's written as one point 35 but it should be read as one AND thirty-five hundredths.
- Now, how do we picture that? Talk about that in your room for a bit. *(pause)* You know you have one whole, so color in the top grid. Then you just need 35 more in the second grid.

You have done great work today. I hope you have a much better understanding of how fractions and decimals are related. We are going to work a lot on understanding fractions and decimals in this unit!

Pirate: And talking about having a better understanding**,** I want to tell you about Arithmus' Corner! (*Talk about MAS Space. Get them excited about telling about their class*.)

Teacher: Thank you! I'm sure everyone will go online so we will all know one another. We can meet classes from all over the United States. Let's see how many different States we can meet!

Objectives: And now before we go, let's review what we have learned today! *(do so)*

BLM Unit 1, TV Lesson 1 **Making Sense of Cents p. 1**
(There are three pages to this handout. Each student needs all pages.)

Money	Fractional Representations			
	Words	Fraction Bar	Decimal	Picture
1 penny				
5 pennies				
10 pennies				

BLM Unit 1, TV Lesson 1 **Making Sense of Cents p. 1**
(There are three pages to this handout. Each student needs all pages.)

Dinero	Representaciones fraccionales			
	Palabras	Fraction Bar	Decimal	Dibujo
1 centavo				
5 centavos				
10 centavos				

BLM Unit 1, TV Lesson 1 **Making Sense of Cents p. 2**
(There are three pages to this handout. Each student needs all pages.)

Money	Fractional Representations			
	Words	Fraction Bar	Decimal	Picture
25 pennies				
50 pennies				
75 pennies				

BLM Unit 1, TV Lesson 1 **Making Sense of Cents p. 2**
(There are three pages to this handout. Each student needs all pages.)

Dinero	Representaciones fraccionales			
	Palabras	Fraction Bar	Decimal	Dibujo
25 centavos				
50 centavos				
75 centavos				

BLM Unit 1, TV Lesson 1 **Making Sense of Cents p. 3**
(There are three pages to this handout. Each student needs all pages.)

Money	Fractional Representations			
	Words	Fraction Bar	Decimal	Picture
100 pennies				
135 pennies				

BLM Unit 1, TV Lesson 1 **Making Sense of Cents p. 3**
(There are three pages to this handout. Each student needs all pages.)

Dinero	Representaciones fraccionales			
	Palabras	Fraction Bar	Decimal	Dibujo
100 centavos				
135 centavos				

Literature Vocabulary
commodity
mint

Math Vocabulary
coins
penny
nickel
dime
quarter
dollar
cents
decimals
decimal point
hundredths
tenths
compare
order

Materials
- Student Money Sets
- **TV Lesson BLM Making Sense of Cents**
- **BLM** Making My Own Cents

ELPS (*English Language Proficiency Standard*)
1E, 2E, 2G, 3B, 3D, 4F, 5A, 5B

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.A.1., I.B.2., I.D.1.
ELA I.A.2., I.A.3., II.A.1., II.A.2., III.B.1.
MATH I.A.2., I.C.1., IV.B.1., V.A.1.

Technology

Unit 1, Lesson 1 3-4

Follow-up

Math Objectives:
- Relate decimals to fractions that name (tenths and) hundredths.
- Represent decimals, including (tenths and) hundredths using (concrete and visual models and) money.
- Compare (and order) decimals using concrete and visual models to the hundredths.

Language Objectives:
- Listen and speak with a partner during our math activity.
- Use the math vocabulary during the activity.
- Write math journal response.

Building Background, Math
NOTE: If the TV Lesson Teacher was unable to complete the TV activity, this would be your first task. Circulate the room to make certain students understand the concept of representing the given penny amounts in the four ways.

Before you go on to practice representation skills, you will have students make comparisons using the completed TV charts. Use the following to help you:
- I want to compare five pennies and 50 pennies. Can anyone give me a comparison statement using less than or greater than to compare five pennies and 50 pennies? (*Five pennies is less than 50 pennies; 50 pennies is greater than five pennies.)*
- How would you state that using the fraction representations? (*5/100 is less than 50/100; 50/100 is greater than 5/100.)*
- How do you know? (*Accept any reasonable answer, however a simple answer might be looking at either a stack of coins or the picture representation – pretty obvious that 5 < 50 and 50 > 5. Some students may already understand decimals and can use place value, but make sure they really understand the "fractioness," not just place value.)*
- And the decimal notation? (*Five-hundredths – written as 0.05 - is less than 50 hundreds – written as 0.50; fifty-hundredths – written as 0.50 – is greater than five-hundredths – written as 0.05.)*
- How do you know? (*Accept any reasonable answer, however a simple answer might be looking at either a stack of coins or the picture representation – pretty obvious that 5 < 50 and 50 > 5.*)

Ask students to find more comparisons on the charts and share with a partner. Once they have shared together, share with the class.

Unit 1, Lesson 1 3-4

Follow-up - continued

Write all comparisons on the board as students give them to you. Discuss how they know their comparisons are accurate.

Practice and Application, Math
(*Distribute BLM Making My Own Cents. Tell students that they are to create their own values to represent in the four ways. Ask students to then share papers with a friend and using each other's values, to make four comparison statements using greater than and less than. They are then to arrange all four fraction values in order least to greatest, and all four decimal values least to greatest.*

QUESTIONING
Probe for Understanding

- How do you read this *(fraction/ decimal)*?
- What does this number representation mean?
- Which portion of this number representation tells me that I have amounts less than a whole dollar?
- How do you know this number is *(less than/greater than)* this number?

Extension Questions

- Suppose I asked you to place (say *a number between the student's two numbers*) in order with your numbers, where would you place it in order from least to greatest?

Math Journal Writing
Students should have a spiral notebook into which they journal their thoughts daily about math. Today's journal prompt is:

Explain what the places in 3.05 mean.

Objectives: Read through the language and math objectives for this portion of the lesson, and have the students tell you how they accomplished each.

BLM Unit 1, Follow-up Lesson 1 **Making My Own Cents**

One page per student

Money	Fractional Representations			
	Words	Fraction Bar	Decimal	Picture

BLM Unit 1, Follow-up Lesson 1 **Making My Own Cents**
One page per student

Dinero	Representaciones fraccionales			
	Palabras	**Fraction Bar**	**Decimal**	**Dibujo**

Math Objectives
- Represent equivalent fractions using pictorial models.
- Compare two fractions having the same denominator.
- Determine if two given fractions are equivalent.

Language Objectives
- Discuss fraction comparisons.
- Discuss fraction equivalencies.

Vocabulary
one-half
one-fourth
two-fourths
equivalent
greater than, less than

Materials:
- **BLM** Apple Snack Fractions per student

Per Partners:
- 1 large apple
- 2 paper dessert plates
- 2 paper towels
- 2 plastic knives

Unit 1, Lesson 1 3-4

Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

Tell students that each day you will have them share snacks with partners or small groups. Today, you are going to walk through the activity with them so they understand the format for the rest of the snack fraction activities. They will be sharing a snack in equal parts with a partner. (*Show them the apple.*) But before we share, let's take a look at our record sheet. (*Distribute if you have not already done so.*)

- What fractional part will each receive? (*Student response – write one-half on the board.*)
- How do you represent one-half in numbers? (*Student response – write on board, making sure you use the HORIZONTAL fraction bar.)*
- Look at the first circle. What do the directions tell you to do? (*Someone reads and responds – have a student model on the board; everyone concurs or corrects.*)
- Now, what do the directions next to the second circle say? (*same procedure – one-fourth and numeric symbols*)
- Look at your two circles. First of all what do the circles represent? *(the apple)* We are asked to use the inequality symbols < or >. What do those symbols mean? (*student response – teach if they don't know)*
- How would you compare 1/2 to 1/4? (*Student response, then write 1/2 > 1/4 on the board.)*
- What are equivalent fractions? (*fractions that represent the same amount, but look different in both parts and numeric representations*)
- Work with a partner using the pictures on this sheet to find an equivalent fraction in fourths for one-half. (*Circulate the room to see what students are doing.)*
- What did you find? (*Student response – have them explain – write 1/2 = 2/4 on the board.)*
- Finally, look at the grid. Describe the SHADED portion both as a decimal and as a fraction. (*Share answers and make sure all understand.)*

	Unit 1, Lesson 1 **3-4**  **Snack Fractions** Now give the students the actual large apples and other supplies and let them share their snacks. This will be the format for subsequent snack fractions. When they are finished, have them complete the Snack Fraction Writing on the back of the BLM sheet or in their Math Journal Spiral. **Snack Fraction Journal Writing: BLM Apple Snack Fractions** How do you know that 2/4 = 1/2? How does 0.5 compare to 1/2? **Objectives:** Review the objectives with the class, making sure they understand how they achieved each.

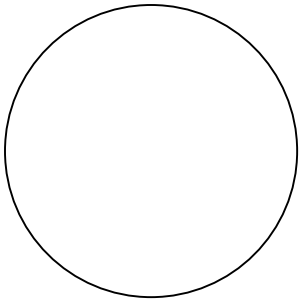
BLM Unit 1, Snack Fraction **Apple Snack Fractions**
(One sheet per student)

My name is _____

I shared an apple with my partner today.

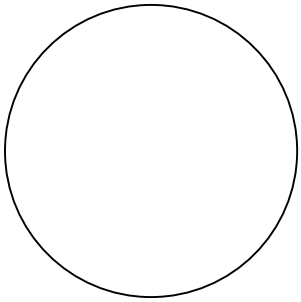
We each received _____ _____ . I can represent that fraction with numbers: _____.
(fraction in words) (fraction in number)

My portion looked like this:
(*Divide the circle into the fractional parts, then shade your part.)*



In the space below, compare these two fractional parts.
Use < or >to compare.

If there had been four of us,
my share would have looked like this:

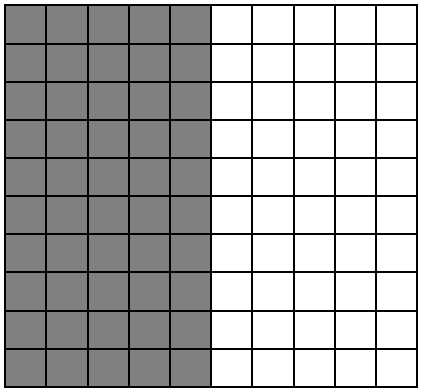


I would only have had _____ _____. I can represent that fraction with numbers: _____.
(fraction in words) (fraction in number)

Suppose you cut your apple into fourths. How many fourths would you and your partner receive to have fair shares? _____

What does this tell you about one-half and two-fourths? _____

Write a comparison statement using <, =, or >. _____



Now use what you learned in math today to describe the SHADED portion of the drawing as a fraction and as a decimal.

Decimal: _____ Fraction: _____
Can you write an equivalent fraction for this amount? _____

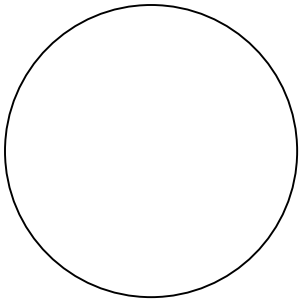
BLM Unit 1, Snack Fraction **Apple Snack Fractions**
(One sheet per student)

Mi nombre es _____

Hoy compartí una manzana con mi compañero.

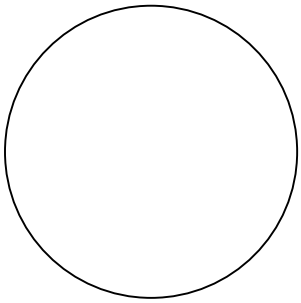
Cada uno de nosotros recibió _____ _____ . Puedo representar esa fracción con los
(fracción en número)
números _____
(fracción en palabras)

Mi porción tenía este aspecto:
(Divide el círculo en la parte fraccional, y sombrea tu parte).



En el espacio siguiente, compara estas dos partes fraccionales.
Usa < o >para comparar.

Si hubiera habido cuatro de nosotros, mi parte hubiera tenido este aspecto:

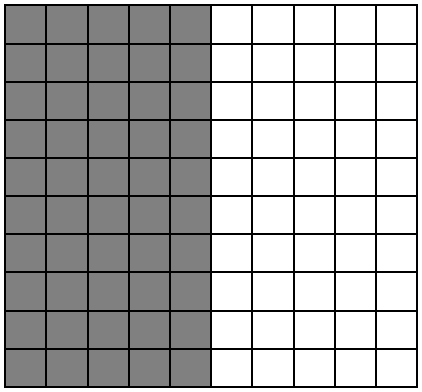


Yo sólo habría tenido _____ ____. Puedo representar esa fracción con los números: _____.
(fracción en palabras) (fracción en número)

Imagina que cortas tu manzana en cuartos. ¿Cuántos cuartos recibirían tú y tu compañero para tener porciones justas? _____

¿Qué te dice esto acerca de un medio y dos cuartos? _____

Escribe una comparación usando <, =, o >. _____



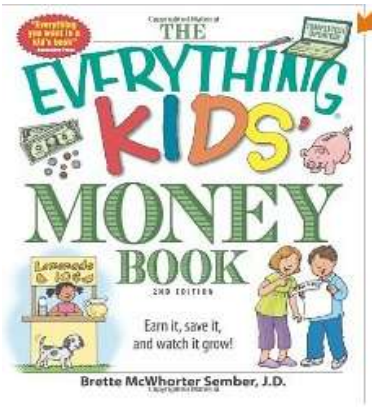
Ahora usa lo que aprendiste hoy en matemáticas para describir la porción SOMBREADA del dibujo como fracción y como decimal.

Decimal: _____ Fracción: _____
¿Puedes escribir una fracción equivalente para esta

cantidad? _____

Family Fun – 3-4, Unit 1 Lesson 1

Our book for unit 1 is, ***The Everything Kids' Money Book***
by Brette McWhorter Sember, J.D.



One fact I learned today in our reading is: _____

_____

_____

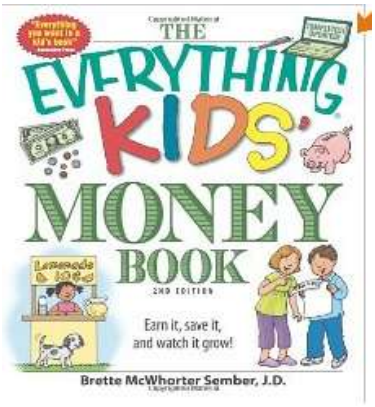
In math this unit we will focus on fractions and decimals. I can write 50 pennies in many ways. Here goes:

Thank you for helping me with my summer program!

_____
Your Child

Family Fun – 3-4, Unit 1 Lesson 1

El l libro para esta unidad es ***The Everything Kids' Money Book***
Por Brette McWhorter Sember, J.D.



Una cosa que aprendí de la lectura hoy es: _____

_____

_____

En la clase de matemáticas vamos a concentranos en las fracciones y los decimales. Puedo escribir 50 centavos de muchas maneras. Asícomo…

Gracias por ayudarme!

_____
Tu hijo/a

Materials
***(BLM** denotes Blackline Masters found in curriculum)*

Math Objectives
- Solve word problems using a variety of strategies and defend their strategies.
- Construct concrete models of fractions.
- Compare fractional parts of whole in a problem situation using concrete models.
- Find area and generate arrays.

Balanced Literacy Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.
- Explain how they decided to rename the target number.
- Discuss scarcity of money, choices and cost benefit.

TEKS
All 3 lessons focus on the same TEKS
3rd – 3.1C, 3.2A,B,C,D, 3.4A, C
4th - 4.1B, 4.2A,B,C,D, 4.4A,B,

Assessment Items
(As a result of experiencing this unit, students will learn skills necessary to be successful on the following Assessment items.)

3rd - 1, 2, 4, 5, 6, 8 (*all DR*)
4th - 1, 2, 4, 6, 8

ELPS (*English Language Proficiency Standard*) 2A, 2B, 2C, 4C, 4J,5D

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.A.1., I.C.2., I.C.3., II.D.1
ELA III.A.1., III.B.2., IV.A.3
MATH II.A.1., II.A.2., II.D.1., IV.C.2., IX.A.1., IX.A.3

Unit 1, Lesson 2 3-4

Daily Routine

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL
What's Missing? *(3rd assessment item 2)*
- Lesson 1 - Omit for pre-assessment
- **Lessons 2** & 3 – follow directions in the Daily Routine Explanations. Be sure to include cards with the box in ALL positions and have students explain how they found the answer.

Solve It! *(fundamental problem-solving skills for all items)*
- **Begin in Unit 2**

Fraction Action
- Lesson 1 – Lesson 1 – Omit for Pre-assessment
- **Lesson 2 - BLM Compare Us (*4th assessment item 4*)**
  BLM Teacher Directions, Compare
- Lesson 3 – BLM Find Our Equivalent Fractions (*3rd assessment 6*)
  BLM Teacher Directions, Equivalent

CGI
- Lesson 1 – Lesson 1 – Omit for Pre-assessment
- **Lesson 2 – Division, Measurement (*3rd Assessment item 5*)**
- Lesson 3 – Division, Partitive (*3rd Assessment item 4*)

Measurement Lab *(3rd Assessment 1)*
- Lesson 1 – Omit for pre-assessment
- **Lesson 2 – BLM Penny Array / Square Area #1**
  BLM Measurement Teacher Directions #1
  20 pennies
- Lesson 3 - BLM Penny Array / Square Area #2
  BLM Measurement Teacher Directions #2
  20 pennies

Arthimus Portio's Corner
Unit 1 Lesson 2
You found area and created arrays today. How are they alike? How are they different?
How can you use them to solve multiplication problems?

Unit 1, Lesson 2 3-4

Daily Routine - continued

OPTIONAL: *These activities, although not assessed, are fundamental skills that should be included in those sites providing five to six weeks of instruction.*

Target Number *(fundamental number sense for all items)*

- Lesson 1 – Omit for pre-assessment
- **Lesson 2 – Target Number 100**
- Lesson 3 – Target Number 24

Graphing

- Lesson 1 – Omit for pre-assessment
- **Lesson 2 – Birthday graph detailed in Daily Routines**
- Lesson 3 – Which US coin do you think is the prettiest? *(bar graph)*

Graphing Questions:
Before asking any questions, have the students give you their observations about the data shown on the graph. Always ask students to explain how they know.

These are generic questions. Simply reword them to fit your graph topics.

- How many more ____ than ____?
- How do you know?
- How many fewer ____ than ____?
- How do you know?
- Which (item) was chosen by the most students?
- How do you know?
- Which (item) was chosen by the fewest students?
- How do you know?
- What job could use this type of information? Why?
- If we asked this same question to other age groups, how do you think their answers would compare to ours? Why?

Money Matters – on MAS Space

BLM Daily Unit 1 Routines Fraction Action, Lesson 2 Compare Us

Materials per student Name _____

- This BLM
- Scissors
- Small envelope – write your name on it

First, cut along the dotted line to free the bottom of this page.
Now cut out the rectangle that is to be divided into two equal pieces.
Follow your Teacher's directions.

Now cut out the rectangle that is to be divided into FOUR equal pieces.
Follow your Teacher's directions.

Finally, cut out the rectangle that is to be divided into EIGHT equal pieces.
Follow your Teacher's directions.

Arrange the three pieces from the smallest piece to the largest piece on the line below.

Now write four comparison statements about the fractions using the numeric representations.

Put your fraction pieces in the small envelope with your name on it. You will need this for Lesson 3.

Divide this rectangle into two equal pieces

Divide this rectangle into four equal pieces →

Divide this rectangle into eight equal pieces →

BLM Daily Unit 1 Routines Fraction Action, Lesson 2 Compare Us 

Materiales por estudiante
Nombre del estudiante _____

- Este BLM
- Tijeras
- Sobre pequeño - escribe tu nombre en él

Primero, recorta por la línea punteada para liberar la parte inferior de esta página.
Ahora recorta el rectángulo que debe dividirse en dos partes iguales.
Sigue las instrucciones de tu maestro.

Ahora recorta el rectángulo que debe dividirse en CUATRO partes iguales.
Sigue las instrucciones de tu maestro.

Finalmente, recorta el rectángulo que debe dividirse en OCHO partes iguales.
Sigue las instrucciones de tu maestro.

Acomoda las tres piezas desde la más pequeña hasta la más grande en la línea de abajo.

Ahora escribe cuatro comparaciones sobre las fracciones usando las representaciones numéricas.

Coloca tus piezas de fracción en el sobre pequeño con tu nombre. Las necesitarás para la Lección 3.

Divide este rectángulo en dos partes iguales.

Divide este rectángulo en cuatro partes iguales.

Divide este rectángulo en ocho partes iguales.

BLM Unit 1 Daily Routines Fraction Action, Lesson 2 Teacher Directions, Compare Us

STUDENTS read their sheets to follow these directions. They may partner up.

- First, cut along the dotted line to free the bottom of this page.
- Now cut out the rectangle that is to be divided into two equal pieces.
- Follow your Teacher's directions.

Teacher Directions (you should model at the same time):

- Bring the left short side of the rectangle over to meet the right short side of the rectangle, fold and crease. Open the fold. Cut along the fold.
- How many pieces do you have? (2)
- What do we call each piece? (one-half)
- How do we represent one-half with numbers? 1/2 (Be sure to use the HORIZONTAL, not diagonal, fraction bar.)
- Label each half with the number representation on the far right side of the rectangle.

Students read their directions.

- Now cut out the rectangle that is to be divided into FOUR equal pieces.
- Follow your Teacher's directions.

Teacher Directions (you should model at the same time):

- Fold this rectangle in half; now fold in half again. How many pieces do you think you will have this time? (4) Open your folds to verify (do so). Cut along the folds.
- How many pieces do you have? (4)
- What do we call each piece? (one-fourth)
- How do we represent one-fourth with numbers? 1/4 (Be sure to use the HORIZONTAL, not diagonal, fraction bar.)
- Label each fourth with the number representation on the far right side of the rectangle.

Students read their directions:

- Finally, cut out the rectangle that is to be divided into EIGHT equal pieces.
- Follow your Teacher's directions.

Teacher Directions (you should model at the same time):

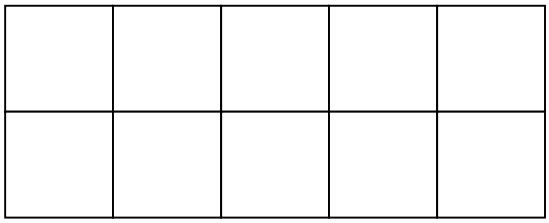
- Fold this rectangle in half; now fold in half again. Now fold it in half again. How many pieces do you think you will have this time? (8) Open your folds to verify (do so). Cut along the folds.
- How many pieces do you have? (8)
- What do we call each piece? (one-eighth)
- How do we represent one-eighth with numbers? 1/8 (Be sure to use the HORIZONTAL, not diagonal, fraction bar.)
- Label each fractional part with the number representation on the far right side of the rectangle.

Arrange the three pieces from the smallest piece to the largest piece on the line below.
(Teacher may model if students do not understand the written directions. Teacher should be circulating to see that students are on track.)

$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$

Now write four comparison statements about the fractions using the numeric representations.
(Teacher: you may lead this one if students do not know the < and > symbols.)

BLM Daily Routines Measurement Unit 1, Lesson 2 Measurement Penny Arrays/ Square Area



How many pennies wide? _____

How many pennies long? _____

This is an array of pennies.

This penny array is _____ x _____.

There are ____ pennies in this array.

How many squares wide? _____

How many squares long? _____

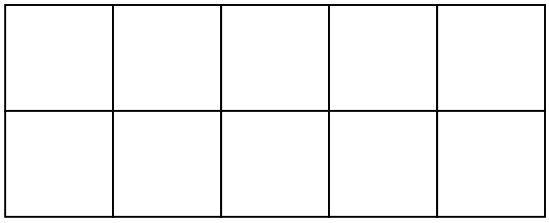
How many squares completely cover the area of this rectangle? _____

This rectangle is _____ x _____.

The area of this rectangle is _____ squares.

Remove the pennies and color the area red.

BLM Daily Routines Measurement Unit 1, Lesson 2 Measurement Penny Arrays/ Square Area



¿Cuántos centavos de ancho? _____

¿Cuántos centavos de largo? _____

Esta es una matriz de centavos.

Esta matriz de centavos es de _____ x _____.

¿Cuántos cuadros de ancho? _____

¿Cuántos cuadros de largo? _____

¿Cuántos cuadros cubren completamente el área de este rectángulo? _____

Este rectángulo es de _____ x _____.

El área de este rectángulo es de _____ cuadros.

TEACHER:

AREA Model

We are going to be learning a lot during this summer session about area and arrays. Sometimes you will be finding area and creating arrays during our main math lessons. Often, though, you will be finding area and creating arrays in the Measurement Lab. Today we will carefully work through our Measurement Lab so you will be able to work with a partner on later assignments.

When I say "AREA," what pictures comes into your mind? (*Accept all responses – try to find things in the room that cover a specific area such as a rug, or a portion of tile floor, or a box that covers an area on the floor. Get as many examples as you can.)*

Area is the size of a 2-dimensional surface. Look at (something in the room such as a rug or box). What AREA does that (object) cover? We can measure that area. Look at your desk top. That desk top has a certain AREA. Rub your hands over the entire AREA of your desk top. That AREA is inside the boundary of the perimeter or RIM of the top itself.

Look on your record sheet for today. We measure AREA in squares. See the rectangle at the top of the page. How many squares wide is the rectangle? *(Demo with your finger so students know that you are talking about the 2-tiles width.)* Let's record the width of two squares to the right of the rectangle. (do so)

How many squares long is the rectangle? (*demo again*) Again, let's record to the right of the rectangle – 5 squares long.

I've just determined the dimensions, or measurement of this rectangle. We can say that this rectangle is 2 squares wide and 5 squares tall. I can write that in mathematical terms as 2 x 5.

I have 2 groups of 5 squares (trace each of the rows as you say this). This is a multiplication problem. What is the area, or the number of squares, of this rectangle? (10 squares)

ARRAY Model

Now, take your pennies and arrange them so you have one penny on each square of the area of the rectangle. (do so)

How many pennies wide is the rectangle? (2 pennies)
How many pennies long is the rectangle? (5 pennies)
This is an ARRAY of pennies.

This ARRAY is a 2 penny by 5 penny ARRAY, or a 2 x 5.

How many pennies are in this ARRAY? (10)
How do you know? (*Listen carefully to how students know the answer. Did they count the pennies? Did they know that 2 x 5 = 10? Did they understand the one to one of penny to square?*

This is the ARRAY model. Like cartons of eggs, or six packs of juice or soda. Things that come in groups can be arranged in an ARRAY. Now, remove your pennies and color the area RED.

Solve It! Problems Unit 1, Lesson 2 **Pairs**

It was Monica's time to treat Shari to lunch. They rode their bicycles to their favorite sandwich shop. Monica's soup and sandwich combo was $12.95 while Shari's turkey sub combo was $8.95. They each had a $1.95 cookie for dessert. What was the total bill?

Problem #1 – Name: _____ Verification – Name: _____

Problem #2 – Name: _____ Verification – Name: _____

Final Solution – Name: _____ Verification – Name: _____

You are free to take this apart any way you wish – on your own; together as a team; a mix of both. You are responsible, however, for your own paper having all problems identified and solved; verifying your Team member's page. Be sure to write your final solution with a label in the box.

Solve It! Problems Unit 1, Lesson 2 **Pairs**

Era el turno de Marie de invitar a Aron a comer. Fueron en sus bicicletas a su tienda favorita de sándwiches. El combo de sándwich y sopa de Marie costó $12.95, mientras que el combo de sándwich de pavo de Aron costó $8.95. Cada uno pidió una galleta de $1.95 de postre. ¿Cuál fue la cuenta total?

Problema #1 – Nombre: _____ Verificación – Nombre: _____

Problema #2 – Nombre: _____ Verificación – Nombre: _____

Solución final – Nombre: _____ Verificación – Nombre: _____

Puedes resolver esto del modo que desees - por ti mismo; en equipo; una mezcla de ambos métodos. Sin embargo, tú eres responsable de que tu propio trabajo tenga todos los problemas identificados y resueltos; verificando la página del miembro de tu equipo. Asegúrate de escribir tu solución final con una etiqueta en la caja.

Literature Selection
The Everything Kid's Money Book
by Brette McWhorter Sember, J.D.

Materials
Language Materials
- **BLM** Word Cards
- **BLM** Progressive Map from Lesson 1
- **BLM** Anticipation/Reaction guide from Lesson1
- pencils, color pencils

Transition to Math Materials
- Student Money Sets in Ziploc (1 per student)
  - five dollar bills
  - four quarters
  - ten dimes
  - twenty nickels
  - hundred pennies
- **BLM TM** Making Sense of Dimes!

Literature Vocabulary
commodity
mint

Math Vocabulary
coins
penny
nickel
dime
quarter
dollar
cents
decimals
decimal point
hundredths
tenths
compare
order

ELPS (*English Language Proficiency Standard*) 2A, 2B, 3A, 3B, 4C, 4D, 4J, 5D

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR II.A.2., II.A.4., II.A.5
ELA I.A.1., II.A.2., II.A.4.,

Unit 1, Lesson 2 3-4

Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students should review to see if they have accomplished both math and language objectives.

Math Objectives:
- Relate decimals to fractions that name tenths (and hundredths).
- Represent tenths using concrete and visual models and money.

Language Objectives:
- Visually represent their knowledge of coins (money) by creating drawings on a Progressive Map.
- Describe what they have visualized about coins *(money history)* through the use of key phrases including:
  In my head I see _____.
  I picture _____ *because* _____.
  I visualize _____*because* _____.
- Use sequence words that represent time.
- Confirm and disconfirm predictions.

BEFORE READING
Building Background: Vocabulary and Literature
Throughout the reading, you will help students focus on cause and effect situations, as well as the sequential development of coins in the United States. Students will receive visual support to develop these skills through a progressive map.
For Lesson 2, the map will be a class activity for the 'think' and discussion; then the information will be added on their own progressive maps.
The BLM progressive map is a guide for lesson1, continue this lesson in the same format Thinking Aloud with the students. Facilitate students' response with a complete sentence stating to the cause/effect of the events read.

Say, "Today, we will be continuing the activity STOP, THINK, INK *(progressive map).* Today, when we stop, you will think to yourself, share with your group, and then take a minute to illustrate what you visualize on your own paper.
Today's portion of chapter 2 will teach us all the identification of the different coins in US currency."

II.A.6., III.A.2	**Unit 1, Lesson 2** **3-4** **Classroom Lesson -** continued **DURING READING** **Comprehensible Input: Vocabulary and Literature** Read aloud p. 19 beginning with "The Nickel" and continue through "Sacagawea Dollar" p. 24. After each section stop to question students with a why question as it relates to cause and effect. Then, direct their thinking to what illustration they see in their head for the section naming the specific coin. Give them time to process, and then ask them to share their visualization with their partner. Redirect the students after sharing that it is "time to ink." Students are given two minutes to draw. Monitor the illustrations and make suggestions as needed. Remind the students to include a word or two with their illustration. **p.19 "The Nickel"** • Why was Monticello placed on the nickel? • Why was the nickel, named nickel? **p.20 "The Dime"** • Why was the image on the dime thought to have been the Greek God, Mercury? **p.20 "The Quarter"** • Why was Delaware the first in the series of the Fifty State Program? • Why was the Fifty State Program started? **p.21 "Half-Dollar"** • Why did the author not include much information about the half-dollar? **No questions on Silver Dollar** **p.23 "Susan B. Anthony Coin"** • Why did people complain at first about the size of this coin? • What is an advantage of have a dollar coin? • What do you think? Would you rather have a paper dollar or dollar coin? Why? **p.24 "Sacagawea Dollar"** • Why does this coin include seventeen stars? **AFTER READING** **Practice and Application: Vocabulary and Literature** Guide the students to review today's reading by revisiting the class progressive map and posing cause and effect questions as needed. Preferably students summarize each section using cause and effect statements. Example: The Congress created more mints because the mint in Philadelphia could not keep up. Students mark their responses to the same Anticipation/Reaction statements on the right side of the guide *(Reaction)*. The class then discusses how the learning from what was read changed some of their responses.

Math Objectives
- Relate decimals to fractions that name tenths.
- Represent tenths using (concrete and) visual models and money.

Transition to Math Materials
- Student Money Sets in Ziploc (1 per student)
- five dollar bills
- four quarters
- ten dimes
- twenty nickels
- hundred pennies
- **BLM** TM Making Sense of Dimes!
- **BLM** TM Word Cards

ELPS (*English Language Proficiency Standard*)
1E, 2C, EG, 3C, 3D, 3F, 4F

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.D.3., I.E.1., I. F.1.
MATH I.A.1., I.A.2., V.A.1., VI.B.4., IX.C.1.

Unit 1, Lesson 2 3-4

Classroom Lesson - continued

TRANSITION to Math
Building Background, Math

(*Review the vocabulary and objectives.)*
During TV Lesson 1, we investigated the penny in relationship to one dollar. What is the fractional relationship of one penny to one dollar? (*A penny is one-hundredth of a dollar.*)

How do we express that as a fraction? ($\frac{1}{100}$ – *written as one over 100 but READ as one-hundredth - insist on the proper reading, please*.)
How do we express that as a decimal? (*0.01 – written as zero point zero one, but READ as one-hundredth – insist on the proper reading, please.*)

Today we're going to look at another relationship in money. I wonder what the fractional relationship is of a dime to a dollar. Does anyone have a guess? *(Accept all responses.)*

Let's check to see. If I want to know what part of a dollar one dime is, I need to know how many dimes there are in a dollar – how many EQUAL SHARES of one dime there are in one dollar.

Let's take our dimes out of the Money Set *(do so)*.
- What is the denomination of one dime? *(10 cents)*
- So what can we skip count by if we are counting dimes? *(10)*
- Let's count the dimes until we get to one dollar (*10 cents, 20 cents . . . 100 cents or one dollar*).
- How many dimes did we need to get to one dollar? *(10 dimes)*
- So what is the fractional relationship of one dime to one dollar? *(1/10 READ one-tenth)*

Look at your BLM Making Sense of Dimes, and let's complete a chart similar to the one you completed with the TV Teacher in Lesson 1. First, look at the chart – what do you know is like what you did with the TV Teacher? What is different? (*Format is the same. Picture is different – there are only 10 spaces, not 100.*)

Why do you suppose the picture is different from Lesson 1? (*Lesson 1 worked with pennies; or one penny out of 100 pennies to make a dollar. This lesson works with dimes; or one dime out of 10 dimes to make a dollar.*)

Today, you will be work with TENTHS *(show the word card)*. We'll see how to represent tenths in four different ways.

Technology:
http://www.usmint.gov/kids/
Continue "America the Beautiful Quarters Games" today.

TV Materials:
- Student Money Sets in Ziploc (1 per student)
- five dollar bills
- four quarters
- ten dimes
- twenty nickels
- hundred pennies
- **BLM** Comparing Fractions and Decimals

Unit 1, Lesson 2 3-4

Classroom Lesson - continued

TRANSITION to Math

Building Background, Math

One dime

- How do we express the fractional relationship of one dime to one dollar in words? (*one-tenth)*
- Using a fraction bar? (*1/10 – please write with horizontal bar.*)
- As a decimal? (*0.1 – written as zero point one, but READ as one tenth – please insist on reading this correctly so that students see the fractional relationship between fractions and decimals.)*
- Now, how will you show the relationship with a picture? (*Color in one of the ten blocks –so do.*)

Two dimes – (two tenths, $\frac{2}{10}$, 0.2)

Three dimes – (three tenths, $\frac{3}{10}$ 0.3).

Four dimes – repeat same process.

Five dimes – repeat the same process. When you shade in the five blocks, ask them to notice a relationship within the divided rectangle. They have colored in 1/2.

- **What does that tell you about the fraction $\frac{5}{10}$ and the decimal 0.5?** (*They are both equivalent to ½ .)*
- **Write that fraction and those words also in the proper spaces on the chart for five dimes. (words =** *one-half, fraction = ½)*

You're going to see that they are many equivalencies with fractions and decimals. (*If students do see 0.2 as $\frac{1}{5}$ and other equivalencies in the chart, by all means, include them; however, since they are not easily modeled with this material, do NOT bring those up on your own. There will be plenty of time this summer to investigate these equivalencies with more appropriate materials.)*

- **Six dimes** – repeat same process.
- **Seven dimes** – repeat same process.
- **Eight dimes** – repeat same process.
- **Nine dimes** – repeat same process.

Ten dimes – *Be sure that students understand that 10 dimes equals the WHOLE dollar, so ten-tenths is equivalent to ONE; $\frac{10}{10}$ = 1; the decimal is written to show one whole and no tenths as 1.0; and of course, the whole bar is shaded in.)*

	Unit 1, Lesson 2 **3-4**  **Classroom Lesson** - continued **TRANSITION to Math** **Building Background, Math** **Objectives:** Review the math and language objectives to see how they were accomplished. **Distribute TV Lesson Materials**

BLM TM Unit 1, Lesson 2 **Making Sense of Dimes**
One per student

Money	Fractional Representations												
	Words	Fraction Bar	Decimal	Picture									
1 dime													
2 dimes													
3 dimes													
4 dimes													
5 dimes													
6 dimes													
7 dimes													
8 dimes													
9 dimes													
10 dimes													

BLM TM Unit 1, Lesson 2 **Making Sense of Dimes**
One per student

Dinero	Representaciones fraccionales			
	Palabras	Barra de fracciones	Decimal	Imagen
1 dime				
2 dimes				
3 dimes				
4 dimes				
5 dimes				
6 dimes				
7 dimes				
8 dimes				
9 dimes				
10 dimes				

Literature Vocabulary
commodity
mint

Math Vocabulary
coins
penny
nickel
dime
quarter
dollar
cents
decimals
decimal point
hundredths
tenths
compare
order

TV Materials
- Student Money Sets in Ziploc (1 per student)
  - five dollar bills
  - four quarters
  - ten dimes
  - twenty nickels
  - hundred pennies
- **BLM** Comparing Fractions and Decimals

Time Clue
BB = 2 minutes
CI = 25 minutes
AC = **1** minutes

ELPS (*English Language Proficiency Standard*)
1E, 1F, 2F, 1I, 3A, 3D, 4C, 4E

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.C.1., I.D.1., I.D.3
ELA III.A.2., III.B.2., III.B.3.
MATH I.B.1., I.C.1., IV.B.1., VIII.B.2., IX.A.2., IX.C.1

Unit 1, Lesson 2 3-4

TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Relate decimals to fractions that name tenths and hundredths.
- Represent decimals, including tenths and hundredths using (concrete and) visual models and money.
- Compare and order decimals using (concrete and) visual models to the hundredths.

Language Objectives:
- Use the math vocabulary during the activity.
- Discuss answers and possible strategies with classmates.

Building Background, Math
(*Review objectives and vocabulary.)*

In Lesson 1 we found the fractional relationship of pennies to one dollar. One penny equals what fractional part of one dollar? *(one-hundredth)*
- We can represent that relationship
  - with words (*one-hundredth*)
  - With a fraction (*1/100 – write with horizontal fraction bar; written as one over one hundred, but READ as one-hundredth.*)
  - With a decimal (*0.01 – written as zero point zero one, but READ as one-hundredth. This means that I have NO whole numbers, NO tenths, and only one-hundredth.*)
  - With a picture (*show the hundred grid with one cell shaded in*).
- We can also represent these fractional relationships with money. What denomination would I use to represent one-hundredth? *(penny)*

Comprehensible Input
Today we are learning about fractions and decimals to compare fractional amounts using our money.

Let's look at our BLM, Comparing Fractions and Decimals, p. 1. What are we going to need to complete this chart? (*bills and coins, and understanding of how to read the decimals and how they are represented as fractions; and an understanding of how to compare the fractional amounts)*

SMARTBOARD	**Unit 1, Lesson 2** **3-4**
	 
	TV Lesson - continued
	
	1.2 – use this pattern for all four problems.
	• Read the first decimal to your classroom teacher (*one and two-tenths*).
	• Did all of you know that it is read ONE and TWO-TENTHS? Please be sure you read the numbers with their values.
	• Now use your bills and coins to show that fractional relationship *(pause*). I am using one dollar, because that is my WHOLE, my one; and I'm using two dimes – two-tenths of a dollar.
	• Write the names of the bills and coins you used in this *(point to it)* column. (*do so*)
	• I know this is money, but in the next column, rather than telling me how much money you have like one dollar and 20 cents, I want us to think about the decimal – how would we write that particular fractional representation as a decimal in words? (*Pause, then ONE and TWO-TENTHS – I have one whole, and I have two-tenths of another whole.*)
	• Is this amount greater than one whole, or less than one whole? (*greater*)
	• How do you know? Tell your classroom teacher. (*The mixed decimal shows that we have a whole, and we have two more than a whole.)*
	• Now, how would you write one and two-tenths as a mixed fraction? A mixed fraction had a whole number and a fraction together. (*Pause – 1 2/10 – making sure you write the fraction bar horizontally.*)
	• Before we can compare, we need to complete the chart for the next amount. First, what do you think? One and two-tenths or one and two-hundredths – which is larger? Tell your teacher your guess.
	• Now, let's complete the chart together for one and two-hundredths.
	  o *Model with new coins, leaving 1.2 on the desk.*
	  o *Complete the three columns.(1 dollar and 2 pennies; $1.02,* $1\ \frac{2}{100}$
	• Look at your two amounts. How would you compare these two amounts? Tell your classroom teacher two comparison sentences you can use. You will just need to insert the < or > sign for this pair of numbers. It's formatted for you so you'll know what to do in the rest of the problems. *(pause)*
	• One and two-tenths is GREATER THAN one and two-hundredths.
	• One and two-hundredths is LESS THAN one and two-tenths.
	
	Now, as a class, talk about how you know that your comparison statements are true. I'll give you a little time. *(generous pause)*

Arthimus Portio's Corner **Unit 1 Lesson 2** You found area and created arrays today. How are they alike? How are they different? How can you use them to solve multiplication problems?	**Unit 1, Lesson 2** **3-4**  **TV Lesson** - continued *(I can look at the model and see that two dimes are more than two pennies. I also can visualize the fraction – dividing a bar into 100 pieces would give me much smaller pieces than dividing the bar into 10 pieces.)* (*Continue in this same fashion for the rest of the table. If you are running out of time, omit #3 so that you are sure to model #4. In your explanation of comparing, you can even just compare the tenths – five dimes are more than two dimes; five-tenths are more than two-tenths.)* You are going to continue this type of thinking in your Follow-up Lesson by using what you have learned to solve problems. **Pirate:** And talking about using what you have learned, I want to tell you about Captain Arthimus Portio's Corner! The Measurement Lab is very important – you measured area today, and you created a penny array. (*Talk about MAS Space. Get them excited about telling about their class*.) **Teacher:** Thank you, Captain Portio! Let's see all the different things our students have to tell us about area and array models! **Objectives:** And now before we go, let's review what we have learned today! *(do so)*

BLM Unit 1, TV Lesson 2 **Comparing Fractions and Decimals p. 1**
One per student

Student Name: _____

Use your dollar bills as the whole, dimes as the tenths and pennies as the hundredths to make the following, and then complete the chart.

	Bills and Coins You Used	Words	Mixed Fraction	Compare
1.2				
1.02				

How do you know that your comparison statement is correct?

_____

_____

_____

_____

	Bills and Coins You Used	Words	Mixed Fraction	Compare
1.25				
1.2				

How do you know that your comparison statement is correct?

_____

_____

_____

_____

BLM Unit 1, TV Lesson 2 **Comparing Fractions and Decimals p. 1**
One per student

Student Name: _____

Use your dollar bills as the whole, dimes as the tenths and pennies as the hundredths to make the following, and then complete the chart.

	Billetes y monedas que usaste	**Palabras**	**Fracciones mixtas**	**Comparación**
1.2				
1.02				

¿Cómo sabes que tu comparación es correcta?

_____

_____

_____

_____

	Billetes y monedas que usaste	**Palabras**	**Fracciones mixtas**	**Comparación**
1.25				
1.2				

¿Cómo sabes que tu comparación es correcta?

_____

_____

_____

_____

BLM Unit 1, TV Lesson 2 **Comparing Fractions and Decimals p. 2**

One per student

Student Name: _____

	Bills and Coins You Used	Words	Mixed Fraction	Compare
1.05				
1.55				

How do you know that your comparison statement is correct?

_____

_____

_____

_____

	Bills and Coins You Used	Words	Mixed Fraction	Compare
2.27				
2.58				

How do you know that your comparison statement is correct?

_____

_____

_____

_____

BLM Unit 1, TV Lesson 2 **Comparing Fractions and Decimals p. 2**

One per student

Nombre: _____

	Billetes y monedas que usaste	Palabras	Fracciones mixtas	Comparación
1.05				
1.55				

¿Cómo sabes que tu comparación es correcta?

_____

_____

_____

_____

	Billetes y monedas que usaste	Palabras	Fracciones mixtas	Comparación
2.27				
2.58				

¿Cómo sabes que tu comparación es correcta?

_____

_____

_____

_____

Literature Vocabulary
commodity
mint

Math Vocabulary
coins
penny
nickel
dime
quarter
dollar
cents
decimals
decimal point
hundredths
tenths
compare
order

Materials
- Student Money Kits
- TV Lesson BLM
- **BLM** Using Sense to Solve Problems

ELPS (*English Language Proficiency Standard*)
1E, 2E, 2G, 3B, 3D, 4F, 5A, 5B

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.A.1., I.B.2., I.D.1.
ELA I.A.2., I.A.3., II.A.1., II.A.2., III.B.1.
MATH I.A.2., I.C.1., IV.B.1., V.A.1.

Technology

Unit 1, Lesson 2 3-4

Follow-up

Math Objectives:
- Relate decimals to fractions that name (tenths and) hundredths.
- Represent decimals, including (tenths and) hundredths using (concrete and visual models and) money.
- Compare (and order) decimals using concrete and visual models to the hundredths.

Language Objectives:
- Listen and speak with a partner during our math activity.
- Use the math vocabulary during the activity.
- Write math journal response.

Building Background, Math
NOTE*: If the TV Teacher was unable to complete the TV activity, this would be your first task. Circulate the room to make certain students understand the concept of representing and comparing. Be sure that you have the students verbalize the answers, explaining how they know they are correct.*

Practice and Application, Math
Today's Follow-up Lesson is two problems that you and a partner are going to work together to solve. You will need to use what you have learned about fractional parts of wholes to solve them.

- Read the first problem to see if there are any words you do not know. (*Give students time to read the problem to themselves, then collect all of the terms they did not know on the board or chart paper to create a quick Pictionary – this is not a reading test, but rather an assessment of whether the students can transfer what they have learned about comparing and ordering decimals to problem situations*.)
- Now work together to solve the problem. (*Circulate the room as students are working to solve the problem, asking questions.)*
  - What is the math movie you see in this problem? That is, what are the characters doing?
  - What are you asked to do?
  - How do you know this is the smallest portion? The largest portion?
  - Explain the justification for your answer.
- *When all pairs have completed their first problem, ask several volunteers to explain what they did. Ask others to justify the answers. Did anyone justify it another way?*

Repeat the process with the second problem.

Unit 1, Lesson 2 3-4

Follow-up - continued

When both problems are completed, tell the students that both problems dealt with comparing and ordering decimals. How did the second problem differ from the first? (*Solvers had to understand the order the decimals were in or to have very good number sense about decimals to see which decimal was closest to five. They could have ordered the decimals, then selected the one closest to five; or they could have used number sense to know that 4.99 was only .01 from five – very close.)*

Go back to both of the problems and ask the following:

More QUESTIONS

Probe for Understanding

- How do you read this decimal?
- What might that look like if you were using pennies, dimes and bills?
- What would that look like as a mixed fraction?

Math Journal Writing

Students should have a spiral notebook into which they journal their thoughts daily about math. Today's journal prompt is:

Explain how you think about ordering decimals.

Objectives: Read through the language and math objectives for this portion of the lesson, and have the students tell you how they accomplished each.

BLM Unit 1, Follow-up Lesson 2 **Using Sense to Solve Problems**
One page per student

1. Millie and her family each had their own small chocolate cake for dessert one evening after dinner. Millie ate 0.45 of her small cake. Her oldest brother ate 0.75 of his small cake. The youngest brother ate 0.7 of his small cake.

   Write their portions in order from smallest portion to largest portion.

   Justify your answer. How do you know you have the decimals in the correct order?

2. After eating all that dessert, Millie decided to go on a bike ride. She wanted to ride as close to 5 miles as possible, but she has several bike trails to choose from. Which of the following trails should Millie ride if she wants to ride as close to 5 miles as possible? Circle your answer.

   A. 4.09 miles – Becky's Trail

   B. 4.9 miles – Herbert's Trail

   C. 4.99 miles – Alicia's Trail

   D. 3.99 miles – Howard's Trail

   Justify your answer. How do you know that trail is closest to 5 miles?

BLM Unidad 1, Lección 2 **Resolver problemas usando el sentido común**

1. Una noche, después de cenar, Millie y su familia tenían cada quien su propio pastelito de chocolate para el postre. Millie se comió 0.45 de su pastelito. Su hermano mayor se comió 0.75 de su pastelito. Su hermano menor se comió 0.7 de su pastelito.

   Escribe sus porciones en orden de la porción más pequeña a la más grande.

   Justifica tu respuesta. ¿Cómo sabes que tienes los decimales en el orden correcto?

2. Después de comer todo ese postre, Millie decidió ir a pasear en bicicleta. Ella quería recorrer una distancia lo más cercana posible a 5 millas, pero tiene varias rutas de bicicleta para elegir. ¿Cuál de las siguientes rutas debe recorrer Millie si desea recorrer una distancia tan cercana como sea posible a 5 millas? Circula tu respuesta.

   E. 4.09 millas – Ruta de Becky

   F. 4.9 millas – Ruta de Herbert

   G. 4.99 millas – Ruta de Alicia

   H. 3.99 millas – Ruta de Howard

   Justifica tu respuesta. ¿Cómo sabes que esa ruta es la que más se aproxima a 5 millas?

Math Objectives
- Construct pictorial models of fractions.
- Compare fractional parts of a whole.
- Use fraction names and symbols to describe fractional parts of a whole.
- Use pictorial models to generate equivalent fractions.
- Compare fractions using pictorial models.
- Represent tenths in decimal and fractional forms.

Language Objectives
- Discuss fraction comparisons.
- Discuss fraction equivalencies.

Vocabulary
one-half
one-sixth
three-sixths
equivalent
greater than, less than

Materials:
- **BLM** ice cream sandwich Snack Fractions per student

Per Partners:
- 1 large ice cream sandwich
- 2 paper dessert plates
- 2 paper towels
- 2 plastic knives

Unit 1, Lesson 2 3-4

Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

In lesson 1 you shared an apple with a partner. On your fraction record sheet, you showed the fractional part that each of you would receive; and you showed the fractional part that you would have received if there had been four of you sharing the apple.

- What fractional part did partners receive? *(halves, written 1/2)*
- What fractional part would each of four have received? *(one-fourth written 1/4)*
- What comparison sentence did you find when you compared your actual portion to a fourth? *(1/2 >1/4)*
- How many fourths were equivalent to a half? How did you figure the equivalent fraction out? *(student response)*

Today you are going to share an ice cream sandwich with a partner. Before you receive the actual snack, though, you will work through the Ice Cream Snack Fraction record sheet. *(Distribute the sheet.)*

What is the same on this sheet as the Apple Snack Fraction sheet? *(upper portion dividing into halves)*

What is different? (*There are rectangles instead of circles; dividing into six portions instead of four, model at the bottom in tenths not hundredths.)*

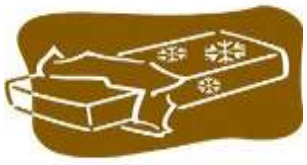
Once students have completed the record sheet, give them the actual snack and other supplies and let them share. This will be the format for subsequent snack fractions. When they are finished, have them complete the Snack Fraction Writing on the back of the BLM sheet or in their Math Journal Spiral.

Snack Fraction Journal Writing: BLM Ice Cream Sandwich Snack Fractions
How do you know that 3/6 = 1/2?
Explain how you would compare 1/2 and 5/10.

Objectives: Review the objectives with the class, making sure they understand how they achieved each.

BLM Unit 1, Snack Fraction Lesson 2 **Ice Cream Sandwich Snack Fractions**
(One sheet per student)

My name is _____



I shared an ice cream sandwich with my partner today.

We each received _____ _____ . I can represent that fraction with numbers: _____.
(fraction in words) (fraction in number)

My portion looked like this:
(*Divide the rectangle into the fractional part, then shade your part.)*

If there had been six of us,
my share would have looked like this:

In the space below, compare these two fractional parts.
Use < or > to compare.

I would only have had _____ _____. I can represent that fraction with numbers: _____.
(fraction in words) (fraction in number)

How many sixths would it take to equal one-half? _____

Write an equation which describes the relationship between one-half and three-sixths.

_____

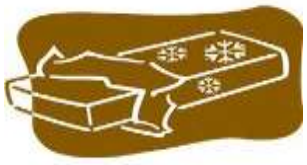
Now use what you learned in math today to describe the UNshaded portion of the drawing as a fraction and as a decimal.

Decimal: _____ Fraction: _____
Can you write an equivalent fraction for this

amount? _____

BLM Unit 1, Snack Fraction Lesson 2 **Ice Cream Sandwich Snack Fractions**
(One sheet per student)

Mi nombre es _____



Compartí un sándwich de helado con un compañero hoy.

Cada un recibimos _____ _____ Puedo representar esta fracción con números: _____.
(fracción en palabras) (fracción en números)

Mi porción se ve así:
(*Divide el rectángulo en partes fraccionales y sombrea tu parte.)*

Si éramos seis personas,
mi porción se vería así:

En el espacio abajo, compara estas dos partes fraccioinales.
Uae < o > para comparar.

Yo solamente tendría _____ _____. Puedo representar esta fracción con: _____.
(fracción en palabras) (fracción en números)

¿Cuántos sextos se necesitan para igualar una mitad? _____

Escribe una ecuación que describe la relación entre uma mitad y tres sextos.

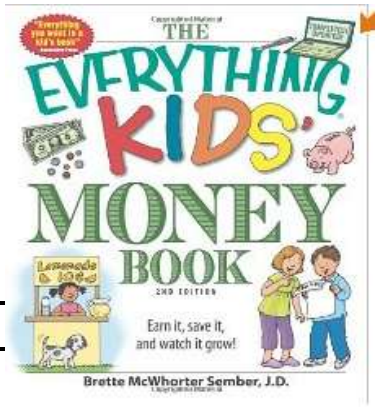
_____

Ahora, usa lo que aprendiste en la clase de matemáticas hoy para describir la parte no sombreada del dibujo como fracción y decimal.

Decimal: _____ Fracción: _____
¿Puedes escribir una fracción equivalente para esta cantidad? _____

Family Fun – 3-4, Unit 1 Lesson 2

Our book for unit 1 is, ***The Everything Kids' Money Book***
by Brette McWhorter Sember, J.D.



We're studying decimals during this unit. Let's look around the house to see where we can find decimals. Some places they might be are:

_____

_____

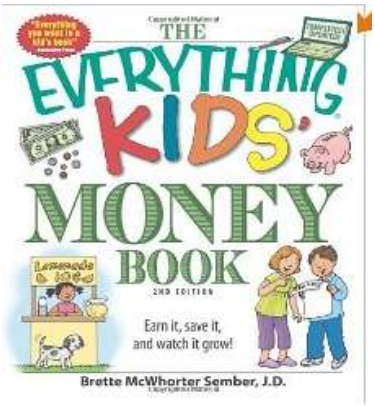
I can read these decimals to you (write four decimals in the blank area).

Thank you for helping me with my summer program!

_____
Your Child

Family Fun – 3-4, Unit 1 Lesson 2

Our book for unit 1 is, ***The Everything Kids' Money Book***
by Brette McWhorter Sember, J.D.



Estudiamos decimales en esta unidad. Busquemos decimales por la casa. Algunos lugares podrían ser:

_____

_____

Te puedo leer estos decimales. (Escribe cuatro decimales en ésta área).

¡Gracias por ayudarme con las matemáticas!

_____
Tu hijo/a

Math Objectives
- Solve word problems using a variety of strategies and defend their strategies.
- Construct concrete models of fractions.
- Compare fractional parts of whole in a problem situation using concrete models.
- Find area and generate arrays.

Balanced Literacy Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.
- Explain how they decided to rename the target number.
- *Discuss scarcity of money, choices and cost benefit.*

TEKS
All three lessons focus on the same TEKS
3rd – 3.1C, 3.2A,B,C,D, 3.4A, C
4th - 4.1B, 4.2A,B,C,D, 4.4A,B,

Assessment Items
(As a result of experiencing this unit, students will be learning skills necessary to be successful on the following Assessment items.)

3rd - 1, 2, 4, 5, 6, 8 (*all DR*)
4th - 1, 2, 4, 6, 8

ELPS (*English Language Proficiency Standard*) 2A, 2B, 2C, 4C, 4J,5D

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.A.1., I.C.2., I.C.3., II.D.1
ELA III.A.1., III.B.2., IV.A.3
MATH II.A.1., II.A.2., II.D.1., VI.C.2., IX.A.1., IX.A.3

Unit 1, Lesson 3 3-4

Daily Routine

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL
What's Missing? *(3rd assessment item 2)*
- Lesson 1 - Omit for pre-assessment
- **Lessons 2** & 3 – follow directions in the Daily Routine Explanations. Be sure to include cards with the box in ALL positions and have students explain how they found the answer.

Solve It! *(fundamental problem-solving skills for all items)*
- **Begin in Unit 2**

Fraction Action
- Lesson 1 – Lesson 1 – Omit for Pre-assessment
- Lesson 2 - BLM Compare Us (*4th assessment item 4*)
  BLM Teacher Directions, Compare
- **Lesson 3 – BLM Find Our Equivalent Fractions (*3rd assessment 6*)**
  BLM Teacher Directions, Equivalent

CGI
- Lesson 1 – Lesson 1 – Omit for Pre-assessment
- Lesson 2 – Division, Measurement (*3rd Assessment item 5*)
- Lesson 3 – Division, Partitive (*3rd Assessment item 4*)

Measurement Lab (3rd Assessment 1)
- Lesson 1 – Omit for pre-assessment
- **Lesson 2 – BLM Penny Array / Square Area #1**
  BLM Measurement Teacher Directions #1
  20 pennies
- Lesson 3 - BLM Penny Array / Square Area #2
  BLM Measurement Teacher Directions #2
  20 pennies

Arthimus Portio's Corner
Unit 1 Lesson 3
How did you solve your CGI problem today? Let's see how many different strategies we can find!

Unit 1, Lesson 3 3-4

Daily Routine - continued

OPTIONAL: *These activities, although not assessed, are fundamental skills that should be included in those sites providing five to six weeks of instruction.*

Target Number *(fundamental number sense for all items)*

- Lesson 1 – Omit for Pre-assessment
- **Lesson 2 – Target Number 100**
- Lesson 3 – Target Number 24

Graphing

- Lesson 1 – Omit for pre-assessment
- **Lesson 2 – Birthday graph detailed in Daily Routines**
- Lesson 3 – Which US coin do you think is the prettiest? (bar graph)

Graphing Questions:
Before asking any questions, have the students give you their observations about the data shown on the graph. Always ask students to explain how they know.

These are generic questions. Simply reword them to fit your graph topics.

- How many more ____ than ____?
- How do you know?
- How many fewer ____ than ____?
- How do you know?
- Which (item) was chosen by more students than any of the others choices?
- How do you know?
- Which (item) was chosen by the fewest students?
- How do you know?
- What job could use this type of information? Why?
- If we asked this same question to other age groups, how do you think their answers would compare to ours? Why?

(Assessment Item 8 will be reviewed daily in Snack Fractions.)

Find Our Equivalent Fractions

Materials per student Student Name _____

- This BLM
- Your small envelope and fraction pieces
- Glue stick

Work with a Partner to answer these questions.
Take out your fraction pieces.
Find all of the halves.

- How many halves are there in your envelope? _____
- If you have one piece, what fractional part do you have? _____
- How many pieces does it take to remake the whole rectangle? _____

Find all of the fourths.

- How many fourths are there in your envelope? _____
- If you have one piece, what fractional part do you have? _____
- How many pieces does it take to remake the whole rectangle? _____

Find all of the eighths.

- How many eighths are there in your envelope? _____
- If you have one piece, what fractional part do you have? _____
- How many pieces does it take to remake the whole rectangle? _____

Follow your Teacher's directions.

$1 =$

$\frac{1}{2} =$

$\frac{1}{4} =$

$\frac{1}{8} =$

BLM Daily Routines Unit 1, Lesson 3 **Find Our Equivalent Fractions**

Materiales por estudiante

Nombre del estudiante _____

- Este BLM
- Tu sobre pequeño y las piezas de fracción
- Lápiz adhesivo

Trabaja con un compañero para responder estas preguntas.
Saca tus piezas de fracción.
Encuentra todas las mitades.

- ¿Cuántas mitades hay en tu sobre? _____
- Si tienes una pieza, ¿qué fracción tienes? _____
- ¿Cuántas piezas necesitas para volver a armar todo el rectángulo? _____

Encuentra todos los cuartos.

- ¿Cuántos cuartos hay en tu sobre? _____
- Si tienes una pieza, ¿qué fracción tienes? _____
- ¿Cuántas piezas necesitas para volver a armar todo el rectángulo? _____

Encuentra todos los octavos.

- ¿Cuántos octavos hay en tu sobre? _____
- Si tienes una pieza, ¿qué fracción tienes? _____
- ¿Cuántas piezas necesitas para volver a armar todo el rectángulo? _____

Sigue las instrucciones de tu maestro.

$1 =$

$\frac{1}{2} =$

$\frac{1}{4} =$

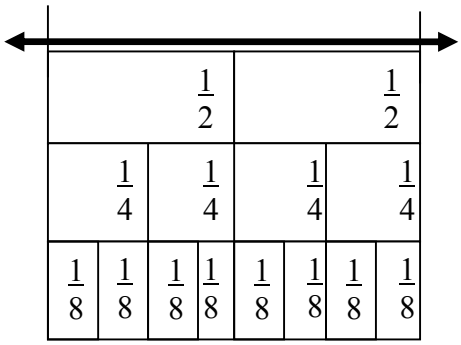
$\frac{1}{8} =$

BLM Daily Routines Unit 1, Lesson 3 Teacher Directions, Equivalent

STUDENTS – Distribute the BLM to the students and let them work with a partner to answer the questions at the top of the page. Be sure they understand that the questions are directed to the pieces that are ONLY in their own envelopes – 2 halves, 4 fourths, 8 eighths. When all students have completed the top portion, begin the short lesson.

Teacher Directions (you should model at the same time):
We are going to talk about EQUIVALENT fractions.

- What do you think that means? (*Student response – fractions that equal one another. Fractions that look different, but represent the same amount.*)
- Look at the line on your page. What do you notice about the line? (*You want them to see that it is a number line, but that it starts with zero and ends with one*.)
- We are going to place our fraction pieces, one set at a time, below the number line and glue them down.



- Now we can see EQUIVALENT fractions. Let's fill in the answers on the right side of our answer sheet. Find all of the equivalent fractions that you can for one (*give them time to find, then check to make sure they all have 2/2, 4/4, 8/8*). We can say that one equals two halves, four-fourths and eight-eighths.
- Now work with your partner to find the other equivalent fractions. *(Shouldn't have a problem with halves and fourths. Eighths, however, can be troublesome because there isn't a model.)*
- What about an equivalent fraction for eighths? We don't have a model of a fraction that is smaller than the eighths. See if you can find a pattern to help you name an equivalent fraction for one-eighth. (*Circulate the room to see if any students are seeing the pattern. Do not tell them the pattern. You can ask them to look for a relationship between the denominators, and to think about how many more pieces they had each time they folded and cut during Lesson 2. Reassure them that by the end of the summer session, they will see and understand the pattern.*)
- Keep your fraction pieces in your envelopes. We'll be working with them for a few more lessons.

Lesson 2 and Lesson 3 took much longer this time than you should expect for the rest of the sessions. This was introductory. The rest should be more independent (with models, of course).

BLM Daily Routines Unit 1, Lesson 3 Measurement Penny Arrays/ Square Area

How many pennies wide? _____

How many pennies long? _____

How many pennies are inside the area of this rectangle? _____

This penny array is _____ x _____.

How many squares wide? _____

How many squares long? _____

How many squares completely cover the area of this rectangle? _____

This rectangle is _____ x _____.

The area of this rectangle is _____ squares.

Remove the pennies and color the area blue.

BLM Daily Routines Unit 1, Lesson 3 Measurement Penny Arrays/ Square Area

¿Cuántos centavos de ancho? _____

¿Cuántos centavos de largo? _____

¿Cuántos centavos hay dentro del área de este rectángulo? _____

Esta matriz de centavos es de _____ x _____.

¿Cuántos cuadros de ancho? _____

¿Cuántos cuadros de largo? _____

¿Cuántos cuadros cubren completamente el área de este rectángulo? _____

Este rectángulo es de _____ x _____.

El área de este rectángulo es de _____ cuadros.

Retira los centavos y colorea el área de color azul.

TEACHER:
AREA Model

Look on your record sheet for today. We measure AREA in squares. See the rectangle at the top of the page. How many squares wide is the rectangle? *(Demo with your finger so students know that you are talking about the 4-tiles width.)* Let's record the width of four squares to the right of the rectangle. *(do so)*

How many squares long is the rectangle? (*Demo again.*) Again, let's record to the right of the rectangle – 5 squares long.

I've just determined the dimensions, or measurement of this rectangle. We can say that this rectangle is 4 squares wide and 5 squares tall. I can write that in mathematical terms as 4 x 5.

I have 4 groups of 5 squares *(trace each of the rows as you say this)*. This is a multiplication problem. What is the area, or the number of squares, of this rectangle? *(20 squares)*

ARRAY Model

Now, take your pennies and arrange them so you have one penny on each square of the area of the rectangle. *(do so)*

How many pennies wide is the rectangle? *(4 pennies)*
How many pennies long is the rectangle? *(5 pennies)*
This is an ARRAY of pennies.

This ARRAY is a 4 penny by 5 penny ARRAY, or a 4 x 5.

How many pennies are in this ARRAY? *(20)*
How do you know? (*Listen carefully to how students know the answer. Did they count the pennies? Did they know that 4 x 5 = 20? Did they understand the one to one of penny to square?)*

This is the ARRAY model. Like cartons of eggs, or six packs of juice or soda. Things that come in groups can be arranged in an ARRAY. Now, remove your pennies and color the area RED.

Solve It! Problems Unit 1, Lesson 3 **Pairs**

Solve your own problem today, showing your work. Verify your partner's problem solution when you both finish your own. Discuss your work.

Partner 1 Problem **Name _____ Date _____**

Shari was buying clothes for her summer vacation. Luckily there was a sale at her favorite clothes store. All blouses were half off. She bought several items, but her favorite purchases were a blouse which was regularly priced $15.00 and a matching pair of shorts for $10.95. What did Shari pay for that outfit?

Problem Solution Name:	**Problem Verification** Name:

Solve It! Problems Unit 1, Lesson 3 **Pairs**

Solve your own problem today, showing your work. Verify your partner's problem solution when you both finish your own. Discuss your work.

Partner 2 Problem **Name _____ Date _____**

Monica walked in the fruit isle at the grocery store. She weighed out four pounds of apples which were $1.59 a pound and one pound of oranges costing $1.69 a pound. What did those two purchases cost her?

Problem Solution Name:	**Problem Verification** Name:

Solve It! Problems Unit 1, Lesson 3 **Pairs**

Hoy, resuelve tu propio problema, mostrando el procedimiento. Verifica la solución de tu compañero cuando ambos terminen de hacerlo por sí mismos. Hablen sobre su trabajo.

.

Partner 1 Problem **Name _____ Date _____**

Marie estaba comprando ropa para sus vacaciones de verano. Por suerte, había una oferta en su tienda de ropa favorita. Todas las blusas estaban a mitad de precio. Marie compró varios artículos, pero sus compras favoritas fueron una blusa que tenía un precio normal de 15.00 y un par de shorts a juego con un precio de $10.95. ¿Cuánto pagó Marie por ese conjunto?

Solución del problema Nombre:	**Verificación del problema** Nombre:

STAAR Performance Problems Unit 1, Lesson 3 **Pairs**

Hoy, resuelve tu propio problema, mostrando el procedimiento. Verifica la solución de tu compañero cuando ambos terminen de hacerlo por sí mismos. Hablen sobre su trabajo.

Partner 2 Problem **Name _____ Date _____**

Mónica recorrió el pasillo de frutas en la tienda de víveres. Pesó 4 libras de manzanas que costaban $1.59 por libra y 1 libra de naranjas que costaba $1.69 por libra. ¿Cuánto le costaron esas dos compras?

Solución del problema Nombre:	**Verificación del problema** Nombre:

Literature Selection
The Everything Kid's Money Book
by Brette McWhorter Sember, J.D.

Materials
Language Materials
- **BLM** Word Cards
- **BLM** Anticipation/Reaction from Lesson 1
- Progressive Map from Lesson 1 (teacher copy)
- Pencils, color pencils
- Blank 8 ½ x 11 paper for each student

Transition to Math Materials
- Student Money Sets in Ziploc (1 per student)
  - four quarters
  - ten dimes
  - twenty nickels
  - hundred pennies
- **BLM TM** One Thin Dime

Literature Vocabulary
commodity
mint

Math Vocabulary
coins
penny
nickel
dime
quarter
dollar
cents
decimals
decimal point
hundredths
tenths
compare
order

ELPS (*English Language Proficiency Standard*) 2A, 2B, 2F, 2G, 3A, 3B, 4C, 4D, 4J, 5D

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR II.A.2., II.A.4., II.A.5
ELA I.A.1., II.A.2., II.A.4., II.A.6., III.A.2

Unit 1, Lesson 3 3-4

Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students should review to see if they have accomplished both math and language objectives.

Math Objectives:
- Relate decimals to fractions that name tenths (and hundredths).
- Represent tenths using concrete and visual models and money.

Language Objectives:
- Visually represent their knowledge of coins (money) by creating drawings on a Progressive Map.
- Describe what they have visualized about coins (money history) through the use of key phrases including:
  In my head I see _____.
  I picture _____ *because* _____.
  I visualize _____*because* _____.
- Use sequence words that represent time.
- Confirm and disconfirm predictions.

BEFORE READING
Building Background: Vocabulary and Literature
Throughout the reading, you will help students focus on cause and effect situations, as well as the sequential development of coins in the United States. Students will receive visual support to develop these skills through a progressive map.
For this lesson, the map will be a class activity for the 'think' and discussion, and then the information will be added on their individual progressive maps.
The BLM progressive map is a guide for lesson1, continue this lesson in the same format Thinking Aloud with the students. Facilitate students' response with a complete sentence stating to the cause/effect of the events read.

Say, "Today, we will be continuing the activity STOP, THINK, INK *(progressive map)*. When we stop, you will think to yourself, share with your partner, and then illustrate what you visualize on your own paper. Today's portion of chapter 2 will teach us about collecting coins…I'm excited for this one!

Unit 1, Lesson 3 3-4

Classroom Lesson - continued

DURING READING

Comprehensible Input: Vocabulary and Literature

Read aloud p. 24 beginning with "Presidential and First Spouse Dollars" and continue through "Slowly But Surely," p. 29. After each indicated section stop to question students with why question as it relates to cause and effect. Then, direct their thinking to what illustration they see in their head for the section naming the specific coin. Give them time to process, and then ask them to share their visualization with their partner. Redirect the students after sharing that it is "time to ink." Students are given two minutes to draw. Monitor the illustrations and make suggestions as needed. Remind the students to include a word or two with their illustration.

p. 24 "Presidential and First Spouse Dollars"

- Why are the Presidential coins created in the order that they are?
- Think about what we have read so far about coins and their minting. Why is the process to create a new coin complex? Guide students to understand it will make them harder to copy or counterfeit.

p. 25 "Birth of a Coin"

- What causes the raised edges of the coins?

p. 26 "Coin Collecting Fun"

- What can cause coins to have a higher value?

p. 28 "Finding Coins"

- This section was titled "Finding Coins." Why is this a good title?

p. 28 "Slowly But Surely"

- What caused a coin to auction for $4.14 million?

AFTER READING

Practice and Application: Vocabulary and Literature

Guide the students to review today's reading by revisiting the class progressive map and posing cause and effect questions as needed. Preferably students summarize each section using cause and effect statements.

Example: The Congress created more mints because the mint in Philadelphia could not keep up.

Four Corners Chart

illustration 1	sentence 3
definition 2	other words 4

Technology Option
If a classroom dictionary is unavailable, then utilize www.wordsmyth.net

	The candy store will accept any denomination.
p. 14 text unit of value in currency	Currency, money, cash

Unit 1, Lesson 3 3-4

Classroom Lesson - continued

Students mark their responses to the same Anticipation/Reaction statements on the right side of the guide (Reaction). The class then discusses how the learning from what was read changed some of their responses.

Students select one of the vocabulary terms from the reading this week and create a four corners chart.
Direct the students in folding an unlined sheet of paper into fourths as the model to the left demonstrates. Once the paper is folded, have the students keep the paper folded *(model with your own sheet)* so that only the first block is viewable. We will begin with the top left corner *(corner 1)*, then move down to corner 2, and so forth. Direct students to write the number 1 in the upper left corner of the box. *(See the model to left.)*

Teacher: We will complete this 4-corners chart together using the vocabulary word *denomination.*
The definition can come from the text itself or other resource, but should be in the students' words.

Math Objectives
- Relate quarters to fourths.

Transition to Math Materials
- Student Money Sets in Ziploc (1 per student)
  - five dollar bills
  - four quarters
  - ten dimes
  - twenty nickels
  - hundred pennies
- **BLM** Equivalent Quarters
- Scissors – 1 pair per student

ELPS (*English Language Proficiency Standard*)
1E, 2C, EG, 3C, 3D, 3F, 4F

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.D.3., I.E.1., I. F.1.
MATH I.A.1., I.A.2., V.A.1., VI.B.4., IX.C.1.

Unit 1, Lesson 3 3-4

Classroom Lesson - continued

TRANSITION to Math
Building Background, Math

(*Review the math vocabulary and objectives.)*

We are going to take a look at our quarters today. Please pull them from your Money Sets *(do so)*.

What is the denomination of a quarter? *(25 cents)*
Count by 25 to 100 *(do so)*. 25, 50, 75, 100

How many quarters does it take to equal 100 cents? *(4)*

Think about the name, "quarter."

What image does that name create in your mind? *(Accept all reasonable responses.)*

Tell me what you think of when I say each of the following:
- A quarter of a dollar *(25 cents)*
- A quarter of an hour *(15 minutes)*
- A quarter of a pizza *(one-fourth of the pizza)*
- First quarter in football *(the first fourth of the game play)*
- A quarter of a year *(3 months)*

Each of these uses of quarters is a little different, but what do all uses have in common? (*They assume you are breaking a whole into four equal parts):*
- a dollar, into four equal parts of 25 cents;
- an hour, in four equal parts of 15 minutes;
- a pizza, into four equal pieces of the whole;
- a quarter in football, game time is broken into four 15-minute quarters;
- quarter of a year – the 12-month year is thought of in quarters of seasons – Winter, Spring, Summer, Fall, each of which is three months long.

Look carefully at the large rectangle over the line on your BLM. What do you notice about the rectangle? (*It has been divided into equal sections of smaller portions – it has been divided into arrays.*)

What is the measurement of the array in the first fourth? *(5 x 5)*
The second array? *(5 x 5)* Third array *(5 x 5)* and the final array? *(5 x 5)*

Classroom Lesson - continued

TRANSITION to Math

Building Background, Math

Why do you suppose each quarter has been divided into 5 x 5 arrays? *(5 x 5 equals 25. If each of these is going to represent a quarter, then each section should also equal 25 pennies.)*

You are going to working with quarters during the TV Lesson, and learning a little about benchmark fractions and decimals.

Benchmark, or landmark fractions and decimals are numbers that are used many times in our daily lives. They also help us because they are easy to visualize, or to see in our mind. We can estimate using these special fractions and decimals, so these are very important to learn.

To help our TV Teacher, we are going to cut strips from the bottom of the BLM you are going to use during the TV Lesson. (*Direct attention to the three strips at the bottom of the BLM and have them carefully cut those out.)*

Let's read the strips. Someone hold up one of the strips and read it to us. We will then find the same strip. (*Do so - it doesn't matter in what order the students read the strips so long as everyone agrees on the same strip.)*

Which of these strips names the smallest fractional amount? *(25-hundredths)*
Which strip names the largest fractional amount? (*75-hundredths*)
How do you know this is larger than 25-hundredths? *(Any appropriate answer is acceptable – visual difference, place value, number of quarters, etc.*)

Objectives: Review the math and language objectives to see how they were accomplished.

Distribute TV Lesson Materials

Technology: http://www.youtube.com/watch?v=7jggPpaLyKk Minting US dollars – 2010 http://www.youtube.com/watch?v=mBjD9N1APsw Vintage film from the late 1940's or early 1950's – if you had time to view both, you could compare the process in the 50's and late 2000s. Lots of opportunity for Social Studies – Nellie Tayloe Ross was director of US Mint during the film's production. Great comparisons of then and now.

TV Materials:

- Student Money Sets in Ziploc (1 per student)
  - five dollar bills
  - four quarters
  - ten dimes
  - twenty nickels
  - hundred pennies
- **BLM** Equivalent Quarters – 1 per student
- **BLM** Equivalent Quarters, TEACHER – 1 per teacher
- Glue stick – 1 per student

Literature Vocabulary
commodity
mint

Math Vocabulary
coins
penny
nickel
dime
quarter
dollar
cents
decimals
decimal point
hundredths
tenths
compare
order

TV Materials
- Student Money Sets in Ziploc (1 per student)
  - five dollar bills
  - four quarters
  - ten dimes
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- **BLM** Equivalent Quarters – 1 per student
- **BLM** Equivalent Quarters, TEACHER – 1 per teacher
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ELPS (*English Language Proficiency Standard*)
1E, 1F, 2F, 1I, 3A, 3D, 4C, 4E

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.C.1., I.D.1., I.D.3
ELA III.A.2., III.B.2., III.B.3.
MATH I.B.1., I.C.1., IV.B.1., VIII.B.2., IX.A.2., IX.C.1

Unit 1, Lesson 3 3-4

TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Relate decimals to fractions that name tenths and hundredths.
- Represent decimals, including tenths and hundredths using (concrete and) visual models and money.
- Compare and order decimals using (concrete and) visual models to the hundredths.

Language Objectives:
- Use the math vocabulary during the activity.
- Discuss answers and possible strategies with classmates.

Building Background, Math
(*Review objectives and vocabulary.)*

Thank you for cutting the strips of paper out ahead of time. This will help us save time in our lesson!

Let's look at your **BLM** Equivalent Quarters. Remember, that when I direct a question to you, I'm asking you to respond out loud in class. I'll try to give enough time so that you can discuss your answers when discussions might be necessary.

How many equal large portions has the rectangle on this page been divided? (*Redraw the rectangle and the large quarter sections to emphasize what you are referring to - there are four large sections.*)

What do we call the fractional pieces, then? (*fourths*)
And we could also say that the rectangle has been quartered, or cut into four equal pieces.

What do you notice beneath the quartered rectangle? (*a line*)

This is going to be a number line. For our purposes today, this number line will start at ZERO and end at ONE. What does that tell you about all of the numbers that will fall between zero and one? (*They are all greater than zero, but less than one*.)

The numbers that we are going to identify on this number line are BENCHMARK fractions and decimals. Benchmarks are special quantities that if you can visualize can help you with estimate and reasonableness. Let's get started.

Unit 1, Lesson 3 3-4

TV Lesson - continued

Comprehensible Input

Place one of your quarters in the first box. What fractional portion of the box has been covered? *(1/4 of the box has been covered.)*

Write the fraction 1/4 *(horizontal bar, please)* to identify this place on the number line. We have moved one-fourth of the way from zero to one. (*Move your finger along the line to stop at the 1/4 point.)*

Let's think of the quarter now as part of a dollar. What fractional part of 100 pennies does this quarter of the rectangle represent? We have the 5 x 5 array to help us answer that question. *(25/100)*

Please write that fractional representation in this second box.

This line up tells me that 1/4 and 25/100 are equivalent? Why can I say that? (*Because they both identify the same point on the number line, and they both describe the same fractional portion of the rectangle and they both describe the relationship of a quarter to dollar.)*

Using what you have learned about fractions and decimals so far this unit, let's use the third box in this column to represent this line on the number line as a decimal. How do we write 25/100 as a decimal? (*0.25 – written zero point two five but READ as 25-hundredths.*)

Let's draw a dot on the number line which represents one-fourth, 25/100s and 0.25 of the large rectangle *(do so).* And let's shade in the first quarter of this rectangle, including the 5 x 5 array *(do so).*

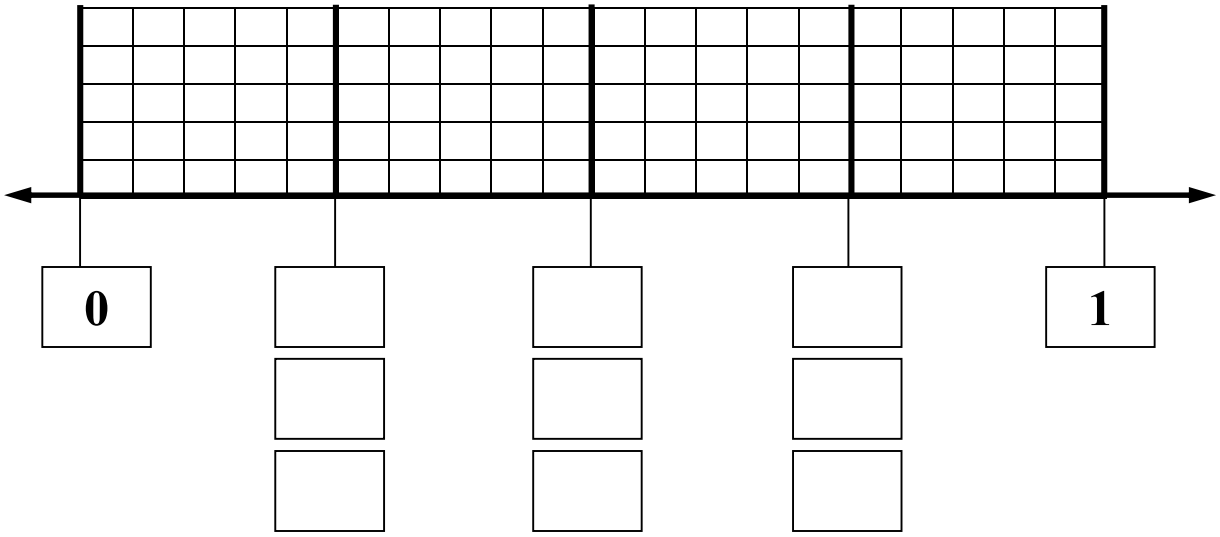
REPEAT THIS PROCESS for the other quarters.

- *1/2 – be sure that you help students see both the 2/4 and the 1/2.*
- *1 – There aren't boxes for it, but have the students write 4/4, 100/100, and 1.00 underneath using the same format – this is done purposefully to draw attention to "oneness."*
- *0 – go back now to zero – make sure that students understand that 0/4 is a viable fraction. Write 0/4, 0/100 and 0.00 under the zero using the same format.*
- *Now have the students find the labels for each of the given decimals. Glue them in place.*

These three fraction representations are three very important BENCHMARK fractions. Look carefully at your BLM to visualize where these fractions and decimals are on the number line. I'm going to ask you to place certain fraction representations on the number line based on their proximity, or nearness, to BENCHMARK fractions.

	Unit 1, Lesson 3 **3-4**  **TV Lesson** - continued (*Use a 0 to 2 number line on the SmartBoard and have the students tell their Classroom Teachers where to put the number based on your questions and the BENCHMARK fractions.)* **1/2 -** where should I put this one? *(pause)* That's easy – it's a benchmark fraction that marks the distance halfway between 0 and 1*(do so)*. **0.75** - where should I put this one? *(pause)* That's easy – it's also a benchmark fraction representation, the same as 3/4, and all I have to do is find three-fourths of the distance to one *(do so)*. **0.90** – where should I put this one? *(pause)* I know that this is more than 0.75, but less than one, so I'll put it somewhere between 0.75 and one. **1.5 –** where should I put this one? *(pause)* That's a whole number and a benchmark decimal – it goes halfway between one and two. **1 1/8** – where should I put this one? *(pause)* Hmm, I think I'll put in another benchmark first, 1 1/4. It goes right here. From my fraction Action activity today, I know that 1/8 is smaller than 1/4; in fact, it is half of 1/4 – 1 1/8 will go right here.
Arthimus Portio's Corner **Unit 1 Lesson 3** How did you solve your CGI problem today? Let's see how many different strategies we can find!	Working with fractions and decimals is a lot easier when you can visualize the portions in your mind. Fractions are not numbers, they are quantities. As we've seen, you can represent fractions many ways. Becoming comfortable with all of the representations will make you fraction smart! **Pirate:** And talking being smart, I would like for your class to tell us some of the strategies your class came up with today to solve the CGI problem. There were lots of ways to solve it! **Teacher:** Thank you, Captain Portio! Let's see all the different things our students have to tell us about to solve their CGI problems! **Objectives:** And now before we go, let's review what we have learned today! *(do so)*

BLM Unit 1, TV Lesson 3 **Equivalent Quarters**
One per student



First Box – what fractional part of the box is covered in quarters?

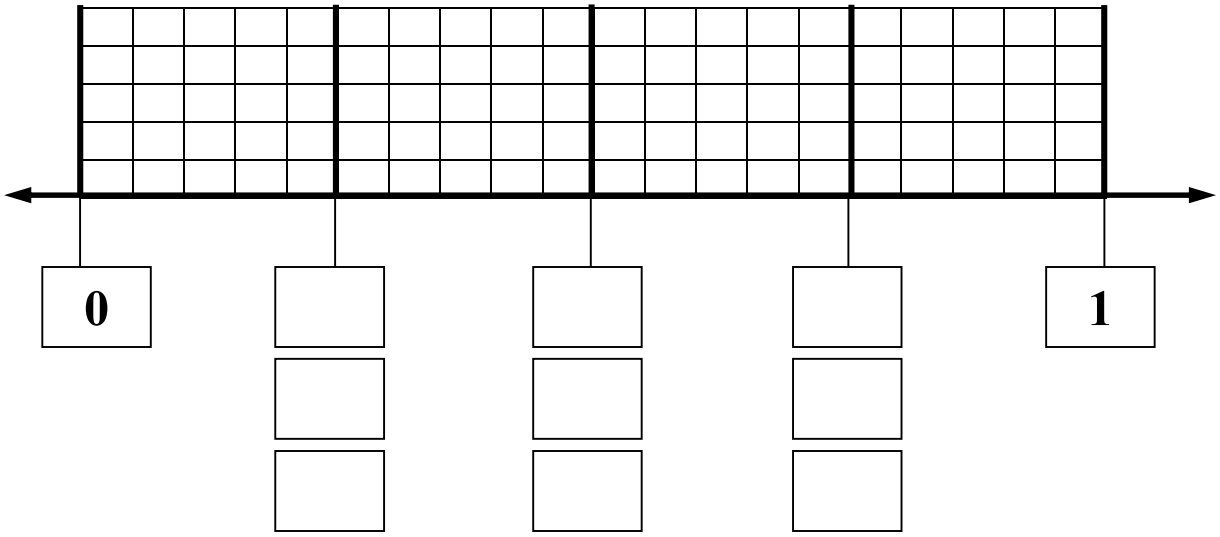
Second Box – how do you represent the fractional part of 100 with a fraction bar?

Third Box – how do you represent the fractional part of 100 as a decimal?

Cut the following strips and glue them to the appropriate column of representations.

Twenty-five hundredths	**Seventy-five hundredths**	**Fifty-hundredths**

BLM Unit 1, TV Lesson 3 **Equivalent Quarters**
One per student



Primera caja - ¿qué fracción de la caja está cubierta de cuartos?

Segunda caja - ¿cómo representas la fracción de 100 con una barra fraccional?

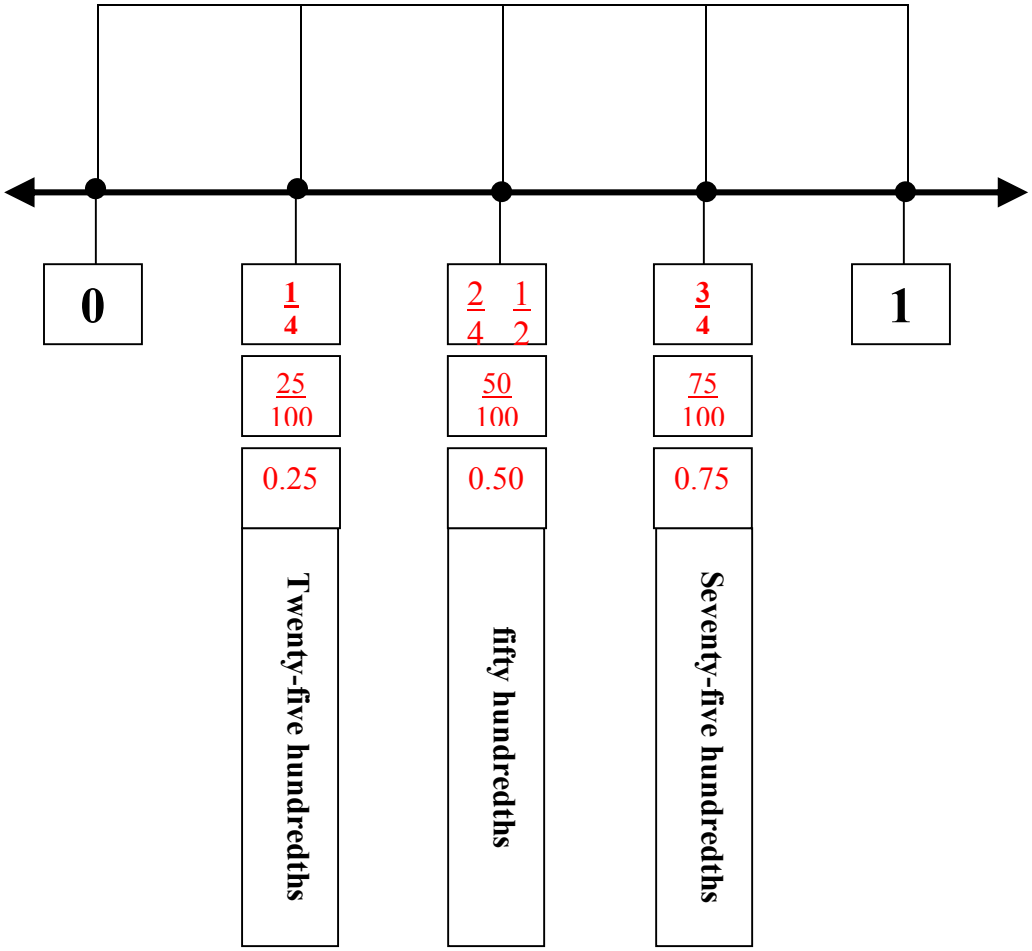
Tercera caja - ¿cómo representas la fracción de 100 en forma decimal?

Corta las siguientes tiras y pégalas en la columna apropiada de representaciones.

Veinticinco centésimos	**Setenta y cinco**	**Cincuenta centésimos**

BLM Unit 1, TV Lesson 3 **Equivalent Quarters, TEACHER**
One per student

Note to teachers: The large rectangle above the number line represents $1,00. The 5 X 5 grids represent 25 cents each or ¼ of a dollar.



First Box – what fractional part of the box is covered in quarters?

Second Box – how do you represent the fractional part of 100 with a fraction bar?

Third Box – how do you represent the fractional part of 100 as a decimal?

Cut the following strips and glue them to the appropriate column of representations.

Twenty-five hundredths	Seventy-five hundredths	Fifty-hundredths

Literature Vocabulary
commodity
mint

Math Vocabulary
coins
penny
nickel
dime
quarter
dollar
cents
decimals
decimal point
hundredths
tenths
compare
order

Materials
- BLM Family Fun Game Board

ELPS (*English Language Proficiency Standard*)
1E, 2E, 2G, 3B, 3D, 4F, 5A, 5B

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.A.1., I.B.2., I.D.1.
ELA I.A.2., I.A.3., II.A.1., II.A.2., III.B.1.
MATH I.A.2., I.C.1., IV.B.1., V.A.1.

Unit 1, Lesson 3 3-4

Follow-up

Math Objectives:
- Relate decimals to fractions that name (tenths and) hundredths.
- Represent decimals, including (tenths and) hundredths using (concrete and visual models and) money.
- Compare (and order) decimals using concrete and visual models to the hundredths.

Language Objectives:
- Listen and speak with a partner during our math activity.
- Use the math vocabulary during the activity.
- Write math journal response.

Building Background, Math
NOTE*: If the TV Teacher was unable to complete the TV activity, this would be your first task. Generate the number line in the room and let students tell you where they would put the numbers and why, making sure they use the benchmark fractions in their discussions.*

Practice and Application, Math
We are going to take home our Family Fun Game today, boys and girls. At the end of each unit, the whole school is taking home a game board and game pieces plus game cards that are unique to your grade level. Our grade band cards will always be printed in green.

We will play the game several times today to make sure you understand the process, and how to use the Answer Key. The cards will all be similar to problems that we have worked during this unit, so you will be able to solve all of them!

Let's get started!

(*Teach the students how to play the game. If students are returning from previous years, they are well aware of HOW to play the game. You can divide them into partners or groups of four and let them play together. If there are new students, you might want to either play the game as a whole class a time or two, or place the new students into teams with returning students. Once students are playing in their teams, however, you will want to circulate the room to make sure that students understand what is expected on the problem cards, and possible solution strategies.)*

Unit 1, Lesson 3 3-4

Follow-up - continued

QUESTIONS to ask as you circulate the room
Probe for Understanding

- What is an array model?
- What is the answer to this multiplication problem modeled by the array? How do you know?
- How did you determine the missing number?
- Show me how you solve this problem.
- Read this decimal for me.
- Read this fraction for me.
- Be careful, sometimes the question asks you to identify the SHADED. Sometimes you are asked to identify the UNshaded. What did you identify here?
- How do you know your comparisons are correct?

Math Journal Writing
Students should have a spiral notebook into which they journal their thoughts daily about math. Today's journal prompt is:

What do you know about fractions and decimals now that you did not know before this unit?

Objectives: Read through the language and math objectives for this portion of the lesson, and have the students tell you how they accomplished each.

Generic Family Fun Game Board

Materials Generic to All Units:

- Game Markers
- Game Cards for your Level
- Answer Key for your Level
- Game Movement Cards (white)
- Unit-specific Materials List

Playing the Game

1. Begin in one of the corner shapes. There may be more than 1 player in each starting shape. Remember where you started.
2. On your turn, draw one of your level game cards and work the problem.
3. One of the other players uses the Answer Key to check your answer. If correct, draw a movement card and move the given places
   - Forward movement in a clockwise direction.
   - Backward movement in a counter clockwise direction.

   If incorrect, do not move.
4. Game is over when the first person runs the entire track, ending back on the starting shape.

Tablero de juego

Materiales genéricos para todas las unidades:

- Fichas para jugar
- Tarjetas del juego para su nivel
- Clave de respuestas para su nivel
- Tarjetas de movimiento del juego (blancas)
- Lista de materiales específicos de la unidad

Cómo se juega

1. Empiece en una de las esquinas. Puede haber más de
1 jugador en cada figura de inicio.
2. Cuando sea su turno, saque una de las tarjetas de
juego de su nivel y resuelva el problema.
3. Uno de los otros jugadores usa la clave de respuestas
para ver si su respuesta es correcta. Si es correcta, saque una tarjeta de movimiento y mueva su ficha como lo indica la tarjeta.
   - Movimiento hacia adelante en el sentido de las manecillas del reloj.
   - Movimiento hacia atrás en el sentido contrario a las manecillas del reloj.

   Si es incorrecta, no se mueve.
4. El juego se acaba cuando la primera persona recorre
toda la pista y termina en la figura de inicio.

BLM **Follow-up Lesson 3** **Family Fun Game Movement Cards** 

Printed in White – 1 set for the TV Lesson Demo. 1 set per partners for class; 1 set per student for home.

Move forward 1 space	**Move forward 1 space**	**Move forward 1 space**
Move forward 1 space	**Move forward 1 space**	**Move forward 1 space**
Move forward 2 spaces	**Move forward 2 spaces**	**Move forward 2 spaces**
Move back 1 space	**Move back 1 space**	**Move back 1 space**
Move forward 3 spaces	**Move forward 2 spaces**	**Move forward 3 spaces**

Units 1 – 2 – 3 -- FAMILY FUN

One per student for home
One per partner pair in class

*Print on **white** paper.*

Family Fun – Movement Cards

Avanza un espacio	**Avanza un espacio**	**Avanza un espacio**
Avanza un espacio	**Avanza un espacio**	**Avanza un espacio**
Avanza 2 espacios	**Avanza 2 espacios**	**Avanza 2 espacios**
Retrocede 1 espacio	**Retrocede 1 espacio**	**Retrocede 1 espacio**
Avanza 3 espacios	**Avanza 3 espacios**	**Avanza 3 espacios**

BLM All-School Unit 1, Lesson 3 **Family Fun Game Answer Key**

Problem Letter	Kinder	1-2	3-4	5-6	7-8
A	This coin is a quarter.	(listen to the skip counting)	x x x x x x x x x x x x	633.29 miles	$\frac{22 \text{ boys}}{30 \text{ girls}}$
B	This coin is a dime.	(listen to the skip counting)	x x x x x x	$3237.88	$\frac{15 \text{ girls}}{26 \text{ total}}$
C	This coin is a penny.	(listen to the skip counting)	x x x x x x x x x x	perimeter = 99.5 meters	$\frac{14 \text{ boys}}{33 \text{ total}}$
D	This coin is a quarter.	5 cents	3 x 5 = 15	width = 10.75 meters	$\frac{21 \text{ red}}{33 \text{ total}}$
E	This coin is a dime.	10 cents	2 x 5 = 10	334.325 yards	6 cups of flour
F	This coin is a penny.	1 cent	2 x 3 = 6	$451.09	$\frac{1}{4}$ cup of onions
G	This coin is a nickel.	25 cents	There were 4 nickels in each bank.	$35 for each yard	12 cups of flour
H	This coin is a nickel.	14 nickels	There were 2 stacks of 5 nickels.	$2800	$12\frac{1}{2}$ cups sugar
I	This coin is a dime.	11 quarters	any model equivalent to 1/2	$744	11.5 oz of chocolate
J	Benny had 4 pennies.	19 pennies	4.05	$205	16 baskets
K	Benny had 2 pennies.	11 pennies	27.12	$675	20 baskets
L	Benny had 4 pennies.	4 pennies	3 5/10 or 3 1/2	$11.75 per hr	Same. Ratios are equivalent at 2:3
M	Benny had 5 pennies.	3 pennies	Four and twenty-three hundredths	$660 (double $330)	12 blue
N	Benny had 5 pennies.	7 pennies	2 tenths	$165 (half of $330)	18 red
O	Benny had 0 or no pennies.	14 pennies	4 tenths	$x = \$100$ (double 25, double 50)	16 yellow
P	(counts out 15 pennies)	Make a group of 5 and a group of 6	1.5 < 1.75 Less than	$x = 56$ (half of 112)	$72.00
Q	(counts out 12 pennies)	Make a group of 8 and a group of 8	1.51 > 1.49 Greater than	$412.50 (half of $825)	50 minutes
R	(counts out 20 pennies)	Show 12 pennies and remove 6.	1.2 > 1.02 Greater than	$150 (50% = $100, 25% = $50, combine)	Alicia – She runs $1\frac{2}{3}$ blocks per min.

BLM Unit 1, Follow-up Lesson 3 **Family Fun Game Cards**

Printed on ***Green*** –one set per partners for class; one set per student for home. (There are two pages of cards.)

A. Draw an array to model 2 x 6.	**B**. Draw an array to model 3 x 2.	**C**. Draw an array to model 2 x 5.
D. $3 \times \square = 15$	**E**. $\square \times 5 = 10$	**F**. $2 \times 3 = \square$
G. Mary had 12 nickels. She put them equally into 3 banks. How many nickels were in each bank?	**H**. Henri had 10 dimes. He stacked them into equal stacks of 5. How many stacks did he have?	**I**. The model shows $\frac{1}{2}$.  Model and name a different

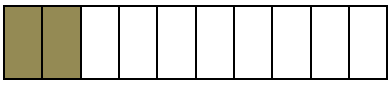
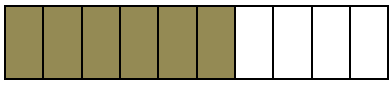
BLM Unit 1, Follow-up Lesson 3 **Family Fun Game Cards**

Printed on ***Green***–one set per partners for class; one set per student for home. (There are two pages of cards.)

A. Dibuja una matriz para modelar 2 x 6.	**B**. Dibuja una matriz para modelar 3 x 2.	**C**. Dibuja una matriz para modelar 2 x 5.
D. 3 x ☐ = 15	E. ☐ x 5 = 10	**F**. 2 x 3 = ☐
G. Mary tenía 12 monedas de cinco centavos. Las puso de manera equitativa en 3 alcancías. ¿Cuántas monedas de cinco centavos había en cada alcancía?	**H**. Henri tenía 10 monedas de 10 centavos. Las apiló en pilas iguales de 5. ¿Cuántas pilas tenía?	**I**. El modelo muestra $\frac{1}{2}$.  Modela y nombra una fracción equivalente distinta.

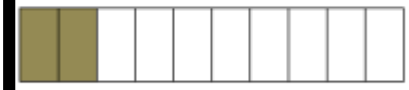
BLM Unit 1, Follow-up Lesson 3 **Family Fun Game Cards**

Printed on ***Green***–one set per partners for class; one set per student for home. (There are two pages of cards.)

J. Write the following fraction as a decimal. $4\frac{5}{100}$	**K**. Write the following fraction as a decimal. $27\frac{12}{100}$	**L**. Write the following decimal as a mixed fraction. **3.5**
M. How do you read this number? **4.23**	**N**. What part is SHADED? 	**O**. What part is UNshaded? 
P. **Compare these numbers using < or >.** **1.5 1.75**	**Q.** **Compare these numbers using < or >.** **1.51 1.49**	**R.** **Compare these numbers using < or >.** **1.2 1.02**

BLM Unit 1, Follow-up Lesson 3 **Family Fun Game Cards**

Printed on ***Green***–one set per partners for class; one set per student for home. (There are two pages of

J. Escribe la siguiente fracción en forma decimal. $4\ \frac{5}{100}$	**K**. Escribe la siguiente fracción en forma decimal. $27\ \frac{12}{100}$	**L**. Escribe el siguiente decimal como fracción mixta. **3.5**
M. ¿Cómo lees este número? **4.23**	**N**. ¿Qué parte está SOMBREADA? 	**O**. ¿Qué parte está SIN sombrear? 
P. **Compara estos números usando < o >.** **1.5 1.75**	**Q.** **Compara estos números usando < o >.** **1.51 1.49**	**R.** **Compara estos números usando < o >.** **1.2 1.02**

BLM Unit 1, Follow-up Lesson 3 **Special 3rd – 4th – Instructions**

Materials:

- Money Sets
  - 12 nickels
  - 10 dimes
- 2 x 3 strips of paper to make fraction models.
- Paper and pencil
- 3-4 Family Fun Problem Cards (green)
- Family Fun Movement Cards (white)
- Family Fun Game Board
- BLM Special 3rd-4th Instructions
- BLM Unit 1 Family Fun Game Answer Key, all levels

Solution Expectations

Problems A – C

- Students may draw a grid or a dot array.
- They should also be able to give the total number of squares or dots in the array.

Problems D – F

- Students must determine the missing number that will make the number sentence true. Ask students how they found the missing number.

Problems G - H

- Students may use the money models to solve the problem. They should be able to answer the question in a complete sentence. Example: There were four nickels in each bank.

Problem I

- Students may draw models on paper, or may use the strips of paper to make models. Any different equivalent fraction is acceptable.

Problems J – L

- Students name the fraction given as a decimal, or the decimal given as a fraction.

Problem M

- Read the number correctly – in this case, FOUR and TWENTY-THREE HUNDREDTHS (4 point 2 3 would NOT be acceptable)

Problems N – O

- Look carefully at the directions – one is to name the SHADED portion. The other is to name the UNshaded portion. Be sure students see the difference.

Problems P – R

- Students should read the answer using the correct form of the decimals.
  - **P** one and five-tenths is less than one and seventy-five hundredths
  - **Q** one and fifty-one hundredths is greater than one and forty-nine hundredths
  - **R** one and two-tenths is greater than one and two-hundredths.

BLM Unidad 1, Lección 3 **Instrucciones especiales 3º – 4º**

Materiales:

- Juegos de dinero
  - 12 monedas de cinco centavos
  - 10 monedas de 10 centavos
- 2 x 3 tiras de papel para hacer modelos de fracción.
- Papel y lápiz
- 3-4 cartas de problemas de Diversión Familiar (verdes)
- Cartas de movimiento de Diversión Familiar (blancas)
- Tablero de juego de Diversión Familiar
- Instrucciones especiales 3º-4º de BLM
- Guía de respuestas del juego de Diversión Familiar de la Unidad 1 de BLM, todos los niveles

Expectativas de solución

Problemas A – C

- Los estudiantes pueden dibujar una cuadrícula o una matriz de puntos.
- También deben ser capaces de decir el número total de cuadros o puntos en la matriz.

Problemas D – F

- Los estudiantes deben determinar el número faltante que hará que la oración sea verdadera. Pregunte a los estudiantes cómo encontraron el número faltante.

Problemas G - H

- Los estudiantes pueden usar los modelos de dinero para resolver el problema. Deben ser capaces de responder la pregunta con una oración completa. Ejemplo: Había cuatro monedas de cinco centavos en cada alcancía.

Problema I

- Los estudiantes pueden dibujar modelos en papel, o pueden usar las tiras de papel para hacer modelos. Cualquier fracción equivalente distinta es aceptable.

Problemas J – L

- Los estudiantes nombran la fracción dada como decimal, o el decimal dado como fracción.

Problema M

- Leer el número correctamente - en este caso, CUATRO y VEINTITRÉS CENTÉSIMOS (4 punto 2 3 NO sería aceptable).

Problemas N – O

- Ver cuidadosamente las instrucciones - una es nombrar la porción SOMBREADA. La otra es nombrar la porción SIN sombrear. Asegúrese de que los estudiantes noten la diferencia.

Problemas P – R

- Los estudiantes deben leer la respuesta usando la forma correcta de los decimales.
  - **P** uno y cinco décimos es menor que uno y setenta y cinco centésimos.
  - **Q** uno y cincuenta y un centésimos es mayor que uno y cuarenta y nueve centésimos.
  - **R** uno y dos décimos es mayor que uno y dos centésimos.

Math Objectives
- Construct pictorial models of fractions.
- Compare fractional parts of a whole.
- Use fraction names and symbols to describe fractional parts of a whole.
- Use pictorial models to generate equivalent fractions.
- Compare fractions using pictorial models.

Language Objectives
- Discuss fraction comparisons.
- Discuss fraction equivalencies.

Vocabulary
one-half
one-eighth
four-eighths
equivalent
greater than, less than

Materials:
- **BLM** string cheese Snack Fractions per student

Per Partners:
- 1 large string cheese*
- 2 paper dessert plates
- 2 paper towels
- 2 plastic knives

*(NOTE: half of a piece of string cheese is not a very large snack for 3rd-4th graders. Please feel free to give each their own string cheese when they have completed the fraction portion of the activity.)

Unit 1, Lesson 3 3-4

Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

In lesson 2 how did you share your ice cream sandwich? On your fraction record sheet, you showed the fractional part that each of you would receive; and you showed the fractional part that you would have received if there had been six of you sharing the ice cream sandwich.

- What fractional part did partners receive? *(halves, written 1/2)*
- What fractional part would each of six have received? *(one-sixth written 1/6)*
- What comparison sentence did you find when you compared your actual portion to a fourth? *(1/2 >1/6)*
- How did you find the sixths equivalence to half? *(student response)*

Today you are going to share a string cheese with a partner. Before you receive the actual snack, though, you will work through the String Cheese Snack Fraction record sheet. *(Distribute the sheet.)*

What is the same on this sheet as the other Snack Fraction sheets? *(upper portion dividing into halves)*

What is different? *(rounded rectangles instead of circles or real rectangles; dividing into eight portions instead of four)*

Once students have completed the record sheet, give them the actual snack and other supplies and let them share. This will be the format for subsequent snack fractions. When they are finished, have them complete the Snack Fraction Writing on the back of the BLM sheet or in their Math Journal Spiral.

Snack Fraction Journal Writing: BLM String Cheese Fractions
You have now divided snacks into halves, sixths and eighths. What can you tell about the denominator of fractions as you divide the snack for more people? What can you tell about the fractional portions of the snack as you divide for more people?

Objectives: Review the objectives with the class, making sure they understand how they achieved each.

BLM Unit 1, Snack Fraction 3 **String Cheese Fractions**
(One sheet per student)

My name is _____

I shared a piece of string cheese with my partner today.

We each received _____ _____ . I can represent that fraction with numbers: _____.
(fraction in words) (fraction in number)

My portion looked like this:
(*Divide the shape into the fractional part, then shade your part.)*

If there had been eight of us,
my share would have looked like this:

In the space below, compare these two fractional parts.
Use < or > to compare.

I would only have had _____ _____. I can represent that fraction with numbers: _____.
(fraction in words) (fraction in number)

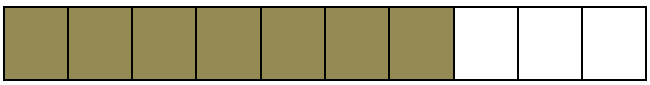
How many eighths would it take to equal one-half? _____

Write an equation which describes the relationship between one-half and four-eighths.

_____

Now use what you learned in math today to describe the UNshaded portion of the drawing as a fraction and as a decimal.

Decimal: _____ Fraction: _____
Can you write an equivalent fraction for this



UNshaded amount? _____

BLM Unit 1, Snack Fraction 3 **String Cheese Fractions**
(One sheet per student)

Mi nombre es _____

Compartí una parte de queso con mi compañero hoy.

Cada uno recibimos _____ _____ . Puedo representar este número con una fracción: _____
(fracción en palabras) (fracción en números)

Así es mi porción:
(Divide el dibujo en partes fracionales y sombrea tu parte.)

Si hubiéramos sido ocho,
mi porción sería así:

In the space below, compare these two fractional parts.
Use < or > to compare.

Solo tendría _____ _____. Puedo representar esta fracción en números: _____.
(fracción en palabras) (fracción en números)

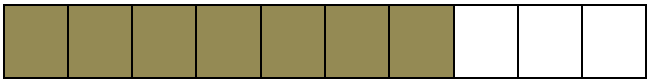
¿Cuántos octavos se necesita para igualar una mitad? _____

Escribe una ecuación que describe la relación entre una mitad y cuatro octavos.

_____

Ahora usa lo que aprendiste en la clase de matemáticas hoy para describer la porción NO sombreada del dibujo como una fracción y un decimal.

Decimal: _____ Fracción _____
¿Puedes escribir una fracción equivalente para la cantidad NO sombreada?? _____



FAMILY FUN - Sharing Halves

All ages are studying fractions this summer.
Your child has been sharing snacks
with a friend during Snack Fractions.
They each received half of the snack.

Please help your child share snacks with you or a sibling.
Although you will need to supervise, especially if a knife must be used to cut the snack, please let your child direct the sharing – where to cut, how much to give. Your child should also be able to tell you why the two shares are halves (they are equal parts. I have one-half because I have one of two equal parts). And our 3rd-4th graders are also talking about what the shares would be if they had more people to share that snack with. We compared halves, fourths, sixths and eighths during this unit; and we found equivalent fractions for 1/2 in fourths, sixths and eighths.

I shared _____ with _____.
Name of snack Name of person

Each of us received one-half of the snack. We each received 1 of 2 equal parts.

I shared _____ with _____.
Name of snack Name of person

Each of us received one-half of the snack. We each received 1 of 2 equal parts.

I shared _____ with _____.
Name of snack Name of person

Each of us received one-half of the snack. We each received 1 of 2 equal parts.

DIVERSIÓN FAMILIAR - Compartir mitades

Niños de todas las edades están estudiando fra io.
Su hijo ha estado compartiendo refrigerios
con un amigo durante las "fracciones de refrigerios".
Cada uno recibió la mitad del refrigerio.

Por favor ayude a su hijo a compartir sus refrigerios con usted o con un hermano.
Aunque usted necesite supervisarlo, especialmente si se requiere un cuchillo para partir el refrigerio, deje que su hijo tome el control del proceso de compartir - dónde cortar, cuánto dar. Su hijo también debe ser capaz de decirle por qué las dos partes son mitades (son partes iguales. Yo tengo una porque tengo una de dos partes iguales). Y nuestros niños de 3º-4º también están hablando acerca de cómo serían las partes si hubiera que compartir el refrigerio con más personas. Comparamos mitades, cuartos, sextos y octavos durante esta unidad; y encontramos fracciones equivalentes a 1/2 en cuartos, sextos y octavos.

Compartí _____ con _____.
Nombre del refrigerio Nombre de la persona

Cada uno de nosotros recibió un medio del refrigerio. Cada uno recibió 1 de 2 partes iguales.

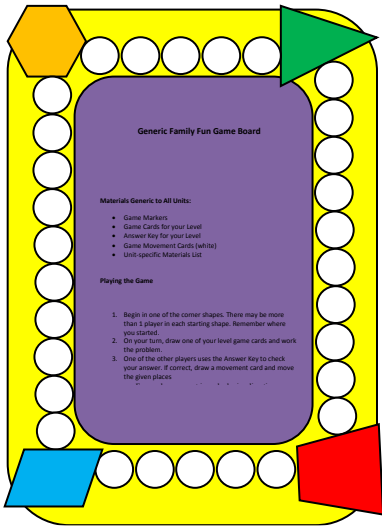
Compartí _____ con _____.
Nombre del refrigerio Nombre de la persona

Cada uno de nosotros recibió un medio del refrigerio. Cada uno recibió 1 de 2 partes iguales.

Compartí _____ con _____.
Nombre del refrigerio Nombre de la persona

Cada uno de nosotros recibió un medio del refrigerio. Cada uno recibió 1 de 2 partes iguales.

Family Fun – Kinder, Unit 1 Lesson 3



Family Fun Game!

Today is the day that the Family Fun Game comes home!! YEAH!

Attached you will find:

- game pieces
- game board
- movement cards
- answer key (one for all grades)
- problem cards (green for 3-4 grades)
- special instructions for 3-4 grades
- money kit

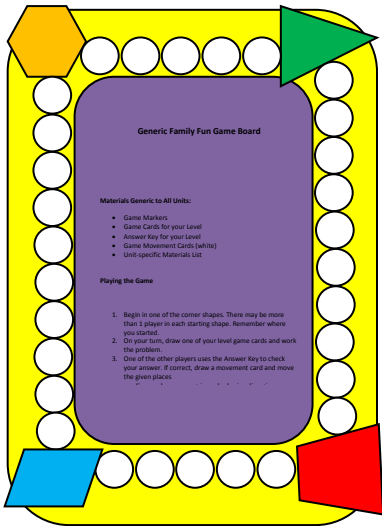
Please put the game pieces, cards, money kits and other game needs in a special place so that you can play as a family again and again!

We'll be sending home new problem cards, answer keys and special instructions sheets at the close of each unit.

Thank you for sharing time with your children! You are a valuable part of their education!

Your Child's Teacher,

Family Fun – Kinder, Unit 1 Lesson 3



Juego de diversión famliar

¡Hoy es el día en que el juego de Diversión Familiar se va a casa con todos los grados! ¡SÍ!

Van incluídos:

- Piezas de juego
- Tablero de juego
- Tarjetas de movimiento
- Guía de respuestas (para todos los niveles)
- Tarjetas con problemas (color verde para 3-4 grados)
- Instrucciones especiales para 3-4 grados

Por favor coloque las piezas de juego, cartas, juegos de dinero y otras partes del juego en un lugar especial, ¡para que puedan jugarlo como familia una y otra vez!

Esperamos que aproveche y disfrute de estos juegos de Diversión Familiar. Le enviaremos a casa nuevas cartas de problemas, guías de respuestas y hojas con instrucciones especiales al terminar cada unidad.

¡Gracias por pasar tiempo con sus hijos! ¡Usted es una parte muy valiosa de su educación!

El maestro de su hijo,

FAMILY FUN Involvement **3rd-4th**

Overview for Unit 1, ***The Everything Kids' Money Book***

This overview will provide a one-page view of the suggested Family Fun Activities for this unit, as well as other opportunities provided for Family Involvement.

Lesson 1

- Vocabulary Cards so students can practice language and math vocabulary at home
- Family Fun Unit 1 Lesson 1 Letter with ideas for involving the family in money matters

Lesson 2

- Family Fun Unit 1 Lesson 2 Letter inviting parents to help find ways that decimals are used in real life.

Lesson 3

- Family Fun Unit 1, Lesson 3 attached to the Family Fun Game supplies
- Family Fun Sharing Snack Fractions – now that students have had a full unit of sharing in halves, why not invite the families to share snacks at home in fractional parts. You could send this one home with each unit.
- Family Fun Game

Further Optional Family Involvement Activities

- Daily quick activities suggested in the Money Matters
- All-School Money Matters Project for Unit 1 – See MAS Space

Enrichment Suggestions

- Make a bank from coffee can or other can with plastic lid.
- Make coin rubbings at home.

This portion of the curriculum, although NOT required, should be used as needed to supplement and enrich the Unit's activities.

Family Fun Suggestions:
- Art Project – coin banks from cans or plastic jars with plastic lids
- Make coin rubbings at home.

Possible Center Suggestions:
- Online Math Games
- Art Project

ENRICHMENT Suggestions 3rd-4th

Unit 1 ***The Everything Kids' Money Book***

MATH WALK

Coin Animal Walk – animals had once been prominent on US coins. Take a walk today to see if there are any animals in your area that might be worthy of being pictured on a new coin. When you return to the room, talk about different animals suggested, why they might be possible coin subjects. How do they compare with the animals that are pictured on US coins? Coins of other nations?

Technology Connections

- **Math Practice**
  http://www.smartygames.com/igre/math/learnMoney.html
  Game to select coins to pay for various priced toys – easy to difficult levels
  iPad App – Count Money Four levels of difficulty; choice of 10, 25 or 50 problems
- **Science Connection**
  http://www.ehow.com/info_79http://www.ehow.com/info_8109377_science-floating-coin-different-liquids.html
  Will a coin float?
  http://www.usmint.gov/kids/games/
  Inventor's Challenge; When Pigs Fly
- **Social Studies Connection**
  http://www.usmint.gov/kids/games/
  Branches of Power
  http://www.usmint.gov/kids/games/
  Quarter Explorer
- **Probability**
  Set up a center for coin tossing – students flip a coin and keep record of heads or tails. How long will it take to get to the 50:50 chance of either coming up?
- **Art Connection**
  http://moneyandart.tumblr.com/
  Here are some really nifty highlighted art objects made from coins and bills. Perhaps students could use their play money to generate their own art projects.
  http://www.youtube.com/watch?v=RkRvuLfIYhI
  Folding an easy angelfish from a dollar bill

Math Objectives

Transition to Math Lesson 1
Students need to make the chart in order to use TV1.
(TV1))(Grade 4 assessment items 1, 2)

- Relate decimals to fractions that name (tenths and) hundredths.
- Represent decimals, including (tenths and) hundredths using (concrete and) visual models and money.

(TV2) Grade 4 assessment items 4, 5, 6, 7 compare 3 or more fractions and decimals)

- Relate decimals to fractions that name tenths and hundredths.
- Represent decimals, including tenths and hundredths using (concrete and) visual models and money.

Differentiate

Differentiating comes in your choice of which lesson to teach. You will also want to choose activities in the Daily Routines that teach/review the skills you need for your students to learn/review. Fraction Action is particularly important for the fraction skills that will be assessed.

Snack Fraction Notice

All snack fractions are common throughout the grade bands. Lesson 1 has been suggested for its ease of delivery. The only difference in the lessons 1, 2, 3 are the fractions to which the half is compared.

Materials

Transition to Math Lesson 1

- **BLM TM** Coins in the Money Set
- Student Money Sets in Ziploc (1 per student)

(TV1)

- Completed TM Coins in the Money Set
- Ruler or straight edge
- Student Money Sets in Ziploc (1 per student)
  - five $20 bills
  - ten $10 bills
  - twenty $5 bills
  - twenty $1 bills
  - four quarters
  - ten dimes
  - twenty nickels
  - hundred pennies
- **BLM** Making Sense of Cents

(TV2)

- Student Money Sets in Ziploc (1 per student)
  - 5 dollar bills
  - four quarters
  - ten dimes
  - twenty nickels
  - hundred pennies
- **BLM** Comparing Fractions and Decimals

Family Fun

- **BLM** Family Fun Game board
- **BLM** 3-4 Special Instructions
- **BLM** Family Fun Movement Cards
- **BLM** Family Fun Problem Cards (green)
- **BLM** Family Fun Answer Key – all levels
- Game markers
  12 nickels, 10 dimes

Snack Fractions – TV lesson 1

- **BLM** Apple Snack Fractions
- 1 large apple per pair
- 2 paper dessert plates
- 2 paper towels
- 2 plastic knives

QUESTIONING

As a result of this lesson, your students should be able to respond to the following:

- How is a decimal like a fraction?
- Which portion of the mixed decimal number represents a whole number? Fractional part of numbers?
- How do you mathematically read a decimal (one AND seventy-two hundredths)?
- Use mathematical symbols to compare (< or >) two decimals.

Math Vocabulary

coins, penny, nickel, dime, quarter, dollar, cents, decimal, decimal point, compare, order, hundredth, tenths (special words: greater than >, less than <, equivalent)

CGI Problem (select one)

- Division, Measurement (3rd grade assessment Item 5)
- Division, Partitive (3rd grade assessment Item 4)

Journal Writing

Explain how money number representations and other decimals are similar.

Family Fun (3rd Grade assessment items 1,2,3,4,5) (4th Grade assessment items 1, 2, 8) (A generic game board is being used in all grade levels, differentiated by game cards specific to the grade level.) There is only one type of game this year. All games will have problem cards and an answer key at all levels. Please be sure the 3rd-4th grade cards are printed on green cardstock.

Snack Fractions TV Lesson 1 (3rd Grade assessment item 8; 4th Grade assessment item 8)
You can select any of the three snacks that are appropriate for your homes – all three snacks in 3rd - 4th grade level will practice the same skills, although comparison and equivalent fractions will be for different fractional pieces depending on the lesson you choose (L 1 fourths; L 2 sixths; L 3 eighths).

Before students share the actual snack, they work through the record sheet. Students divide the shape and shade their portion on the shape provided. They then divide a second congruent shape into fourths and compare their actual share to the share they would have with more people.

Assessment – Students will be introduced to and practice skills for items
3rd - 1, 2, 4, 5, 6, **8** (*all DR*)*
4th - 2, 4, **6**, **8**

***Please note: For more instruction of the third grade objectives for this unit use the Daily Routines for Fraction Action and Measurement Lab.**

3rd-4th Overview

Unit 2 Diego

This is a quick snapshot of the three math lessons for this unit. For detailed instructions, balance literacy objectives/extended activities, enrichment ideas refer to the complete lesson plans for each lesson.

Lesson Segment	Math Objectives	Language Objectives	Activity	Manipulatives	Supplies
Unit 2 **Lesson 1** ***Daily Routine*** 30 – 45 minutes	**ESSENTIAL** Construct concrete models of fractions. Compare fractional parts of whole in a problem situation using concrete models. Model multiplication using area and arrays. Solve word problems using a variety of strategies and defend their strategies. **OPTIONAL** Compose and decompose values to show a new representation of the value. Graph class responses and analyze data.	**ESSENTIAL** Speak to partners, teacher, and class using vocabulary. Discuss problem solving process and strategies. Explain how they compared fractions. **OPTIONAL** Discuss ways to compose and decompose values. Analyze graph results.	**ESSENTIAL** • Fraction Action • CGI • What's Missing? • Measurement Lab • *Solve It (begin in Unit 2)* **OPTIONAL** • Target Number • Graphing Money Matters is now found on MAS Space.	**ESSENTIAL** • Unknown Quantity Cards (add/subtract) • 30 color tiles – per student • Scissors – per student **OPTIONAL**	**ESSENTIAL** • **BLM** Using Benchmarks • **BLM** Teacher Directions, Benchmarks • **BLM** CGI Master • **BLM** Area Models with Murals #1 • **BLM** KEY • **BLM** Solve It! Lesson 1 **OPTIONAL** • Class graph • Sentence strips for graph labels
Classroom **Lesson 1** 1 to 1.5 hour	Read and compare fraction and decimal representations. Find equivalent fraction and decimal representations.	**Language Objectives:** • Ask questions about the text as they read. • Identify sequencing signal words from text that indicate new event in story • Orally generate predictions about events, justify predictions, and after reading confirm or disconfirm predictions • Identify and write the	**Literature Selection** ***Diego*** by Jeanette Winter and Jonah Winter **Vocabulary Building**		**Language Materials** • **BLM** Word Cards • **BLM** Sequencing Graphic Organizer (1 per student)

		sequence of main events from the story			
		Math Language Objectives • Read and compare fraction and decimal representations. • Find equivalent fraction and decimal representations.	***TM Math*** **Building Background** Play Decimal Battle **Vocabulary** equal-sized groups, repeated addition, repeated subtraction, multiplication, division fact families factors, products	***TM Math*** • none	***TM Math*** • **BLM –** Word Cards – 1 set for classroom; 1 set for each student to take home • **BLM TM** Decimal Battle -1 set cards cut and laminated per pair of students (these will be used in all 3 lessons for this unit)
TV **Lesson 1** 30 minutes	Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting. Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.	Use the math vocabulary during the activity. Discuss answers and possible strategies with classmates. Explain how repeated addition and multiplication representations are the same.	**Vocabulary Building** equal-sized groups, repeated addition, repeated subtraction, multiplication, division fact families factors, products **Comprehensible Input** Students work through equal-size group problems, modeling with counters and portion cups.	• Counters – 100 per student • Portion cups or any small cups like 2 oz bathroom cups – 10 per student	• **BLM** Making Equal Sets - 3 pages, 1 set per student
Follow-up and Snack Fraction **Lesson 1** .5 to 1 hour	Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting. Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.	Listen and speak with a partner during our math activity. Use the math vocabulary during the activity. Write math sentences.	**Practice and Application** Quick discussion of the comparison of multiplication and division math movies. Partner activity to continue practice of solving equal-size groups using repeated computation and number sentences.	• Counters – 100 per student • Portion cups or any small cups like 2 oz bathroom cups – 10 per student	• **BLM** Finding Equal Sets (1 per student)

	SNACK FRACTIONS: Represent equivalent fractions using pictorial models. Compare two fractions having the same denominator. Determine if two given fractions are equivalent. Recognize tenths and label in fraction and decimal form.	**SNACK FRACTIONS:** Discuss fraction comparisons. Discuss fraction equivalencies. Discuss fraction – decimal equivalencies.	**SNACK FRACTIONS** **Building Background** Teacher walks students through activity today. **Vocabulary** one-half one-sixth three-sixths equivalent greater than, less than	**SNACK FRACTIONS:** **Per Partners:** • 1 c guacamole or other dip • 12 baby carrots • Two 1/2 c measuring cups • 6 Paper plates • 2 plastic spoons • 2 paper dessert plates • 2 paper towels • 2 plastic knives	**SNACK FRACTIONS:** • **BLM** Dip and Veggie Fractions (1 per student) • **BLM** Dip and Veggie Fraction Pieces (1 per student)

Lesson Segment	Math Objectives	Language Objectives	Activity	Manipulatives	Supplies
Unit 2 Lesson 2 ***Daily Routine*** 30 – 45 minutes	**ESSENTIAL** Construct concrete models of fractions. Compare fractional parts of whole in a problem situation using concrete models. Model multiplication using area and arrays. Solve word problems using a variety of strategies and defend their strategies. **OPTIONAL** Compose and decompose values to show a new representation of the value. Graph class responses and analyze data.	**ESSENTIAL** Speak to partners, teacher, and class using vocabulary. Discuss problem solving process and strategies. Explain how they compared fractions. **OPTIONAL** Discuss ways to compose and decompose values. Analyze graph results.	**ESSENTIAL** • Fraction Action • CGI • What's Missing? • Measurement Lab • Solve It **OPTIONAL** • Target Number • Graphing Money Matters is now found on MAS Space	**ESSENTIAL** • Unknown Quantity Cards (add/subtract) • 30 color tiles – per student • Scissors – per student **OPTIONAL**	**ESSENTIAL** • **BLM** Alex's Rope Project • **BLM** Teacher Directions, • **BLM** CGI Master • **BLM** Lesson 2, Penny Array/Square Area • **BLM** Teacher Directions, Equivalent • **BLM** Solve It, Lesson 2 • **BLM** Area Model with Murals #2 **OPTIONAL** • **BLM** Guanajuato Jungle Animals • Sentence strips for graph labels
Classroom **Lesson 2** 1 to 1.5 hour	Read and compare fraction and decimal representations. Find equivalent fraction and decimal representations.	**Language Objectives:** • Ask questions about the text as they read. • Identify sequencing signal words from text that indicate new event in story • Orally generate predictions about events, justify predictions, and after reading confirm or disconfirm predictions • Identify and write the sequence of main events from the story	**Literature Selection** ***Diego*** by Jeanette Winter and Jonah Winter **Vocabulary Building**		**Language Materials** • **BLM** Word Cards • **BLM** Rapid Reader **(1 per student students)** • **BLM** Semantic Map (1 per student) • **BLM** Sequencing Graphic Organizer *(Lesson 1)*

		Math Language Objectives Explain how fractions and decimals are related. Discuss activity with partner and group.	***TM Math*** **Building Background** Word, fraction, decimal, picture of tenths **Vocabulary** equal-sized groups, repeated addition, repeated subtraction, multiplication, division fact families factors, products	***TM Math*** • none	***TM Math*** • Decimal Battle cards from lesson 1– 1 set per pair of students • **BLM** Math Word Cards
TV **Lesson 2** 30 minutes	Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting. Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally. Determine a quotient using the relationship between multiplication and division.	• Use the math vocabulary during the activity. • Discuss answers and possible strategies with classmates.	**Vocabulary Building** equal-sized groups, repeated addition, repeated subtraction, multiplication, division fact families factors, products **Comprehensible Input** Investigating Fact Families through equal size groups represented in models, words, pictures and numbers.	• Counters – 100 per student • Portion cups or any small cups like 2 oz bathroom cups – 10 per student	• **BLM** Fact Families #1 and #2, 1 each per student
Follow-up and Snack Fraction **Lesson 2** .5 to 1 hour	Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting. Determine the number of objects in each group when a set of objects is partitioned into equal	Listen and speak with a partner during our math activity. Use the math vocabulary during the activity. Write math journal response.	**Practice and Application** Collect thoughts from class regarding fact families. Practice by finishing the two problems from the TV Lesson.	• Counters – 100 per student • Portion cups or any small cups like 2 oz bathroom cups – 10 per student • Chart paper and marker (class tablet)	• **BLM** Fact Families #1 and #2, from TV Lesson – students will complete

	shares or a set of objects is shared equally. Determine a quotient using the relationship between multiplication and division.				

	SNACK FRACTIONS:
	Represent equivalent fractions using pictorial models.
	Compare two fractions having the same denominator.
	Determine if two given fractions are equivalent.
	Identify decimals and represent as decimal numbers and as fractions.
		SNACK FRACTIONS:
		Discuss fraction comparisons.
		Discuss fraction equivalencies.
		Discuss fraction – decimal equivalencies.
			SNACK FRACTIONS
			Building Background
			Students work with partner to complete assignment. Teacher will circulate the room.
			
			Vocabulary
			one-half
			one-sixth
			three-sixths
			equivalent
			greater than, less than
				SNACK FRACTIONS:
				Per Partners:
				• 2 cups Trail Mix (you may purchase already made, or have students mix their own with 1/2 cup of each of the following:)
				  ○ pecans
				  ○ semi chocolate chips
				  ○ granola
				  ○ raisins
				• Two 1-cup measuring cups
				• 2 paper dessert plates
				• 2 paper towels
				• 2 plastic knives
					SNACK FRACTIONS:
					• **BLM** Trail Mix Fractions - 1 per student

Lesson Segment	Math Objectives	Language Objectives	Activity	Manipulatives	Supplies
Unit 2 Lesson 3 ***Daily Routine*** 30 – 45 minutes	**ESSENTIAL** Construct concrete models of fractions. Compare fractional parts of whole in a problem situation using concrete models. Model multiplication using area and arrays. Solve word problems using a variety of strategies and defend their strategies. **OPTIONAL** Compose and decompose values to show a new representation of the value. Graph class responses and analyze data.	**ESSENTIAL** Speak to partners, teacher, and class using vocabulary. Discuss problem solving process and strategies. Explain how they compared fractions. **OPTIONAL** Discuss ways to compose and decompose values. Analyze graph results.	**ESSENTIAL** • Fraction Action – none today • CGI • What's Missing? • Measurement Lab • *Solve It (begin in Unit 2)* **OPTIONAL** • Target Number • Graphing - none Money Matters is now found on MAS Space.	**ESSENTIAL** • Unknown Quantity Cards (add/subtract) • Color tiles – 30 per student • Scissors – 1 per student **OPTIONAL**	**ESSENTIAL** • **BLM** CGI Master • **BLM** Area Models with Murals #3 (1 per student) • **BLM** KEY • **BLM** Solve It! Lesson 3 **OPTIONAL**
Classroom **Lesson 3** 1 to 1.5 hour	Read and compare fraction and decimal representations. Find equivalent fraction and decimal representations.	**Language Objectives:** Ask questions about the text as they read. Identify sequencing signal words from text that indicate new event in story Orally generate predictions about events, justify predictions, and after reading confirm or disconfirm predictions Identify and write the sequence of main events from the story	***Diego*** by Jonah and Jeanette Winter **Vocabulary Building**	• 3 unlined blank 8 ½ x 11 pages • 1 construction paper 8 ½ x 11 • Glue or glue sticks • Dice for each pair of students	• **BLM** Word Cards • **BLM** Timed Sequencing (1 per student) • **BLM** Timed Sequencing TEACHER KEY

		Math Language Objectives
		Verbally compare various decimal representations.
		Discuss activity with partner and group.
			TM Math
			Building Background
			Play the Decimal Battle Game one more time.
			
			Introduce the Base Ten Array Board to the students.
			
			Vocabulary
			equal-sized groups, repeated addition, repeated subtraction, multiplication, division fact families
			factors, products
				TM Math
				• Base ten materials in Ziploc – per student
				  ○ 2 hundreds
				  ○ 15 tens
				  ○ 15 units
					TM Math
					• **BLM TM** Decimal Battle – from Lesson 1 – 1 set per pair
					• **BLM TM** Base Ten Array Board

TV
Lesson 3
 	
30 minutes
	Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting.
	Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.
	Use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products and the commutative associative and distribute properties.
		Use the math vocabulary during the activity.
		Discuss solution strategies.
			Vocabulary Building
			equal-sized groups, repeated addition, repeated subtraction, multiplication, division fact families
			factors, products
			
			Comprehensible
			Generate base ten arrays to multiply and divide, and list fact families.
				• Pencil and paper
				• Base ten materials – per student
				  ○ 2 hundreds
				  ○ 15 tens
				  ○ 15 units
					• **BLM TM** Base Ten Array Board – 1 per student

Follow-up and Snack Fraction **Lesson 3**
 	
.5 to 1 hour
	Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting.
	Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.
	Use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products and the commutative associative and distribute properties.
	
	SNACK FRACTIONS
	Represent equivalent fractions using pictorial models.
	Compare two fractions having the same denominator.
	Determine if two given fractions are equivalent.
	Represent tenths in decimal and fractional forms.
		Explain strategies.
		Listen and speak with a partner during our math activity.
		Use the math vocabulary during the activity.
		Write your math journal response.
		Play a cooperative game.
		
		SNACK FRACTIONS
		Discuss fraction and decimal equivalencies.
		Discuss fraction comparisons.
			Teach the family fun game.
			
			SNACK FRACTIONS
			Building Background
			Students should be able to work with their partners today while the teacher circulates the room.
			
			Vocabulary
			one-half
			one-sixth
			three-sixths
			equivalent
			greater than, less than
				• Base ten materials – per student
				  ○ 2 hundreds
				  ○ 15 tens
				  ○ 15 units
				• Game markers – 1 per student
				
				SNACK FRACTIONS
				Per Partners:
				• 1 cup of cherry tomatoes
				• 1 cup of cheese cubes
				• 2 half-cup measuring cups
				• 2 paper dessert plates
				• 2 paper towels
					• **BLM** Practicing Base Ten Arrays – 1 per student
					• **BLM** Family Fun Game Cards – 1 set per game teams, plus a full set for each student to take home
					• **BLM** All-level Answer Key - 1 sheet per game teams, plus 1 sheet for each student to take home
					
					SNACK FRACITONS
					• **BLM** Tomatoes and Cheese Fractions (1 per student)
					• **BLM** Tomatoes and Cheese Fractions Fraction Pieces (1 per students)

Unit 2	**Lesson 1**		**Lesson 2**		**Lesson 3**	
	TV and Follow-up	**Snack Fractions**	**TV and Follow-up**	**Snack Fractions**	**TV and Follow-up**	**Snack Fractions**
3rd Grade Assessment Items • Lesson 1: 1, 3, 4, 5, 7 • Lesson 2: 1, 3, 4, 5, 7 • Lesson 3: 1, 3, 4, 5, 7 Daily Routines • Measurement (1) • What's Missing (2) • CGI (4) • CGI (5) • Fraction Action (8) Snack Fractions (6, 8) **4th Grade** Assessment Items • Transition to Math: Review Game 1, 2, 6 this unit • Lesson 1: 3 • Lesson 2: 3 • Lesson 3: 3 Daily Routines • Measurement (4) Snack Fractions (8)	**3.4(E)** represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting; **3.4(H)** determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines; **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods;	**3.4(E)** represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting; **3.4(H)** determine the number of objects in each group when a set of objects I partitioned into equal shares or a set of objects is shared equally.	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines; **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods;	**3.4(E)** represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting; **3.4(G)** use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products and the commutative associative and distribute properties; **3.4(H)** determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines; **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods;

Project SMART/Math MATTERS 2014

Grade Level: 3-4	Unit 2 / Lessons 1 – 2 - 3

Daily Routine Math Objectives:
Use area model to multiply and divide.
Solve word problems using a variety of strategies and defend their strategies.
Model and solve 2-step word problems.
Determine a missing number in an equation.
Estimate and measure area in square inches.
Construct concrete models of fractions.
Compare fractional parts of whole in a problem situation using concrete models, fraction names and number representations.
Model fraction quantities greater than one.

Daily Routine Language Objectives:
Speak to partners, teacher, and class using vocabulary introduced in the Daily Routines.
Listen to, read, speak and write the labels of the graph.
Discuss problem solving strategies in partners, small groups and whole groups.
Listen to, read, speak and write to understand action in word problems.

Unit Math Objectives (Integrated Lesson including snack fractions):
Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups and skip counting.
Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.
Use strategies and algorithms, including standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products and the commutative associate and distributive properties.
Represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models including number lines.
Compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects and pictorial models.
Determine if two given fractions are equivalent using a variety of methods.

Unit Language Objectives:
Think, pair, share questions throughout the unit.
Learn and use new vocabulary.
Listen to nonfiction writing for information and to develop an understanding of the vocabulary.
Listen to, speak, read and write unit vocabulary in a variety of group and individual settings.
Share-write math sentences.
Describe why a snack is or is not half.

Technology Objectives:
Use research skills and electronic communication, with appropriate supervision, to create new knowledge.
Technology suggested in this unit: iPad, SMART Board or other "smart" projection device, Internet

Key Vocabulary, MATH:
equal sized groups, repeated addition, repeated subtraction, multiplication, division, fact families, factors, products

Key Vocabulary, LANGUAGE:
altar, herbs, vapors, medicinal, studio, equality, horrible, whistle

Resources/Literacy Links
Diego by Jonah Winter and Jeanette Winter
Related links: http://www.mommymaestra.com/2011/12/diego-rivera-lesson-plans-books-and.html and http://artsmarts4kids.blogspot.com/2008/05/diego-rivera.html

Lesson Sequence
- Daily Routine: 30 to 45 minutes
- Classroom Lesson: .5 to 1 hour
- TV Lesson: 30 minutes
- Classroom Follow-up including Snack Fractions: .5to 1 hour

MATH WALK
Mural Walls Walk – walk around campus to find scenes that might make interesting subject for murals.

Technology Connections
- **Math Practice**
  http://www.mad4maths.com/multiplication_table_math_games/ Basic fact practice
  http://www.bbc.co.uk/bitesize/ks1/maths/multiplication/play/popup.shtml Similar to lesson 1
  http://www.topmarks.co.uk/maths-games/7-11-years/multiplication-and-division
  iPad App – https://itunes.apple.com/us/app/multiplication-division-flash/id364368447?mt=8
- **Science Connection**
  http://chemistry.about.com/od/glowinthedarkprojects/a/glowingwater.htm Making glow in the dark water
- **Social Studies Connection**
  http://www.outreachworld.org/Files/florida_internatl_u/DiegoRivera.pdf History of Diego Rivera
  http://raggedclothcafe.com/2007/06/20/murals-of-diego-rivera-%E2%80%94-terry-grant/
  Diego's Murals, a travelogue
- **Art Connection**
  http://www.education.com/activity/article/summer-mural/ Directions for painting a summer mural.

Unit 2 OPTIONAL All-School Project

Because all grade bands will be reading, learning and researching within the same unit theme, we are offering OPTIONAL projects in which all ages can participate.

Unit Theme: Artist Biographies

Unit 1: Art Museum Exhibits

Defined:

Students work as grade bands to create samples of their artist's medium.

Kinder – music, particularly mambo rhythms (Tito Puente)

1-2 – pottery (David

3-4 – murals (Diego Rivera)

5-6 – tessellations (MC Escher)

Materials: (projects naturally depend upon the medium you are using; however the museum should have wall areas, listening areas and shelving for 3-d displays.

Objectives: (add your own objectives to the project)

- Students gain an appreciation of not only their artist's medium, but those of others as well.
- Students work together to present their work to the community.

Procedures:

1. You might want a committee that will actually plan the "museum." Where, what type of displays, open to the community or closed to the school; times of presentations, advertizing needed – these are all concerns to be addressed before the project presentation.
2. Once students have read about their artist, they should probably do additional research to see and hear all they can about the artist's medium.
3. Students may then work individually, partners, or small groups within the grade band to create exhibits for the museum.
4. Be sure that all entries are labeled not only with the artist for whom the project was designed, but also the local artist, age, class, etc.
5. A display of photographs of the project while in action would be very impressive to the community.

Online Resources:

- http://americanart.si.edu/education/activities/podcasts/ Did you know that you can have your students make podcasts of their work and display on the Smithsonian American Art. Check this out and see if it fits your timeline.

Project Title: _____

Student Name: _____

Date: _____ Teacher: _____

Math MATTERS Project Rubric

	1 point	2 points	3 points	4 points	Score
Amount of Project Completed	Little effort made, most items are unaddressed or incomplete	Some parts of the project were addressed and complete	Most of the project parts were addressed and complete, a few may be missing	All parts of the project were addressed and complete	
Quality of Work	Could not read project, project poorly organized	Project was partially organized, many parts were confusing or unrelated	Project was mostly organized, a few parts may be confusing or unrelated	Project highly organized and all parts clearly related to the topic	
Use of Time and Effort	Did not use time effectively	Used some time effectively, but was often off task	Used most time effectively, occasionally off task	Student used all available time to the fullest	
Presentation	Student could not explain own project	Student needed to be prompted to explain own project	Student explained project with little prompting	Student easily explained the project and could answer questions	
				Total	

A total score of 12 or more points is needed to consider the project complete.

Notes:

Rubric is an adaptation of Rcampus Math Project Rubric: Fraction Word Problems
http://www.rcampus.com/rubricshowc.cfm?code=F945W8&sp=true&

Materials
***(BLM** denotes Blackline Masters found in curriculum)*

Math Objectives
- Find missing elements in an equation.

Balanced Literacy
Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.
- Explain how they decided to rename the target number.
- *Discuss scarcity of money, choices and cost benefit.*

TEKS in TV and Flu
Lesson 1
- **3rd** – 3.4EH, 3.3 FH
- **4th** - 4.3C

Lesson 2
- **3rd** – 3.4EH, 3.3 FH
- **4th** - 4.3C

Lesson 3
- **3rd** – 3.4EGH, 3.3 FH
- **4th** - 4.3C

Assessment Items
(As a result of experiencing this unit, students will be learning skills necessary to be successful on the following Assessment items.)

3rd - 1, 2, 3, 4, 5, 6, 7, 8
4th - 1, 2, 3, 6

ELPS (*English Language Proficiency Standard*)
1G, 2A, 2B, 2C, 4C, 4J,5D

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.C.1., I.C.2., I.C.3.
ELA III.A.1., III.B.2., IV.A.3
MATH IV.C.1., IV.C.2., VI.C.2., VIII.A.1., VIII.A.2., VIII.A.4.

Unit 2, Lesson 1 — 3-4
Daily Routine

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL
What's Missing? *(3rd assessment item 2)*
- **Lessons 1, 2, 3** *follow directions in the Daily Routine Explanations. Check the assessment items so that you are certain you include samples to practice the shape in the assessed location.*

Solve It! *(fundamental problem-solving skills for all items)*
- **Begin in this unit following directions in the Solve It overview.**

Fraction Action
- **Lesson 1** BLM Using Benchmarks (*4th assessment item 4, 6*)
  BLM Teacher Directions, Benchmarks
- Lesson 2 - BLM Alex's Rope Project (3rd, #6, *4th # 5*)
  BLM Teacher Directions
- Lesson 3 – none

CGI
- **Lesson 1** – Multiplication
- Lesson 2 – Division, Measurement (*3rd Assessment item 5*)
- Lesson 3 – Division, Partitive (*3rd Assessment item 4*)

Measurement Lab (3rd Assessment 1) materials are per student
- **Lesson 1 – Area Models with Murals #1**
  - **30 color tiles**
  - **1 ruler**
  - **BLM Area Models with Murals #1**
  - **BLM KEY**
- Lesson 2 – Area Models with Murals #2
  - 30 color tiles
  - 1 ruler
  - BLM Area Models with Murals #2
  - BLM KEY
- Lesson 3 - Area Models with Murals #3
  - 30 color tiles
  - 1 ruler
  - BLM Area Models with Murals #3
  - BLM KEY

Unit 2, Lesson 1 3-4

Daily Routine - continued

OPTIONAL: *These activities, although not assessed, are fundamental skills that should be included in those sites providing five to six weeks of instruction.*

Arthimus Portio's Corner
Lesson 1- Fraction Action
How did you solve your Fraction Action problem today? Let's see how many different strategies we can find!

Target Number *(fundamental number sense for all items)*

- **Lesson 1 – Target Number 48**
- Lesson 2 – Target Number 20
- Lesson 3 – Target Number 100

Graphing

- **Lesson 1** – Diego's Murals *(Make a picture card of each of the three murals students will be using during the Measurement Lab. Generate a bag graph to collect the data*.)
- Lesson 2 – Guanajuato Jungle Animals
- Lesson 3 – none

Graphing Questions:
Before asking any questions, have the students give you their observations about the data shown on the graph. Always ask students to explain how they know.
These are generic questions. Simply reword them to fit your graph topics.

- How many more ____ than ____?
- How do you know?
- How many fewer ____ than ____?
- How do you know?
- Which (item) was chosen by more students than any of the others choices?
- How do you know?
- Which (item) was chosen by the fewest students?
- How do you know?
- What job could use this type of information? Why?
- If we asked this same question to other age groups, how do you think their answers would compare to ours? Why?

Unit 2 **CGI Problems for *Diego***

Join	**Result Unknown (JRU)** Diego painted 2 murals. One covered _____ft^2. The second covered ____ ft^2. How many square feet did they cover together? (75, 50) (75, 55) (73.90, 52.80)	**Change Unknown (JCU)** Diego painted a mural that covered ____ ft^2. After he painted a second mural, he had covered ____ ft^2. How many square feet did the second mural cover? (75, 125) (75, 130) (73.90, 126.70)	**Start Unknown (JSU)** Diego painted a mural that covered many square feet. The second mural he painted covered ____ft^2. Together the murals covered ____ft^2. How many square feet did the first mural cover? (50, 125) (55, 130) (52.80, 126.70)
Separate	**Result Unknown (SRU)** The healer had ____ pounds of herbs. She used ___ pounds for little Diego the first week. How many pounds did she have left? (125, 35) (102, 93) (150.90, 3.90)	**Change Unknown (SCU)** The healer had ____pounds of herbs for little Diego. After she used some, she had ____ pounds left. How many pounds did she use? (125, 25) (102, 89) (149.53, 3.90)	**Start Unknown (SSU)** The healer had many pounds of herbs to use for little Diego. She used ____ pounds, and had ____ pounds left. How many pounds had she had to use for little Diego? (145, 35) (182, 93) (136.02, 3.90)
Part-Part-Whole	**Whole Unknown (PPW-WU)** The healer had ____ dry herbs and ___ fresh herbs in the hut. How many herbs did she have in the hut? (14, 21) (29, 27) (27, 19)	**Part Unknown (PPW-PU)** The healer had a total of ___ herbs in her hut. ____ of them were dry. The rest were fresh. How many herbs were fresh? (35, 14) (56, 29) (46, 27)	
Compare	**Difference Unknown (CDU)** Diego climbed _____ steps on the scaffold to create one mural. He climbed ___ steps to create a second mural. How many fewer steps did he climb to create the second mural? (75, 55) (82, 39) (103,76)	**Quantity Unknown (CQU)** Diego climbed ____ steps on the scaffold to create his first mural. The next scaffold climb was ____ steps fewer. How many steps did he climb for the second mural? (75, 20) (82, 43) (103, 27)	**Referent Unknown (CRU)** Diego climbed many steps up the scaffolding to paint his first mural. He climbed ____ steps for the second mural, which was____ steps more than the first. How many steps did Diego climb for the first mural? (55, 20) (82, 29) (103, 16)
Multiply and Divide	**Multiplication** Diego liked making toy soldiers. He made 12 soldiers each day for 31 days. How many soldiers did he make?	**Measurement Division (MD)** Diego made 5000 toy soldiers. It took him one hour to make 25 soldiers. How many hours did it take Diego to make all of them?	**Partitive Division (PD)** Diego made 5000 toy soldiers. He made the same number of soldiers each day for 125 days. How many soldiers did he make each day?

CGI Problems for *Diego* by Jeanette and Jonah Winter

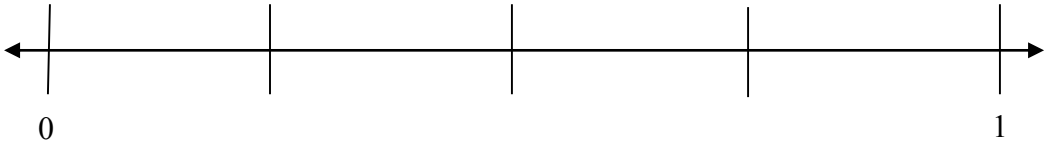
Join	**Result Unknown (JRU)** Diego pintó 2 murales. Uno cubrió_____pies cuadrados. El segundo cubrió____ pies cuadrados. ¿Cuántos pies cuadrados cubrieron juntos? (75, 50) (75, 55) (73.90, 52.80)	**Change Unknown (JCU)** Diego pintó un mural que cubrió ____ pies cuadrados. Después de pintar un segundo mural, había cubierto____ pies cuadrados. ¿Cuántos pies cuadrados cubrió el segundo mural? (75, 125) (75, 130) (73.90, 126.70)	**Start Unknown (JSU)** Diego pintó un mural que cubrió muchos pies cuadrados. El segundo mural que pintó cubrió ____pies cuadrados. Juntos los murals cubrieron ____pies cuadrados. ¿Cuántos pies cuadrados cubrió el secundo mural? (50, 125) (55, 130) (52.80, 126.70)
Separate	**Result Unknown (SRU)** La curandera tenía____ libras de hierbas. Usó ___ libras para el pequeño Diego la primera semana. ¿Cuántas libras le quedó? (125, 35) (102, 93) (150.90, 3.90)	**Change Unknown (SCU)** La curandera tenía ____libras de hierbas para el pequeño Diego. Después de usar algunas, le quedaban ____ libras. ¿Cuántas libras usó? (125, 25) (102, 89) (149.53, 3.90)	**Start Unknown (SSU)** La curandera tenía muchas libras de hierbas para el pequeño Diego. Usó ____ libras y le quedaban____ libras. ¿Cuántas libras tenía para curar al pequeño Diego? (145, 35) (182, 93) (136.02, 3.90)
Part-Part-Whole	**Whole Unknown (PPW-WU)** La curandera tenía ____ hierbas secas y ___ hierbas frescas en la choza. ¿Cuántas hierbas tenía en la choza? (14, 21) (29, 27) (27, 19)		**Part Unknown (PPW-PU)** La curandera tenía un total de ___ hierbas en su choza. ____ de ellas fueron secas. Lo demás fueron secas. ¿Cuántas hierbas fueron frescas? (35, 14) (56, 29) (46, 27)
Compare	**Difference Unknown (CDU)** Diego subió _____ escaleras del andamio para crear un mural. Subió ___ escaleras para crear un segundo mural. ¿Cuántas escaleras menos subió para crear el segundo mural? (75, 55) (82, 39) (103,76)	**Quantity Unknown (CQU)** Diego subió____ escacleras del andamio para crear su primer mural. La próxima vez que subió al andamio fue ____ menos escaleras. ¿Cuántas escaleras subió para el segundo mural? (75, 20) (82, 43) (103, 27)	**Referent Unknown (CRU)** Diego subió muchas escaleras del andamio para pintar su primer mural. Subió ____ escaleras para el segundo mural, que resultó ser____ escaleras más que el primer mural. ¿Cuántas escaleras subió para el segundo mural? (55, 20) (82, 29) (103, 16)

Multiply and Divide	**Multiplication** A Diego le gustaba hacer soldados de juguete. Hizo 12 soldados de jueguete cada día por 31 días. ¿Cuántos soldados hizo?	**Measurement Division (MD)** Diego hizo 5000 soldados de juguete. Pasó una hora en hacer 25 soldados. ¿Cuánto tiempo le tomó hacer los solados?	**Partitive Division (PD)** Diego hizo 5000 soldados de juguete. Hizo el mismo número de soldados cada día por 125 días. ¿Cuántos soldados hacía cada dia?

Student Name _____

Ellen and her brothers walked a 6-mile marathon for charity. After 1 hour, Ellen has walked 0.75 of the way. Her brother Tom had walked 0.66 of the way. Her brother Jeb had walked 0.55 of the way.

1. First, label the benchmark decimals that are given to you on the line below.
2. Then arrange the decimals from the story on the line based on the benchmarks.

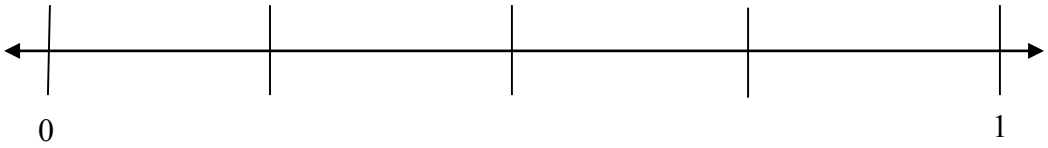


Now, arrange the distances in order from the shortest distance covered to the farthest distance covered. Be prepared to tell your teacher how you know your order is correct.

Nombre _____

Ellen y sus hermanos caminaron un maratón de 6 millas para caridad. Después de 1 hora, Ellen ha caminado 0.75 de la distancia. Su hermano Tom ha caminado 0.66 de la distancia. Su hermano Jeb ha caminado 0.55 de la distancia.

1. Primero, marca los puntos de referencia en decimales que se han dado en la línea siguiente.
2. Después, acomoda los decimales de la historia en la línea con base en los puntos de referencia.



Ahora acomoda las distancias en orden, desde la distancia más corta hasta la distancia más larga recorrida. Prepárate para explicar a tu maestro cómo sabes que tu orden es el correcto.

BLM Daily Routines Unit 2 Fraction Action, Lesson 1 Teacher Directions, Compare 

1. Read the problem to the students, or have a student volunteer read the story. Ask students what the story means. You want them to understand that the decimals represent a part of a whole. The WHOLE is the 6-mile marathon.

2. Ask the students to first talk to their partners about how they will label the benchmark decimals on the number line. Be sure they understand that these benchmark decimals might not be the same as the decimals in the story. When students have talked with a partner, let them share with the whole class. Generate the same number line on the board and have students explain how they know what the labels are (*examples: The number line represents numbers between 0 and 1. Halfway between 0 and 1 is 0.5 or 0.50. Halfway between 0 and 0.5 is 0.25 or one quarter, etc.).*

3. Have students work with a partner to discuss the problem once you are sure they understand the context.

4. Circulate the room asking questions to clarify and probe for deeper understanding.

QUESTION SUGGESTIONS

- How do you read this decimal?
- What does this decimal mean? (*for example, 0.75 means 7-tenths and 5-hundredths*)
- Is this decimal (*from the story*) greater than or less than this benchmark decimal? (*point to benchmark on the line*)
- How do you know?
- Where will you place this decimal (*from the story*) on the number line?
- Explain your thinking.

5. When all students have completed the task, have volunteers place the decimals on the class number line, explaining why they placed it as they did. The class should then discuss the placement. If someone disagrees, then a debate should occur until everyone agrees on the approximate position. For example, .55 is only 5-hundredths larger than 0.5, so 0.55 would be very close to and to right of 0.5.

6. Finally, discuss the arrangement at the bottom of the page.

BLM Daily Routines Measurement Unit 2, Lesson 1 Measurement **Area Model with Murals #1**

One sheet per student

Materials:

- 30 color tiles per student
- Customary ruler (measuring in inches)

This is an actual photo of Diego Rivera and his helpers working on a mural. Can you find Diego in the picture? He is sitting in the middle of the scaffolding. All of the workers are on the scaffolding. The rest of the "people" are painted on the mural.

Use your color tiles to find the dimensions of this photograph. Because printers can distort the picture, you will want to round your measurements to the nearest inch.

How many tiles tall is the photo of the mural? _____ _____

How many tiles wide is the photo of the mural? _____

How many tiles did it take to cover the mural (rounded to the nearest whole tiles)? _____

What shape is the color tile? _____

What is the measure of each side of the color tile? _____

Using the measure of the side of a color tile as your guide, how many inches tall is the photo of the mural? _____ _____

How many inches wide is the photo of the mural? _____ _____

What is the AREA of the photo of the mural in square inches? _____ square inches.

Write a multiplication sentence that describes the dimensions and area of this photo of the mural:

_____

BLM Rutinas diarias, Unidad 2, Lección 1 Medidas **Modelo de área con murales #1**

Una hoja por estudiante

Materiales:

- 30 fichas de colores por estudiante
- Regla estándar (con escala en pulgadas)

Esta es una foto real de Diego Rivera y sus ayudantes trabajando en un mural. ¿Puedes encontrar a Diego en la imagen? Está sentado en medio de los andamios. Todos los trabajadores están en los andamios. El resto de la "gente" está pintada en el mural.

Usa tus fichas de colores para encontrar las dimensiones de esta fotografía. Dado que las impresoras pueden distorsionar la imagen, debes redondear tus medidas a la pulgada más cercana.

¿De cuántas fichas de alto es la foto del mural? _____ _____

¿De cuántas fichas de ancho es la foto del mural? _____

¿Cuántas fichas se necesitaron para cubrir el mural (redondeando al número más cercano de fichas enteras)? _____

¿De qué forma es la ficha de color? _____

¿Cuál es la medida de cada lado de la ficha de color? _____

Usando como guía la medida de un lado de una ficha de color, ¿cuántas pulgadas de alto tiene la foto del mural? _____ _____

¿Cuántas pulgadas de ancho tiene la foto del mural? _____ _____

¿Cuál es el ÁREA de la foto del mural en pulgadas cuadradas? _____ pulgadas cuadradas.
Escribe una oración de multiplicación que describa las dimensiones y el área de esta foto del mural:

BLM Daily Routines Measurement Unit 2, Lesson 1 Measurement **KEY**

Materials:

- 30 color tiles per student
- Customary ruler (measuring in inches)

This is an actual photo of Diego Rivera and his helpers working on a mural. Can you find Diego in the picture? He is sitting in the middle of the scaffolding. All of the workers are on the scaffolding. The rest of the "people" are painted on the mural.

Use your color tiles to find the dimensions of this photograph. Because printers can distort the picture, you will want to round your measurements to the nearest inch.

How many tiles tall is the photo of the mural? _____4___ __tiles_____

How many tiles wide is the photo of the mural? 6___ __tiles_____

How many tiles did it take to cover the mural (rounded to the nearest whole tiles) __24 tiles___

What shape is the color tile? __The tile is a square._____

What is the measure of each side of the color tile? __Each side measures 1 inch._

Using the measure of the side of a color tile as your guide, how many inches tall is the photo of the mural? ___4___ ___inches_____

How many inches wide is the photo of the mural? ___6___inches_____

What is the AREA of the photo of the mural in square inches? ___24_____ square inches.
Write a multiplication sentence that describes the dimensions and area of this photo of the mural:
_____4 x 6 = 24 OR 6 x 4 = 24____

Solve It! Problems Unit 2, Lesson 1 **Pairs**

First Problem

- There were 135 cows and 257 chickens on the Victoria farm. How many animals were on the farm?
    - What is the answer to the question? Show your solution strategy.

Problem Solution (#1 Problem Solver) Name:	**Solution Verification (**#2 Problem Solver**)** Name:

Second Problem

- If Mr. Victoria had to pay $2 per animal to have them tagged, how much did he pay for the animals on his farm?
    - What do you need from Problem 1 to solve the problem?
    - Be sure to verify the answer to problem 1 before solving this problem.
    - What is the answer to the question? Show your solution strategy.

Problem Solution (#2 Problem Solver**)** Name:	**Solution Verification (**#1 Problem Solver**)** Name:

Solve It! Problems Unit 2, Lesson 1 **Pairs**

Primer problema

- Había 135 vacas y 257 gallinas en la granja del sr. Victoria. ¿Cuántos animales había en la granja?
    - ¿Cuál es la respuesta a la pregunta? Muestra tu estrategia de solución.

Solución del problema (#1) Nombre:	**Verificación de la solución (**#2**)** Nombre:

Segundo problema

- Si el sr. Victoria tenía que pagar $2 por animal para marcarlos, ¿cuánto pagó por los animales?

    - ¿Qué necesitas del problema 1 para resolver este problema?
    - Asegúrate de verificar la respuesta del problema 1 antes de resolver este problema.
    - ¿Cuál es la respuesta a la pregunta? Muestra tu estrategia de solución.

Solución del problema (#1) Nombre:	**Verificación de la solución (**#2**)** Nombre:

Literature Selection
Diego
by Jeanette Winter and Jonah Winter

Materials
(*BLM stands for Blackline Masters. You will find the BLMs at the end of the lesson for which they are needed.)*

Language Materials
- **BLM** Word Cards
- **BLM** Sequencing Graphic Organizer

Transition to Math Materials
- **BLM** Decimal Battle cards – 1 set per pair of students
- **BLM** Math Word Cards

Literature Vocabulary
altar
herbs
vapors
medicinal
studio
equality
horrible
whistle

Math Vocabulary
equal sized groups
repeated addition
repeated subtraction
multiplication
division
fact families
factors
products

ELPS (*English Language Proficiency Standard*)
2D, 2G, 3C, 3H, 4E, 4G, 4J

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.B.2., II.A.4., II.A.7.
ELA II.A.2., II.A.3., II.A.4., II.B.1., III.A.2., IV.A.3.

Unit 2, Lesson 1 3-4
Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students should review to see if they have accomplished both math and language objectives.

Math Objectives:
- Represent hundredths using concrete and visual models and money.

Language Objectives:
- Ask questions about the text as they read.
- Identify sequencing signal words from text that indicate new event in story
- Orally generate predictions about events, justify predictions, and after reading confirm or disconfirm predictions
- Identify and write the sequence of main events from the story

BEFORE READING
Building Background, Vocabulary and Literature
Reveal the literature vocabulary cards one at a time to the students and display in a pocket chart or board. Follow the same line of questioning for each word.
Point the first word.
Ask, "Who can read this word?"
Say, "Give me a thumbs up for 'I can' or thumbs down for 'not sure'."
Allow students to indicate their response.
Say, "Read the word aloud with me."
Read the word together. Then, ask students to reread the word aloud after you.
Say, "Clap as you say the word in parts."
Example: al-tar
Ask, "How many times did you clap?" Allow for responses.
Great, twice. This word has two parts or two syllables.
Ask, "Who has heard this word used before or read it before today?" Allow for responses.
Say, "I have heard this word during the remembrances of Dia de los Muertos or the Day of the Dead. I remember hearing someone say they placed flowers for their grandfather at the altar."
Ask, "Who thinks they know what this word means? Give thumbs up or thumbs down."

Vocabulary guide for discovery questioning framework:

- Herbs:
  1 syllable (plural form)
  Sample sentence- *My mom added herbs from her garden to the spaghetti sauce to give it a better flavor.*
  Definition- plants that have use as medicine, aroma, or flavoring. Examples might be lavender, basil, parsley.
- Vapors:
  2 syllables (plural form) Va-por
  Sample sentence- *The strong vapors of the medicine mom rubbed on my chest help me to breathe easier.*
  Definition- tiny particles of a liquid or solid in a gas form.
- Medicinal:
  4 syllables me-dic-i-nal
  Sample sentence- *These herbs have a medicinal purpose for those who are sick.*
  Definition- pertaining to medicine or curing ability
- Studio:
  3 syllables stu-di-o
  Sample sentence: *I prefer an art studio to have a lot of natural light to see all of the colors that are used.*
  Definition: Space or room used to practice art or performing arts or form of exercise
- Equality:
  4 syllables e-qual-i-ty
  Sample sentence: *We asked for equality in our pay, so everyone receives equal amount.*
  Definition: a condition of being equal
- Horrible:
  3 syllables hor-ri-ble
  Sample sentence- *I had a horrible nightmare that I dreamed I lost my dog.*
  Definition- feeling of fear, dread, or sadness
- Whistle:

Unit 2, Lesson 1 3-4

Classroom Lesson

Say, "I will use the word in a sentence, and then we will determine the meaning together using the clues in the sentence."

Diego lit a candle that was then placed on the flat surface of the altar, at the front of the cathedral.

Ask, "From this sentence can you describe an altar?" Allow for responses of location and an attribute of an altar.
Say, "An altar is a flat top surface or table that is used to place offerings to others. A place you might see an altar is inside a church or sometimes someone's house."

Option: show an illustration of an altar or drawing of an altar.

Say, "Let's read this word again together."
Read the word as you point to the word.
Ask, "Who can use the word in a sentence? Give thumbs up or thumbs down."
Say, "Turn to your shoulder partner and tell them the sentence."
Each person should share a sentence.

Continue in the same manner of discovery questioning for each word on the literature vocabulary list. Add in questions that expand the connection of the vocabulary to real life. Other questions include: *Why is (vocabulary word) important to us? What does (vocabulary word) also make you think of? What do you think the opposite of (vocabulary word) might be?*

Upon completion of the list, have students reread each word a loud in class together benefiting the proficient and non-proficient English speaker through repeated exposure.

You will be guiding students in learning how to strategically comprehend narrative text. You and the students will stop periodically throughout the reading of the book to consider predictions about what might reasonably occur on the next few pages of the book and making corrections to prior knowledge. The culminating skill practiced for this book will be sequencing.

Ask, "How many of you like to draw? How many of you like to paint?" Allow for responses.
Say, "Turn to your neighbor and share with them WHAT you

2 syllables whis-tle

Sample sentence- *I love to whistle a happy tune on a sunshiny day when I walk outside.*
Definition- To make a shrill high sounds by forcing air through a small opening.

Sequencing Signal Words:
- First
- Second
- Third
- Then
- Before
- After
- Last
- Meanwhile
- Now
- Finally
- Next
- Soon
- While
- Afterwards
- Later
- Soon
- But

Unit 2, Lesson 1 — 3-4
Classroom Lesson

enjoy drawing or painting." Allow time for sharing with partners.

Say, "We will be reading a book titled *Diego* written by Jeanette Winter and text by Jonah Winter. This book is about Diego Rivera. With a title like that, what do you think the book will mostly be about?"
Allow students predictions.

Display pictures or illustrations of Diego Rivera's artwork for students to see. Suggested website: www.diegorivera.org please preview prior to lesson to ensure a safe selection of artwork for student viewing.

Teacher: Read aloud the last page of the text "A Note About Diego Rivera" beginning with the sentence *People all over the world have…* Stop at sentence *…for everyone to see.*

Say, "As we read this book we are going to sequence events that happen in the story about Diego. This means we are going to put events in order according to when they happen. When we can retell the sequence of events from a story we can tell what the story is mostly about or give a short summary."

Say, "There are words that give clues to the next event that is about to occur. These words are called signal words. Let's list some of the words that you might hear or read that describe or indicate the order of events. You actually use sequencing with problem solving in math too. There is a certain order in which you solve multistep problems and that is the sequence."

List words on board or on a chart paper. Read the words together with the students. Listen and watch for these words as we read the story together today.

Distribute the sequencing graphic organizer to students.
Say, "We will be completing this graphic organizer as we practice sequencing events."

DURING READING

Comprehensible Input, Vocabulary and Literature

Guide students to reading with partner or small group the back jacket of the book. Then, direct students to look at the first two pictures in the book.

	Unit 2, Lesson 1 **3-4** **Classroom Lesson**  Say, "We know that this book is probably going to be about Diego Rivera's life and his artwork. We can make this prediction by reading the title and reading the back jacket of the book. Ask, "Thinking about the first two pictures in the book, what do you think the first event in the book will be?" Allow several students to share. Read aloud or facilitate popcorn reading beginning with **"Deep in the mountains of Mexico…"** stop after reading "**…twin sons, Diego and Carlos."** Ask, **"**Did…happen?" *(fill in with students' predictions made earlier)* If the response was no, ask the students why it didn't happen? Ask, "What do you think is going to happen next? What makes you think so?" Continue reading text beginning with "**But Carlos soon fell ill…"** stop after reading "**She was an Indian healer."** It is important for the students to revisit previously made predictions after sections of the story are read. Students will begin to understand how their predictions and confirmations or disconfirmation affect their comprehension. Ask, "Did…happen?" *(fill with students' predictions made)* If the response was no, ask the students why it didn't happen? Ask, "What do you think Diego's parents are going to do? What makes you think that?" Continue reading text beginning with **"Antonia took young Diego…"** stop after reading "**Antonia used these in her healing."** Ask, "Did …happen?" *(fill with students' predictions made about Diego's parents' action)* If the response is no, ask the students why it didn't happen? Say, "I heard/read one of our vocabulary words on this page. What word did you hear us read?" Direct students to identify 'altar' and discuss the meaning of the word using the previously discussed definition and the picture in the book.

	Unit 2, Lesson 1 **3-4** **Classroom Lesson**  Continue to prompt students to identify vocabulary words read in the story throughout the book. Identify the meaning of the word and reread the word. Direct students to name another word that means the same as the vocabulary word *(synonym)* where applicable. Ask, **"**What do you think will happen to Diego? What do you think Antonia will do to help Diego? What makes you think this?" Continue reading beginning with "**Even while he slept…"** stop after reading "**The parrot became his pet**." Ask, "Did…happen to Diego?" *(fill in with students' predictions about Diego)* If the response is no, ask the students why it didn't happen? Ask, "What do you notice about Diego?" Guide the students to identify Diego is getting older. He is also getting better. Ask, "What makes you think this?" Guide the students to using context and picture clues to determine their reasons. Ask, "What do you predict will happen next? What makes you think that?" Continue reading beginning with "**Diego grew strong and healthy.**" Stop after reading, "…**making murals that covered the whole room.** Ask, "Did…happen to Diego?" *(fill in with students' predictions about Diego)* If the response is no, ask the students why it didn't happen? Say, "We have read that Diego has been drawing everywhere and his father even built him a studio. The author has told us that Diego loves to draw and make murals. Why do you think Diego loves to draw? What are the reasons you love to draw or paint?" The next section of reading is open to different predictions. The current page paused on gives little clues as to what is going to happen next. If students look ahead to illustrations, very little

clues are given to the next events. Expect incorrect predictions on this section, thereby giving an opportunity for students to reflect on their reasons for making their predictions and why they were incorrect.

Ask, "What do you think might happen next? Why do you think this?"

List the predictions on the board. Have students vote on their choice of prediction for what most likely will happen.

Continue reading beginning with "**Diego had a hard time…"** stop after reading "**It was an honor."**

Ask, "Did…happen?" *(fill in with students' predictions about Diego)*
If the response is no, ask the students why it didn't happen? Have we learned more about why Diego loves to draw? Direct students to recall the authors wording of how Diego loved everything that was colorful and he loved to look at the paintings on the wall at church.

Say, "Let's stop here with reading the text today and focus on the events we have covered in Diego."

Possible Sequence of Events for G.O.:

1. Diego was born in Guanajuato, Mexico
2. Diego fell ill
3. Diego's parents took him to live with Antonia
4. Antonia used her healing to help Diego
5. Diego went home to his parents
6. Diego drew everywhere.
7. His father made him a studio.
8. His parents sent him to art school
9. Diego painted real life events he saw
10. Diego helped poor people fight a war for equality
11. Traveled to Paris and Italy
12. Painted murals that told stories

AFTER READING
Practice and Application, Vocabulary and Literature

Direct students to return to the first page of the story. We will begin filling in our graphic organizer with the order of main events that occurred in the story so far. Remember our main character is Diego and the book is mainly about Diego's life we decided. So, that means the events should be about Diego's life.

Ask, "What was the first main event that occurred in the story?" Allow for responses.

Guide students in locating the first event and writing it on the one line of the graphic organizer. Keep the wording short and direct to fit on the organizer and to avoid writing a summary.

Diego became a famous artist.	**Unit 2, Lesson 1** **3-4** **Classroom Lesson**  Say, "After Diego was born, what was the next major event that occurred which affected Diego at this stage of his life?" Allow for responses, and then guide students to determining next event if needed. Identify signal words that lead to the next event. Refer to the chart or list of words as needed. Noting not all events are prefaced with a signal word. Continue in the same manner of questioning until all events through number eight are completed. After completing one through eight of the graphic organizer, allow students to pair and reread their events to one another, checking for order of sequence. Ask, "What is sequencing of events?" Allow for students to think, pair, then share with whole group. This means to put events in order according to when they happen. We will complete our sequencing graphic organizer in lesson 2. If time allows, play a quick sequencing game with the students by stating two of the events from the book listed from one through eight. The students identify which event came first.

BLM Unit 2, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

altar

herbs

vapors

medicinal

BLM Unit 2, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

whistle

studio

equality

horrible

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

altar

hierbas

vapores

medicinal

BLM Unit 2, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

silbar

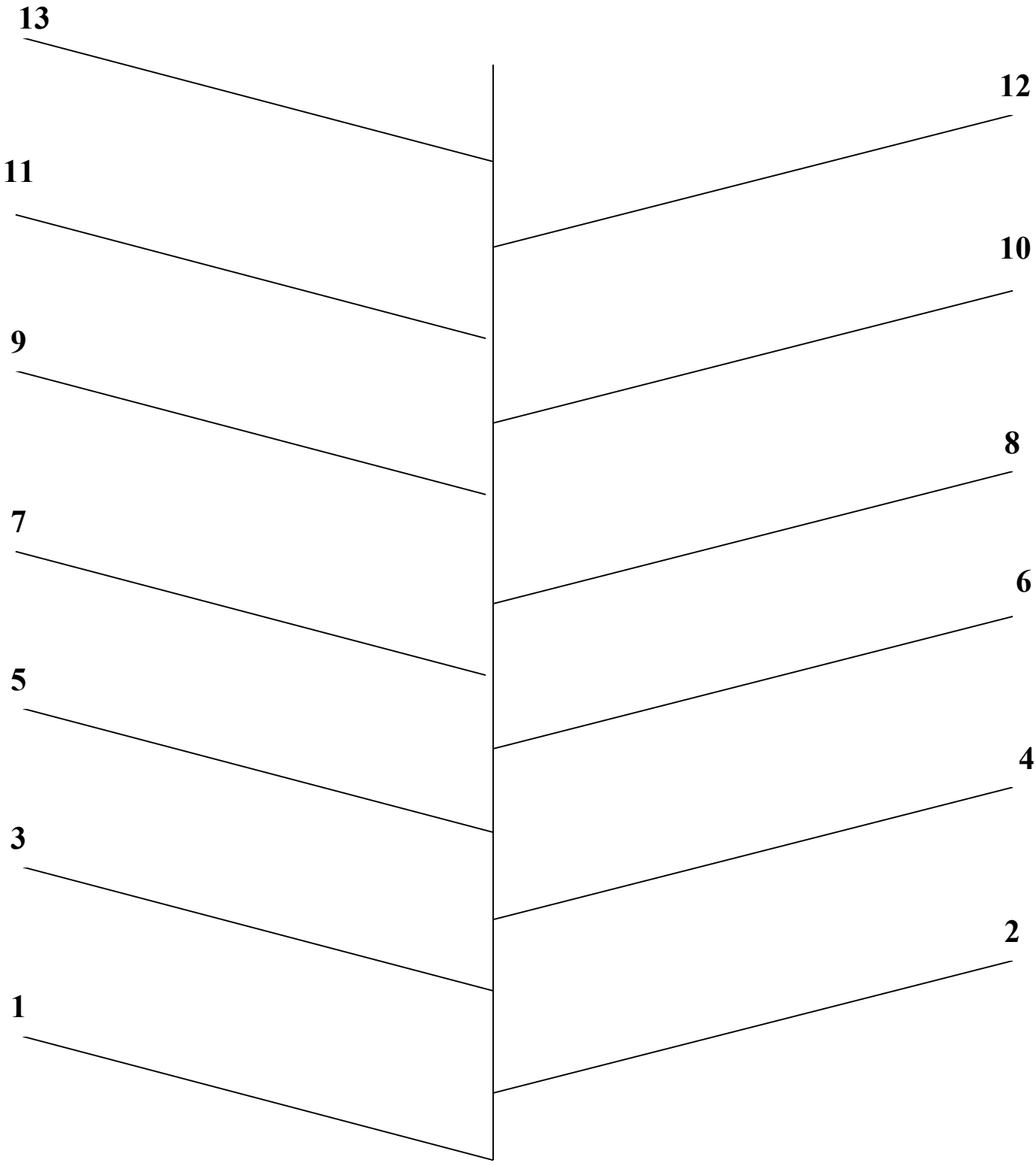
estudio

igualdad

horrible

BLM Unit 2, Classroom Lesson 1 **Sequencing Graphic Organizer**

(One copy for each student)



Math Objectives
- Read and compare fraction and decimal representations.
- Find equivalent fraction and decimal representations.

Math Vocabulary
equal sized groups
repeated addition
repeated subtraction
multiplication
division
fact families
factors
products

Transition to Math Materials
- **BLM TM** Decimal Battle -1 set cards cut and laminated per pair of students (these will be used in all 3 lessons for this unit)

ELPS (*English Language Proficiency Standard*)
2D, 2F, 2H, 3F, 3J

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.B.2., IX.A.1., X.A.1., X.A.2.
MATH II.A.1., IV.B.1., IV.B.2., V.A.1.

Technology:
www.mathnook.com/math/skill/decimalgames.php

TV Materials:
- Counters – 100 per student
- Portion cups or any small cups like 2 oz bathroom cups – 10 per student
- **BLM** Making Equal Sets - 3 pages, 1 set per student

Classroom Lesson - continued

TRANSITION to Math
Building Background, Math

Rather than introducing new skills to you in this section of our lesson, we are going to be reviewing skills from Unit 1 – decimals and fraction. We will take a look at our vocabulary words for this unit after our game, Decimal Battle.

(*Teach students the Decimal Battle game, and let them play for as long as your time permits. When time is up, introduce the math vocabulary for this unit. Make sure that students are saying their representations out loud, and that they are READING them properly – 0.9 is read 9 tenths, NOT zero point nine.*)

Objectives: Review the math and language objectives to see how they were accomplished.

Distribute TV Lesson Materials
- Counters – 100 per student
- Portion cups or any small cups like 2 oz. bathroom cups – 10 per student
- **BLM** Making Equal Sets - 3 pages, 1 set per student

BLM TM Unit 2, Classroom Lesson 1 **Math Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

equal sized groups
repeated addition
repeated subtraction
multiplication

BLM Unit 2, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

division

fact families

factors

products

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

grupos del mismo tamaño
adición repetida
resta repetida
multiplicación

BLM Unit 2, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

división

familias de hechos

factores

productos

BLM –TM Unit 2, Classroom Lesson 1 - 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.

This game is played like the card game Battle or War, and is played with a partner.

1. Deal out the cards so that each player has half of the deck. Do not look at the cards, but keep them in a stack face down in front of you.

2. Both players turn the top card of their own stack face up on the table. Whoever turned the card with the higher value takes both cards and adds them face down to the bottom of their stack.

3. Repeat the process.

4. If the cards turned up are equivalent, there is a BATTLE. The equivalent cards stay on the table and both players play the next card in their stack. The card with the higher value wins the battle. BATTLE continues until the cards turned up are not equivalent. The person with the higher value wins all of the cards in the BATTLE and puts them face down at the bottom of their stack.

5. Game continues until one player has taken all of the cards, or until one player can no longer play a card.

0.1	**0.01**
0.10	**0.15**

BLM –TM Unit 2, Classroom Lesson 1 - 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.

0.2	0.02
0.25	0.20
0.3	0.03
0.30	0.33

BLM –TM Unit 2, Classroom Lesson 1 - 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.

0.40	0.45
0.4	0.04
0.05	0.5
0.50	0.55

BLM –TM Unit 2, Classroom Lesson 1 - 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.

0.60	**0.62**
0.6	**0.06**
0.07	**0.7**
0.70	**0.75**

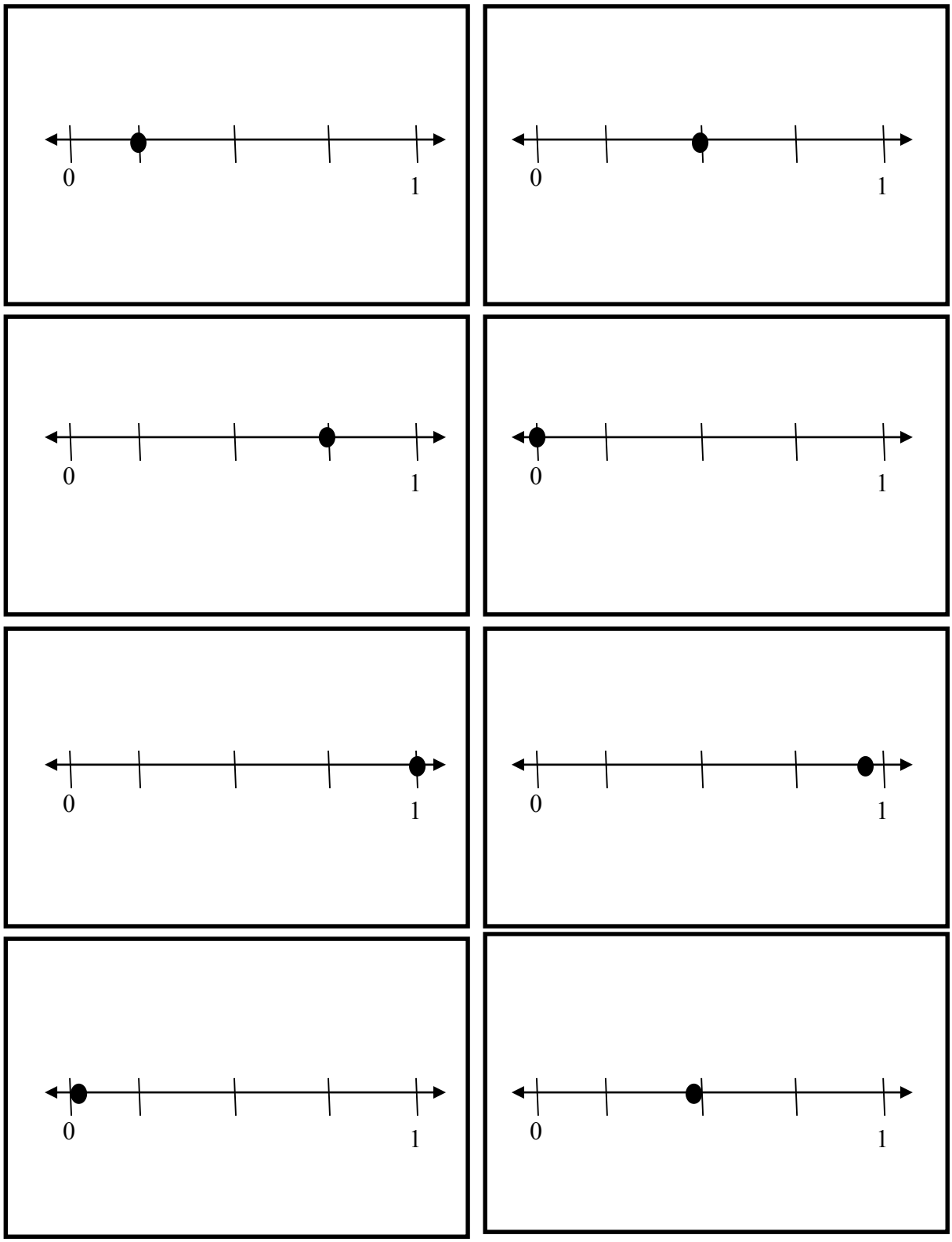
BLM –TM Unit 2, Classroom Lesson 1 - 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.

0.80	**0.83**
0.8	**0.08**
0.09	**0.9**
0.90	**0.92**

BLM –TM Unit 2, Classroom Lesson 1 -3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.



BLM –TM Unit 2, Classroom Lesson 1- 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.

$\frac{1}{2}$	$\frac{1}{4}$
$\frac{1}{100}$	$\frac{3}{4}$
$\frac{9}{10}$	$\frac{5}{10}$
$\frac{4}{10}$	$\frac{5}{100}$

Literature Vocabulary
altar
herbs
vapors
medicinal
studio
equality
horrible
whistle

Math Vocabulary
equal sized groups
repeated addition
repeated subtraction
multiplication
division
fact families
factors
products

Materials
- Counters – 100 per student
- Portion cups or any small cups like 2 oz. bathroom cups – 10 per student
- **BLM** Making Equal Sets - 3 pages, 1 set per student

ELPS (*English Language Proficiency Standard*)
1B, 1E, 2B, 2C, 3D, 3F

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.C.1., I.C.2., I.C.3.
ELA III.A.1., III.A.2., II.A.6., III.B.2.
MATH II.B.1., II.C.1., II.C.2., IV.C.2., VI.B.4., VIII.A.5

CLASSROOM TEACHERS
TV Teacher will give you time to discuss – please have students do so.

Unit 2, Lesson 1 3-4
TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting
- Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.

Language Objectives:
- Use the math vocabulary during the activity.
- Discuss answers and possible strategies with classmates.
- Explain how repeated addition and multiplication representations are the same.

Building Background, Math
I have a problem I'd like for you to listen to and watch for the Math Movie as I read it.

Claire had 4 cookie bags.
Each bag contained 2 cookies.
How many cookies does Claire have?

What do you see in your math movie? Describe the math movie to your class *(reasonable pause)*.

I saw 4 cookie bags *(set out 4 portion cups)*.
And I saw 2 cookies in EACH box. *(count out 2 counters in each box)*
Now all I have to do to count the cookies to see how many there are. *(skip count by 2s)*

What we just modeled is multiplication *(word card)*.

Now I have another problem for you to listen to and watch for the Math Movie. Here goes.

Claire had 8 cookies.
She put an equal amount of cookies in EACH of 4 bags.
How many cookies did she put in each bag?

	Unit 2, Lesson 1 **3-4** **TV Lesson** - continued  How is this math movie different from the first problem about Claire's cookies? Discuss that question with your class *(generous pause)*. I saw the 8 cookies *(put 8 counters on the table)*. And I saw 4 bags *(4 portion cups)*. Then I saw Claire distributing the counters equally, or distributing the counters unequally, into the cups. *(Divvy out the counters, just like you would divvy out or deal cards in a card game, until all the counters are gone.)* Now I just need to see how many cookies are in each cookie bag. *(Dump out one portion cup and count the counters 1, 2.)* We just modeled a type of division, Divvy Out or Partition division. We are going to investigate multiplication today, and we are going to undo the multiplication with division *(word card)*. You have counters, portion cups and the BLMs for Making Equal sets, so let's get started. **Comprehensible Input** Listen while I read problem #1, and watch for the Math Movie in your mind. *(read #1)* What math movie did you see? Discuss the math movie in your class. *(generous pause)* Now model your math movie with your materials. *(pause)* Here is my math movie model. I saw stacks of quarters – five stacks. You could just stack them, or use the portion cups (*put out the five portion cups*). Each stack had four quarters in it (*drop four counters in each cup, making sure you drop all four at the same time – this is multiplication model, not division*). Take the time now to describe how you modeled the math movie. You can talk about it first as a class, then I will describe mine, finally you will have time to describe yours. The portion cups are my stacks of quarters. Maybe you just made stacks. The counters are my quarters in each stack. There are four quarters in each stack. Altogether there are 20 quarters.
SMARTBOARD **CLASSROOM TEACHERS** TV Teacher will give you time to discuss – please have students do so.	

Unit 2, Lesson 1 3-4

TV Lesson - continued

We have viewed the math movie, modeled it, and described the model.

Now let's talk about other representations. I could use REPEATED ADDITION *(word card)*. This means that I add the same number again and again.

What number would you use to add repeatedly for Maya's quarter problem? *(pause)* What is it that you are solving for? QUARTERS.

Each group has four quarters, so we are adding *(point to your groups, and write the number sentence at the same time*).
Four quarters add four quarters add four quarters add four quarters add four quarters. That's five groups of four quarters each! And we found that equals 20 quarters total.
4 + 4 + 4+ 4+ 4 = 20

We can represent this model in words. (*Again, as you talk about the different components of the model, write the word*)
There are five equal-sized groups of four quarters which equals twenty quarters.

That would be a lot to have to write every time you wanted to represent a multiplication problem. Let's use math symbols to write this.

(*Say the following as you write the corresponding part of the equation.)*

5 x 4 = 20

There are (five) (equal-sized groups) of (four) quarters which (equals twenty) quarters

We have

- watched the math movie in our mind,
- modeled the math movie with materials,
- described our model,
- and represented the model
    - in repeated addition,
    - verbally,
    - and in multiplication math symbols.

Hmm, this problem has an extension. How many dollars did Maya have? Talk with a partner very quickly about that one, then we will talk about it (*about a 10 second pause*).

20 quarters. I know that there are four quarters in each dollar, so I should be able to look at the groups that we had collected in – five equal-sized groups. Maya must have had $5 *(count the stacks of four as $1, $2, $3,…)*

Pirate's Corner **Lesson 1** How did you solve your Fraction Action problem today? Let's see how many different strategies we can find!	**Unit 2, Lesson 1** **3-4** **TV Lesson** - continued  Now let's solve Making Equal Sets #2. (*follow the same format*) • **Read problem; have students look for math movie and discuss in class, then students model the math movie** • *Ask,* "How is this math movie different from problem #1?" *(dividing into smaller sets)* • *Discuss your math movie – saw Matt take the 28 quarters and divide them into stacks or groups of 4, which makes a dollar. Then you could count the sets which represents the dollars*. • *Students then describe their models*. • *Represent with repeated SUBTRACTION this time 28 –* 4…… • *Represent in words*. 28 quarters divided into equal size groups of four equals seven groups. And each group represents one dollar. • *Represent as a horizontal division number sentence which matches the words (use parentheses)*. *(If you have time, you can walk through or begin problem #3.)* You can see that the Math Movie for a multiplication problem is much different from the Math Movie of a division problem. You'll be talking about the differences during your Follow Up lesson for a better understanding of what makes a problem multiplication or division. **Pirate:** And talking about having a better understanding**,** I want to tell you about Arithmus' Corner! (*You will want to tell students that you have solved the problem, too, and are sharing your strategy online in the Corner.)* **Teacher:** Thank you! I'm sure everyone will go online so we will all know one another. It will be exciting to see the different solution strategies! **Objectives:** And now before we go, let's review what we have learned today! (*do so*)

BLM Unit 2, TV Lesson 1 **Making Equal Sets #1**

One sheet per student

1. Maya counted quarters. She had 5 stacks, and each stack had 4 quarters in it. How many quarters did she have?

   Model: Describe how you modeled the math movie:

   _____

   _____

   _____

   _____

   _____

   Represent with repeated computation: _____

   Represent with an equal-sized groups statement in words:

   _____

   _____

   Represent with an equal-sized groups number sentence:

   _____

   Extension: How many dollars did she have?

   Maya has _____ dollars in quarters.

   I know this because:

BLM Unit 2, TV Lesson 1 **Making Equal Sets #1**
One sheet per student

1. Maya contó monedas de 25 centavos. Ella tenía 5 pilas, y cada pila tenía 4 monedas. ¿Cuántas monedas de 25 centavos tenía?

   Modelo: Describe cómo modelaste la película matemática:

   _____
   _____
   _____
   _____
   _____

   Representa con cálculos repetidos: _____

   Representa en palabras con una frase sobre grupos del mismo tamaño:

   _____

   _____

   Representa con una oración numérica sobre grupos del mismo tamaño:

   _____

   Extensión: ¿Cuántos dólares tenía?

   Maya tiene _____ dólares en monedas de 25 centavos.

   Sé esto porque:

BLM Unit 2, TV Lesson 1 **Making Equal Sets #2**
One sheet per student

1. Matt had 28 quarters. He knows that there are 4 quarters to one dollar. How many dollars does Matt have?

   Model: Describe how you modeled the math movie:

   _____
   _____
   _____
   _____
   _____

   Represent with repeated computation: _____

   Represent with an equal-sized groups statement in words:

   _____

   _____

   Represent with an equal-sized groups number sentence:

   _____

   Extension: How many quarters would he need for $10?

   Matt would need _____ quarters to make $10.

   I know this because:

BLM Unit 2, TV Lesson 1 **Making Equal Sets #2**
One sheet per student

1. Matt tenía 28 monedas de 25 centavos. Él sabe que hay 4 monedas de 25 centavos en un dólar. ¿Cuántos dólares tiene Matt?

   Modelo: Describe cómo modelaste la película matemática:

   _____
   _____
   _____
   _____
   _____

   Representa con cálculos repetidos: _____

   Representa en palabras con una frase sobre grupos del mismo tamaño:

   _____

   _____

   Representa con una oración numérica sobre grupos del mismo tamaño:

   _____

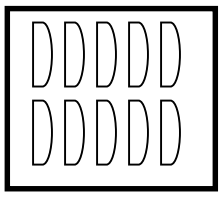
   Extensión: ¿Cuántas monedas de 25 centavos necesitaría para tener $10?

   Matt necesitaría _____ monedas de 25 centavos para formar $10.

   Sé esto porque:

BLM Unit 2, TV Lesson 1 **Making Equal Sets #3**
One sheet per student

1. Gregory made breakfast tacos for his class. He made a total of 4 trays that each looked like this:



How many tacos did Gregory make for his class?

Model: Describe how you modeled the math movie:

Represent with repeated computation: _____

Represent with an equal-sized groups statement in words:

_____

Represent with an equal-sized groups number sentence:

_____

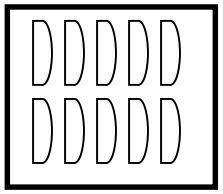
Extension: If each student was going to take 2 tacos, how many students would Gregory's tacos feed?

____ students would be fed.

I know this because:

BLM Unit 2, TV Lesson 1 **Making Equal Sets #3**
One sheet per student

1. Gregory hizo tacos de desayuno para su grupo. Hizo un total de 4 bandejas, cada una con el siguiente aspecto:



¿Cuántos tacos hizo Gregory para su grupo?

Modelo: Describe cómo modelaste la película matemática:

Representa con cálculos repetidos: _____

Representa en palabras con una frase sobre grupos del mismo tamaño:

_____

Representa con una oración numérica sobre grupos del mismo tamaño:

_____

Extensión: Si cada estudiante tomara 2 tacos, ¿cuántos estudiantes podrían comer los tacos de Gregory?

____ estudiantes podrían comer.

Sé esto porque:

Literature Vocabulary
altar
herbs
vapors
medicinal
studio
equality
horrible
whistle

Math Vocabulary
equal sized groups
repeated addition
repeated subtraction
multiplication
division
fact families
factors
products

Materials
- Counters – 100 per student
- Portion cups or any small cups like 2 oz. bathroom cups – 10 per student
- **BLM** Finding Equal Sets

ELPS (*English Language Proficiency Standard*)
2B, 2D, 3A, 3B, 5B, 5C, 5E

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR II.A.2., II.A.6., II.B.2., II.B.3.
ELA I.A.2., I.A.3., I.A.5., II.A.1., III.A.2.
MATH I.A.2., I.B.1., II.C.2., II.D.1., IV.C.2., VI.B.4., V.A.1.

Unit 2, Lesson 1 3-4

Follow-up

Math Objectives:
- Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting
- Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.

Language Objectives:
- Listen and speak with a partner during our math activity.
- Use the math vocabulary during the activity.
- Write math journal response.

Building Background, Math
NOTE: If the TV Teacher was unable to complete the TV activity, this would be your first task. Facilitate just as the TV Teacher lead the students through the first two problems.

Practice and Application, Math
When problem #3 and extension have been completed, facilitate a discussion regarding a comparison of the Math Movie of a multiplication problem and a division problem. Points that hopefully students recognize:
- Both multiplication and division are working with equal-sized groups.
- Multiplication is repeated addition, and therefore is looking for a larger answer as in the Maya's quarters problem, the extension to Matt problem, and Gregory's taco problem.
- Division can be looking for the number of objects in a single group such as with the extension to Maya's problem.
- Division can also be looking for the number of groups based on an equal division of objects such as in Matt's 28 quarters – how many quarters to ONE dollar, and in the extension to Gregory's tacos – how many students (representing the groups) could be fed.
- Division can also be represented with repeated subtraction.

When the discussion has closed, partner the students, each with their own problem sheet, and have them solve the BLM set (two pages). Ask students to work together to solve the problems. You will want to have students read the problems and discuss any vocabulary they do not understand before the group begins their group work. Generate a dictionary of the terms on the board, defining with words and pictures when possible.

Unit 2, Lesson 1 3-4

Follow-up - continued 

Circulate the room asking questions that clarify or dig for deeper understanding.

?QUESTIONING

Probe for Understanding

- Explain your math movie for this problem.
- What does this number in your number sentence represent?
- What does your answer represent?
- Which number in your equation represents the number of *(item)* in each group?
- Which number in your equation represents the number of groups in the problem?
- How did you know which repeated computation to use?

Extension Questions

- Use the data from this problem to generate a problem needing *(multiplication / division – the opposite of the one featured)* to solve.

Math Journal Writing

Students should have a spiral notebook into which they journal their thoughts daily about math. Today's journal prompt is:

Write a class multiplication word problem using a lemonade stand as your theme.

Objectives: Read through the language and math objectives for this portion of the lesson, and have students tell you how they accomplished each.

BLM Unit 2, Follow-up Lesson 1 **Finding Equal Sets**

One sheet per student

For each problem below, first MODEL the math movie using your materials, then represent the model with a repeated computation number sentence and an equal-sized groups number sentence. Be prepared to share your math movie with the class.

1. Carlos bought 25 strawberries. He had 5people, including himself, that he wanted to equally share the strawberries with. How many strawberries would each person receive?

   Represent with repeated computation: _____

   Represent with an equal-sized groups number sentence: _____

2. Maria had 35 pencil erasers that she was packaging to sell at the school carnival. If she put 7 erasers in a plastic bag, how many plastic bags could she fill?

   Represent with repeated computation: _____

   Represent with an equal-sized groups number sentence: _____

3. Sandy had 4 cups of punch. Each cup was filled with 8 ounces. How many ounces of punch did she have?

   Represent with repeated computation: _____

   Represent with an equal-sized groups number sentence: _____

4. Kevin had 6 six packs of soda. How many sodas did he have?

   Represent with repeated computation: _____

   Represent with an equal-sized groups number sentence: _____

BLM Unidad 2 Lección 1 **Encontrar conjuntos iguales**

Una hoja por estudiante

Para cada uno de los problemas siguientes, primero MODELA la película matemática usando tus materiales, luego representa el modelo con una oración numérica de cálculos repetidos y una oración numérica sobre grupos del mismo tamaño: Prepárate para compartir tu película matemática con todo el grupo.

1. Carlos compró 25 fresas. Había 5 personas, incluido él, con las que quería compartir de manera equitativa sus fresas. ¿Cuántas fresas recibiría cada persona?

   Representa con cálculos repetidos: _____
   Representa con una oración numérica sobre grupos del mismo tamaño:

   _____

2. María tenía 35 borradores que estaba empaquetando para vender en el carnaval escolar. Si coloca 7 borradores en cada bolsa de plástico, ¿cuántas bolsas de plástico podría llenar?

   Representa con cálculos repetidos: _____
   Representa con una oración numérica sobre grupos del mismo tamaño:

   _____

3. Sandy tenía 4 tazas de ponche. Cada taza se llena con 8 onzas. ¿Cuántas onzas de ponche tenía?

   Representa con cálculos repetidos: _____
   Representa con una oración numérica sobre grupos del mismo tamaño:

   _____

4. Kevin tenía 6 paquetes de soda con seis latas cada uno. ¿Cuántas sodas tenía?

   Representa con cálculos repetidos: _____
   Representa con una oración numérica sobre grupos del mismo tamaño:
   _____

Math Objectives
- Represent equivalent fractions using pictorial models.
- Compare two fractions having the same denominator.
- Determine if two given fractions are equivalent.

Language Objectives
- Discuss fraction comparisons.
- Discuss fraction equivalencies.
- Discuss fraction/decimal equivalencies.

Vocabulary
one-half
one-sixth
three-sixths
equivalent
greater than, less than

Materials:
- 1 per student
- **BLM** Dip and Veggie Fractions

Per Partners:
- 1 c guacamole or other dip
- 12 baby carrots
- Two 1/2 c measuring cups
- 6 paper plates
- 2 plastic spoons
- 2 paper dessert plates
- 2 paper towels
- 2 plastic knives

Unit 2, Lesson 1 3-4

Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

Tell students that this unit's snack fraction sharing will be quite different from unit 1. They will be sharing with a partner, but they will also think about sharing among six people. Look quickly at your record sheets. The first sheet is similar to the ones they completed in Unit 1 (*have students read through the sheet with you, making sure they understand what is expected*); but look at the second sheet. At the bottom there are two sets of snack cut outs. One set will be for sharing with a partner. The other set will be for sharing in an imaginary group of six people. The large rectangle represents the dip. The pictures represent the carrots. How many carrots will each set have to share? *(6)*

Do look now at the snack.
- What do you have to share? (*some dip and some carrots*)
- How much dip is there? (*response – wanting them to see one cup*)
- How many carrots are there? (*already counted the pictures – 6*)
- Talk to your partner now about how you will share each of them fairly between you. When you have a plan, raise your hand and share you plan with me. (*Circulate the room listening to the partners' discussions. If partners have figured out a viable way to share the snacks, let them do so before the record sheet. If students need additional direction, help them understand by having them share the pictures first. Then ask,*
    - What did you do to the dip picture to share it? (*cut it in half)*
    - If the dip is in ONE cup, what is half of ONE cup? –(*one-half cup*)
    - Do you have a way of measuring half a cup? How? (*use the half cup measuring cup*)
    - Now, how did you share the carrots? (*divvied them out so we each had the same amount)*
    - How many did each of you receive? *(3)*
    - How many carrots did you have to begin with? (6)
    - What fraction would 3 carrots out of 6 carrots be? (3/6)
    - What can you tell me, then, about 3 /6? (*let them think about that as you go to help other groups)*

Unit 2, Lesson 1 3-4
Snack Fractions

Work with each group as the need arises. This is a much more involved snack fraction that previous snack fractions. They are sharing parts of a whole *(cup of dip)* and parts of a set *(carrots*).

Pay particular attention to the second page, especially the bottom directive which requires the students to use the two rectangles to show half and sixth equivalency. You may need to show students how to draw the sixth rectangle in half FIRST, then divide each half into three equal parts.

Students often want to draw three lines to cut each half into thirds, which will of course yield eight pieces. If you see that happening, ask them to count the pieces.

- How many pieces do they have?
- How many pieces should they have?
- How can they correct how they have divided the rectangle?
- If they still need help, ask them to take a look at the carrots

When the students are finished, debrief the activity by reading each question on the record sheet, having a volunteer answer the question, then explain how they know they have the correct answer. This explaining step is critical to their internalizing the skills.

Snack Fraction Journal Writing: BLM Dip and Veggie Fractions
How do you know that 3/6 = 1/2?

Objectives: Review the objectives with the class, making sure they understand how they achieved each.

BLM Unit 2, Snack Fraction Lesson 1 **Dip and Veggie Fractions**
(One sheet per student)

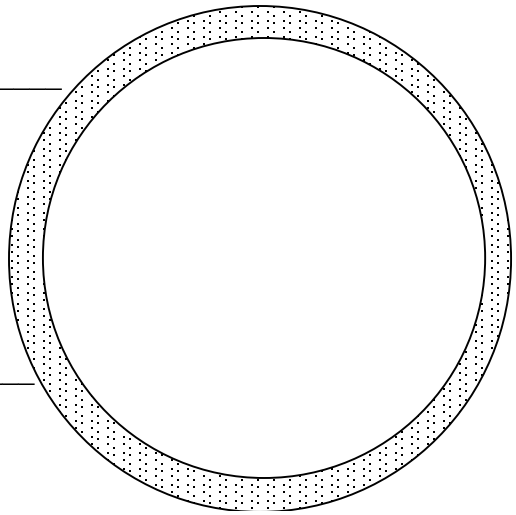
My name is _____

My fractional share of the dip when 2 are sharing is _____
(word)

I can represent that fraction with numbers: _____

My fractional share of the carrots when 2 share is _____
(word)

I can represent that fraction with numbers: _____



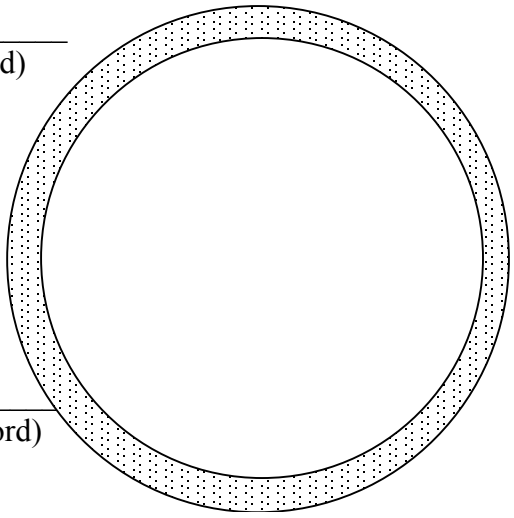
Cut out one set of the snack representations and glue them to this plate to show your fractional part if 2 of you are sharing.

If 6 of us are sharing, my fractional share of the dip is _____
(word)

I can represent that fraction with numbers: _____

If 6 of us are sharing my fractional share of the carrots is _____
(word)

I can represent that fraction with numbers: _____



Cut out one set of the snack representations and glue them to this plate to show your fractional part if 6 of you are sharing.

BLM Unidad 2, Lección 1 Fracciones de refrigerio **Fracciones de aderezo y vegetales**
(Una hoja por estudiante)

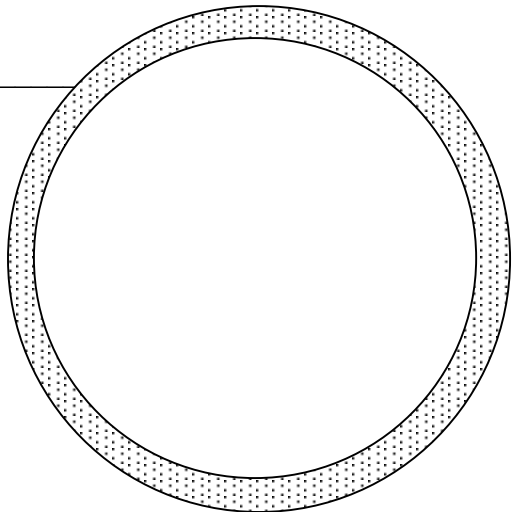
Mi nombre es _____

Mi porción fraccional del aderezo cuando compartimos entre 2 es _____ (palabra)

Puedo representar esa fracción con los números: _____.

Mi porción fraccional de zanahorias cuando compartimos entre 2 es _____. (palabra)

Puedo representar esa fracción con los números: _____.



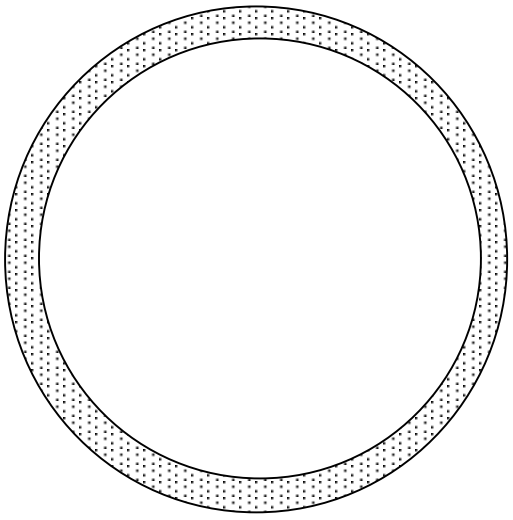
Recorta un juego de representaciones de refrigerios y pégalos a este plato para mostrar tu parte fraccional si es que dos de ustedes comparten.

Si estamos compartiendo 6 personas, mi porción fraccional del aderezo es _____. (palabra)

Puedo representar esa fracción con los números: _____.

Si estamos compartiendo 6 personas, mi porción fraccional de las zanahorias es _____ (palabra)

Puedo representar esa fracción con los números: _____.



Recorta un juego de representaciones de refrigerios y pégalos a este plato para mostrar tu parte fraccional si es que seis de ustedes comparten.

BLM Unit 2, Snack Fraction Lesson 1 **Dip and Veggie Fraction Pieces**
(One sheet per student)

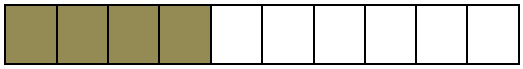
First of all, compare the two unit fractions by writing the fractions in the rectangle and using < or > in the circle between the two fractions.

Circle the portion that is larger.

_____ ◯ _____

Now, use the 2 rectangles below to model how many sixths you would need to be equivalent to one half.

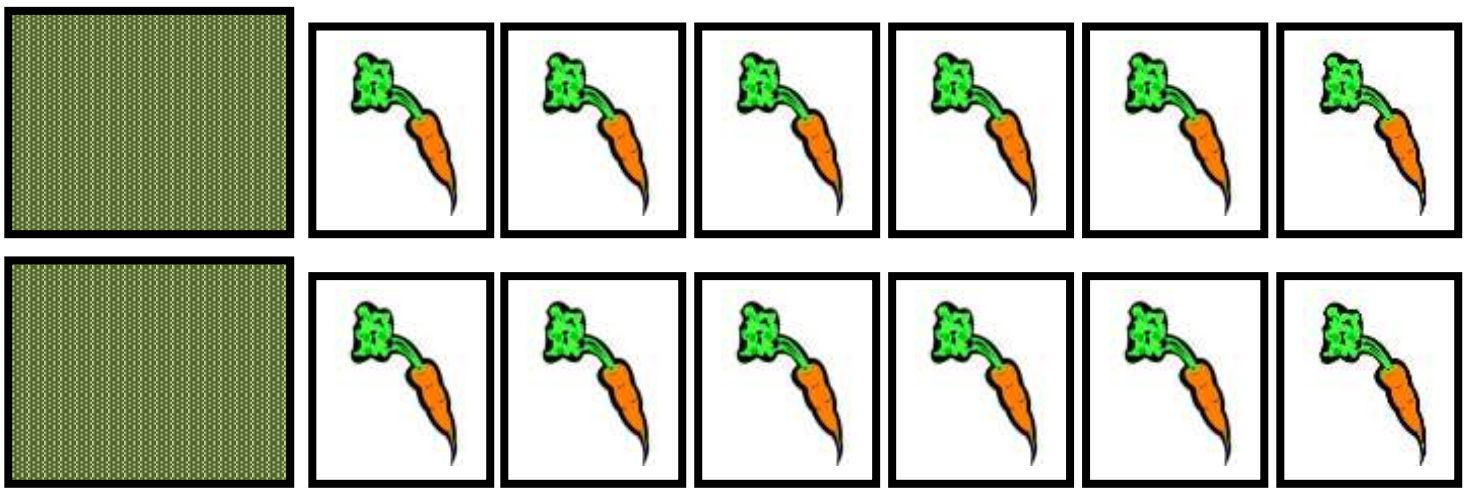
Look at the **UN**shaded portion of the bar on the right.



Represent this amount as a fraction. _____

Represent this amount as a decimal. _____

How is this decimal read? _____



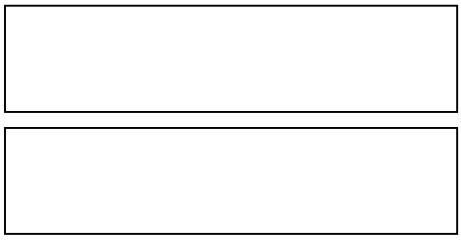
BLM Unidad 2, Lección 1 Fracciones de refrigerio **Piezas fraccionales de aderezo y vegetales**
(Una hoja por estudiante)

Antes que nada, compara las dos fracciones escribiéndolas en el rectángulo y usando < o > en el círculo entre ambas fracciones.

Circula la porción que sea más grande.

_____ ◯ _____

Ahora, usa los dos rectángulos siguientes para modelar cuántos sextos necesitarías para que sean equivalentes a un medio.

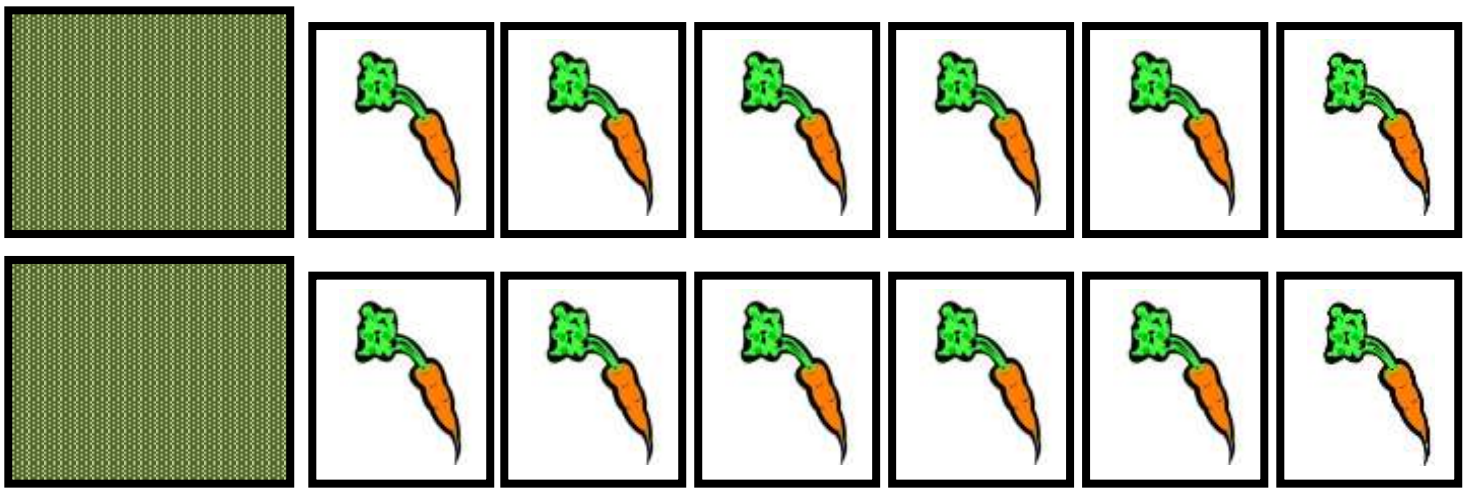


Mira la porción **SIN** sombra de la barra de la derecha.

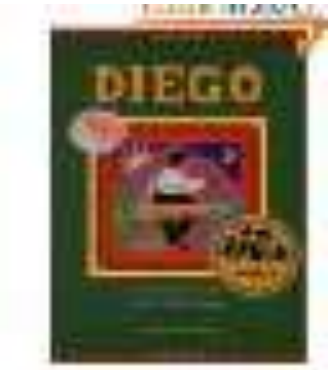
Representa esta cantidad como fracción. _____

Representa esta cantidad como decimal. _____

¿Cómo se lee este decimal? _____



Family Fun – 3-4, Unit 2 Lesson 1



Our book for unit 2 is, ***Diego***
by Jonah and Jeannette Winter

One fact I learned today in our reading is: _____

_____

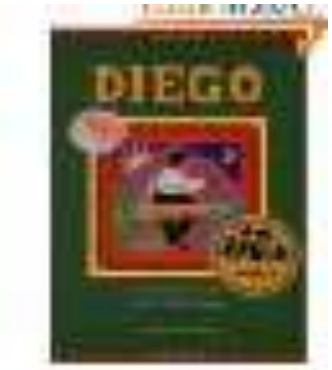
_____

We looked at the meaning of multiplication and division today. Let me show you how we modeled multiplication and two types of division! I will need counters like pebbles or beans, and something for groups like cups or paper I can draw circles on.

Thank you for helping me with my summer program!

_____
Your Child

Family Fun – 3-4, Unit 2 Lesson 1



El libro para la primera unidad es, ***Diego***
por Jonah y Jeannette Winter

Una cosa que aprendí hoy de la lectura es: _____

_____

_____

Estudiamos lo que significa la multiplicación y división hoy. Déjame mostrarte cómo modelamos la multiplicación y dos tipos de división. Voy a necesitar algunas contadores como piedras pequeñas o frijoles y algo para modelar grupos como vasos u hojas de papel para dibujar círculos.

Gracias por ayudarme con mis estudios este verano.

_____
Tu hijo

Materials
***(BLM** denotes Blackline Masters found in curriculum)*

Math Objectives
- Pre-assess summer skills.

Balanced Literacy
Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.
- Explain how they decided to rename the target number.
- *Discuss scarcity of money, choices and cost benefit.*

TEKS in TV and Flu
Lesson 1
- **3rd** – 3.4EH, 3.3 FH
- **4th** - 4.3C

Lesson 2
- **3rd** – 3.4EH, 3.3 FH
- **4th** - 4.3C

Lesson 3
- **3rd** – 3.4EGH, 3.3 FH
- **4th** - 4.3C

Assessment Items
(As a result of experiencing this unit, students will be learning skills necessary to be successful on the following Assessment items.)

3rd - 1, 2, 3, 4, 5, 6, 7, 8
4th - 1, 2, 3, 6

ELPS (*English Language Proficiency Standard*)
1G, 2A, 2B, 2C, 4C, 4J,5D

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.C.1., I.C.2., I.C.3.
ELA III.A.1., III.B.2., IV.A.3
MATH IV.C.1., IV.C.2., VI.C.2., VIII.A.1., VIII.A.2., VIII.A.4.

Unit 2, Lesson 2 — 3-4

Daily Routine

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL

What's Missing? *(3rd assessment item 2)*
- **Lessons 1, 2, 3** *follow directions in the Daily Routine Explanations. Check the assessment items so that you are certain you include samples to practice the shape in the assessed location.*

Solve It! *(fundamental problem-solving skills for all items)*
- **Begin in this unit following directions in the Solve It overview.**

Fraction Action
- Lesson 1 BLM Using Benchmarks (*4th assessment item 4, 6*)
  BLM Teacher Directions, Benchmarks
- **Lesson 2 - BLM Alex's Rope Project** (3rd, *#6*, *4th #4*)
  BLM Teacher Directions
- Lesson 3 – none today

CGI
- Lesson 1 – Multiplication
- **Lesson 2 – Division, Measurement** (*3rd Assessment item 5*)
- Lesson 3 – Division, Partitive (*3rd Assessment item 4*)

Measurement Lab (3rd Assessment 1) materials are per student
- Lesson 1 – Area Models with Murals #1
  - 30 color tiles
  - 1 ruler
  - BLM Area Models with Murals #1
  - BLM KEY
- **Lesson 2 – Area Models with Murals #2**
  - **30 color tiles**
  - **1 ruler**
  - **BLM Area Models with Murals #2**
  - **BLM KEY**
- Lesson 3 - Area Models with Murals #3
  - 30 color tiles
  - 1 ruler
  - BLM Area Models with Murals #3
  - BLM KEY

Arthimus Portio's Corner
Lesson 2- What's Missing?
What is your strategy for finding the missing number in What's Missing?

Unit 2, Lesson 2 3-4

Daily Routine - continued

OPTIONAL: *These activities, although not assessed, are fundamental skills that should be included in those sites providing five to six weeks of instruction.*

Target Number *(fundamental number sense for all items)*

- Lesson 1 – Target Number 48
- Lesson 2 – Target Number 20
- Lesson 3 – Target Number 100

Graphing

- Lesson 1 – Diego's Murals *(Make a picture card of each of the three murals students will be using during the Measurement Lab. Generate a bag graph to collect the data*.)
- **Lesson 2 –** Diego lived in the rainforest as a small child. Which Guanajuato jungle animal do you think is the strangest? (*see BLM Guanajuato jungle animals*)
- Lesson 3 – none

Graphing Questions:
Which of these murals is your favorite?

- How many more ____ than ____?
- How do you know?
- How many fewer ____ than ____?
- How do you know?
- Which *(item)* was chosen by more students than any of the others choices?
- How do you know?
- Which *(item)* was chosen by the fewest students?
- How do you know?
- What job could use this type of information? Why?
- If we asked this same question to other age groups, how do you think their answers would compare to ours? Why?
- What makes your choices the strangest to you?
- Extension: Find out more about your animal.

(Assessment Item 8 will be reviewed daily in Snack Fractions.)

BLM Daily Routines Unit 2 Fraction Action, Lesson 2 **Alex's Rope Project**

Student Name _____

Alex has a piece of rope that is $1\frac{3}{8}$ yards long.

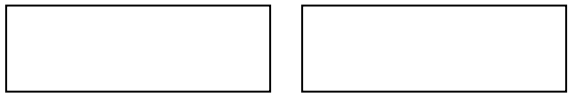
He can choose to create one of two projects.

One project needs a piece of rope that is $1\frac{3}{4}$ yards long.

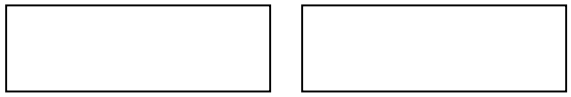
The other project needs a piece of rope that is $\frac{1}{2}$ yard long.

Which project can he choose based on how much rope he has?

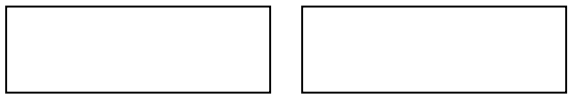
Use the models below to help you find the solution.



This represents the _____ yard rope Alex has.



This represents the _____ yard rope needed.



This represents the _____ yard rope needed.

Alex must choose the project that needs _____ yards rope because:

BLM Daily Routines Unit 2 Fraction Action, Lesson 2 Alex's Rope Project

Nombre del estudiante _____

Alex tiene un trozo de cuerda que mide $1\frac{3}{8}$ yarda de largo.

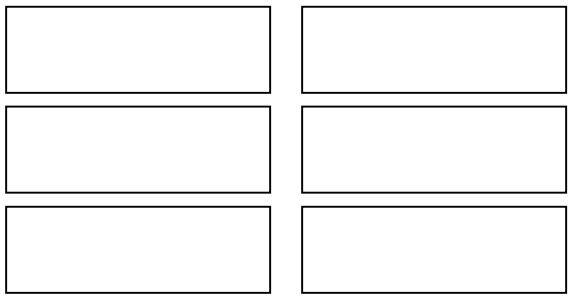
Él puede decidir crear uno de dos proyectos.

Un proyecto requiere un trozo de cuerda que mida $1\frac{3}{4}$ yarda de largo.

El otro proyecto requiere un trozo de cuerda que mida $\frac{1}{2}$ yarda de largo.

¿Cuál proyecto puede elegir, en base a cuánta cuerda tiene?

Usa los modelos siguientes para ayudarte a encontrar la solución.



Este representa las _____ yardas de cuerda que Alex tiene.

Este representa las _____ yardas de cuerda necesarias.

Este representa las _____ yardas de cuerda necesarias.

Alex debe elegir el proyecto que necesita _____ yardas de cuerda porque:

BLM Daily Routines Unit 2 Fraction Action, Lesson 2 **Teacher Directions**

1. Read or have a student volunteer read the problem.

2. Ask students to talk to a partner to explain the dilemma in the problem and how they might solve it. Quickly debrief in the class.

3. Let students work in pairs to solve the problem. Circulate the room asking questions as they work.

QUESTIONS

- What does this first model represent? (the rope Alex has)
- There are two rectangles in this first model. Why? (Alex has one whole and some more.)
- How did you represent the whole on the model? The 3/8 yards? (Color in one whole rectangle, then divide the second rectangle into eighths and color in three of them.)
- What does this second model represent? (Student selects one of the projects.)
- *Questions will now depend on which project student is modeling.*
    - *Project needing 1 ¾ yards* – how did you represent the whole? (Color in one whole rectangle and for the ¾ yards, divide the second rectangle into four parts and color in three of them.)
    - *Project needing ½ yard* – How did you represent the whole? (There is no whole yard. Student could only represent a half yard. Divide the FIRST rectangle into two equal parts and color in one of them.)
- What do your three models tell you? (Alex does not have enough rope to make the 1 ¾ yards project. Even though he will have rope left over, he can only make the project that needs 1/2 yard of rope.

EXTENSION:
How many eighths of a yard of rope was Alex missing to be able to make the first project? Explain how you found that answer.

BLM Daily Routines Unit 2 Measurement, Lesson 2 Area Model with Murals #2

One sheet per student

Materials:

- 30 color tiles per student
- Customary ruler (measuring in inches)

Use your color tiles to find the dimensions of this photograph of one of Diego's murals.

Because printers can distort the picture, you will want to round your measurements to the nearest inch.

http://www.fotopedia.com/items/anboto-G8Hi_XRqERI

How many tiles tall is the photo of the mural? _____ _____

How many tiles wide is the photo of the mural? _____

How many tiles did it take to cover the mural (rounded to the nearest whole tiles)? _____

What shape is the color tile? _____

What is the measure of each side of the color tile? _____

Using the measure of the side of a color tile as your guide, how many inches tall is the photo of the mural? _____ _____

How many inches wide is the photo of the mural? _____ _____

What is the AREA of the photo of the mural in square inches? _____ square inches.

Write a multiplication sentence that describes the dimensions and area of this photo of the mural:

_____

BLM Rutinas diarias, Unidad 2, Lección 2 Medidas Modelo de área con murales #2

Una hoja por estudiante

Materiales:

- 30 fichas de colores por estudiante
- Regla estándar (con escala en pulgadas)

Usa tus fichas de colores para encontrar las dimensiones de esta fotografía de uno de los murales de Diego.

Dado que las impresoras pueden distorsionar la imagen, debes redondear tus medidas a la pulgada más cercana.

¿De cuántas fichas de alto es la foto del mural? _____ _____

¿De cuántas fichas de ancho es la foto del mural? _____

¿Cuántas fichas se necesitaron para cubrir el mural (redondeando al número más cercano de fichas enteras)? _____

¿De qué forma es la ficha de color? _____

¿Cuál es la medida de cada lado de la ficha de color? _____

Usando como guía la medida de un lado de una ficha de color, ¿cuántas pulgadas de alto tiene la foto del mural? _____ _____

¿Cuántas pulgadas de ancho tiene la foto del mural? _____ _____

¿Cuál es el ÁREA de la foto del mural en pulgadas cuadradas? _____ pulgadas cuadradas.

Escribe una oración de multiplicación que describa las dimensiones y el área de esta foto del mural:

_____

BLM Daily Routines Unit 2 Measurement, Lesson 2 **KEY**

Materials:

- 30 color tiles per student
- Customary ruler (measuring in inches)

Use your color tiles to find the dimensions of this photograph of one of Diego's murals.

Because printers can distort the picture, you will want to round your measurements to the nearest inch.

How many tiles tall is the photo of the mural? *4 tiles*

How many tiles wide is the photo of the mural? *3 tiles*

How many tiles did it take to cover the mural (rounded to the nearest whole tiles)? *12 tiles*

What shape is the color tile? *The tile is a square.*

What is the measure of each side of the color tile? *Each side measures 1 inch.*

Using the measure of the side of a color tile as your guide, how many inches tall is the photo of the mural? *4 tiles*

How many inches wide is the photo of the mural? *3 tiles*

What is the AREA of the photo of the mural in square inches? *12* square inches

Write a multiplication sentence that describes the dimensions and area of this photo of the mural:
4 x 3 = 12 *OR* *3 x 4 = 12*

BLM Unit 2 Graphing (*Optional*), Lesson 2 Guanajuato Jungle Animals

STAAR Performance Problems Unit 2, Lesson 2 **Pairs**

Of Mr. Victoria's 135 cows, 57 were Brahmas, 23 were Holsteins and the rest were longhorns. How many of his cows were longhorns?

Problem #1 – Name: _____ Verification – Name: _____

Problem #2 – Name: _____ Verification – Name: _____

Final Solution – Name: _____ Verification – Name: _____

You are free to take this apart any way you wish – on your own; together as a team; a mix of both. You are responsible, however, for your own paper having all problems identified and solved; verifying your Team member's page. Be sure to write your final solution with a label in the box.

Solve It! Problems Unit 2, Lesson 2

Pairs

De las 135 vacas del sr. Victoria, 57 fueron Brahmas, 23 fueron Holsteins y los otros cuernos largos. ¿Cuántas vacas fueron cuernos largos?

Problema #1 – Name: _____ Verificación – Nombre: _____

Problema #2 – Name: _____ Verificación – Nombre: _____

Solución final – Nombre: _____ Verificación – Nombre: _____

Puedes resolver esto del modo que desees - por ti mismo; en equipo; una mezcla de ambos métodos. Sin embargo, tú eres responsable de que tu propio trabajo tenga todos los problemas identificados y resueltos; verificando la página del miembro de tu equipo. Asegúrate de escribir tu solución final con una etiqueta en la caja.

Literature Selection
Diego
by Jeanette Winter and Jonah Winter

Materials

Language Materials
- **BLM** Word Cards
- **BLM Rapid Reader**
- BLM Semantic Map
- **BLM** sequencing graphic organizer *(lesson 1)*

Transition to Math Materials
- Decimal Battle cards from lesson 1– 1 set per pair of students
- **BLM** Math Word Cards

Literature Vocabulary

altar
herbs
vapors
medicinal
studio
equality
horrible
whistle

Math Vocabulary

equal sized groups
repeated addition
repeated subtraction
multiplication
division
fact families
factors
products

ELPS (*English Language Proficiency Standard*)
2D, 2G, 3C, 3H, 4E, 4G, 4J

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.B.2., II.A.4., II.A.7.
ELA II.A.2., II.A.3., II.A.4., II.B.1., III.A.2., IV.A.3.

Unit 2, Lesson 2 — 3-4

Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students should review to see if they have accomplished both math and language objectives.

Math Objectives:
- Represent hundredths using concrete and visual models and money.

Language Objectives:
- Ask questions about the text as they read.
- Identify sequencing signal words from text that indicate new event in story
- Orally generate predictions about events, justify predictions, and after reading confirm or disconfirm predictions
- Identify and write the sequence of main events from the story

BEFORE READING
Building Background: Vocabulary and Literature
Reread the list of literature vocabulary identified in lesson 1. Direct the students to read aloud the words after you.
Distribute the rapid reader BLM to each pair of students.
Say, "Today you will work on rapid reading of these words for one minute each. Partner one will watch the clock and your accuracy. For each round you read the sheet in one minute you will receive a tally mark. After the timer *(one minute)*, then you will switch roles.
Ask, "Reader one…Estimate how many times you will read the sheet in a minute. Reader two…how many times will you read the sheet in one minute?"
Say, "Ready reader one…get set…read!"
Observe the partners. The readers should either point to the row they are reading or each word. This will enable the accuracy checker to follow along easily and for the reader to not lose their place. Say STOP after one minute timer expires.

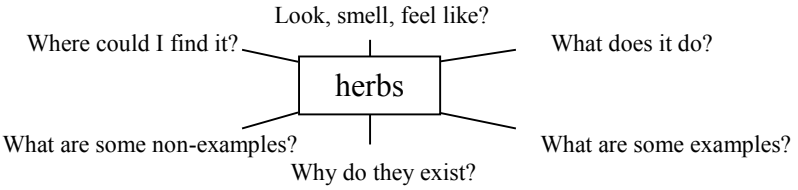
Ask, "Reader one- were your predictions for the number of times you read the sheet correct?"

Say, "Ready reader two…get set…read!"
Direct partners to STOP after one minute timer expires.

Ask, "Reader two- were your predictions for the number of times you read the sheet correct?"

Unit 2, Lesson 2 3-4
Classroom Lesson - continued

Say, "Let's examine the word *herbs* closer and understand more about its meaning."
Direct students to turn their BLM rapid reader to the backside. Guide them in drawing the following semantic map on the paper.



- **Herbs:**
  1 syllable (plural form)
  Sample sentence- *My mom added herbs from her garden to the spaghetti sauce to give it a better flavor*.
  Definition- plants that have use as medicine, aroma, or flavoring. Examples might be lavender, basil, parsley.

Say, **"**In lesson 1, we discussed the meaning of herbs. What is the meaning of herbs? Turn to your partner and share with them the meaning."
Allow students then to share with class.

Say, "Where could I find herbs? Think, turn to your neighbor and share." Allow students to share with class. Guide students to recall where Antonia kept her herbs. Write response on semantic map.

Say, "What do herbs do? Think, turn to your neighbor and share."
Allow students to share with class. Guide students to recall what Antonia used her herbs for - healing. Students could use the definition to assist with this answer. Write the response on semantic map.

Say, "What do they look, smell, or feel like? Think, turn to your neighbor and share."
Guide students in using the definition and examples of herbs discussed.
Show students pictures of herbs.
Allow students to share answers. Write responses on semantic map.

Say, "Why do herbs exist? Think, turn to your partner and share your thoughts." Guide students to thinking why they were used in the book, ***Diego***, and why else they are used in life.
Write the response on the semantic map.

Say, "Alright let's answer two more questions. What are some examples of herbs? Share your thoughts with your partner.
Write some examples on the semantic map."

Unit 2, Lesson 2 3-4
Classroom Lesson - continued

Ask, "What are some non-examples? These are examples that are NOT herbs. Think, now share with your partner." Allow students to share with class.
Write the responses on the semantic map.
Now we have a much deeper understanding of herbs and I think I could even identify an herb if I saw one in real life.

You will continue guiding students in learning how to strategically comprehend narrative text. You and the students will stop periodically throughout the reading of the book to consider predictions about what might reasonably occur on the next few pages of the book and making corrections to prior knowledge. The culminating skill practiced for this book is sequencing.

Sequencing Signal Words:
- First
- Second
- Third
- Then
- Before
- After
- Last
- Meanwhile
- Now
- Finally
- Next
- Soon
- While
- Afterwards
- Later
- Soon
- But

Say, "Let's revisit the events we recorded yesterday on our graphic organizer."
Allow for volunteers to read.
Say, "As we continue reading this book we are going to sequence events that happen in the story about Diego. This means we are going to put events in order according to when they happen. When we can retell the sequence of events from a story we can tell what the story is mostly about or give a short summary."

Say, "There are words that give clues to the next event that is about to occur. These words are called signal words. Here is a list of some words that you might hear or read that describe or indicate the order of events."

DURING READING
Comprehensible Input: Vocabulary and Literature
Say, "The last event we recorded was Diego's parents sent him to art school."
Ask, "What do you think is going to happen next? What makes you think so?"

The next section of reading is open to different predictions. The current page paused on gives little clues as to what is going to happen next. If students look ahead to illustrations, very little clues are given to the next events. Expect incorrect predictions on this section, thereby giving an opportunity for students to reflect on their reasons for making their predictions and why they were incorrect.

Unit 2, Lesson 2 — 3-4
Classroom Lesson - continued

List the predictions on the board. Have students vote on their choice of prediction for what most likely will happen.

Continue reading the text beginning with "**But art school was boring to Diego."** Stop after reading "**It was what he saw."**

Ask, "Did…happen?" *(fill in with students' predictions about Diego)*
If the response is no, ask the students why it didn't happen?

Possible Sequence of Events for G.O.:

- Diego was born in Guanajuato, Mexico
- Diego fell ill
- Diego's parents took him to live with Antonia
- Antonia used her healing to help Diego
- Diego went home to his parents
- Diego drew everywhere.
- His father made him a studio.
- His parents sent him to art school
- Diego painted real life events he saw
- Diego helped poor people fight a war for equality
- Traveled to Paris and Italy
- Painted murals that told stories
- Diego became a famous artist.

Ask, "Why was Diego bored with art school? Have you ever been bored with anything at school? What did you do about it?"
Say, "I notice that Diego is painting now more than drawing. He prefers to paint real life events too. It's almost like he is painting a story book."

Ask," What do you predict will happen next? Why do you predict this? Share with your partner."

Continue reading the text beginning with "**Diego didn't like everything he saw."** Stop after reading "…**back in Mexico**."

Ask, "Did…happen?" *(fill in with students' predictions about Diego)*
If the response is no, ask the students why it didn't happen?

Say, **"**I notice this last page we read gives a little clue as to what might happen next. It reads…"He couldn't wait to turn his ideas into paintings- back in Mexico."
What do you predict will happen next as you consider this statement from the author?"

Continue reading the text beginning with "**That's when he started painting the murals…**" stop after reading "**Diego fell off the scaffold."**

Ask, "Did…happen?" *(fill in with students' predictions about Diego)*
If the response is no, ask the students why it didn't happen?

Say, "Oh my! The next event sounds like it might be very interesting because Diego just fell off of scaffolding."

Unit 2, Lesson 2 — 3-4
Classroom Lesson - continued

Define/discuss scaffolding using the illustration and linking to what Diego was doing at the time.

Ask, "What do you predict will happen next? Why do you predict this? Share with your partner."
List the predictions on the board. Have students vote on their choice of prediction for what most likely will happen

Continue reading beginning with "**But he wasn't hurt**." Stop when the final page of the book is completed.

Ask, "Did…happen?" *(fill in with students' predictions about Diego)*
If the response is no, ask the students why it didn't happen?

Direct students to return to the first page of the story. We will begin filling in our graphic organizer with the order of main events that occurred in the story so far. Remember our main character is Diego and the book is mainly about Diego's life we decided. So, that means the events should be about Diego's life.

Ask, "What was the first main event that occurred in the story?"
Allow for responses.

Guide students in locating the first event read today and writing it on the 9th line of the graphic organizer. Keep the wording short and direct to fit on the organizer and to avoid writing a summary.

Say, "After Diego painted real life that he saw, What major event occurred next in his life?"
Allow for responses, and then guide students to determining next event if needed.
Identify signal words that lead to the next event. Refer to the chart or list of words as needed. Noting not all events are prefaced with a signal word.

Continue in the same manner of questioning until all events through number 13 are completed.
After completing 9-13 of the graphic organizer, allow students to pair and reread their events to one another, checking for order of sequence.

Partner students with one another for rereading of the story. Pair

Unit 2, Lesson 2 3-4

Classroom Lesson - continued

students in which they can support one another's proficiencies. Do not partner non English with non English and avoid limited English with limited English.

AFTER READING

Practice and Application: Vocabulary and Literature

Play a five minute sequencing game with the students by stating two of the events from the book listed from 1-13. The students identify which event came first in the set.

Distribute the BLM semantic map to students. Allow partners to work together or individuals that wish to work independently may do so. Students are given 12-15 minutes to complete the semantic map using the text, background knowledge, and peers. Illustrations may be added if time remains.

Modify by allowing students to complete just one of the words, rather than two.

After 15 minutes, students affix their paper to the wall for a gallery walk. Students spend the remainder of the time on their gallery walk and discussing new ideas they have learned from other students' pages. Gallery walk may also be completed as students change for next class or return from another class.

BLM Unit 2, Classroom Lesson 2 **Rapid Reader**
(One for each pair of students to share)

altar	**vapors**	**whistle**	**studio**	**herbs**	**medicinal**
equality	**horrible**	**whistle**	**altar**	**equality**	**vapors**
studio	**herbs**	**vapors**	**horrible**	**medicinal**	**altar**
horrible	**whistle**	**equality**	**vapors**	**studio**	**herbs**
altar	**medicinal**	**studio**	**altar**	**whistle**	**vapors**

BLM Unit 2, Classroom Lesson 2 **Rapid Reader**
(One for each pair of students to share)

altar	**vapores**	**silbar**	**estudio**	**hierbas**	**medicinal**
igualdad	**horrible**	**silbar**	**altar**	**igualdad**	**vapores**
estudio	**hierbas**	**vapores**	**horrible**	**medicinal**	**altar**
horrible	**silbar**	**igualdad**	**vapores**	**estudio**	**hierbas**
altar	**medicinal**	**estudio**	**altar**	**silbar**	**vapores**

BLM Unit 2, Classroom Lesson 2 **Semantic Map**
(One for each student)

Look, smell, taste, feel like? ***Aspecto, olor, sabor, sentido***

Where do I find it*?/¿Dónde lo veo?*

What does it do?/*¿Qué hace?*

vapors

What are some non-examples?
¿Algunos que no sean ejemplares?

What are some examples?
¿Cuáles son unos ejemplos?

Why does it exist?
¿Por qué existe?

Look, smell, taste, feel like? ***Aspecto, olor, sabor, sentido***

Where do I find it*?/¿Dónde lo veo?*

What does it do?/*¿Qué hace?*

altar

What are some non-examples?
¿Algunos que no sean ejemplares?

What are some examples?
¿Cuáles son unos ejemplos?

Why does it exist? ***¿Por qué existe?***

Math Objectives
- Read and compare fraction and decimal representations.
- Find equivalent fraction and decimal representations.

Math Vocabulary
equal-sized groups
repeated addition
repeated subtraction
multiplication
division
fact families
factors
products

Transition to Math Materials
- **BLM TM** Decimal Battle -1 set cards cut and laminated per pair of students (these will be used in all three lessons for this unit)

ELPS (*English Language Proficiency Standard*)
2D, 2F, 2H, 3F, 3J

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.B.2., IX.A.1., X.A.1., X.A.2.
MATH I.B.1., I.C.1., II.A.1., IV.B.1., IV.B.2., V.A.1.

Technology:
http://www.sheppardsoftware.com/mathgames/decimals/DecimalModels10.htm
Decimal models and identification

TV Materials:
- Counters – 100 per student
- Portion cups or any small cups like 2 oz. bathroom cups – 10 per student
- **BLM** Making Equal Sets - 3 pages, 1 set per student

Classroom Lesson - continued

TRANSITION to Math
Building Background, Math

Continue the Decimal Battle game again today. Be sure that you are circulating the room listening and observing. Ask students to explain to you how they know that one decimal is larger than another.

When your time for the game is complete, read through the math vocabulary for this unit, having students give you examples of each.

Note that Fact Families is one of three word cards that has not yet been used. Ask students to tell you what a fact family would be for addition and subtraction. If students do not know, you will want to demonstrate:

The numbers 6, 5, and 11 have four related number sentences in addition and subtraction. Can anyone give me one of the number sentences you could write using these three numbers and ONLY these three numbers? (*Write what they give you on the board, and verify that only 6, 5, and 11 are used in the number sentence. Once you have one number sentence, ask for another, verify, then another until you have all four on the board.*)

6 + 5 = 11 11 – 6 = 5
5 + 6 = 11 11 – 5 = 6

You are going to be discovering multiplication Fact Families today during the TV Lesson.

Objectives: Review the math and language objectives to see how they were accomplished.

Distribute TV Lesson Materials
- Counters – 100 per student
- Portion cups or any small cups like 2 oz. bathroom cups – 10 per student
- **BLM** Making Equal Sets - 3 pages, 1 set per student

Literature Vocabulary
altar
herbs
vapors
medicinal
studio
equality
horrible
whistle

Math Vocabulary
equal sized groups
repeated addition
repeated subtraction
multiplication
division
fact families
factors
products

Materials
- Counters – 100 per student
- Portion cups or any small cups like 2 oz. bathroom cups – 10 per student
- **BLM** Fact Families #1 and #2, 1 each per student

Time Clue
BB = 1 minute
CI = 26 minutes
AC = 1 minute

ELPS (*English Language Proficiency Standard*)
1B, 1E, 2B, 2C, 3D, 3F

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.C.1., I.C.2., I.C.3.
ELA III.A.1., III.A.2., III.B.2.
MATH II.B.1., II.C.1., II.C.2., IV.C.2., VI.B.4., VIII.A.5

Unit 2, Lesson 2 3-4
TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting.
- Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.
- Determine a quotient using the relationship between multiplication and division.

Language Objectives:
- Use the math vocabulary during the activity.
- Discuss answers and possible strategies with classmates.

Building Background, Math
(Read through and discuss vocabulary and objectives.)

Today during your Transition to Math lesson you investigated a fact family for the numbers 6, 5 and 11. When you know the fact family, you know the four number sentences for those three numbers. You know the basic facts that use those three numbers. So when you know that 6 + 5 = 11, you also know one more addition fact and two subtraction facts.

Did you know that you can find fact families for multiplication and division, too? We're going to investigate that today while continuing our unit on multiplication and division. This refers to our third objective for today!

Comprehensible Input
Let's begin our investigation with the first problem set on our BLM.

I will tell you that we are working with multiplication and division, and that I've always arranged the numbers so that the third number in the set is the largest number.

Let's begin our investigation. The fact family in our first problem is 3, 5 and some number. How would you go about finding the third number? Remember we are using multiplication or division, and in my arrangement, the third number is always the largest number. Talk to your partner about how you can use your materials to find the third number. (*Generous pause*)

Unit 2, Lesson 2 3-4

TV Lesson - continued

We know this is multiplication or multiplicative relationship, and we know we are trying to find the largest number. Let's model a multiplication problem.

- three groups (*set out three portion cups*)
- with five counters in each group (*Count out five counters in the portion cup before going to the next cup.*)
- gives us how many counters? (*Skip count by 5s to find the answer.*)

So we know that 3, 5 and 15 are a multiplication/division fact family. Now, let's find all the number sentences related in this fact family.

SMARTBOARD
Model the portion cups and counters with real materials. Complete the chart on the SMART Board.

- We just modeled our first relationship: 3 groups of 5 = 15.
- What is the number sentence that represents this relationship? 3 x 5 = 15
- Now let's draw a picture of what we just modeled. I'm going to use circles for the portion cups and little dots for the counters. You many use any representation you wish, but make sure your entire picture fits inside the pictures cell. (*Draw three circles with five dots inside each.*)

CLASSROOM TEACHERS
Students must work through this with the TV Teacher. The TV Teacher will provide time for you to discuss portions of the lesson. Please facilitate that discussion.

Dump out your counters and move the portion cups out of the way.

- If the numbers in this relationship or fact family are 3, 5, and 15, what other arrangement can we make of portion cups and counters that would make a true statement? Talk to you partner and then to the class about this question. *(generous pause)*
- What if I take FIVE portion cups, and put just THREE counters in each? Do you think we would still have a total of 15 counters? Try it and see *(slight pause, then demonstrate)*.
- Skip count by 3s with me to see my total number of counters *(do so)*. Yes, we have 15 counters!
- Let's fill in our Words column for this relationship *(do so – 5 groups of 3 equals 15)*.
- What does that number sentence look like? 5 x 3 = 15
- Now draw a picture to represent what we just modeled. What will that look like? Tell your classroom Teacher. *(pause)*
- This time we have FIVE groups (*draw five circles*) and we put THREE counters into each group (*draw three circles in each circle, making sure you fill each circle before going to the next circle*).
- And we verified that this was 15 by skip counting. WE can do that again *(3, 6, 9, 12, 15)*.

Unit 2, Lesson 2 3-4

TV Lesson - continued

Is there any other multiplication arrangement we can make with the numbers 3, 5 and 15? *(slight pause)* No, only two. We have used the three as the number of groups and we have used the five as the number of groups.

What would happen if I used the 15 as the number of groups with three in each group? Talk about that in your class *(generous pause)*. You only have the number five left in the fact family. Your answer would be much larger than five!

So now we are going to find the division relationships in this fact family. With what number do you think we will begin each time? *(pause)*
We will begin with 15. That is the largest number in the family. We are going to divide it up in different ways. But remember, this relationship is ONLY for the numbers 3, 5, 15. We are finding their unique relationship.

- Alright, let's take our 15 counters.
- It doesn't matter how you begin your division as long as you keep your relationship true to the fact family. Let's start with three groups. (*Put out three portion cups.)*
- Now, we want to see how many will be in each group when we divvy out the 15 counters equally among the groups. So we will divvy out as if we are dealing cards. One for this group (*drop a counter into a cup*), one for this group (*drop a counter*) one for this group (*drop a counter*). Continue like this until all of the 15 counters have been divvied into the portion cups (*continue silently*).
- What I want to know now is how many counters are in each group. Well, take a portion cup and count the counters *(do so)*.
- There are five counters in this portion cup. *(Stack up the five in front of the cup.)* Just for fun, let's check the rest of the cups *(check each one at a time, stacking the five counters in front of the cup).*
- I can see that 15 divided into three groups will give me five counters in each group.
- Fill in the words column on the chart. 15 divided into three groups equals 5, and we know that means five counters in each group.
- What number sentence represents what we just modeled? (*15 ÷3 = 5)*
- Now let's represent our model in pictures. I have the 15 counters *(no picture yet)*. I divided them into three groups *(draw three circles)* and I divvied the counters out into the circles (*draw one dot in each circle as if you were dealing out cards until you reach 15*). We have five dots in each circle.
- (*Repeat the process for 15 divided into three groups.)*

Unit 2, Lesson 2 3-4

TV Lesson - continued

I'm going to let your class work on the second problem during your Follow-up Lesson. Perhaps there are students in the room that can direct the lesson?

Right now I want to work on the second BLM. Look at that one now. What do you notice about the three related numbers for the first problem? Remember, this is a multiplication/division relationship, and I always arrange my numbers so that the largest is the third number. *(slight pause)*

Looks like one of the smaller numbers is missing. How can I find that number? Talk in your class about possible ways to find the missing number. *(pause)*

Arthimus Portio's Corner
Lesson 2- What's Missing?
What is your strategy for finding the missing number in What's Missing?

I know that these are a fact family. I know one of the small numbers, or factors. I know the large number, or product. I can divide that larger number, or product, by the factor to find the other factor.

Let's do it.

- I have 12 counters *(hold in hand)*.
- I'm going to divide them into groups – we only have one factor, three, so we'll make three groups *(portion cups)*.
- Now, I can just divvy out 12 counters into the three portion cups until I see how many counters are in each cup *(do so)*.
- There are FOUR counters in each cup *(verify)*.
- The missing number, or in this case factor, is four *(fill in the fact family at the top)*.
- Let's complete the word representation for what we just did *(12 divided into three groups is four in each group)*.
- Write the number sentence *(12 ÷3 = 4)*.
- And draw a picture to represent our model (*draw three circles and divvy out the dots, one at a time, into the circles*).

(*Finish as much of this one as you can before time to go. Direct classroom teachers to complete this page as well as their Follow-up lesson.*)

Pirate: I have a related question for my MAS Space corner today!

Teacher: It will be interesting to see the different strategies everyone is using!

Objectives: And now before we go, let's review what we have learned today! *(do so)*

BLM Unit 2, TV Lesson 2 **Fact Families #1**
One page per student

3, 5, _____

Words	Numbers	Pictures
____ groups of _____ = _____		
____ groups of _____ = _____		
____ divided into ____ groups = _____		
____ divided into ____ groups = _____		

4, 2, _____ (Follow–up Lesson)

Words	Numbers	Pictures
____ groups of _____ = _____		
____ groups of _____ = _____		
____ divided into ____ groups = _____		
____ divided into ____ groups = _____		

BLM Unit 2, TV Lesson 2 **Fact Families #1**
One page per student

3, 5, _____

Palabras	Números	Dibujos
____ grupos de _____ = _____		
____ grupos de _____ = _____		
____ dividido entre ____ grupos = _____		
____ dividido entre ____ grupos = _____		

4, 2, _____ (Lección de seguimiento)

Palabras	Números	Dibujos
____ grupos de _____ = _____		
____ gtrupos de _____ = _____		
____ dividido entre ____ grupos = _____		
____ ____ dividido entre ____ grupos = _____		

BLM Unit 2, TV Lesson 2 **Fact Families #1**
One page per student

3, 12, _____

Words	Numbers	Pictures
____ groups of _____ = _____		
____ groups of _____ = _____		
____ divided into ____ groups = _____		
____ divided into ____ groups = _____		

4, 20, _____ (Follow–up Lesson)

Words	Numbers	Pictures
____ groups of _____ = _____		
____ groups of _____ = _____		
____ divided into ____ groups = _____		
____ divided into ____ groups = _____		

BLM Unit 2, TV Lesson 2 **Fact Families #2**
One page per student

3, _____, 12

Palabras	Números	Dibujos
____ grupos de _____ = _____		
____ gtrupos de _____ = _____		
____ dividido entre ____ grupos = _____		
____ ____ dividido entre ____ grupos = _____		

_____, 4, 20 Follow-up Lesson

Palabras	Números	Dibujos
____ grupos de _____ = _____		
____ gtrupos de _____ = _____		
____ dividido entre ____ grupos = _____		
____ ____ dividido entre ____ grupos = _____		

Literature Vocabulary
altar
herbs
vapors
medicinal
studio
equality
horrible
whistle

Math Vocabulary
equal sized groups
repeated addition
repeated subtraction
multiplication
division
fact families
factors
products

Materials
- Counters – 100 per student
- Portion cups or any small cups like 2 oz. bathroom cups – 10 per student
- Chart paper and marker (class tablet)
- **BLM** Fact Families #1 and #2, from TV Lesson – students will complete

ELPS (*English Language Proficiency Standard*)
2B, 2D, 3A, 3B, 5B, 5C, 5E

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR II.A.2., II.A.6., II.B.2., II.B.3.
ELA I.A.2., I.A.3., I.A.5., II.A.1., III.A.2.
MATH I.A.2., I.B.1., II.C.2., II.D.1., IV.C.2., VI.B.4., V.A.1.

Technology
http://www.roomrecess.com/pages/BlockBuster.html Warning - the top levels are HARD! Multiplication/Division looks available, but I couldn't seem to access it. Good game for addition and subtraction, though, if you can't access mul./div.

Unit 2, Lesson 2 — 3-4
Follow-up

Math Objectives:
- Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting.
- Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.
- Determine a quotient using the relationship between multiplication and division.

Language Objectives:
- Listen and speak with a partner during our math activity.
- Use the math vocabulary during the activity.
- Write math journal response.

Building Background, Math
Ask students what they've learned so far about fact families. Gather their thoughts on chart paper or the board. You want them to remember:
- Fact family is made up of three numbers that are related to one another.
- There are fact families for addition and subtraction, and for multiplication and division.
- The fact families you have found so far have had four related number sentences with them: two multiplication *(or addition)* and two division *(or subtraction)*.
- The fact family numbers have a unique relationship with one another.
- Knowing a fact family can help you remember your difficult-to-remember basic facts. Just create the family, then remember their relationships.

Practice and Application, Math
After the discussion, have student partners complete the two problems from the TV Lesson. Circulate the room to make sure that students understand what they are accomplishing as they work.

Unit 2, Lesson 2 3-4

Follow-up - continued

?QUESTIONING

Probe for Understanding

- Which number in the fact family represents your portion cups? The counters? The total number of counters?
- How did you find the other factor in this fact family?
- How do you know that this is a multiplication/division fact family and not an addition/subtraction fact family?

Extension Questions

- Tell me a word problem you would use this fact family to solve. (*If student needs help with the design of the problem: Use your name. plates and carrot stick snacks*.)

Math Journal Writing

Students should have a spiral notebook into which they journal their thoughts daily about math. Today's journal prompt is:

✎🕮 **Write one word problem using the fact family 7, 6, 42. Share as a class. How many were multiplication? How many were division?**

Objectives: Read through the language and math objectives for this portion of the lesson, and have students tell you how they accomplished each.

Math Objectives
- Represent equivalent fractions using pictorial models.
- Compare two fractions having the same denominator.
- Determine if two given fractions are equivalent.
- Identify decimals and represent as decimal numbers and as fractions.

Language Objectives
- Discuss fraction comparisons.
- Discuss fraction equivalencies.
- Discuss fraction – decimal equivalencies.

Vocabulary
one-half
one-sixth
three-sixths
equivalent
greater than, less than

Materials:
1 per student
- **BLM** Trail Mix Fractions
- **Per Partners:**
- 2 cups Trail Mix (you may purchase already made, or have students mix their own with 1/2 of each of the following)
  - Pecans
  - Semi chocolate chips
  - Granola
  - raisins
- Two 1-cup measuring cups
- 2 paper dessert plates
- 2 paper towels
- 2 plastic knives

Unit 2, Lesson 2 3-4
Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

Students share exactly as they did in Lesson 1, finding halves for themselves, then using the materials to find equivalencies for sixths. This time, though, have them find as many as they can using the sixths pictorial models before they glue them to the recording paper. *(3/6 = 1/2 ; 6/6 = 2/2)*

Work with each group as the need arise.

Snack Fraction Journal Writing: BLM Trail Mix Fractions
Prove with your snack sixth pictorial models that 4/6 = 2/3, and explain how you know.

Objectives: Review the objectives with the class, making sure they understand how they achieved each.

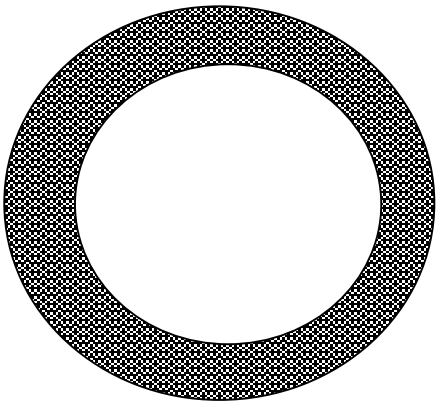
BLM Unit 2, Snack Fraction Lesson 2 **Trail Mix Snack Fractions**
(One sheet per student)

My name is _____

I shared Trail Mix with my partner today.

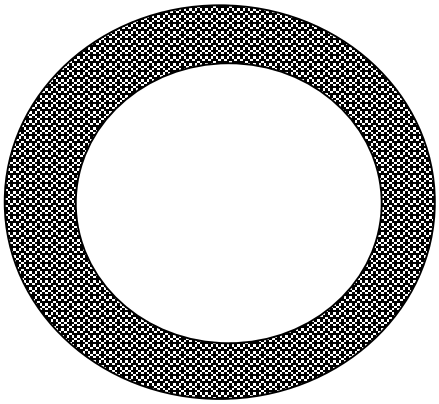
Cut out one set of the snack representations at the bottom of this page. Divide that into fractional portions for sharing between two people. Glue your portion to the plate

My fractional portion would be: _____



Cut out one set of the snack representations at the bottom of this page. Divide that into fractional portions for sharing among six people. Glue your portion to the plate.

My fractional portion would be: _____



Write a comparison statement for these two unit fractions using <, =, or >. _____

Use the models to find an equivalent fraction for one-half in sixths: _____

Now use what you have learned to describe the SHADED portion of the drawing as a fraction and as a decimal.

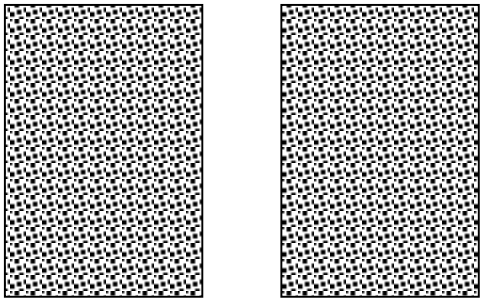
Decimal: _____ Fraction: _____

Write a different equivalent fraction

for this amount. _____

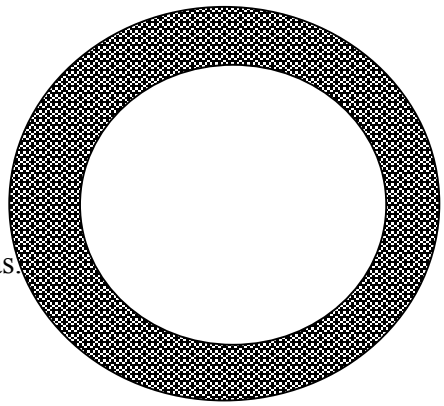
How did you find the equivalent fraction?

SNACK REPRESENTATIONS: Cut out the pieces below to divide into the fractional portions



BLM Unidad 2, Fracciones de refrigerio Lección 2 **Fracciones de refrigerio de granola**
(Una hoja por estudiante)

Mi nombre es _____



Hoy compartí granola con mi compañero.

Recorta un juego de representaciones de refrigerios de la parte inferior de esta página. Divídelo en porciones fraccionales para compartir entre dos personas. Pega tu porción en el plato

Mi porción fraccional sería: _____

Recorta un juego de representaciones de refrigerios de la parte inferior de esta página. Divídelo en porciones fraccionales para compartir entre seis personas. Pega tu porción en el plato.

Mi porción fraccional sería: _____

Escribe una comparación para estas dos unidades fraccionales usando <, =, o >.
_____

Usa los modelos para encontrar una fracción equivalente para un medio en sextos:
_____
Ahora usa lo que has aprendido para describir la porción SOMBREADA del dibujo como fracción y como decimal.

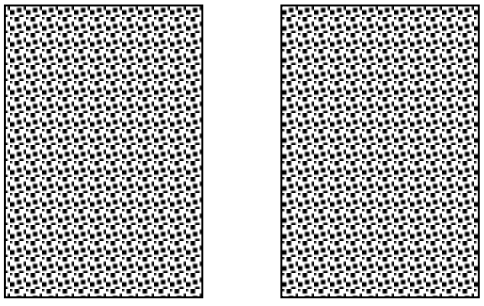
Decimal: _____ Fracción: _____

Escribe una fracción equivalente distinta

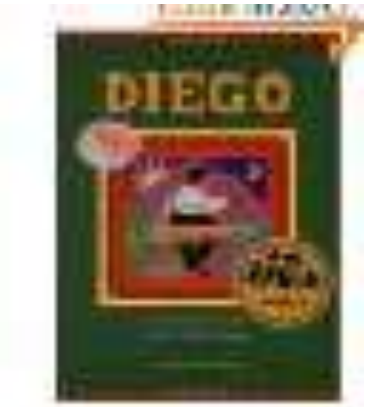
para esta cantidad. _____

¿Cómo encontraste la fracción equivalente?

REPRESENTACIONES DE REFRIGERIOS:
Recorta las piezas siguientes para dividirlas en las



Family Fun – 3-4, Unit 2 Lesson 2



We learned more about multiplication and division today. Here is something that I found interesting:

_____

_____

_____

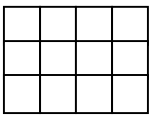
_____

Below are different representations for 3 x 4. We offer them here for you as a springboard for discussion with your children.

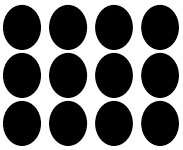
Three groups of four (representation in words) **3 x 4** (representation in numbers)

4 + 4 + 4 (representation in repeated addition) **4, 8, 12** (representation in skip counting)

(representation in area model)



(representation in same-sized sets)



(representation in array model)

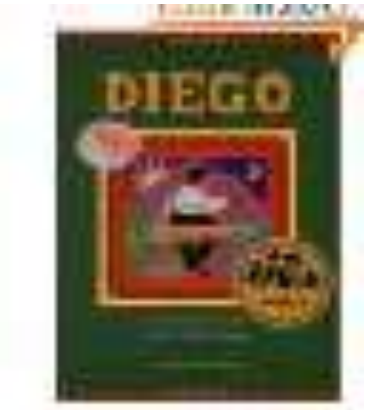
(representation as fact family)

3 x 4 = 12 **4 x 3 = 12**

12 ÷4 = 3 **12 ÷ 3 = 4**

Diversión familiar – 3-4, Unidad 2 Lección 2

Hoy aprendimos más sobre multiplicación y división. Aquí hay algo que me pareció interesante:



_____

_____

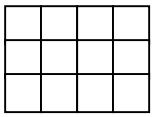
_____

_____

Abajo hay distintas representaciones de 3 x 4. Las ofrecemos aquí como un punto de partida para conversar con sus hijos.

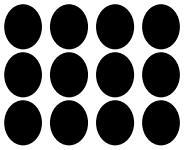
Tres grupos de cuatro (representación en palabras) **3 x 4** (representación en números)

4 + 4 + 4 (representación en suma repetida) **4, 8, 12** (representación en conteo salteado)



(representación en modelo de área)

(representación en conjuntos del mismo



(representación en modelo de matriz)

(representación como familia de hecho)

3 x 4 = 12 **4 x 3 = 12**

12 ÷4 = 3 **12 ÷ 3 = 4**

Materials
***(BLM** denotes Blackline Masters found in curriculum)*

Math Objectives
- Pre-assess summer skills.

Balanced Literacy
Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.
- Explain how they decided to rename the target number.
- *Discuss scarcity of money, choices and cost benefit.*

TEKS in TV and Flu
Lesson 1
- **3rd** – 3.4EH, 3.3 FH
- **4th** - 4.3C

Lesson 2
- **3rd** – 3.4EH, 3.3 FH
- **4th** - 4.3C

Lesson 3
- **3rd** – 3.4EGH, 3.3 FH
- **4th** - 4.3C

Assessment Items
(As a result of experiencing this unit, students will be learning skills necessary to be successful on the following Assessment items.)

3rd - 1, 2, 3, 4, 5, 6, 7, 8
4th - 1, 2, 3, 6

ELPS (*English Language Proficiency Standard*)
1G, 2A, 2B, 2C, 4C, 4J,5D

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.C.1., I.C.2., I.C.3.
ELA III.A.1., III.B.2., IV.A.3
MATH IV.C.1., IV.C.2., VI.C.2., VIII.A.1., VIII.A.2., VIII.A.4.

Unit 2, Lesson 3 3-4
Daily Routine

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL
What's Missing? *(3rd assessment item 2)*
- **Lessons 1, 2, 3** *follow directions in the Daily Routine Explanations. Check the assessment items so that you are certain you include samples to practice the shape in the assessed location.*

Solve It! *(fundamental problem-solving skills for all items)*
- **Begin in this unit following directions in the Solve It overview.**

Fraction Action
- Lesson 1 BLM Using Benchmarks (*4th assessment items 4, 6*)
  BLM Teacher Directions, Benchmarks
- Lesson 2 - BLM Alex's Rope Project (3rd, *# 6, 4th # 5)*
  BLM Teacher Directions
- **Lesson 3 – none today**

CGI
- Lesson 1 – Multiplication
- Lesson 2 – Division, Measurement (*3rd Assessment item 5*)
- **Lesson 3 – Division, Partitive (*3rd Assessment item 4*)**

Measurement Lab (3rd Assessment 1) materials are per student
- Lesson 1 – Area Models with Murals #1
  - 30 color tiles
  - 1 ruler
  - BLM Area Models with Murals #1
  - BLM KEY
- Lesson 2 – Area Models with Murals #2
  - 30 color tiles
  - 1 ruler
  - BLM Area Models with Murals #2
  - BLM KEY
- **Lesson 3 - Area Models with Murals #3**
  - **30 color tiles**
  - **1 ruler**
  - **BLM Area Models with Murals #3**
  - **BLM KEY**

Arthimus Portio's Corner
Lesson 3- Measurement
What do you know about arrays and area today that you didn't know when you started summer school?

Unit 2, Lesson 3 3-4
Daily Routine - continued

OPTIONAL: *These activities, although not assessed, are fundamental skills that should be included in those sites providing five to six weeks of instruction.*

Target Number *(fundamental number sense for all items)*

- Lesson 1 – Target Number 48
- Lesson 2 – Target Number 20
- Lesson 3 – Target Number 100

Graphing

- Lesson 1 – Diego's Murals *(Make a picture card of each of the three murals students will be using during the Measurement Lab. Generate a bag graph to collect the data*.)
- Lesson 2 – Guanajuato Jungle Animals
- **Lesson 3 – none**

Graphing Questions:
Before asking any questions, have the students give you their observations about the data shown on the graph. Always ask students to explain how they know.
These are generic questions. Simple reword them to fit your graph topics.

- How many more ____ than ____?
- How do you know?
- How many fewer ____ than ____?
- How do you know?
- Which (item) was chosen by more students than any of the others choices?
- How do you know?
- Which (item) was chosen by the fewest students?
- How do you know?
- What job could use this type of information? Why?
- If we asked this same question to other age groups, how do you think their answers would compare to ours? Why?

BLM Daily Routines Measurement Unit 2, Lesson 3 Measurement Area Model with Murals #3

One sheet per student

Materials:

- 30 color tiles per student

Use your color tiles to find the dimensions of this photograph of one of Diego's murals.

Because printers can distort the picture, you will want to round your measurements to the nearest inch.

http://www.fotopedia.com/items/anboto-G8Hi_XRqERI

How many tiles tall is the photo of the mural? _____ _____

How many tiles wide is the photo of the mural? _____

How many tiles did it take to cover the mural (rounded to the nearest whole tiles)? _____

What shape is the color tile? _____

What is the measure of each side of the color tile? _____

Using the measure of the side of a color tile as your guide, how many inches tall is the photo of the mural? _____ _____

How many inches wide is the photo of the mural? _____ _____

What is the AREA of the photo of the mural in square inches? _____ square inches

Write a multiplication sentence that describes the dimensions and area of this photo of the mural:

_____

Now write the Fact Family for this multiplication sentence:

_____ _____ _____ _____

BLM Unidad 2, Lección 3 Medidas Modelo de área con murales #1
Una hoja por estudiante

Materiales:

- 30 fichas de colores por estudiante
- Regla estándar (con escala en pulgadas)

Usa tus fichas de colores para encontrar las dimensiones de esta fotografía. Dado que las impresoras pueden distorsionar la imagen, debes redondear tus medidas a la pulgada más cercana.

http://www.fotopedia.com/items/anboto-G8Hi_XRqERI

¿De cuántas fichas de alto es la foto del mural? _____ _____

¿De cuántas fichas de ancho es la foto del mural? _____

¿Cuántas fichas se necesitaron para cubrir el mural (redondeando al número más cercano de fichas enteras)? _____

¿De qué forma es la ficha de color? _____

¿Cuál es la medida de cada lado de la ficha de color? _____

Usando como guía la medida de un lado de una ficha de color, ¿cuántas pulgadas de alto tiene la foto del mural? _____ _____

¿Cuántas pulgadas de ancho tiene la foto del mural? _____ _____

¿Cuál es el ÁREA de la fotografía del mural en pulgadas cuadradas? _____ pulgadas cuadradas

Escribe una oración de multiplicación que describa las dimensiones y el área de esta foto del mural:_____

Ahora escribe la familia de hechos para esta oración de multiplicación:

_____ _____ _____

_____

BLM Daily Routines Measurement Unit 2, Lesson 3 Measurement **KEY**

Materials:

- 30 color tiles per student
- Customary ruler (measuring in inches)

Use your color tiles to find the dimensions of this photograph of one of Diego's murals.

Because printers can distort the picture, you will want to round your measurements to the nearest inch.

How many tiles tall is the photo of the mural? *3 tiles*

How many tiles wide is the photo of the mural? *5 tiles*

How many tiles did it take to cover the mural (rounded to the nearest whole tiles)? *15 tiles*

What shape is the color tile? *square*

What is the measure of each side of the color tile? *1 inch*

Using the measure of the side of a color tile as your guide, how many inches tall is the photo of the mural? *3 inches*

How many inches wide is the photo of the mural? *5 inches*

What is the AREA of the photo of the mural in square inches? *15* square inches

Write a multiplication sentence that describes the dimensions and area of this photo of the mural:
_____*3 x 5 = 15*_____

Now write the Fact Family for this multiplication sentence:

3 x 5 = 15 5 x 3 = 15 15 ÷ 5 = 3 15 ÷ 3 = 5

Solve It! Problems Unit 2, Lesson 3 **Pairs**

Solve your own problem today, showing your work. Verify your partner's problem solution when you both finish your own. Discuss your work.

Partner 1 Problem **Name _____ Date _____**

Twenty-nine of the 257 chickens on Mr. Victoria's farm were roosters. The rest were hens that laid an average of 2eggs per day. About how many eggs could he expect per day?

Problem Solution Name:	**Problem Verification** Name:

Solve It! Problems Unit 2, Lesson 3 **Pairs**

Hoy, resuelve tu propio problema, mostrando el procedimiento. Verifica la solución de tu compañero cuando ambos terminen de hacerlo por sí mismos. Hablen sobre su trabajo.

Problema del compañero 1 Nombre _____ Fecha _____

Veintinueve de los 257 pollos en la granja del sr. Victoria fueron gallos. Los demás fueron gallinas que pusieron un promedio de 2 huevos al día. ¿Aproximadamente cuántos huevos podría el sr. Victoria esperar cada dia?

Solución del problema Nombre:	**Verificación de la solución** Nombre:

Solve It! Problems Unit 2, Lesson 3 **Pairs**

Solve your own problem today, showing your work. Verify your partner's problem solution when you both finish your own. Discuss your work.

Partner 2 Problem **Name _____ Date _____**

Twenty-nine of the 257 chickens on Mr. Victoria's farm were roosters. The rest were hens who ate 8 ounces of chicken mash each a day. How much chicken mash did Mr. Victoria feed all of the hens each day?

Problem Solution Name:	**Problem Verification** Name:

Solve It! Problems Unit 2, Lesson 3 **Pairs**

Hoy, resuelve tu propio problema, mostrando el procedimiento. Verifica la solución de tu compañero cuando ambos terminen de hacerlo por sí mismos. Hablen sobre su trabajo.

Problema del compañero 2 **Nombre _____**
Fecha _____

Veintinueve de los 257 pollos en la granja del sr. Victoria fueron gallos. Los demás fueron gallinas que comieron 8 onzas de frangollo para pollos cada día. ¿Cuánto frangollo para pollos comieron las gallinas del sr. Victoria cada día?

Solución del problema Nombre:	**Verificación de la solución** Nombre:

Literature Selection
Diego
by Jonah and Jeanette Winter

Math Objectives
- Read and compare fraction and decimal representations.
- Find equivalent fraction and decimal representations.

Materials
Language Materials
- **BLM** Word Cards
- **BLM** Timed Sequencing
- **BLM** Timed Sequencing TEACHER KEY
- 3 unlined blank 8 ½ x 11 pages
- 1 construction paper 8 ½ x 11
- Glue or glue sticks
- Dice for each pair of students

Literature Vocabulary
altar
herbs
vapors
medicinal
studio
equality
horrible
whistle

Math Vocabulary
equal sized groups
repeated addition
repeated subtraction
multiplication
division
fact families
factors
products

Transition to Math Materials
- **BLM TM** Decimal Battle -1 set cards cut and laminated per pair of students (these will be used in all 3 lessons for this unit)

ELPS (*English Language Proficiency Standard*)
2D, 2G, 3C, 3H, 4E, 4G, 4J
CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.B.2., II.A.4., II.A.7.

Unit 2, Lesson 3 3-4

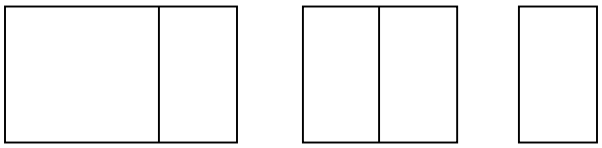
Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students should review to see if they have accomplished both math and language objectives.

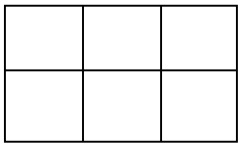
Math Objectives:
- Represent hundredths using concrete and visual models and money.

Language Objectives:
- Ask questions about the text as they read.
- Identify sequencing signal words from text that indicate new event in story
- Orally generate predictions about events, justify predictions, and after reading confirm or disconfirm predictions
- Identify and write the sequence of main events from the story

BEFORE READING
Building Background: Vocabulary and Literature
Reread as a class the literature vocabulary words.
Say: Let's speed up our reading of the vocabulary words through rolling the dice.
Distribute a blank white page (8 ½ x 11 unlined) to the students. Guide students in folding the page twice as shown here:



Unfold the paper; students should have created three columns.
Now, fold the paper horizontally creating two rows.
When the paper is completely unfolded, it will look like this:



Direct students to number their squares 1-6, beginning at the top

ELA II.A.2., II.A.3., II.A.4., II.B.1., III.A.2., IV.A.3.	**Unit 2, Lesson 3** **3-4**  **Classroom Lesson** - continued left corner moving right, then to the second row. Write the numbers in the top left corner of each square. Next, direct students to write six of the most challenging to read vocabulary words from the list of eight. Allow students the opportunity to write one word in each square. Distribute one die to each pair of students. Partner one will roll the die and read the word for the corresponding number, then promptly rolls the die again and reads the next word *(or in some cases the same word)*. Partner two is watching for accuracy and recording a tally mark for each word read correctly. You are in charge of the one minute timer. Direct the students when to start and stop. After giving instructions, Say, "Partner one, what is your prediction for how many words you will read in one minute?" Allow for responses Say, "Partner two, what is your prediction for how many words you will read in one minute?" Allow for responses. Begin the rolling die reading. --- Say, "Let's reread the events we have recorded on our sequencing graphic organizer." Allow for volunteers to read. Ask, "What is sequencing?" Allow for responses. Guide students in understanding sequencing means to put events in order according to when they happen. When we can retell the sequence of events from a story we can tell what the story is mostly about or give a short summary. Say, "Today we will use our sequencing graphic organizer to retell the story and write a short summary." DURING READING **Comprehensible Input: Vocabulary and Literature** Partner students together for reading. Direct students to sit shoulder to shoulder, facing opposite directions thereby allowing their reading to be heard in their listener's ear easier.

Classroom Lesson - continued

Allow students adequate time to read the book. If students complete the reading prior to other partners, they can practice retelling the main events in sequential order from memory.

Distribute to each pair of students a blank sheet of 8 ½ x 11 paper. Direct students to number their paper 1-13 beginning at the top of the paper.

Say, "It's all about timing today! This will be a partner review of the sequence of events from our story. You and your partner will work together to reorganize, in order the major events from the story. Cut the events out. Read the events carefully and reorganize them on your numbered paper. When you think you are ready, glue the events on your paper."

Distribute the BLM timed sequencing paper, print face down.

Say, "Do not turn your paper over yet. What do you and your partner predict your time will be once the paper is glued?"
Write time predictions on the board.

Say, "Ready…set…go!"

Circulate the room and assist students as necessary. Students that complete prior to others can reread the book independently or to you for fluency checks.

Say, "Great job everyone! Let's use these event sequences, now that they are in order to create a brief summary of the plot. We will narrow these events down to eight."

Ask, "What is a major event, important to Diego's life and history that occurred at the beginning of his life?"
Allow for responses.
Ask, "Why do you feel this is one of the most important events?"

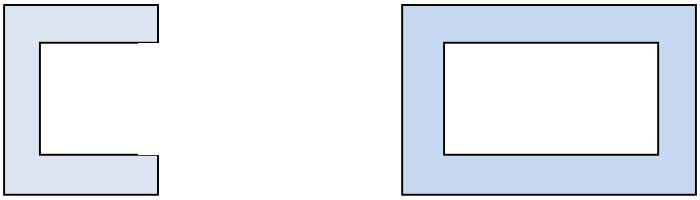
You will continue to guide students through selecting eight sequencing events from the list of 13 that adequately retell the story. The retell should flow and make sense.

Once students have agreed upon eight statements and given reasons as to why they selected those events, distribute the construction paper to small groups of three to four students *(preferably four)*.

Classroom Lesson - continued

Say, "We are going to frame the summary up! Each person in the group will write two events on one side of the frame. The events written will be the ones we have agreed upon as a class.

Say, "Let's create our frames first."
Demonstrate folding the construction paper in half. Then, cut about a 2-2.5 inch border.



Direct students to write only on the frame and when completed they will glue the frame onto the 8 ½ x 11 white paper. Then, as a group they will draw an illustration of one major event on the white paper.

AFTER READING
Practice and Application: Vocabulary and Literature

After students have completed their frame up of the story, post the frames on one wall of the room and allow for a gallery walk. Students share what they like about each illustration and name the event that was illustrated.

If time remains…

Divide the students into groups of three or four. Assign two events to each group from the list of major events used during the sequencing activity. The events are a secret to all but the group itself.
The group selects one of the events given. Allow each group a few minutes to plan a re-creation of the scene in pantomime, requiring, that the event be delivered with absolutely no movement, and each person in the group must assume a role. The roles may be characters or stage props. After sufficient time to practice, students create their frozen event while the rest of the class members close their eyes. When ready, class members open their eyes to view the scene and attempt to identify the particular event being portrayed.

	Unit 2, Lesson 3 **3-4**  **Classroom Lesson** - continued After the class has viewed the event for a minute, you tap one of the actors, who then 'comes to life.' In character, the student describes his or her feelings or thoughts at the moment. Re-tapping the actor causes them to go back to still life. Tap another actor to come to life. Continue until all members of the group have had an opportunity to 'come to life.' Do not rush the frozen events coming to life. Allow each actor a turn at describing their feelings or thoughts. The class guesses the event after all actors has 'come to life.'

(Teacher copy- ANSWERS)

1. Diego was born in Guanajuato, Mexico.
2. Later, Diego fell ill.
3. So, Diego's parents took him to live with Antonia, an Indian healer.
4. Then, Antonia used her healing to help Diego.
5. When he was healthy, Diego went home to his parents.
6. Diego drew everywhere.
7. His father made him a studio.
8. Later, Diego's parents sent him to art school.
9. Diego painted real life events he saw.
10. Diego helped poor people fight a war for equality.
11. Before returning to Mexico, he traveled to Paris and Italy.
12. When he returned, Diego painted murals that told stories.
13. Diego became a famous artist and an inspiration to others.

BLM Unit 2, Classroom Lesson 3 **Timed Sequencing**
1 per student

Later, Diego's parents sent him to art school.

When he returned, Diego painted murals that told stories.

When he was healthy, Diego went home to his parents.

Diego was born in Guanajuato, Mexico.

Diego became a famous artist and an inspiration to others.

Later, Diego fell ill.

Before returning to Mexico, he traveled to Paris and Italy.

So, Diego's parents took him to live with Antonia, an Indian healer.

Diego painted real life events he saw.

Diego helped poor people fight a war for equality.

Diego drew everywhere.

Then, Antonia used her healing to help Diego.

His father made him a studio.

Math Objectives
- Read and compare fraction and decimal representations.
- Find equivalent fraction and decimal representations.

Math Vocabulary
equal-sized groups
repeated addition
repeated subtraction
multiplication
division
fact families
factors
products

Transition to Math Materials
- **BLM TM** Decimal Battle -1 set cards cut and laminated per pair of students (these will be used in all 3 lessons for this unit)
- Base ten materials in Ziploc – per student
  - 2 hundreds
  - 15 tens
  - 15 units
- **BLM TM** Base Ten Array Board

ELPS (*English Language Proficiency Standard*)
2D, 2F, 2H, 3F, 3J

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.B.2., IX.A.1., X.A.1., X.A.2.
MATH I.B.1., I.C.1., II.A.1., IV.B.1., IV.B.2., V.A.1.

Technology:
http://www.youtube.com/watch?v=38nfYbygQwY
Silent video of child using base ten blocks to model 12 x 13

Distribute TV Materials:
- Base ten materials in Ziploc – per student
  - 2 hundreds
  - 15 tens
  - 15 units
- **BLM TM** Base Ten Array Board

Classroom Lesson - continued

TRANSITION to Math
Building Background, Math

Play Decimal Battle again today for the first part of the TM class. Be sure that you are circulating the room as students play, listening to their discussions and correcting any errors you might find in reading or comparing the representations. Ask all students, not just the ones who are correct or who are incorrect, "how do you know?" questions about their playing, comparing, naming.

We have been working with an area model in our Measurement Lab. How is the area model like multiplication? (*Accept all reasonable answers.)*

Today we found the area of a picture of one of Diego's murals with dimensions of 3 inches by 5 inches. When we filled the area with our color tiles, what did we find? (*an area of 15 SQUARE inches*)

I have another material I would like for us to use called base ten blocks. How many of you have used base ten blocks before? (*show of hands*) What did you do with them? (*volunteers answer*)

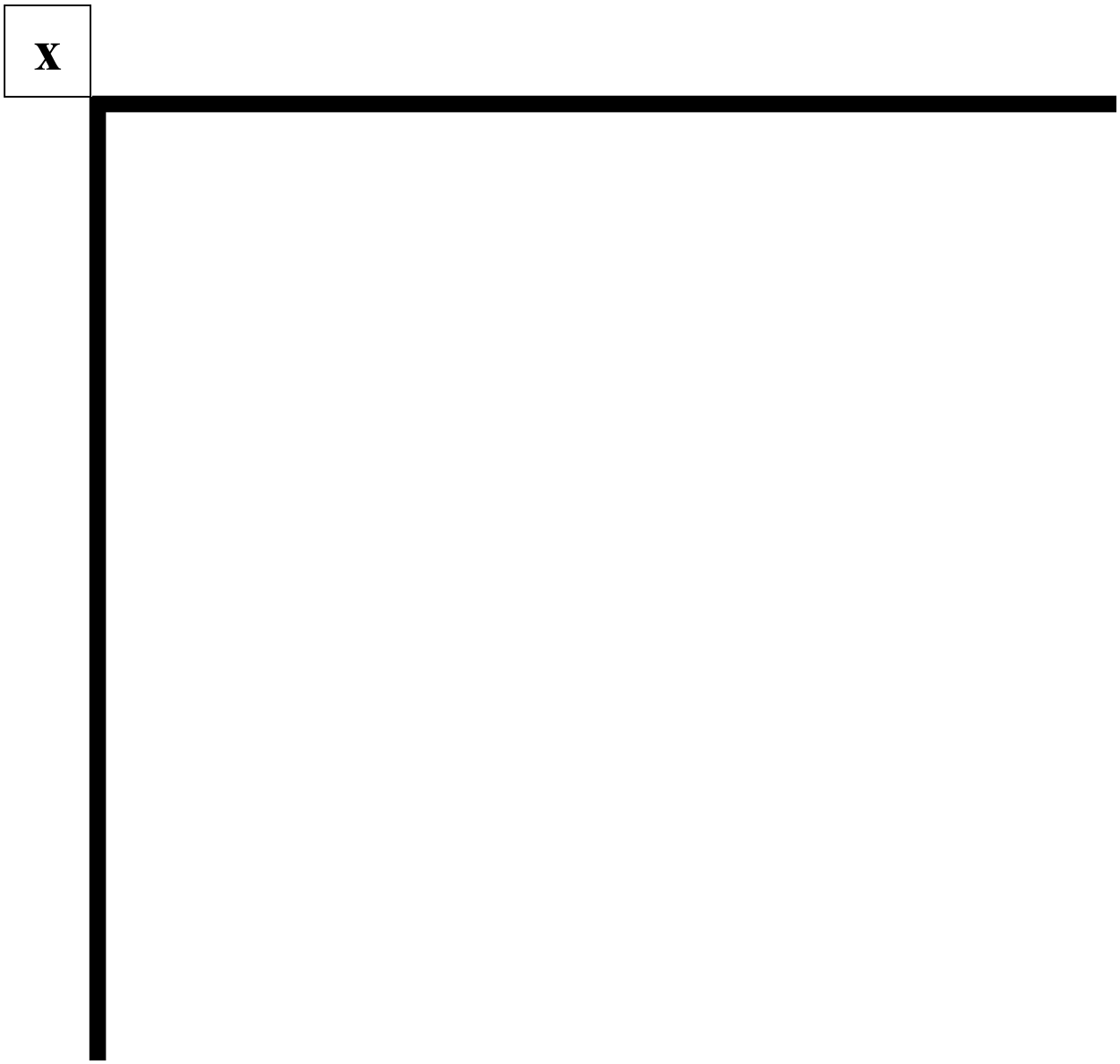
First, please take all of your base ten materials out of the bag and sort them by size at the top of your desk.
- We are going to use this small cube to represent ONE.
- If this cube represents ONE, what does this long skinny rod represent? *(ten)*
- How do you know? *(You can line up 10 ones and they are the same size as the rod.)* Please verify that it takes 10 ones to equal this rod. *(Everyone should verify.)*
- Well, if this small cube represents ONE, and the rod represents TEN, what does this flat represent? *(100)*
- How do you know? *(It takes 100 ones to fill the flat. It also takes 10 tens to fill the flat.)*
- Verify using the tens that this flat represents 100.

We are going to use them during the TV lesson to model multiplication.

Now, let's look at our BLM Base Ten Array Board. Building a base ten array is like filling in a puzzle. This board gives us the space to create the frame, which will be our factors or the two numbers we multiply (*trace finger around the outside of the frame, left side and top*). It gives us the product, which is the result we get when we multiply. Our TV Teacher will help us create puzzles and solve multiplication problems.

Objectives: Review the math and language objectives to see how they were accomplished.

BLM TM Unit 2, Lesson 3 **Base Ten Array Board**
(One page per student)



Literature Vocabulary
altar
herbs
vapors
medicinal
studio
equality
horrible
whistle

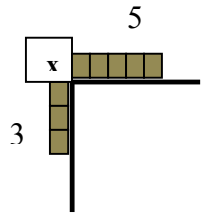
Math Vocabulary
equal sized groups
repeated addition
repeated subtraction
multiplication
division
fact families
factors
products

Materials
- Pencil and paper
- Base ten materials – per student
  - 2 hundreds
  - 15 tens
  - 15 units
- **BLM TM** Base Ten Array Board – 1 per student

ELPS (*English Language Proficiency Standard*)
1B, 1E, 2B, 2C, 3D, 3F

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.C.1., I.C.2., I.C.3.
ELA III.A.1., III.A.2., III.B.2.
MATH II.B.1., II.C.1., II.C.2., IV.C.2., VI.B.4., VIII.A.5

SMARTBOARD



Unit 2, Lesson 3 3-4
TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting.
- Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.
- Use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products and the commutative associative and distribute properties,

Language Objectives:
- Use the math vocabulary during the activity.
- Discuss answers and possible strategies with classmates.

Building Background, Math
(*Math objectives and vocabulary words*)

You and your classroom teacher have already investigated the base ten blocks. You know that when this *(unit)* represents one, this *(long)* represents 10 and this *(flat)* represents 100.

You also have talked about our Base Ten Array Board and know that we will place the frame or FACTORS of our problem on these two outside sides. Our PRODUCT or area array or answer to the multiplication problem will make a rectangle inside the sides.

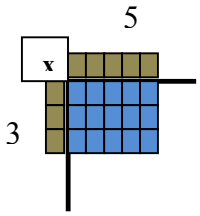
So let's get started. Today during your Measurement Lab, you measured the picture of one of Diego's murals. It measured 3 by 5. Now obviously these little cubes do not have inch edges. In fact, they have centimeter edges. But for our purposes, it doesn't matter. We're interested in the pure multiplication.

Comprehensible Input
Let's begin with our FACTORS. I want to make this leg our three cubes *(vertical leg)*. Let's all place our cubes so that they begin right at the top and underneath the multiplication square *(do so)*. Now we have our first FACTOR, 3. Let's put our FACTOR 5 on the line above the puzzle *(do so)*. Now we have our FACTOR 5.

Unit 2, Lesson 3 — 3-4

TV Lesson - continued

SMARTBOARD



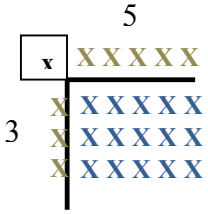
Now that we have our FACTORS in place, let's start filling in the puzzle, or our PRODUCT.

Start with the largest possible piece that will fit within the boundaries made by the FACTORS.

- Will a hundred fit here? *(try it)* No, of course not!
- How about a ten? *(try it)* No, still too big.
- The only pieces that will fit in this puzzle are the ones, so let's fill in product with ones.
- We now have our PRODUCT, or multiplication answer, inside the puzzle.
- What is 3 times 5? *(slight pause)* 15

You were asked to have paper and pencil so we can record what we have done.

CLASSROOM TEACHERS
Students must work with the TV Teacher. Please circulate the room making sure everyone is working with her.



First, I want us to draw what we did.

- Let's make a quick base ten array board (*draw the two legs of the base ten array board*).
- Let's use Xs for our ones.
  - Three ones on this leg (*draw three Xs on the vertical leg*) and
  - five ones on this leg (*draw five Xs on the horizontal leg*)
- And, of course, now we need to fill in the PRODUCT or answer to our multiplication. (*Do so, one row at a time with Xs.*)

Now, let's write our multiplication fact. 3 x 5 = 15

Remember in our Lesson 2 that we learned about fact families.

- What are the three numbers in the Fact Family for this array? *(3, 5, 15)*
- What are the two multiplication number sentences that we can use to represent the fact family for 3, 5, 15? *(3 x 5 = 15, 5 x 3 = 15)*
- Just turn your picture around so that the three ones are on the top leg. Our array looks differently, but we didn't change anything did we? This is what five groups of three looks like, and the inside array is still 15.

There are two more number sentences for this fact family. They are division number sentences.

Unit 2, Lesson 3 3-4

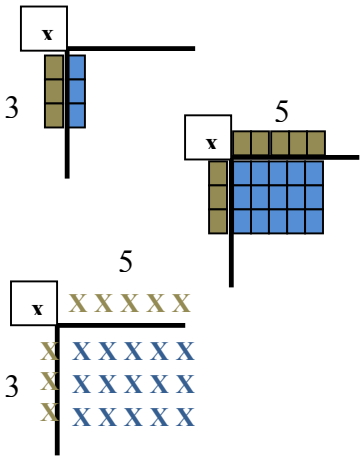
TV Lesson - continued

Tell your classroom teacher what the two division number sentences are for the fact family 3, 5, 15. *(pause)* Yes, 15 ÷ 3 = 5 and 15 ÷ 5 = 3

Let's model those using our base ten materials.
Clear your array board.

In division, we start with the large number and divvy it into smaller equal groups. Start with 15 ÷ 3.

- I'll put my three units on this leg of the array board (*vertical leg*).
- Now I'll just divvy out the base ten blocks into these three groups until I run out of blocks. (*Place the units, one at a time, in a column until you have divvied out the units to make the five columns of three cubes each.)*
- We've just modeled that 15 ÷ 3 = 5.

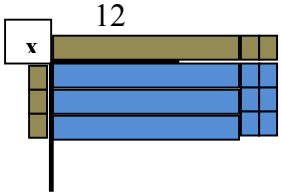


Time now to draw a picture of what we just modeled.
(*Draw on the paper with Xs, using the same script as you did with the cubes.)*

(Repeat the process with 15 ÷ 5 = 3, placing five cubes this time on the vertical leg, and divvying the 15 cubes one at a time into three columns of five cubes each. End by finding the missing FACTOR, the three Xs on the horizontal leg.)

If you haven't already done so, write all four number sentences in the fact family of 3, 5, 15. (*Write yours as well next to the array drawing:*
3 x 5 = 15 5 x 3 = 15
15 ÷ 3 = 5 15 ÷ 5 = 3

I have a harder problem for you this time. Let's model 3 x 12!



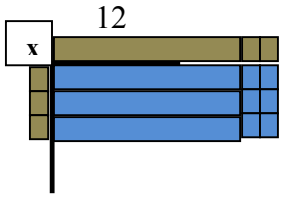
(*Follow the steps for building the array on the board, drawing the array, and writing the fact family. Model the three cubes on the vertical leg. Twelve is a ten rod and two ones, so talk about breaking the twelve into tens and ones. Remember that you always start with the LARGEST piece that will fit in the puzzle, in this case a ten. That makes sense – you are multiplying the top cube of the three times the ten of the 12: 1 x 10 = 10.)*

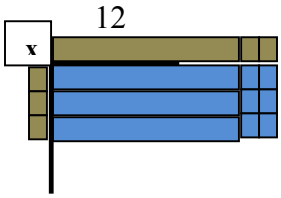
(Referring to the model) We have three tens, that's 30 and we have six ones. 30 + 6 = 36

(*Model in drawing following the same step; find the fact family*
3 x 12 = 36; 12 x 3 = 36; 36 ÷ 3 = 12; 36 ÷ 12= 3.)

Arthimus Portio's Corner
Lesson 3- Measurement

What do you know about arrays and area today that you didn't know when you started summer school?





Unit 2, Lesson 3 — 3-4

TV Lesson - continued

I have another step for you to take. Most of the time when we multiply using a 2-digit number, we write the equation differently like this:

12
x3
36

Before we model this algorithm, I'd like for you to model partial products with me. Every time you multiply you are going to note the product.

12
x3
6 (3 x 2 = 6) Three times 2 equals 6
30 (3 x 10 = 30) Three times TEN, because that 1 is in the tens place, = 30
36 (6 + 30 = 36) Find the sum of the products.

Mathematicians are inherently lazy – they are always trying to find the fastest way to compute something. Some mathematician in early days saw that you could collapse steps and make the algorithm shorter.
Let's see how this number representation relates to our model:
(*refer back to the model)*

12
x3
36 (3 x 2 = 6; now, 3 x 10 = 30 and this 3 is in the TENS place – notice we didn't need to find the sum in this problem. The answer is 36.)

It's important that you model at least one multiplication sentence and one division sentence with them.)

You will practice more of the base ten arrays in your Follow-up Lesson.

Arthimus: I really think I have this "array" model now! Here's what I want to know on MAS Space.

Objectives: And now before we go, let's review what we have learned today! (*do so)*

Literature Vocabulary
altar
herbs
vapors
medicinal
studio
equality
horrible
whistle

Math Vocabulary
equal sized groups
repeated addition
repeated subtraction
multiplication
division
fact families
factors
products

Materials
- Base ten materials – per student
  - 2 hundreds
  - 15 tens
  - 15 units
- **BLM** Practicing Base Ten Arrays
- **BLM** Family Fun Game Cards – 1 set per game teams, plus a full set for each student to take home
- **BLM** All-level Answer Key -1 sheet per game teams, plus 1 sheet for each student to take home
- Game markers – 1 per student

ELPS (*English Language Proficiency Standard*)
2B, 2D, 3A, 3B, 5B, 5C, 5E

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR II.A.2., II.A.6., II.B.2., II.B.3.
ELA I.A.2., I.A.3., I.A.5., II.A.1., III.A.2.
MATH I.A.2., I.B.1., II.C.2., II.D.1., IV.C.2., VI.B.4., V.A.1.

Unit 2, Lesson 3 3-4
Follow-up

Math Objectives:
- Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting.
- Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.
- Use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products and the commutative associative and distribute properties.

Language Objectives:
- Listen and speak with a partner during our math activity.
- Use the math vocabulary during the activity.
- Write math journal response.

Building Background, Math
NOTE: Complete any task left unfinished by TV Teachers.

Let's work a few more base ten models, then we are going to play our Family Fun Game so that you can take the game home today.

Practice and Application, Math
(*Divide the students into pairs and have them work together, although each working on their own base ten array boards, on the Follow-up Problem. Circulate the room asking questions.)*

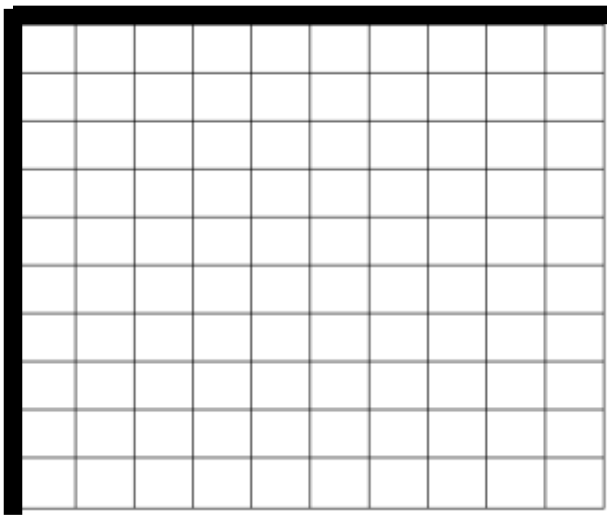
QUESTIONS
- What do the blocks on the outside of the array board represent? *(factors)*
- What does the array inside the board represent? *(product)*
- Show me how you would model one of the division sentences in the fact family.
- Prove to me that 10 x 9 = 9 x 10.
- Show me the partial product method for finding 9 x 10.

(*Divide the class into Family Fun Game partners, threes or groups of four. Play the game, making sure students understand the game cards that are going home. Circulate the room to make sure students can explain their thinking about how they derived the answer.)*

Technology http://www.youtube.com/watch?v=38nfYbygQwY Silent video of child using base ten blocks to model 12 x 13 – a little different from the TV lesson, but still valid.	**Unit 2, Lesson 3** **3-4** **Follow-up -** continued  **Math Journal Writing** Students should have a spiral notebook into which they journal their thoughts daily about math. Today's journal prompt is: **Explain how the partial product method relates to the array model.** **Objectives:** Read through the language and math objectives for this portion of the lesson, and have students tell you how they accomplished each.

BLM Unit 2, Follow-up, Lesson 3 **Practicing Base Ten Arrays**
(One page per student)

Create a base ten array for 8 x 4, then draw the array in the space provided. A grid has been provided for you to work within for the product.

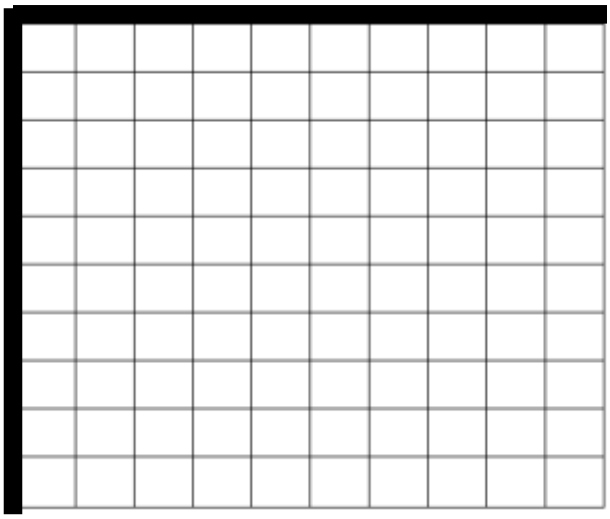


Write the fact family for this array.

_____ _____

_____ _____

Create a base ten array for 9 x 10, then draw the array in the space provided. A grid has been provided for you to work within for the product.



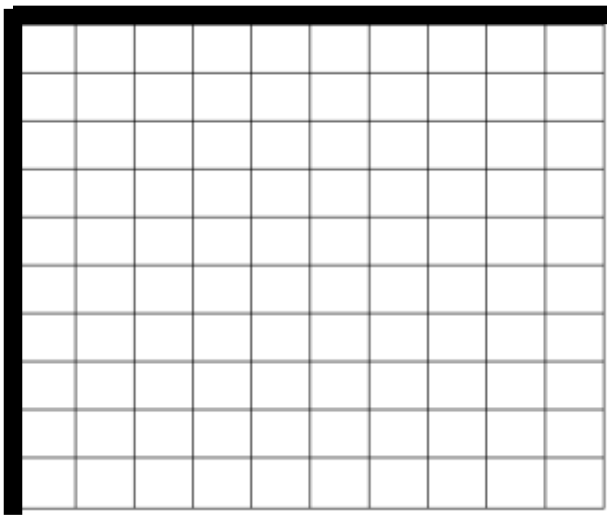
Write the fact family for this array.

_____ _____

_____ _____

BLM Unidad 2, Lección de seguimiento 3 **Practicar matrices en base diez**
(Una página por estudiante)

Crea una matriz de base diez para 8 x 4, y luego dibuja la matriz en el espacio proporcionado. Se proporciona una cuadrícula para que trabajes en ella con el producto.

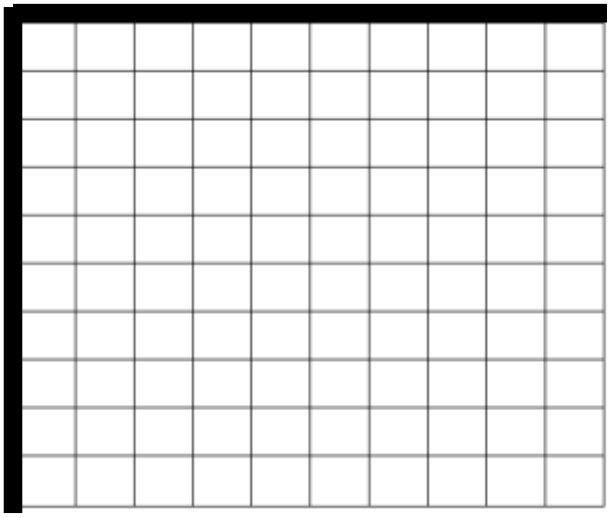


Escribe la familia de hechos para esta matriz.

_____ _____

_____ _____

Crea una matriz de base diez para 9 x 10, y luego dibuja la matriz en el espacio proporcionado. Se proporciona una cuadrícula para que trabajes en ella con el producto.



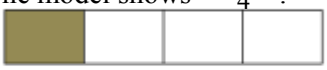
Escribe la familia de hechos para esta matriz.

_____ _____

_____ _____

BLM Unit 2, Follow-up Lesson 3 **Family Fun Game Cards**

Printed in ***Green*** –one set per partners for class; one set per student for home. (There are two pages of cards.)

A. Write the fact family for **7, 5, 35.**	**B**. Write the fact family for **7, 6, 42**.	**C**. Draw an array to model 4 x 5.
D. Mrs. Baker baked 3 pans of cookies. Each pan had 6 cookies on it. How many cookie did she bake?	**E**. Gary bought 24 cookies. He divided them equally into 4 boxes. How many cookies were in each box?	**F**. Maya baked 24 cookies. She wanted to box them 3 to a box. How many boxes did she need?
G. Draw a picture to model 3 x 2.	**H**. Draw a picture to model 6 x 2.	**I**. The model shows $\frac{1}{4}$.  Model and name a different equivalent fraction.

BLM Unit 2, Follow-up Lesson 3 **Family Fun Game Cards**

Printed in ***Green*** –one set per partners for class; one set per student for home. (There are two pages of cards.)

A. Escribe la familia de hechos para **7, 5, 35.**	**B**. Escribe la familia de hechos para **7, 6, 42.**	**C**. Dibuja una matriz para modelar 4 x 5.
D. La Sra. Baker horneó 3 bandejas de galletas. Cada bandeja tenía 6 galletas. ¿Cuántas galletas horneó?	**E**. Gary compró 24 galletas. Las dividió de manera equitativa en 4 cajas. ¿Cuántas galletas había en cada caja?	**F**. Maya horneó 24 galletas. Ella quería meterlas en cajas, con 3 galletas por caja. ¿Cuántas cajas necesitó?
G. Dibuja una gráfica para modelar 3 x 2.	**H**. Dibuja una gráfica para modelar 6 x 2.	**I**. El modelo muestra $\frac{1}{4}$.  Modela y nombra una fracción equivalente distinta.

BLM Unit 2, Follow-up Lesson 3 **Family Fun Game Cards**

Printed in ***Green***–one set per partners for class; one set per student for home. (There are two pages of cards.)

J.
Write the following fraction as a decimal.

$3\frac{9}{100}$

K.
Write the following fraction as a decimal.

$7\frac{25}{100}$

L.
Write the following decimal as a mixed fraction.

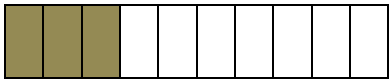
4.7

M.
How do you read this number?

5.03

N.
What part is SHADED?

O.
What part is UNshaded?

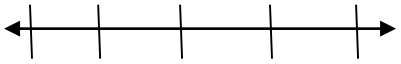


P.

Compare these numbers using < or >.

2.5 2.05

Q.
Show where you would place **0.5** on the number line.



R.
Show where you would place **0.75** on the number line.

J.
Escribe la siguiente fracción en forma decimal.

$$3\ \frac{9}{100}$$

K.
Escribe la siguiente fracción en forma decimal.

$$7\ \frac{25}{100}$$

L.
Escribe el siguiente decimal como fracción mixta.

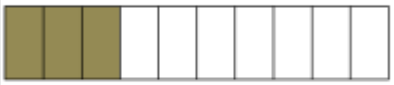
4.7

M.
¿Cómo lees este número?

5.03

N.
¿Qué parte está SOMBREADA?

O.
¿Qué parte está SIN sombrear?

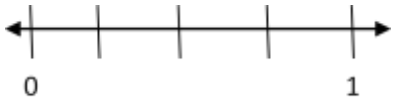


P.

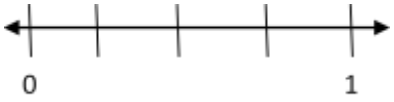
Compara estos números usando < o >.

2.5 2.05

Q.
Muestra dónde colocarías **0.5** en la recta numérica.



R.
Muestra dónde colocarías **0.75** en la recta numérica.



BLM Unit 2, Follow-up Lesson 3 Special 3rd – 4th – Instructions

Materials:

- Money Sets
  - 12 nickels
  - 10 dimes
- 2 x 3 strips of paper to make fraction models.
- Paper and pencil
- 3-4 Family Fun Problem Cards (green)
- Family Fun Movement Cards (white)
- Family Fun Game Board
- BLM Special 3rd-4th Instructions
- BLM Unit 1 Family Fun Game Answer Key, all levels

Solution Expectations

A – I review this unit's objectives. J – R review previous units' objectives.

Problems A – C

- **A-B** Students generate the four number sentence fact families for the related numbers.
- **C** Students draw an array using grid paper or free handed.

Problems D – F

- Students solve the word problems, showing their work.

Problems G - H

- Students draw a picture to model the multiplication facts – equal-sized groups.

Problem I

- Students may draw models on paper, or may use the strips of paper to make models. Any different equivalent fraction is acceptable.

Problems J – L

- Students name the fraction given as a decimal, or the decimal given as a fraction.

Problem M

- Read the number correctly – in this case, FIVE and THREE HUNDREDTHS (5 point 03 would NOT be acceptable)

Problems N – O

- Look carefully at the directions – one is to name the SHADED portion. The other is to name the UNshaded portion. Be sure students see the difference.

Problems P – R

- Students should read the answer using the correct form of the decimals
  - **P** two and five tenths is less than two and five hundredths
  - **Q** line in the middle
  - **R** line closest to 1

Math Objectives
- Represent equivalent fractions using pictorial models.
- Compare two fractions having the same denominator.
- Determine if two given fractions are equivalent.
- Represent tenths in decimal and fractional forms.

Language Objectives
- Discuss fraction comparisons.
- Discuss fraction equivalencies.

Vocabulary
one-half
one-sixth
three-sixths
equivalent
greater than, less than

Materials:
1 per student
- **BLM** Tomatoes and Cheese Fractions
- **BLM** Tomatoes and Cheese Fractions Fraction Pieces

Per Partners:
- 1 cup of cherry tomatoes
- 1 cup of cheese cubes
- 2 half-cup measuring cups
- 2 paper dessert plates
- 2 paper towels

Unit 2, Lesson 3 3-4
Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

Students share exactly as they did in Lessons 1 and 2, finding halves for themselves, then using the materials to find equivalencies for sixths. Student continue to use the snack pictures to find equivalencies.

Work with each group as the need arises.

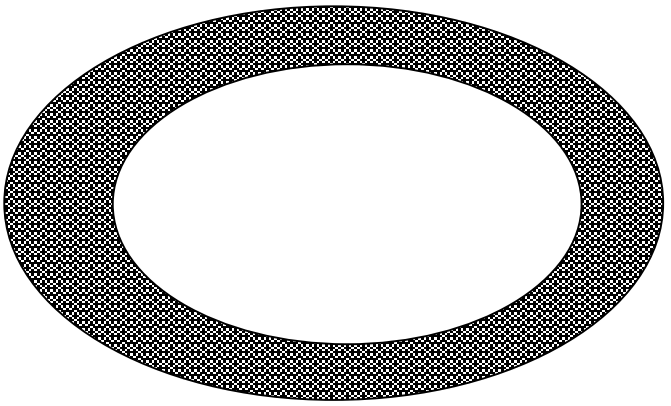
Give students the Journal Writing early, telling them they'll probably want to prove their decision with their fraction cut up pictures.

Snack Fraction Journal Writing:
Which would you rather have of your favorite snack, one-half or four-sixths? Why?

Objectives: Review the objectives with the class, making sure they understand how they achieved each.

BLM Unit 2, Snack Fraction Lesson 2 **Tomato and Cheese Fractions p1**
(One sheet per student)

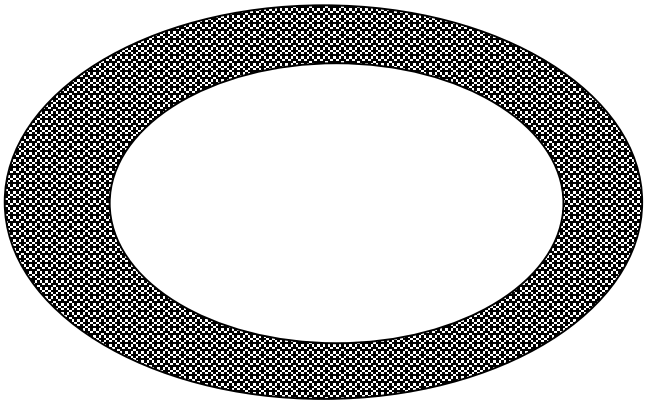
My name is _____



I shared tomatoes and cheese with my partner today.

Cut out one set of the snack representations at the bottom of page 2. Divide that into fractional portions for sharing between two people. Glue your portion to the plate.

My fractional portion would be: _____



Cut out one set of the snack representations at the bottom of page 2. Divide that into fractional portions for sharing among six people. Glue your portion to the plate.

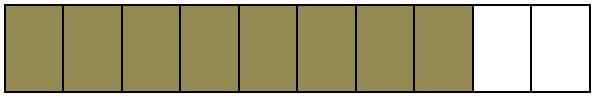
My fractional portion would be: _____

Write a comparison statement for these two unit fractions using <, =, or >. _____

Use the models to find an equivalent fraction for one-half in sixths: _____

Now use what you have learned to describe the UNshaded portion of the drawing as a fraction and as a decimal.

Decimal: _____ Fraction: _____

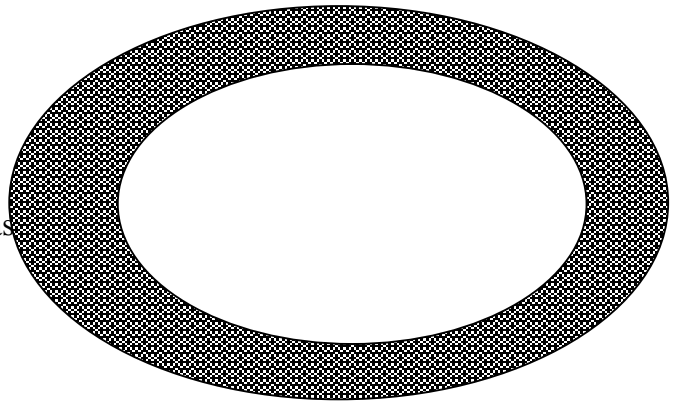


Write a different equivalent fraction for this amount. _____

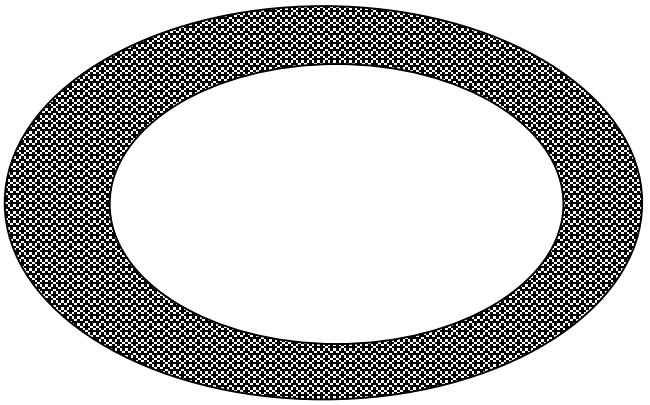
How did you find the equivalent fraction?

BLM Unidad 2, Lección 2, Fracciones de refrigerios **Fracciones de tomate y queso p1**
(Una hoja por estudiante)

Mi nombre es _____



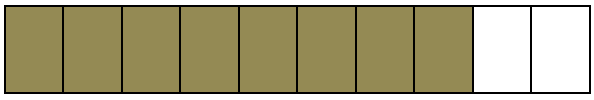
Hoy compartí tomates y queso con mi compañero.
Recorta un juego de representaciones de refrigerios de la parte inferior de la página 2. Divídelo en porciones fraccionales para compartir entre dos personas.
Pega tu porción en el plato.
Mi porción fraccional sería: _____



Recorta un juego de representaciones de refrigerios de la parte inferior de la página 2. Divídelo en porciones fraccionales para compartir entre seis personas.
Pega tu porción en el plato.

Mi porción fraccional sería: _____

Escribe una comparación para estas dos fracciones usando <, =, >. _____
Usa los modelos para encontrar una fracción equivalente para un medio en sextos:
_____
Ahora usa lo que has aprendido para describir la porción SIN sombrear del dibujo como fracción y como decimal.



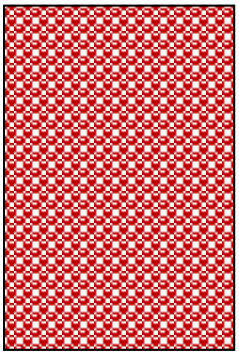
Decimal: _____ Fracción: _____
Escribe una fracción equivalente distinta para esta cantidad. _____
¿Cómo encontraste la fracción equivalente?

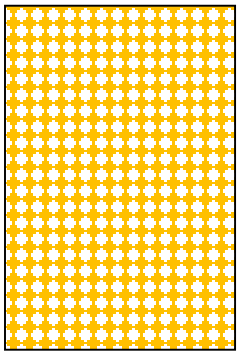
BLM Unit 2, Snack Fraction Lesson 2 **Tomato and Cheese Fractions p1**

(One sheet per student)

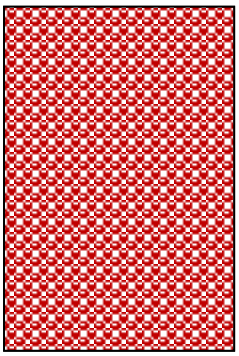
Use the snack representations on the bottom of this page to cut out, divide into fractional parts and glue to the plate on page 1.

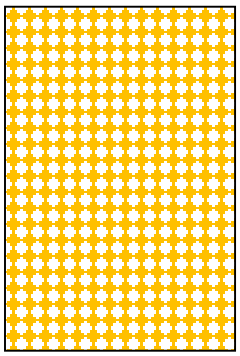
For sharing between 2 people:

1 cup 

1 cup 

For sharing among 6 people:

1 cup 

1 cup 

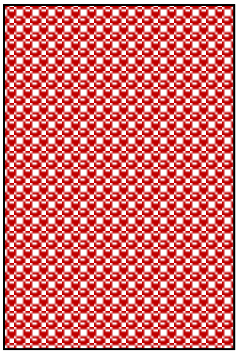
Now, use the two rectangles below to show how many sixths you would need to be equivalent to one-half.

(Una hoja por estudiante)

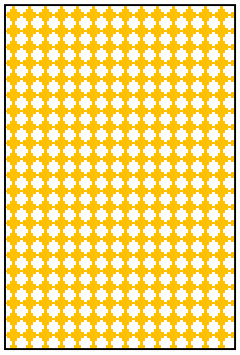
Usa las representaciones de refrigerios en la parte inferior de esta página para recortarlas, dividirlas en partes fraccionales y pegarlas al plato de la página 1.

Para compartir entre 2 personas:

1 taza

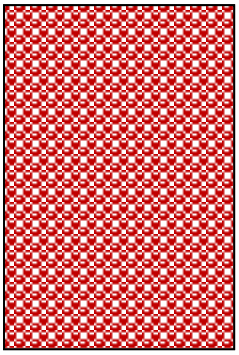


1 taza

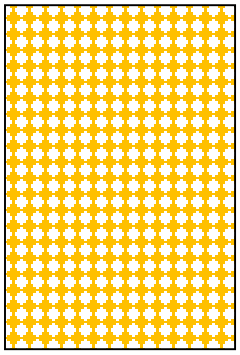


Para compartir entre 6 personas:

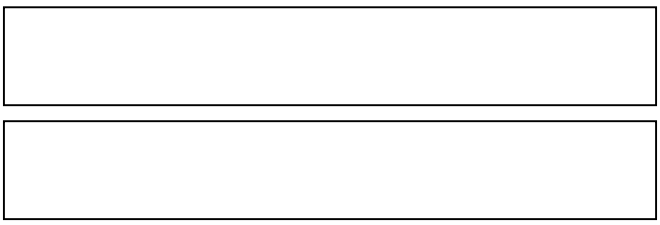
1 taza



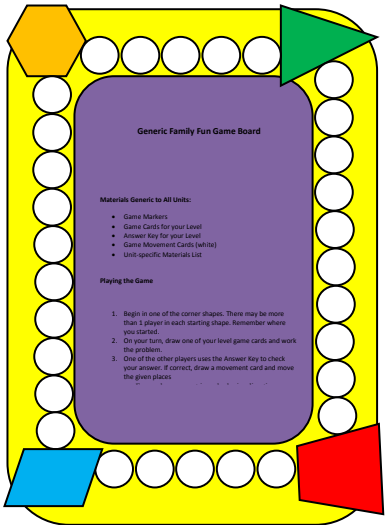
1 taza



Ahora, usa los dos rectángulos siguientes para modelar cuántos sextos necesitarías para que sean equivalentes a un medio.



Family Fun – 3rd -4th, Unit 2 Lesson 3



Family Fun Game!

The end of another unit brings the Family Fun Game into your home so that all of your children can practice the skills they've learned so far this summer.

The game board, game pieces and the movement cards came home during Unit 1, so please use those for your game time. You'll find the all-level answer key and the Special 3-4 Instructions, plus our grade's problems cards in green.

Here are some of the skills I especially want to practice.

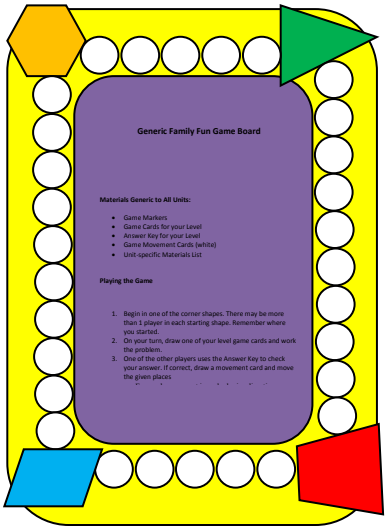
Thank you for helping me with my summer learning, and for sharing fun!

_____

Diversión familiar – 3º -4º , Unidad 2 Lección 3

¡Juego de Diversión Familiar!

El final de otra unidad trae el juego de Diversión Familiar a su casa para que todos sus hijos puedan practicar las habilidades que han aprendido hasta ahora en este verano.



El tablero de juego, las piezas de juego y las cartas de movimiento se enviaron a casa durante la Unidad 1, así que por favor utilícelas para su juego. Encontrará la guía de respuestas para todos los niveles y las instrucciones especiales para 3-4, así como las cartas de problemas de nuestro grado en color verde.
Estas son algunas de las habilidades que quiero practicar especialmente.

¡Gracias por ayudarme con mi programa de verano y por compartir la diversión!

_____

Generic Family Fun Game Board

Materials Generic to All Units:

- Game Markers
- Game Cards for your Level
- Answer Key for your Level
- Game Movement Cards (white)
- Unit-specific Materials List

Playing the Game

1. Begin in one of the corner shapes. There may be more than 1 player in each starting shape. Remember where you started.
2. On your turn, draw one of your level game cards and work the problem.
3. One of the other players uses the Answer Key to check your answer. If correct, draw a movement card and move the given places
   - Forward movement in a clockwise direction.
   - Backward movement in a counter clockwise direction.

   If incorrect, do not move.
4. Game is over when the first person runs the entire track, ending back on the starting shape.

Tablero de juego

Materiales genéricos para todas las unidades:

- Fichas para jugar
- Tarjetas del juego para su nivel
- Clave de respuestas para su nivel
- Tarjetas de movimiento del juego (blancas)
- Lista de materiales específicos de la unidad

Cómo se juega

1. Empiece en una de las esquinas. Puede haber más de
1 jugador en cada figura de inicio.
2. Cuando sea su turno, saque una de las tarjetas de
juego de su nivel y resuelva el problema.
3. Uno de los otros jugadores usa la clave de respuestas
para ver si su respuesta es correcta. Si es correcta, saque una tarjeta de movimiento y mueva su ficha como lo indica la tarjeta.
   - Movimiento hacia adelante en el sentido de las manecillas del reloj.
   - Movimiento hacia atrás en el sentido contrario a las manecillas del reloj.

   Si es incorrecta, no se mueve.
4. El juego se acaba cuando la primera persona recorre
toda la pista y termina en la figura de inicio.

BLM [redacted] Follow-up Lesson 3 Family Fun Game Movement Cards

Printed in White – 1 set for the TV Lesson Demo. 1 set per partners for class; 1 set per student for home.

Move forward 1 space	**Move forward 1 space**	**Move forward 1 space**
Move forward 1 space	**Move forward 1 space**	**Move forward 1 space**
Move forward 2 spaces	**Move forward 2 spaces**	**Move forward 2 spaces**
Move back 1 space	**Move back 1 space**	**Move back 1 space**
Move forward 3 spaces	**Move forward 2 spaces**	**Move forward 3 spaces**

Units 1 – 2 – 3 -- FAMILY FUN

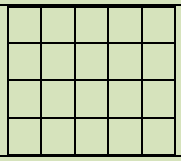
One per student for home
One per partner pair in class

*Print on **white** paper.*

Family Fun – Movement Cards

Avanza un espacio	**Avanza un espacio**	**Avanza un espacio**
Avanza un espacio	**Avanza un espacio**	**Avanza un espacio**
Avanza 2 espacios	**Avanza 2 espacios**	**Avanza 2 espacios**
Retrocede 1 espacio	**Retrocede 1 espacio**	**Retrocede 1 espacio**
Avanza 3 espacios	**Avanza 3 espacios**	**Avanza 3 espacios**

BLM All-School Unit 2, Lesson 3 **Family Fun Game Answer Key**

Problem Letter	Kinder	1-2	3-4	5-6	7-8
A	8 sounds	See Special instructions	7x5=35 5x7=35 35÷7=5 35÷5=7	6 feet	4.78 cm
B	9 dances	See Special instructions	7x6=42 6x7=42 42÷6=7 42÷7=6	5.75 cups dry (or fraction)	550 cm
C	2 people	See Special instructions		48 meters	6 minutes
D	6 people	1 and 9	18 cookies	2760.76 miles	448 miles
E	5 sounds	7 and 3	6 cookies	$73.22	$13.00
F	4 sounds	8 and 2	8 boxes	71.7 oz	21 lbs of apples
G	Top train is longer	1 child	3 sets of 2 counters	$45	588 miles
H	Top train is shorter	29 children	6 sets of 2 counters	$29.37	20 lbs of potatoes
I	3 cubes are fewer than 5	10 cents	Most common would be 2/8, but any equivalent will do.	$750	36 oz of chocolate
J	Nickel	13	3.09	$550	24 oz toffee
K	Dime	9	7.25	$67.44	15 baskets
L	Quarter	14	4 7/10	$12.60	4:5 = 8:10
M	penny	6 cookies	0.9	no. ratios are not set up consistently	$105.00
N	2 pennies	3 miles	0.7	no. scale factor and constant of proportionality not present	9 shirts
O	8 pennies	10 pennies	2.5 > 2.05	4 cupcakes	$5.00
P	2 parts the same size	3 pots	on the middle line	24 hit target	25 oranges
Q	1 parts not the same size	14 pounds	0.9	$\frac{11}{10}$ or an equivalent of	1 hr 30 minutes
R	count to make sure there are 12 counters and use the number 12	1 group of 6 1 groups of 4	Closest line to 1.	$1\frac{1}{3}$	10.5 miles

FAMILY FUN Involvement **3rd-4th**

Overview for Unit 2, *Diego*

This overview will provide a one-page view of the suggested Family Fun Activities for this unit, as well as other opportunities provided for Family Involvement.

Lesson 1

- Vocabulary Cards so students can practice language and math vocabulary at home
- Family Fun Unit 2, Lesson 1 Letter with ideas for involving the family in money matter

Lesson 2

- Family Fun Unit 2, Lesson 2 Letter

Lesson 3

- Family Fun Unit 2, Lesson 3 attached to the Family Fun Game supplies.
- Family Fun Game

Enrichment Suggestions

- Make a bank from coffee can or other can with plastic lid.
- Make coin rubbings at home.

This portion of the curriculum, although NOT required, should be used as needed to supplement and enrich the Unit's activities.

Family Fun Suggestions:
- Art Project – make leaf rubbings at home of plants around the house

Possible Center Suggestions:
- Online Math Games
- Art Project

ENRICHMENT Suggestions **3rd-4th**

Unit 2 ***Diego***

MATH WALK

Mural Walls Walk – Walk around the campus to find scenes that might make interesting subjects for murals. Take pictures of the scenes if possible. Also find places where murals could be painted on outside walls. Come back into the room and plan the mural: proposed dimensions in feet, area in square feet. If possible research different mediums to see what the best paint would be for an outside mural, and how much you would need.

Technology Connections

- **Math Practice**
  http://www.mad4maths.com/multiplication_table_math_games/ Basic fact practice
  http://www.bbc.co.uk/bitesize/ks1/maths/multiplication/play/popup.shtml
  Similar to Lesson 1
  http://www.topmarks.co.uk/maths-games/7-11-years/multiplication-and-division
  iPad App – https://itunes.apple.com/us/app/multiplication-division-flash/id364368447?mt=8
- **Science Connection**
  http://chemistry.about.com/od/glowinthedarkprojects/a/glowingwater.htm
  Making glow in the dark water
- **Social Studies Connection**
  http://www.outreachworld.org/Files/florida_internatl_u/DiegoRivera.pdf
  History of Diego Rivera
  http://raggedclothcafe.com/2007/06/20/murals-of-diego-rivera-%E2%80%94-terry-grant/
  Diego's Murals, a travelogue
- **Art Connection**
  http://www.education.com/activity/article/summer-mural/
  Directions for painting a summer mural.
  Make leaf rubbings of plants around the school.

Math Objectives

***Students are also provided decimal practice in game format– see Transition to Math, Lesson 1**

(TV1) (3rd Grade assessment items 3, 4, 5)

- Represent multiplication facts by using a variety of approaches such **as repeated addition, equal-sized groups**, arrays, area models, equal jumps on the number line, and skip counting.
- Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.

(TV3) (3rd Grade assessment item 1) (prep for 4th Grade assessment item 3)

- Represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, **arrays, area models**, equal jumps on the number line, and skip counting
- Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.
- Use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products and the commutative associative and distribute properties

Differentiate

Differentiating comes in your choice of which lesson to teach. You will also want to choose activities in the Daily Routines that teach/review the skills you need for your students to learn/review. Fraction Action and Measurement Lab are particularly important for assessment practice.

Snack Fraction Notice

All snack fractions are common throughout the grade bands. Lesson 1 has been suggested for its ease of delivery. The only difference in the lessons 1, 2, 3 are the fractions to which the half is compared.

Materials

(TV1)

***BLM TM Lesson 1 – Decimal Battle –** 1 set of cards per pair

- Counters – 100 per student
- Portion cups or any small cups like 2 oz. bathroom cups – 10 per student
- **BLM** Making Equal Sets - 3 pages, 1 set per student

(TV3)

***BLM TM** Decimal Battle -1 set cards cut and laminated per pair of students (these will be used in all three lessons for this unit)

- Base ten materials in Ziploc – per student
  - 2 hundreds
  - 15 tens
  - 15 units
- **BLM TM** Base Ten Array Board
- **BLM** Follow-up, Practicing Base Ten Arrays – 1 per student

Family Fun

- **BLM** 3-4 Special Instructions
- **BLM** Family Fun Problem Cards (green)
- **BLM** Family Fun Answer Key – all levels
- Game markers

Snack Fractions – Follow-up Lesson 2

- **BLM** Trail Mix Fractions
- **BLM** Trail Mix Fraction Pieces

Per Partners:

- 2 cups Trail Mix (you may purchase already made, or have students mix their own with 1/2 of each of the following)
  - pecans
  - semi chocolate chips
  - granola
  - raisins
- Two 1-cup measuring cups
- 2 paper dessert plates
- 2 paper towels
- 2 plastic knives

QUESTIONING

As a result of this lesson, your students should be able to respond to the following:

- Explain fact families.
- What is the relationship between multiplication and division?

Math Vocabulary

equal-sized groups, repeated addition, repeated subtraction, multiplication, division, fact families, factors, products.

CGI Problem (select one)

- Division, Measurement (3rd assessment Item 5)
- Multiplication

Journal Writing

(Lesson 2) Write a word problem using the fact family 7, 6, 42.
(Lesson 3) Explain the relationship between the base ten array model and partial products.

Family Fun (A generic game board is being used in all grade levels, differentiated by game cards specific to the grade level.) There is only one type of game this year. All games will have problem cards and an answer key at all levels. Please be sure the 3rd-4th grade cards are printed on green cardstock.

Snack Fractions TV lesson 2 - Trail Mix
You can select any of the three snacks that are appropriate for your homes – all three snacks in 3rd - 4th grade level will practice the same skills, although comparison and equivalent fractions will be for different fractional pieces depending on the lesson you choose.

Assessment – Students will be introduced to and practice skills for items
3rd - 1, 2, 3, 4, 5, 6, 7, 8 *(TV and Follow-up)*
4th - 1, 2, 3, 6 *(Transition to Math lessons)*

3rd-4th **Overview**

Unit 3 *The Magic Tree House, Dinosaurs Before Dark*

This is a quick snapshot of the three math lessons for this unit. For detailed instructions, balance literacy objectives/extended activities, enrichment ideas refer to the complete lesson plans for each lesson.

Lesson Segment	Math Objectives	Language Objectives	Activity	Materials	Blackline Masters
Daily Routine **Unit 3 Lesson 1** 30 – 45 minutes	**ESSENTIAL** Construct concrete models of fractions. Compare fractional parts of whole in a problem situation using concrete models. Measure length in centimeters to nearest tenth. Solve word problems using a variety of strategies and defend their strategies. **OPTIONAL** Compose and decompose values to show a new representation of the value. Graph class responses and analyze data.	**ESSENTIAL** Speak to partners, teacher, and class using vocabulary. Discuss problem solving process and strategies. Explain how they compared fractions. **OPTIONAL** Discuss ways to compose and decompose values. Analyze graph results.	**ESSENTIAL** • Fraction Action • CGI • What's Missing? • Measurement Lab • Solve It **OPTIONAL** • Target Number • Graphing - none Money Matters is now found on MAS Space	**ESSENTIAL** • Unknown Quantity Cards (add/subtract) • Metric ruler – per student • Scissors – per student **OPTIONAL**	**ESSENTIAL** • **BLM** Solve It, Unit 3 Lesson 1 • **BLM** Which route should Carla take? – 1 per student • **BLM** CGI Problems • **BLM** Measuring with Decimals, Pteranodon • **BLM** Fraction Action, Teacher Key, Using Benchmarks • **BLM** Teacher Guidance, Teacher only • **BLM** Measuring with Decimals, Pteranadon • **BLM** Measuring With Decimals, Teacher Key **OPTIONAL** • **BLM** Fraction Action, Teach Directions (Optional)
Classroom ***Lesson 1*** 1 to 1.5 hour	**Math Objectives** Represent decimals, including tenths and hundredths, using concrete and visual models.	**Language Objectives:** Ask questions about the text as they read. Make corrections and adjustments when understanding breaks down (identifying clues, using background knowledge, generating questions, re-reading a portion of text aloud).	***Language*** ***Magic Tree House #1, Dinosaurs Before Dark*** by Mary Pope Osborne **Vocabulary Building**	***Language*** • 16 prefilled index cards (see before reading)	***Language*** ***The Magic Tree House, Dinosaurs Before Dark*** by Mary Pope Osborne

		Describe the interaction of characters including their relationships and the changes they undergo. Sequence and summarize the plot's main events and predict future events using evidence from text for support.			
		Math Language Objectives Discuss activity strategies with partner. Verbally verify comparative sizes of decimal representations.	***TM Math*** **Building Background** Base ten exploration in decimals **Vocabulary** centimeters millimeters **Repeated vocabulary** tenths hundredths decimal fractions factors products fact family	***TM Math*** • base ten sets – 1 set per student ○ 3 flats ○ 15 longs ○ 15 units	***TM Math*** • **BLM TM** Decimal Battle -1 set cards cut and laminated per pair of students – these are a repeat of the cards from Unit 2. If you already have them prepared for the students, you do not need to duplicate again. • **BLM** Math Word Cards
TV ***Lesson 1*** 30 minutes	Relate decimals to fractions that name tenths and hundredths. Interpret the value of each place value position as 10 times the position to the right and as one-tenth of the value of the place to its left. Represent decimals, including tenths and hundredths, using concrete and visual models.	Use the math vocabulary during the activity. Discuss answers and possible strategies with classmates. Explain decimal relationships.	**Vocabulary Building** centimeters millimeters **Repeated vocabulary** tenths hundredths decimal fractions factors products fact family **Comprehensible Input** Students build a chart of decimal representations, then compare decimals.	• base ten sets – 1 set per student ○ 3 flats ○ 15 longs ○ 15 units	• **BLM** Naming Decimals – 1 per student • **BLM** Naming Decimals KEY

Follow-up and Snack Fraction
Lesson 1
 	
.5 to 1 hour
	Relate decimals to fractions that name tenths and hundredths.
	Interpret the value of each place value position as 10 times the position to the right and as one-tenth of the value of the place to its left.
	Represent decimals, including tenths and hundredths, using concrete and visual models.
		Listen and speak with a partner during our math activity.
		Use the math vocabulary during the activity.
		Write math sentences.
			Practice and Application
			Use Decimal Battle cards to represent decimals in different ways.
				• 1 set of cards from Decimal Battle - teacher set
				• base ten sets – 1 set per student
				  ○ 3 flats
				  ○ 15 longs
				  ○ 15 units
					none

	SNACK FRACTIONS: Represent equivalent fractions using pictorial models. Compare two fractions having the same denominator. Determine if two given fractions are equivalent. Recognize tenths and label in fraction and decimal form.	**SNACK FRACTIONS:** Discuss fraction comparisons. Discuss fraction equivalencies. Discuss fraction – decimal equivalencies.	**SNACK FRACTIONS** **Building Background** Teacher walks students through activity today. **Vocabulary** one-half one-sixth three-sixths equivalent greater than, less than	**SNACK FRACTIONS:** **Per Partners:** • 1 big dill pickle • 2 Paper plates • Plastic knife • 2 paper towels • 2 scissors • 2 rulers and 2 markers • 2 glue sticks • Chart paper with question**: How did you find an equivalent fraction to 2/3?** Put a copy of the record sheet at the top of the chart with the question.	**SNACK FRACTIONS:** • **BLM** Dill Pickle Fractions (2 pages) – 1 per student

Lesson Segment	Math Objectives	Language Objectives	Activity	Materials	Blackline Masters
Daily Routine **Unit 3 Lesson 2** 30 – 45 minutes	**ESSENTIAL** Construct concrete models of fractions. Compare fractional parts of whole in a problem situation using concrete models. Measure length in centimeters to nearest tenth. Solve word problems using a variety of strategies and defend their strategies. **OPTIONAL** Compose and decompose values to show a new representation of the value. Graph class responses and analyze data.	**ESSENTIAL** Speak to partners, teacher, and class using vocabulary. Discuss problem solving process and strategies. Explain how they compared fractions. **OPTIONAL** Discuss ways to compose and decompose values. Analyze graph results.	**ESSENTIAL** • Fraction Action • CGI • What's Missing? • Measurement Lab • Solve It **OPTIONAL** • Target Number • Graphing – Which Dinosaur would you rather meet? Money Matters is now found on MAS Space	**ESSENTIAL** • Unknown Quantity Cards (add/subtract) • Metric ruler – per student **OPTIONAL** • Class graph • Sentence strips for graph labels	**ESSENTIAL** • **BLM** Solve It, Unit 3 Lesson 1 • **BLM** Emily's Taffy Share – 1 per student • **BLM** Teacher KEY • **BLM** CGI Problems • **BLM** Measuring with Decimals, Anatosaurus • **BLM** Teacher KEY **OPTIONAL**
Classroom ***Lesson 2*** 1 to 1.5 hour	***Math Objectives*** Represent multiplication facts by using a variety of approaches. Determine a quotient using the relationship between multiplication and division. Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.	Ask questions about the text as they read. Make corrections and adjustments when understanding breaks down (identifying clues, using background knowledge, generating questions, re-reading a portion of text aloud). Describe the interaction of characters including their relationships and the changes they undergo.	***Language*** ***Magic Tree House #1, Dinosaurs Before Dark*** by Mary Pope Osborne **Vocabulary Building**	• Notebook paper for each student	• **BLM** Word Cards • BLM Character Traits (lesson 1)

		Sequence and summarize the plot's main events and predict future events using evidence from text for support.			
		Math Language Objectives Explain how multiplication and division are related. Discuss activity with partner and group.	***TM Math*** **Building Background** Solve word problems, and identify factors, products, and fact family. **Vocabulary** centimeters millimeters **Repeated vocabulary** tenths hundredths decimal fractions factors products fact family	***TM Math*** • Decimal Battle Game - center activity	***TM Math*** • **BLM** Anatosaurus Eggs (1 per student) • **BLM** Anatosaurus Eggs, Teacher Key
TV **Lesson 2** 30 minutes	Interpret the value of each place value position as 10 times the position to the right and as one-tenth of the value of the place to its left. Represent decimals, including tenths and hundredths, using concrete and visual models. Compare and order decimals using concrete and visual models to the hundredths.	Use the math vocabulary during the activity. Discuss solution strategies.	**Vocabulary Building** centimeters millimeters **Repeated vocabulary** tenths hundredths decimal fractions factors products fact family **Comprehensible Input** Solve comparison decimal problems together.	• base ten sets – Teacher ONLY ○ 3 flats ○ 15 longs ○ 15 units	• **BLM** Dino Decimals, 2 pages – 1 per student • **BLM** Dino Decimals KEY, 2 pages
Follow-up and Snack Fraction Lesson 2 .5 to 1 hour	Interpret the value of each place value position as 10 times the position to the right and as one-tenth of	Listen and speak with a partner during our math activity. Use the math vocabulary	**Practice and Application** Problem #2 from TV Lesson.		• **BLM** from TV – Problem 2 – 1 per student

	the value of the place to its left. Represent decimals, including tenths and hundredths, using concrete and visual models. Compare and order decimals using concrete and visual models to the hundredths.	during the activity. Write math journal response.			
	SNACK FRACTIONS: Represent equivalent fractions using pictorial models. Compare two fractions having the same denominator. Determine if two given fractions are equivalent. Represent decimals, including tenths and hundredths, using concrete and visual models and money. Relate decimals to fractions that name tenths and hundredths.	**SNACK FRACTIONS:** Discuss fraction comparisons. Discuss fraction equivalencies Discuss fraction – decimal equivalencies.	**SNACK FRACTIONS** **Building Background** Students work with partner to complete assignment. Teacher will circulate the room. **Vocabulary** halves thirds sixths equivalent greater than, less than	**SNACK FRACTIONS:** **Per Partners:** 1 per student • **BLM** Jerky Fractions (2 pages) **Per Partners:** • 6 pieces of jerky • 2 Paper plates • 2 paper towels • 2 scissors • Chart paper with question**:** ***Tell what this statement means, whether it is true or false, and explain why***. • **When you look at number representations of fractions without models, you have to imply that the "whole" they represent are the same size if you are going to compare them.** Put a copy of the record sheet at the top of the chart with the question chart with the question.	**SNACK FRACTIONS:** • **BLM** Jerky Fractions - 1 per student

Lesson Segment	Math Objectives	Language Objectives	Activity	Materials	Blackline Masters
Daily Routine **Unit 3 Lesson 3** 30 – 45 minutes	**ESSENTIAL** Construct concrete models of fractions. Compare fractional parts of whole in a problem situation using concrete models. Measure length in centimeters to nearest tenth. Solve word problems using a variety of strategies and defend their strategies. **OPTIONAL** Compose and decompose values to show a new representation of the value. Graph class responses and analyze data.	**ESSENTIAL** Speak to partners, teacher, and class using vocabulary. Discuss problem solving process and strategies. Explain how they compared fractions. **OPTIONAL** Discuss ways to compose and decompose values Analyze graph results.	**ESSENTIAL** • Fraction Action • CGI • What's Missing? • Measurement Lab • Solve It **OPTIONAL** • Target Number • Graphing – none • Money Matters is now found on MAS Space	**ESSENTIAL** • Unknown Quantity Cards (add/subtract) • Metric ruler – per student	**ESSENTIAL** • **BLM** Solve It, Unit 3 Lesson 3 • **BLM** Steve's Project– 1 per student • **BLM** CGI Problems • **BLM** Measuring with Decimals, Tyrannosaurus-Rex
Classroom ***Lesson 3*** 1 to 1.5 hour	Read and compare fraction and decimal representations. Find equivalent fraction and decimal representations.	Ask questions about the text as they read. Make corrections and adjustments when understanding breaks down (identifying clues, using background knowledge, generating questions, re-reading a portion of text aloud). Describe the interaction of characters including their relationships and the changes they undergo. Sequence and summarize the plot's main events and predict future events using evidence from text for	***Language*** ***Magic Tree House #1, Dinosaurs Before Dark*** by Mary Pope Osborne **Vocabulary Building**		• **BLM** Word Cards • **BLM** Story Flow Chart (1 per student)

		support.			
		Math Language Objectives Verbally compare various decimal representations. Discuss game cards with partner and group.	***TM Math*** **Building Background** Play the Family Fun Game. Trace their shoe on a piece of paper. **Vocabulary** centimeters millimeters **Repeated vocabulary** tenths hundredths decimal fractions factors products fact family	***TM Math*** • **Family Fun Game Materials** – sets for the classroom, and complete sets to take home. • 50 counters – per student • 18 x 24 pieces of newsprint or construction paper - 1 per student • Scissors – 1 pair per student	***TM Math*** • **Family Fun Game BLMs** • **BLM** Family Fun Game Array Paper
TV ***Lesson 3*** 30 minutes	Interpret the value of each place value position as 10 times the position to the right and as one-tenth of the value of the place to its left. Represent decimals, including tenths and hundredths, using concrete and visual models. Compare and order decimals using concrete and visual models to the hundredths.	Use the math vocabulary during the activity. Discuss answers and possible strategies with classmates. Explain the relationship between meters and centimeters.	**Vocabulary Building** centimeters millimeters **Repeated vocabulary** tenths hundredths decimal fractions factors products fact family **Comprehensible** Students measure objects to nearest tenth of centimeter and hundredths of meter.	• metric rulers – 1 per student • metric measuring tape – 1 per student • 1 base ten centimeter cube (the unit) – 1 per student • 1 base ten flat – 1 per student • new pencil – 1 per student • student's shoe – 1 per student • piece of yarn, string, or twine 3.5 meters long – 1 per student	• **BLM** – Metric Measures – 1 per student

Follow-up and Snack Fraction ***Lesson 3*** .5 to 1 hour	Interpret the value of each place value position as 10 times the position to the right and as one-tenth of the value of the place to its left. Represent decimals, including tenths and hundredths, using concrete and visual models. Compare and order decimals using concrete and visual models to the hundredths.	Explain strategies. Listen and speak with a partner during our math activity. Use the math vocabulary during the activity. Write your math journal response.	Measure various sized bananas to find the size of a T-Rex teeth. **Vocabulary** centimeters millimeters **Repeated vocabulary** tenths hundredths decimal fractions factors products fact family	• Bananas, assortment of long and short ones – 1 per student /teacher • Metric tape measure • Chart tables (optional if you do not have a board)	• **FACT Sheet link** – see link in the curriculum • **BLM T**-Rex Teeth
	SNACK FRACTIONS Represent equivalent fractions using pictorial models. Compare two fractions having the same denominator. Determine if two given fractions are equivalent. Represent tenths in decimal and fractional forms.	**SNACK FRACTIONS** Discuss fraction and decimal equivalencies. Discuss fraction comparisons. Discuss fractions/decimal equivalencies.	**SNACK FRACTIONS** **Building Background** Students should be able to work with their partners today while teacher circulates the room. **Vocabulary** one-half one-sixth three-sixths equivalent greater than, less than	**SNACK FRACTIONS** **Per Partners:** • 2 pieces ROUND raisin bread • 2 T peanut butter (allergy alert) • 1 banana • 2 Paper plates • 2 paper towels • 2 scissors • Chart paper with question**:** ***Tell what this statement means, whether it is true or false, and explain why*.** **When you look at number representations of fractions without models, you have to imply that the "whole" they represent are the**	**SNACK FRACITONS** 1 per student • **BLM** raisin Bread and Banana Fractions (2 pages)

Unit 3	**Lesson 1**		**Lesson 2**		**Lesson 3**	
	TV and Follow Up	**Snack Fractions**	**TM, TV and Follow Up**	**Snack Fractions**	**TV and Follow Up**	**Snack Fractions**
3rd Grade Assessment Items • Lesson 1: • Lesson 2:1, 3, 4, 5, 7 • Lesson 3: Daily Routines • Measurement • What's Missing (2) • CGI (5) • CGI (4) • Fraction Action (8) Snack Fractions (6, 8) **4th Grade** Assessment Items • Lesson 1: 1, 2, 7, 8 • Lesson 2: 2, 6, • Lesson 3: 1, 2, 7, 8 Daily Routines • Measurement (2, 4) • Fraction Action (5) Snack Fractions (8)	4.2(G) relate decimals to fractions that name tenths and hundredths 4.2 (A) interpret the value of each place-value position as 10 times the position to the right and as one-tenth of the value of the place to its left. 4.2 (E) represent decimals, including tenths and hundredths, using concrete and visual models and money.	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods; 4.2 (E) represent decimals, including tenths and hundredths, using concrete and visual models and money. 4.2(G) relate decimals to fractions that name tenths and hundredths	**3.4E** represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting **(TM)** 3.4 (J) determine a quotient using the relationship between multiplication and division. **(TM)** 3.4(H) determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally **(TM)** 4.2(H) determine the corresponding decimal to the tenths or hundredths place of a specified point on a number line.	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods; 4.2 (E) represent decimals, including tenths and hundredths, using concrete and visual models and money. 4.2(G) relate decimals to fractions that name tenths and hundredths	4.2(G) relate decimals to fractions that name tenths and hundredths 4.2 (A) interpret the value of each place-value position as 10 times the position to the right and as one-tenth of the value of the place to its left. 4.2 (E) represent decimals, including tenths and hundredths, using concrete and visual models. Compare and order decimals using concrete and visual models to the hundredths.	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods; 4.2 (E) represent decimals, including tenths and hundredths, using concrete and visual models and money. 4.2(G) relate decimals to fractions that name tenths and hundredths

				same size if you are going to compare them. Put a copy of the record sheet at the top of the chart with the question chart with the question.	

Project SMART/Math MATTERS 2014

Grade Level: 3-4	Unit 3 / Lessons 1 – 2 - 3

Daily Routine Math Objectives:
Solve word problems using a variety of strategies and defend their strategies.
Model and solve 2-step word problems.
Determine a missing number in an equation.
Measure length in centimeters.
Construct concrete models of fractions.
Compare fractional parts of a whole in a problem situation using concrete models, fraction names and number representations.
Model fraction quantities greater than one.

Daily Routine Language Objectives:
Speak to partners, teacher, and class using vocabulary introduced in the Daily Routines.
Listen to, read, speak and write the labels of the graph.
Discuss problem solving strategies in partners, small groups and whole groups.
Listen to, read, speak and write to understand action in word problems.

Unit Math Objectives (Integrated Lesson including snack fractions):
Relate decimals to fractions that name tenths and hundredths.
Interpret the value of each place value position as 10 times the position in the right and as one-tenth of the value of the place to the left.
Represent decimals, including tenths and hundredths, using concrete and visual models.
Represent multiplication facts by using a variety of approaches.
Determine a quotient using the relationship between multiplication and division.
Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.
Determine the corresponding decimal to the tenths or hundredths place of a specified point on a number line.
Represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models.
Compare two fractions having the same numerator or denominator in problems by reasoning about the sizes and justifying the conclusion using symbols, words, objects, and pictorial models.
Determine if two given fractions are equivalent using a variety of methods.

Unit Language Objectives:
Think, pair, share questions throughout the unit.
Learn and use new vocabulary.
Listen to nonfiction writing for information and to develop an understanding of the vocabulary.
Listen to, speak, read and write unit vocabulary in a variety of group and individual settings.
Share-write math sentences.
Describe why a snack is or is not half.

Technology Objectives:
Use research skills and electronic communication, with appropriate supervision, to create new knowledge.
Technology suggested in this unit: iPad, SMART Board or other "smart" projection device, Internet

Key Vocabulary, MATH: centimeters, millimeters
Key Vocabulary, LANGUAGE: peering, trembled, coasted, engraved, bellowing, waddled, dangling, gleaming, teetered

Resources/Literacy Links
Magic Tree House #1, Dinosaurs Before Dark by Mary Pope Osborne
Related links: http://www.randomhousekids.com/brand/magic-tree-house/
Links to games and activities for the magic Tree House series

Lesson Sequence
- Daily Routine: 30 to 45 minutes
- Classroom Lesson: 1 to 1.5 hour
- TV Lesson: 30 minutes
- Classroom Follow-up including Snack Fractions: .5 to 1 hour

MATH WALK
Tree House Walk – Walk the campus. Is there a tree where a tree house could be built? Or perhaps a large area for a free-standing "tree" house? Ask students to design a tree house that would fit in the area, then to write what they would put in the tree house. Would it be magical? If so, what would it do? Where would it go? How would you activate the tree house?

Technology Connections
- **Math Practice**
  http://mrnussbaum.com/decimals_games/
  Decimal games
  http://www.amblesideprimary.com/ambleweb/mentalmaths/dividermachine.html
  Division games
  http://www.multiplication.com/games/play/jungle-jim-and-monkeys
  Multiplication games
- **Science Connection**
  http://www.kidsdinos.com/
  More about dinosaurs
- **Social Studies Connection**
  http://www.enchantedlearning.com/subjects/dinosaurs/mesozoic/
  The Mesozoic Era
- **Art Connection**
  http://www.deepspacesparkle.com/2011/05/15/dinosaur-art-project/
  Painted dinosaur
  http://www.thatartistwoman.org/2009/05/silhouettes-dinosaur-art-project-2.html
  Dinosaur silhouettes
  http://www.eduplace.com/monthlytheme/october/dinosaurs.html
  Many dinosaur projects

Unit 3 OPTIONAL All-School Project

Because all grade bands will be reading, learning and researching within the same unit theme, we are offering OPTIONAL projects in which all ages can participate.

Unit Theme: Adventure

Unit 1: Adventure Trip

Defined:
Students take an Adventure Trip to someplace in your area. This can be a real field trip, or can be a virtual trip. Notes and photographs are taken of areas that most interest the students. When the school "returns" from the trip, students chronicle their adventure by either creating a scrapbook per class that is collated into one large book, or creating an online scrapbook

Materials:

- Spiral notebooks for each student
- Pencils or pens
- Teacher (or student) cameras, phones, or other ways to take photographs
- Large scrapbook or virtual scrapbook online where students can chronicle their adventure
- Other materials as indicated by your chosen trip.

Objectives: (add your own objectives to the project)

- Students observe their surroundings and select memorable images to share.
- Students chronicle the adventure with times and events of the day.
- Students write brief descriptions of the memorable images.

Procedures:

1. Teachers select 1 field trip or virtual trip for the school to visit
2. Prepare students for the trip. This will require you and older students to research the destination to find what you want to learn about when you arrive there, and how the trip will be an adventure.
3. Visit the site, whether real time or virtual, each student looking for the keys you've decided upon in your preparation of the trip. Students take notes and pictures (younger students might need a recorder to make their on-going commentaries)
4. Return from the trip and generate a scrapbook, either real or online, to chronicle the adventure
5. Share the scrapbook at a family function. It would be well if each student could keep a copy of the scrapbook for a remembrance.

Online Resources:

- http://www.scholastic.com/teachers/article/virtual-field-trips Great Virtual Field Trips from Instructor *– a must read* for every teacher whether you go virtual or real trip.
- http://www.smilebox.com/scrapbooks/online-scrapbooks.html free online scrapbook templates
- http://mashable.com/2008/09/16/online-scrapbooking/ How to – would suggest teachers perusing this site first.
- http://www.cropmom.com/Digital_Scrapbooking.aspx templates and How to.

Project Title: _____

Student Name: _____

Date: _____ Teacher: _____

Math MATTERS Project Rubric

	1 point	2 points	3 points	4 points	Score
Amount of Project Completed	Little effort made, most items are unaddressed or incomplete	Some parts of the project were addressed and complete	Most of the project parts were addressed and complete, a few may be missing	All parts of the project were addressed and complete	
Quality of Work	Could not read project, project poorly organized	Project was partially organized, many parts were confusing or unrelated	Project was mostly organized, a few parts may be confusing or unrelated	Project highly organized and all parts clearly related to the topic	
Use of Time and Effort	Did not use time effectively	Used some time effectively, but was often off task	Used most time effectively, occasionally off task	Student used all available time to the fullest	
Presentation	Student could not explain own project	Student needed to be prompted to explain own project	Student explained project with little prompting	Student easily explained the project and could answer questions	
				Total	

A total score of 12 or more points is needed to consider the project complete.

Notes:

Rubric is an adaptation of Rcampus Math Project Rubric: Fraction Word Problems
http://www.rcampus.com/rubricshowc.cfm?code=F945W8&sp=true&

Materials
- Unknown Quantity Cards – 1 set for classroom
- Metric rulers – 1 per student
- **BLM** Solve It, Unit 3
- **BLM** Which Route Should Carla Take? – 1 per student
- **BLM** CGI Problems
- **BLM** Measuring with Decimals, Pteranodon

Math Objectives
- Find missing elements in an equation.
- Solve multi-step word problems.
- Use a variety of strategies to solve word problems.
- Find equivalent forms of fractional parts.
- Measure length in centimeters.

Balanced Literacy Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.
- Explain how they decided to rename the target number.
- *Discuss scarcity of money, choices and cost benefit.*

TEKS in TV and Flu
Lesson 1
- **3rd** –
- **4th** - 4.2AEG

Lesson 2
- **3rd** –3.4EHJ **(TM)**
- **4th** - 4.2EF

Lesson 3
- **3rd** –
- **4th** - 4.2AEFG

ELPS (*English Language Proficiency Standard*)
2A, 2D, 3A, 3D, 3J, 4F

Unit 3, Lesson 1 — 3-4
Daily Routine

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL

What's Missing? *(3rd assessment item 2)*
- **Lessons 1, 2, 3** *follow directions in the Daily Routine Explanations. Check the assessment items so that you are certain you include samples to practice the shape in the assessed location.*

Solve It! *(fundamental problem-solving skills for all items)*
- **Lesson 1 – triad of students working on three related problems.**
- Lesson 2 - triad of students working on 3-step problem.
- Lesson 3 – Partners working on unique problems

Fraction Action
- **Lesson 1 – Which route should Carla take?** (*4th Assessment item 7*)
  - **BLM Which Route Should Carla Take?**
  - **BLM Teacher Directions**
  - **BLM KEY**

(Student partners should work lesson 2 and 3 together without teacher guidance. When all have finished, let students explain how they answered the questions.)
- Lesson 2 - Emily's Taffy Share (*3rd Assessment item 6*)
  - BLM Emily's Taffy Share
  - BLM KEY
- Lesson 3 – Steve's Project (*4th Assessment item 5*)
  - BLM Fr Steve's Project
  - BLM KEY

CGI
- **Lesson 1 – Multiplication**
- Lesson 2 – Division, Measurement (*3rd Assessment item 5*)
- Lesson 3 – Division, Partitive (*3rd Assessment item 4*)

Measurement Lab (*4th Assessment items 2, 4*)
Before beginning Lesson 1, walk through the special teacher guidance instructions with the students to establish centimeter – millimeter relationship.

Materials, per student:
- Metric ruler (centimeters and millimeters)
- **BLM** Teacher Guidance Instructions
- **BLM** for each Lesson
- **BLM Key** for each Lesson
- **Lesson 1 – Measuring with Decimals, Pteranodon**
- Lesson 2 – Measuring with Decimals, Anatosaurus
- Lesson 3 - Measuring with Decimals, Tyrannosaurus Rex

CCRS (*College and Career Readiness Standards)*
CROSS-CURRICULAR I.B.2., I.C.3., II.B.1., II.B.2.
ELA II.B.1., II.B.3., III.B.1., III.B.2., IV.B.1.
MATH I.B.1., II.B.1., II.C.1., IV.B.1., IV.B.2., VI.C.2., VIII.A.2., IX.A.3.

Assessment Items
(As a result of experiencing this unit, students will be learning skills necessary to be successful on the following Assessment items.)

3rd - 2, 3, 6,7, 8
4th - 1, 2, 4, 5, 6, 7, 8

Arthimus Portio's Corner
Unit 3 Lesson 1-
Fraction Action
How did you solve the Fraction Action today?

Unit 3, Lesson 1 3-4

Daily Routine - continued

OPTIONAL: *These activities, although not assessed, are fundamental skills that should be included in those sites providing five to six weeks of instruction.*

Target Number *(fundamental number sense for all items)*

- **Lesson 1 – Target Number 25**
- Lesson 2 – Target Number 50
- Lesson 3 – Target Number 75

Graphing

- **Lesson 1** –
- Lesson 2 –
- Lesson 3 –

Graphing Questions:
Before asking any questions, have the students give you their observations about the data shown on the graph. Always ask students to explain how they know.
These are generic questions. Simply reword them to fit your graph topics.

- How many more ____ than ____?
- How do you know?
- How many fewer ____ than ____?
- How do you know?
- Which (item) was chosen by more students than any of the others choices?
- How do you know?
- Which (item) was chosen by the fewest students?
- How do you know?
- What job could use this type of information? Why?
- If we asked this same question to other age groups, how do you think their answers would compare to ours? Why?

Money MATTERS activities are located on MAS Space.

(Assessment Item 8 will be reviewed daily in Snack Fractions.)

Unit 3 **CGI Problems for *Dinosaurs Before Dark***

Grouping and Partitioning	There were __ branches on the magnolia tree. Each branch had __ flowers. How many flowers on the magnolia tree? 12, 15 15, 18 26, 27	Jack and Annie saw __ baby dinosaurs in nests. There were __ babies in each nest. How many nests were there? 120, 12 128, 8 312, 13	Jack and Annie saw __ baby dinosaurs in nests. There were __ nests. Each nest had the same number of babies. How many babies in each? 39, 13 96, 64, 16
Rate	The Pteranodon flew at a rate of 7 feet per second. If he flew for 106 seconds, how far would he fly?	The Pteranodon glided 3,563 feet. He glided an average rate of 7 feet per second. How many seconds did he glide?	The Pteranodon coasted 3240 feet. He coasted for 360 seconds. How many feet did he coast per minute?
Compare	*Difference Unknown* A Tyrannosaurus Rex weighs 9487 pounds and a Pteranodon weighs 53 pounds. How many times as much does the T-Rex weigh as the Pteranodon?	*Quantity Unknown* A Pteranodon weighs 55 pounds. A Triceratops weighs 218 times more than a Pteranodon. How much does a Triceratops weigh?	*Referent Unknown* A Tyrannosaurus Rex is 534 cm tall. That is 3 times taller than a Triceratops. How tall is a Triceratops?

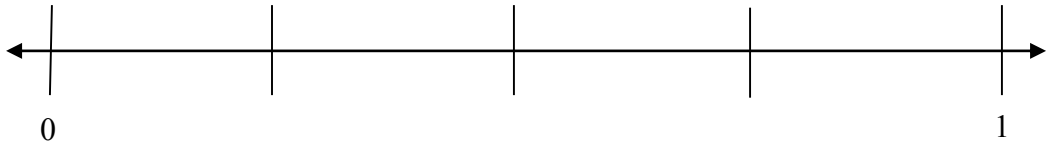
Grouping and Partitioning	Había __ ramas en el árbol de magnolia. Cada rama tenía __ flores. ¿Cuántas flores había en el árbol de magnolia? 12, 15 15, 18 26, 27	Jack y Annie vieron __ dinosauros bebés en nidos. Había __ bebés en cada nido. ¿Cuántos nidos había? 120, 12 128, 8 312, 13	Jack y Annie vieron __ dinosauros bebés en nidos. Había __ nidos. Cada nido tenía el mismo número de bebés. ¿Cuántos bebés había en cada uno? 39, 13 96, 64, 16
Rate	El Pteranodon voló a una tasa de 7 pies por segundo. Si volaba por 106 segundos, ¿qué tan lejos volaría?	El Pteranodon planeó 3,563 pies. Planeó un promedio de 7 pies por segundo. ¿Cuántos segundos voló?	El Pteranodon costó 3240 pies. El planeó por 360 segundos. ¿Cuántos pies volaba por minuto?
Compare	*Difference Unknown* Un Tyrannosaurio Rex pesa 9487 libras y un Pteranodon pesa 53 libras. ¿Cuántas veces más pesa el T-Rex que el Pteranodon?	*Quantity Unknown* Un Pteranodon pesa 55 libras. Un Triceratops pesa 218 veces más que un Pteranodon. ¿Cuánto cuesta un Triceratops?	*Referent Unknown* Un Tyrannosaurio Rex mide 534 cm de alto. Esto es 3 veces más alto que un Triceratops. ¿Cuánto mide el Triceratops de alto?

Student Name _____

Carla wants to walk a mile today, or as close as she can to a mile. She has 4 routes she can walk. Which route should she take to be closest to her goal of 1 mile?

A. Miles Street to Andrew's house and return home – 0.45 miles
B. Cool Street to grocery store and return home – 0.10 miles
C. Walker Street to Millie's house and return home – 0.9 miles
D. Torres Street to sandwich shop and return home – 0.69 miles

1. First, label the benchmark decimals 0.75, 0.5 and 0.25.
2. Then arrange the decimals from the story on the line based on the benchmarks.



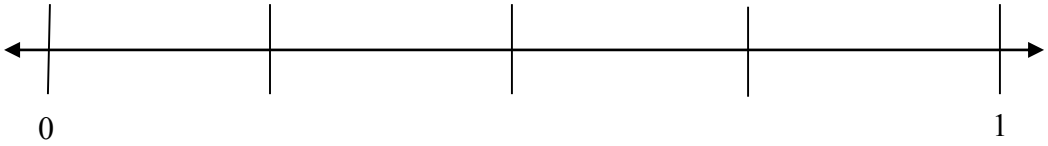
Now, answer the question. Which route should Carla take to be closest to her goal of 1 mile? Explain your thinking.

BLM Rutinas diarias, Unidad 3 Acción con fracciones, Lección 1
¿Qué ruta debe tomar Carla?
Nombre del estudiante _____

Carla quiere caminar una milla hoy, o la distancia más cercana a una milla que pueda. Tiene 4 rutas por las que puede caminar. ¿Qué ruta debe tomar para estar lo más cerca posible de su objetivo de caminar 1 milla?

E. Calle Miles a la casa de Andrew y de regreso a casa - 0.45 millas
F. Calle Cool a la tienda de víveres y de regreso a casa - 0.10 millas
G. Calle Walker a la casa de Millie y de regreso a casa - 0.9 millas
H. Calle Torres a la tienda de sándwiches y de regreso a casa - 0.69 millas

3. Primero, etiqueta los puntos de referencia decimales 0.75, 0.5 y 0.25.
4. Después, acomoda los decimales de la historia en la línea con base en los puntos de referencia.



Ahora, responde la pregunta. ¿Qué ruta debe tomar Carla para estar lo más cerca posible de su objetivo de caminar 1 milla? Explica tu razonamiento.

BLM Daily Routines Unit 3 Fraction Action, Lesson 1 Teacher Directions

This teacher-direct is optional for this unit. If you feel that your students understand the Fraction Action task and can answer on their own, please simply circulate the room asking the questions suggested to spot check for understanding.

1. Read the problem to the students, or have a student volunteer read the story. Ask students what the story means. You want them to understand that the decimals represent a part of a whole. The WHOLE is the one mile walk.

2. Ask the students to first talk to their partners about how they will label the benchmark decimals on the number line. Be sure they understand that these benchmark decimals might not be the same as the decimals in the story. When students have talked with a partner, let them share with the whole class. Generate the same number line on the board and have students explain how they know what the labels are (*examples: The number line represents numbers between 0 and 1. Halfway between 0 and 1 is 0.5 or 0.50. Halfway between 0 and 0.5 is 0.25 or one quarter, etc…).*

3. Have students work with a partner to discuss the problem once you are sure they understand the context.

4. Circulate the room asking questions to clarify and probe for deeper understanding.

QUESTION SUGGESTIONS

- How do you read this decimal?
- What does this decimal mean? (*for example, 0.75 means 7-tenths and 5-hundredths*)
- Is this decimal (*from the story*) greater than or less than this benchmark decimal? (*Point to benchmark on the line.*)
- How do you know?
- Where will you place this decimal (*from the story*) on the number line?
- Explain your thinking.
- (*When students have solved the problem*,) explain your thinking.

5. When all students have completed the task, have volunteers place the decimals on the class number line, explaining why they placed it as they did. The class should then discuss the placement. If someone disagrees, then a debate should occur until everyone agrees on the approximate position. For example, .55 is only 5-hundredths larger than 0.5, so 0.55 would be very close to and to the right of 0.5.

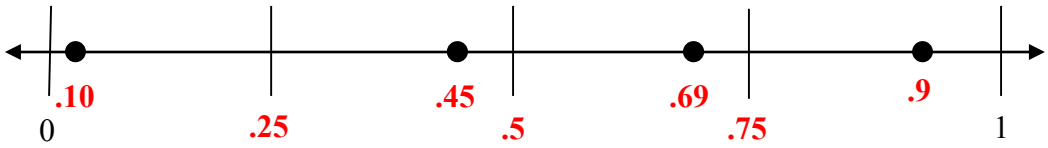
6. Finally, discuss the answer, having students explain their thinking.

Student Name _____

Carla wants to walk a mile today, or as close as she can to a mile. She has 4 routes she can walk. Which route should she take to be closest to her goal of 1 mile?

A. Miles Street to Andrew's house and return home – 0.45 miles
B. Cool Street to grocery store and return home – 0.10 miles
C. Walker Street to Millie's house and return home – 0.9 miles
D. Torres Street to sandwich shop and return home – 0.69 miles

5. First, label the benchmark decimals 0.75, 0.5 and 0.25.
6. Then arrange the decimals from the story on the line based on the benchmarks.



- ***Benchmark decimals must be correctly placed.***
- ***Accept all reasonable placements of the problem decimals as students are using the benchmarks to ESTIMATE the problem decimal placements.***
- ***Students may use "points" or lines to indicate placement of problem decimals – but they must use some delineation.***

Now, answer the question. Which route should Carla take to be closest to her goal of 1 mile? Explain your thinking.

Carla should choose the C, Walker Street to Millie's house and return home because it is 9-tenths of a mile. 9-tenths of a mile is closer to a whole mile than any of the other distances.

MEASUREMENT LAB:

Before starting lesson 1, distribute the metric rulers to investigate the unit properties and establish centimeter – millimeter relationships.

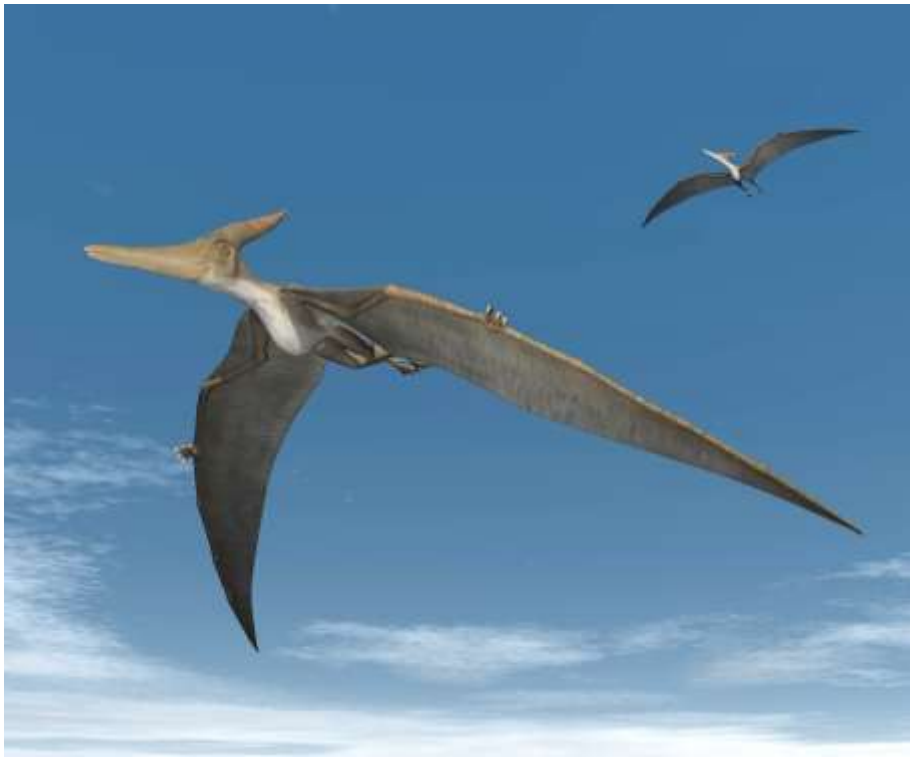
- Have students describe the parts they see on the ruler. You want them to see that the ruler is divided into 30 larger parts and "some more."
- Ask if anyone knows what the larger parts, which are numbered, are called (*centimeters*).
- Have students decide how many parts each centimeter is divided into (*10 parts*). It takes 10 of those parts to equal one centimeter. These are called millimeters.
- One millimeter, then, would be 1/10 of a centimeter (*write on the board*). How do we represent one-tenth using a decimal representation? (0.1).
- Look at the end of the ruler. How many millimeters are left over? (4)
- How would you describe the length of the ruler? There are 30 cm and 5 mm.
- How would you represent 30 cm and 5 mm in centimeters using a decimal representation? (*If students need to, have them work with a partner. Answer: 30.4 cm*.)
- Students are going to use this knowledge to measure and record lengths during the Measurement Lab this unit.

BLM Daily Routines Unit 3, Lesson 1 Measurement Measuring with Decimals, Pteranodon

One sheet per student

Materials:

- Metric ruler (measuring in centimeters and millimeters)



We don't know what a Pteranodon looked like exactly. No one was there with a camera when the creature lived.

But scientists have found bones of what they've named the Pteranodon and put them together as they would a puzzle.

With this skeleton, they estimated what the outer creature might look like.

This is a picture of what they think the Pteranodon looked like.

Pteranodon (ter-AN-oh-don)

Measure the wing span of the picture of the Pteranodon.

How many centimeters (cm) wide is it? _____cm How many millimeters? _____ mm

Write the width of the wing span as a mixed decimal (whole number and tenth). _____ cm

How do you read this measure as a decimal?

Explain why we can use this mixed decimal as the measure of the centimeters and millimeters.

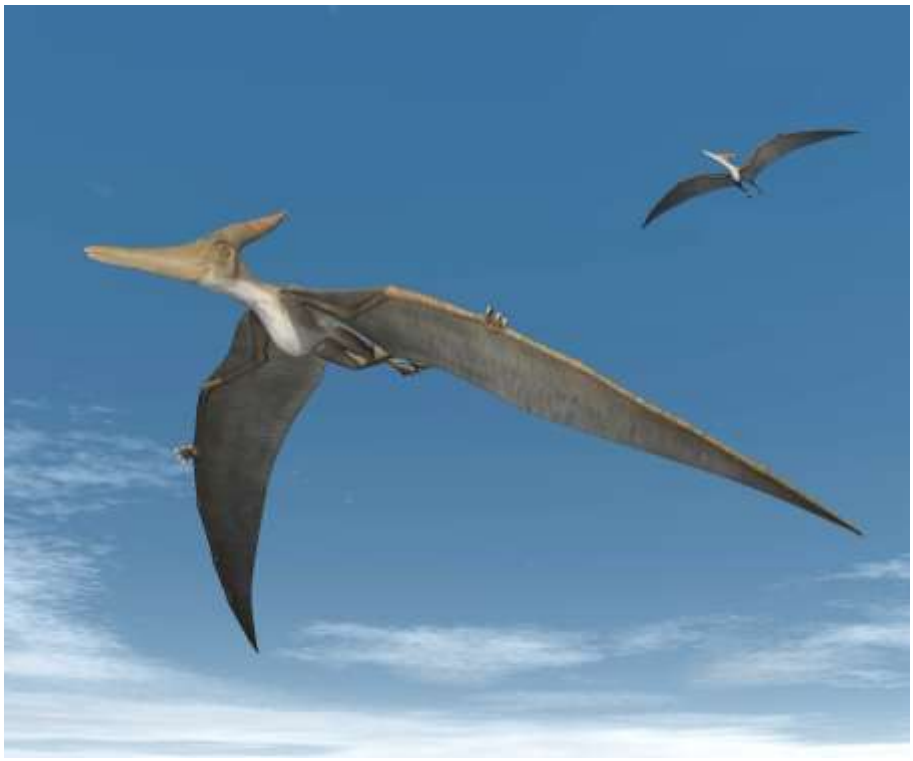
Explain why the unit of measure in the mixed decimal is centimeters. Where are the millimeters noted?

BLM Unidad 3, Lección 1 Medidas Medidas con decimales, Pteranodon

1 hoja por estudiante

Materiales:

- Regla métrica (con medidas en centímetros y milímetros)



No sabemos exactamente qué aspecto tenía un pteranodon. Nadie estaba ahí con una cámara cuando la criatura vivía.

Pero los científicos han encontrado huesos de lo que han denominado pteranodon y los han armado como si fuera un rompecabezas.

Con este esqueleto, han estimado cómo podría verse el exterior de la criatura.

Esta es una imagen del aspecto que creen que tenía el pteranodon.

¿Cuántos centímetros (cm) tiene de ancho? _____cm ¿Cuántos milímetros? _____ mm
Escribe el ancho de la envergadura de las alas como un decimal mixto (número entero y décimos) _____ cm
¿Cómo lees esta medida en forma decimal?
Explica por qué podemos usar este decimal mixto como la medida de centímetros y milímetros.

Explica por qué la unidad de medida en el decimal mixto son los centímetros. ¿Dónde se anotan los centímetros?

BLM Daily Routines Unit 3, Lesson 1 Measurement **Pteranodon Teacher KEY**

One sheet for Teacher

Materials:

- Metric ruler (measuring in centimeters and millimeters)

We don't know what a Pteranodon looked like exactly. No one was there with a camera when the creature lived.

But scientists have found bones of what they've named the Pteranodon and put them together as they would a puzzle.

With this skeleton, they estimated what the outer creature might look like.

This is a picture of what they think the Pteranodon looked like.

Pteranodon (ter-AN-oh-don)

Measure the wing span of the picture of the Pteranodon.

How many centimeters (cm) wide is it? __**13**___cm How many millimeters? ____**5**___ mm

Write the width of the wing span as a mixed decimal (whole number and tenth). __**13.5**_ cm

How do you read this measure as a decimal? **Thirteen and five-tenths centimeters**

Explain why we can use this mixed decimal as the measure of the centimeters and millimeters.

Thirteen is the whole number of centimeters. Five-tenths is the fractional part of another centimeter. We write thirteen and five-tenths as 13.5.

Explain why the unit of measure in the mixed decimal is centimeters. Where are the millimeters noted? ***We have 13 whole centimeters and 5-tenths of another centimeter. The millimeters are the 5-tenths. Since there are 10 millimeters to equal 1 centimeter, 5 millimeters would be 5-tenths of another centimeter.***

Solve It! Problems Unit 3, Lesson 1 **Triad (Team of 3)**

First Problem

- Gentry took Evan to lunch. They each had a combo that cost $9.25. How much did Gentry pay for the two combos?
    - What is the answer to the question? Show your solution strategy.

Problem Solution (#1 Problem Solver) Name:	**Solution Verification (**#2 Problem Solver**)** Name:

Second Problem

- Evan had a shake with his combo which cost $2.00. Gentry added a dessert which cost twice as much as Evan's shake. How much did Gentry pay for the combos, shake and dessert?
    - What do you need from Problem 1 to solve the problem?
    - Be sure to verify the answer to problem 1 before solving this problem.
    - What is the answer to the question? Show your solution strategy.

Problem Solution (#2 Problem Solver**)** Name:	**Solution Verification (**#3 Problem Solver**)** Name:

Third Problem

- Gentry paid $2.50 in tax, and doubled the tax for a tip. What was Gentry's full bill for lunch?
    - What do you need from Problem 2 to solve the problem?
    - Be sure to verify the answer to problem 2 before solving this problem.
    - What is the answer to the question? Show your solution strategy.

Problem Solution (#3 Problem Solver**)** Name:	**Solution Verification (**#1 Problem Solver**)** Name:

Solve It! Problems Unit 3, Lesson 1 **Pairs**

Primer problema

- Gentry le invitó a Evan a comer. Los dos comieron un combo que costó $9.25. Cuánto pago Gentry por los dos combos?
    - ¿Cuál es la respuesta a la pregunta? Muestra tu estrategia de solución.

Solución del problema (#1) Nombre:	**Verificación de la solución (**#2**)** Nombre:

Segundo problema

- Evan pidió un batido con su combo que costó $2.00. Gentry comió un postre que costó dos veces más que el batido de Evan. ¿Cuánto pagó Gentry por los combos, batido, y postre?

    - ¿Qué necesitas del problema 1 para resolver este problema?
    - Asegúrate de verificar la respuesta del problema 1 antes de resolver este problema.
    - ¿Cuál es la respuesta a la pregunta? Muestra tu estrategia de solución.

Solución del problema (#1) Nombre:	**Verificación de la solución (**#2**)** Nombre:

Solve It! Problems Unit 3, Lesson 1 **Pairs**

Tercer problema

- Gentry pagó $2.50 de impuesto y multiplicó el impuesto por dos para calcular la propina. ¿Qué fue la cuenta total?
    - ¿Qué necesitas del problema 1 para resolver este problema?
    - Asegúrate de verificar la respuesta del problema 1 antes de resolver este problema.
    - ¿Cuál es la respuesta a la pregunta? Muestra tu estrategia de solución.

Solución del problema (#1) Nombre:	**Verificación de la solución (**#2**)** Nombre:

Grade Bands: 3-4 and 5-6, Unit 1 and 2 Writing Workshop

- **Genre:** Informational Text
- **Writing Objective:** Students create an informational book about Creating a Business.
- **Audience**: people wanting to begin a business
- **Organization of text**: Broken into sections

Students choose what sections they want their book to have. Encourage students to have a minimum of **three sections** for grades 3-4 and a minimum of **five sections** for grades 5-6. However, for less proficient writers you may suggest they focus on fewer sections, and for more proficient writers you can push them to create more sections. The following are some possible topics for sections. Foster topics based on what students learned during the first week's lessons, as well as additional reading or research from the library or Internet. You may think of other topics based on what students have learned during the math portion of the curriculum this unit. If you prefer, you can create a web (or other graphic organizer) of ideas or begin with a freewrite.

- Importance of money (to businesses, individuals, country)
- What is a business all about?
- What are some business ideas?
- Business experience is great
- What is a business plan?

Option: Students can talk to at least two classmates about their topic and list of ideas. Take on notes on their peers' suggestions. Encourage students to listen to their peers' suggestions for the purpose of helping bring in the focus of their topic.

Week 1

Day 1: Brainstorm- Explain to students that many books are written to teach people about something. Since they are becoming experts in MONEY and next week they will be reading about an artist entrepreneur, they can write a book to teach other kids about some of the things they've learned this week. Ask students, "What are some things you've learned so far about money and business?"

Have students brainstorm (referring to class copies of the book will help with this). Jot down a list of student's ideas on chart paper. You may need to rephrase what students share so that it sounds like a heading in a book (such as the ones listed above). Have students choose three sections from the list, and write them down so they're ready for the next Writing Workshop.

Day 2 & 3: Research and Draft- ***Model*** for students how to create their informational books by doing one page together as a class. It's best to use paper that has a space for drawing a picture at the top, with lines underneath. This is particularly helpful for ELLs, but useful for all students, since illustrations are an important part of an informational text. Encourage students to write on every other line, allowing room for edits. When you model, you're showing students how you think aloud – "What do I know about this topic?" You can model listing the details you know aloud, or referring to a book or website (www.teachingkidsbusiness.com) to recall specific details. You're also modeling how to elaborate on sentences you've written so that in the end, the section is at least one well developed paragraph, if not two paragraphs.
Then provide time for your students to write independently. This writing time includes the illustrating.

Grade Bands: 3-4 and 5-6, Unit 1 and 2 Writing Workshop

Week 2

Day 1 & 2: Revise- Work on elaboration with students who are ready. What else could they add to this section? Are there other details from the book that they want to include? Could they explain a particular sentence more, perhaps using an example or describing one of their own experiences? Encourage students to make these personal connections to more deeply explain the money topics, since they had a lot of experiences during the Classroom Lessons.

If you notice that many of your students are making the same kind of errors, that's a sign that a whole-class mini-lesson is necessary. Provide examples from student drafts to assist with the lesson. One-on-one conferences may be necessary in order to assist particular students, continue to provide feedback and monitor the students' writing.

Day 3: Publish- Have students staple their pages together to create their book. They can read their book to a partner to share the information they have written. Or, team up with another grade band, and have your 3rd and 4th graders share their books with a student from that class. This works well because all of the grades are reading and learning about similar topics in both of these units. The other class could share their writing with your students as well.

Literature Selection
The Magic Tree House, Dinosaurs Before Dark
by Mary Pope Osborne

Materials
Language Materials
- **BLM** Word Cards
- **BLM** Character Traits
- 16 prefilled index cards (see before reading)

Transition to Math Materials
- **BLM TM** Math Word Cards
- **BLM TM** Decimal Battle (as center)

Literature Vocabulary
peering
trembled
coasted
engraved
bellowing
waddled
dangling
gleaming
teetered

Math Vocabulary
centimeters
millimeters
Repeated vocabulary
tenths
hundredths
decimal
fractions
factors
products
fact family

ELPS (*English Language Proficiency Standard*)
1E, 2F, 3B, 3D, 3F, 4E, 4E, 4J

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.C.1., II.A.2., II.A.A4.
ELA II.A.1., II.A.3., II.A.4., II.B.1., III.B.2.

Unit 3, Lesson 1 3-4
Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students should review to see if they have accomplished both math and language objectives.

Math Objectives:
- Represent decimals, including tenths and hundredths, using concrete and visual models.

Language Objectives:
- Ask questions about the text as they read.
- Make corrections and adjustments when understanding breaks down (identifying clues, using background knowledge, generating questions, re-reading a portion of text aloud).
- Describe the interaction of characters including their relationships and the changes they undergo.
- Sequence and summarize the plot's main events and predict future events using evidence from text for support.

BEFORE READING
Building Background, Vocabulary & Literature
Reveal the literature vocabulary cards one at a time to the students and display in a pocket chart or board. Group the words as shown here:

peering	trembled
bellowing	coasted
dangling	engraved
gleaming	waddled
	teetered

Point to the first column.
ASK, "What do you notice about these words?" *(end the same)*
SAY, "Think, turn to your neighbor, share."
Allow for partners to share.

SAY, "-ing is a suffix. A suffix is one or more letters added to the end of a base word."
ASK, "What does –ing mean as a suffix?" *(What does –ed mean as a suffix?)*
Allow for thinking and response.
SAY, "-ing means that it's happening 'right now'. I can remove the –ing and still have a word." (-ed means happened in the past)

bellow- 2 syllables; meaning deep roaring sound or shout; *The cow would always bellow loudly when she was hungry*.

dangle- 2 syllables; (add the e and discuss briefly the e is sometimes dropped when adding ing); to hang or swing loosely; *I tied a rope to the branch and let the rest dangle.*

gleam- 1 syllable; to shine brightly; *The light will gleam in through the window.*

tremble- 2 syllables; to shake or quiver; *She was so nervous that she began to tremble.*

coast- 1 syllable; to move easily; *I let my bike coast down the hill.*

engrave- 2 syllables; to cut or carve; *I would like to engrave my initials in the tree.*

waddle- 2 syllables; to walk with short steps; *The geese will waddle to us if we offer them bread.*

teeter- 2 syllables; to sway back and forth; *The figurine began to teeter when I bumped the table.*

Four Corners Activity:
Pteranodon
- Flying reptile
- Fuzzy skin
- Mouth like scissors
- (picture)

Triceratops
- Plant eating
- Bony frill around the back of its head
- Eats slowly
- (picture)

Anatosaurus
- Lived in colonies
- Few mothers baby-sit others hunt for food
- Duck-billed appearance
- (picture)

Classroom Lesson - continued

Cover or erase each *ing* (or *ed*) from the ending of the words in column one. Then, point to the first word.
ASK, "Who can pronounce this word?"
Allow for responses.

ASK, "How many syllables or parts are in this word?"
Guide students in proving that there is one part/syllable in the base word *(peer)*.

SAY, "Listen as I use this word in a sentence:
I stood on the large rock to peer over the fence so I could see what my neighbor was doing."
ASK, "What is the meaning of the word peer?"
Guide students in discovering peer = look.

ASK, "What part of speech is peer?"
SAY, "It is part of the action I did in the sentence- *to peer*."
Allow students to discover it's an action word, verb.

SAY, "Great job being a word detective…let's discover more about the other words."

Continue through with the same line of questioning. Allow students to discover that all the words are verbs and all have a suffix.

Lesson 2 and 3 students will explore conjugating the verbs.

ASK, "What would you do if you traveled back in time to the age of dinosaurs- 65 million years ago?"
Allow students time to think. Then prompt them to share with their table or neighbor.

SAY, "Well, today we are starting a book that the characters are going to do just that- travel to the age of dinosaurs!
But, first let's share our knowledge about four particular dinosaurs."

(Four corners activity) Assign each of these dinosaurs to a corner of the room: Pteranodon, Triceratops, Anatosaurus, Tyrannosaurus. Largely print the name of the dinosaur. Supply each student with an index card with a picture and/or word that describes one of the four dinosaurs. The students mix around the room sharing and trading their index cards with each other. After some time, SAY, "Freeze!" The students move to the corner where the dinosaur on their card is represented. Students share their cards with each other, and then the group comes to a conclusion about whether the card is or is not related to the dinosaur. If a student is not in the correct corner, the other students help direct him or her to the

Tyrannosaurus
- Two big legs, two tiny arms, long powerful tail
- Largest Meat-eater land animal
- About 15-20 ft tall
- (picture)

appropriate dinosaur.

Classroom Lesson - continued

Stop discussion after all index card facts have found a correct corner. If some of the cards are incorrect, allow them to stay until after reading and then encourage students to check their prior knowledge.

DURING READING

Comprehensible Input, Vocabulary & Literature

Read chapters 1-4 (4 chapters)

You will be modeling through think-aloud how effective readers think about text. Read aloud to students the first chapter.

As students read aloud, encourage them to explain their thinking the same as you have demonstrated, thereby providing a way to actively monitor their understanding of the strategies.

Depending on the reading level and language proficiencies of your students, pair the students off and allow them to partner read chapter 4.

As a class, students will be completing the BLM Character Traits for both characters. SAY, "During our reading of ***Dinosaurs Before Dark***, we will pause to take notes about the character traits of both the main characters *(Jack and Annie)*. As we read, we will listen for attributes or traits that tell about their appearance, behavior, actions, and how others feel about them.

Begin reading, remembering to pause and check comprehension through clarifying, rereading, or reading on. When asking comprehension questions, allow for think time, partner share, and then sharing with class.

<u>Use these suggested questions to monitor comprehension and add other as needed: (pages might be different depending on edition of book)</u>

Chapter 1

Pg. 1: Why did Jack get frustrated with Annie?

Pg. 3: What did Annie find when she ran to the woods?

Pg. 5: Why was Jack excited about books being in the tree house?

Chapter 2

Pg. 8: Why do you think there was a book of Pennsylvania with pictures of Frog Creek?

Pg. 8: Why does Jack say they better not look in the books at first?

Pg. 12 (prediction) What do you think will happen next? Why?

Chapter 3

Pg. 15: How did Jack find out where they had landed?

Pg. 17: Why was it so hard for Jack to believe they had landed in a time 65 million years ago?

Pg. 17: Did Annie have a hard time believing? Why do you think she felt this way?

Pg. 17: Tell one word to describe Annie's personality on this

page.

Unit 3, Lesson 1 **3-4**

Classroom Lesson - continued

Chapter 4:

Pg. 19: What were Annie's words of encouragement that caused Jack to touch the Pteranodon?

Pg. 20: Why did Jack take notes like a scientist?

Pg. 22: Why did Annie talk to Henry?

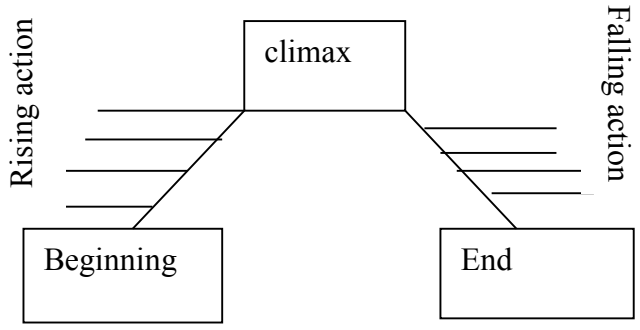
AFTER READING

Practice and Application, Vocabulary & Literature

Encourage students to share characteristics they've discovered or noticed about both Jack and Annie. Write the characteristics on the BLM character traits.

SAY, "Let's record the main events that happened today. I have a chart to collect some information. The chart will help us understand the plot or sequence of events that make up the story. There are five main parts to the plot (point to the five areas on the chart)."

Draw or reproduce the chart seen here. You will add to it throughout the book. Add lines for events in rising and falling actions as needed.



Walk the students through the chart. Point to the 'beginning' box.
SAY, "What happened in the beginning of the story? Think, look back to chapter 1, and tell your neighbor what you think."

Write student responses in short sentences or phrases.
Stop writing.
SAY, "The beginning will include information that gives background to what is going on in the story. It will set the scene."

Point to 'Rising action' moving your finger upward.
SAY, "This is the rising action in the story. These will be multiple events that lead up to the most exciting part of the book…the climax.
ASK, "What are some rising action events that occurred today? Look back at your chapters. Decide on two to three events and then share them with your neighbor".

	Allow students to share and record their answers. **Unit 3, Lesson 1** **3-4** **Classroom Lesson** - continued  SAY, "Great job! The next time we read we will record more events and possibly read the part where the greatest danger in the story is experienced…the climax. I wonder if they will be stuck in this time period forever. What do you wonder?" Allow students to share. SAY, "It is time for a fact check-we learned a little about one dinosaur today. Let's check our facts we placed in that corner of the room. Which dinosaur did Jack and Annie meet today?" Check students facts to the book, change cards around if needed.

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

peering

trembled

coasted

engraved

BLM Unit 3, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

bellowing

waddled

dangling

teetered

BLM Unit 3, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

mirando
tembló
coasted
grabó

BLM Unit 3, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

bramando
anadeó
colgando
se tambaleó

BLM Unit 3, Classroom Lesson 1 **Character Traits**
(One per student)

Jack		**Annie**

Math Objectives
- Represent decimals, including tenths and hundredths, using concrete and visual models.

Math Vocabulary
centimeters
millimeters
Repeated vocabulary
tenths
hundredths
decimal
fractions
factors
products
fact family

Transition to Math Materials
- base ten sets – 1 set per student
  - 3 flats
  - 15 longs
  - 15 units
- **BLM TM** Decimal Battle -1 set cards cut and laminated per pair of students – these are a repeat of the cards from Unit 2. If you already have them prepared for the students, you do not need to duplicate again.

Fact Sheet: Pteranodon
http://www.dinosaurdays.com/fullversion/factcards/CRT_pteranodon_fact.pdf?bytes_loaded=339690&bytes_total=339690&getPercent=1&loadText=100%25

ELPS (*English Language Proficiency Standard*)
EI, 3E, 3G, 3H, 4G

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.E.2., II.C.1.
MATH IV.A.1., IV.B.2., IV.C.3.

Technology:
www.mathnook.com/math/skill/decimalgames.php

TV Materials:
- Base ten sets from TM
- **BLM** Naming Decimals
- **BLM** Naming Decimals KEY

Unit 3, Lesson 1 3-4

Classroom Lesson - continued

TRANSITION to Math

Building Background, Math

(*Use the Decimal Battle game during this unit as a center game or anytime you have extra minutes before transitioning to another part of the lesson. Although you probably laminated the cards from last unit to repeat use, the BLMs are provided again at the end of this TM lesson.*)

Let's use our base ten sets to show and compare decimals.

It's always important to know what size the WHOLE is when you are working with fractions and decimals.

I will tell you that in these problems, this piece (*hold up the flat*) will represent ONE.

If this represents one (*the flat),* then what does this piece represent? (*Hold up the long – which represents 1/10.)*

How do you know this is one-tenth? (*It takes 10 of them to make the whole, so one of them is one of the tenths, or one-tenth. Have students place 10 longs on top of the flat to prove that there are 10 needed to be equivalent to the whole.)*

Use your pieces to show me one and five-tenths (*flat, five longs)* Explain how you know that is one and five-tenths (*Flat is our WHOLE, and each long is one-tenth.)*

Now show me three and seven-tenths (*three flats and seven longs*).

There is another base ten model in the set; the cube. If the flat is our WHOLE, what does the cube represent? (*hundredth*)

How do you know? (It *takes 100 of the cubes to be equivalent to the flat.*)

Show me:
- nine-hundredths *(nine cubes)*
- one and nine-hundredths *(flat and nine cubes)*
- three and three-hundredths *(three flats and three cubes)*
- three and three-tenths *(three flats and three longs)*
- How is three and three-hundredths different from three and three-tenths? (*probably will describe the models – accept all reasonable*)
- Which is more, three and three-hundredths or three and three-tenths? (*three and three-tenths*) Explain your thinking (*there are more base ten on the table for three and three-tenths*).

	Unit 3, Lesson 1 **3-4**
	Classroom Lesson - continued
	 
	
	TRANSITION to Math
	Building Background, Math
	
	Using these materials helps you to visualize the decimals. Remember that decimals are NOT numbers; they are fractional parts of a whole.
	
	Number and words simply represent the real fractional part. As you use decimals, being able to visualize them as parts of wholes will help you as you compare, operate, and use them for problem solving.
	
	Now, let's play our Decimal Battle till time for the TV Lesson.
	
	Objectives: Review the math and language objectives to see how they were accomplished.
	
	Distribute TV Lesson Materials
	• base ten sets – 1 set per student
	  o 3 flats
	  o 15 longs
	  o 15 units
	• **BLM** Naming Decimals – 1 per student
	• **BLM** Naming Decimals KEY

BLM TM Unit 3, Classroom Lesson 1 **Math Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

centimeters
millimeters
centímetros
milímetros

BLM –TM Unit 3, Classroom Lesson 1 - 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students. You used these in Unit 2 and do not have to duplicate again if you still have those cards available for center work.

This game is played like the card game Battle or War, and is played with a partner.

1. Deal out the cards so that each player has half of the deck. Do not look at the cards, but keep them in a stack face down in front of you.

2. Both players turn the top card of their own stack face up on the table. Whoever turned the card with the higher value takes both cards and adds them face down to the bottom of their stack.

3. Repeat the process.

4. If the cards turned up are equivalent, there is a BATTLE. The equivalent cards stay on the table and both players play the next card in their stack. The card with the higher value wins the battle. BATTLE continues until the cards turned up are not equivalent. The person with the higher value wins all of the cards in the BATTLE and puts them face down at the bottom of their stack.

5. Game continues until one player has taken all of the cards, or until one player can no longer play a card.

0.1	**0.01**
0.10	**0.15**

BLM –TM Unit 2, Classroom Lesson 1 - 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.

0.2	**0.02**
0.25	**0.20**
0.3	**0.03**
0.30	**0.33**

BLM –TM Unit 3, Classroom Lesson 1 - 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.

0.40	**0.45**
0.4	**0.04**
0.05	**0.5**
0.50	**0.55**

BLM –TM Unit 3, Classroom Lesson 1 - 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.

0.60	**0.62**
0.6	**0.06**
0.07	**0.7**
0.70	**0.75**

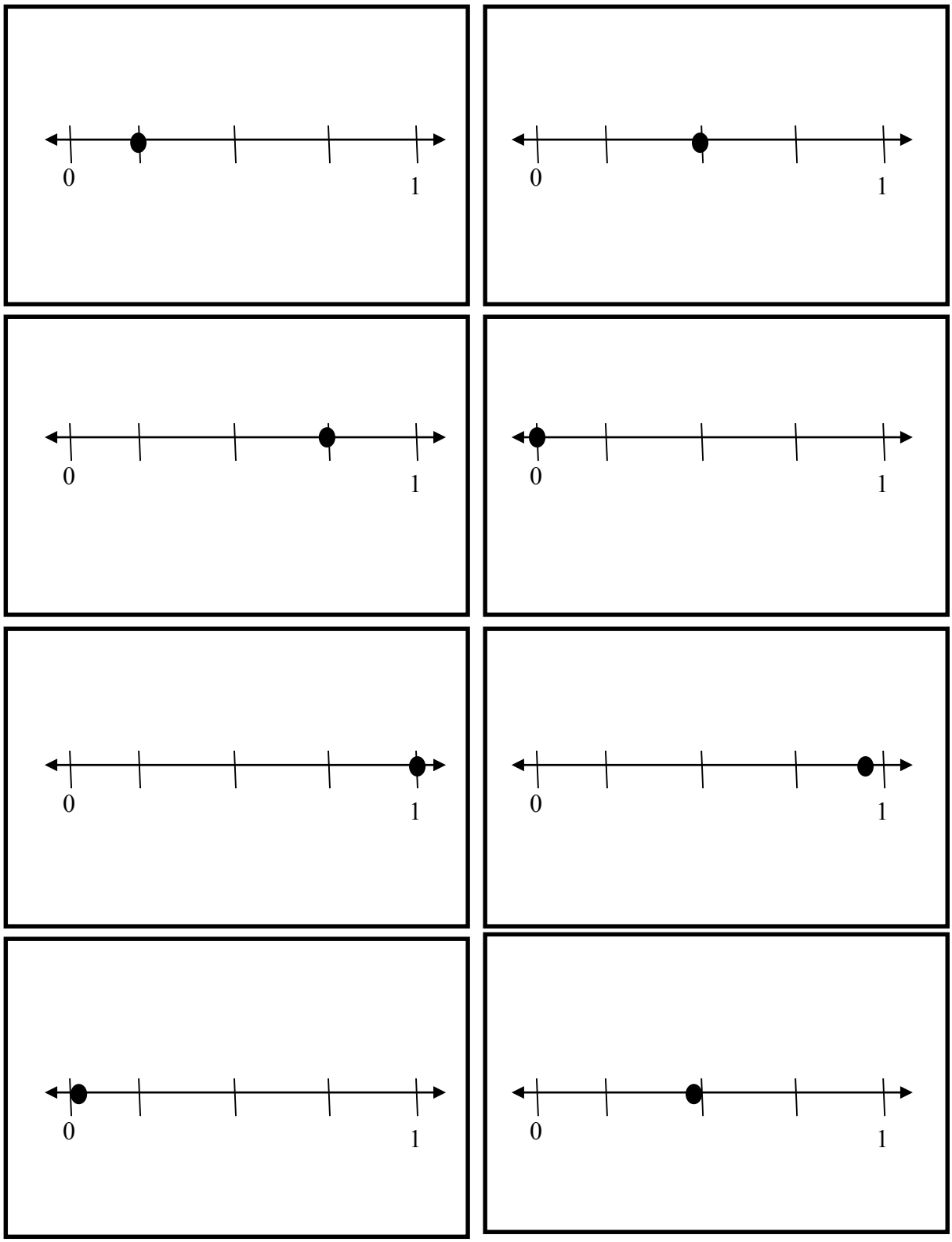
BLM –TM Unit 3, Classroom Lesson 1 - 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.

0.80	**0.83**
0.8	**0.08**
0.09	**0.9**
0.90	**0.92**

BLM –TM Unit 3, Classroom Lesson 1 -3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.



BLM –TM Unit 3, Classroom Lesson 1- 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.

$\frac{1}{2}$	$\frac{1}{4}$
$\frac{1}{100}$	$\frac{3}{4}$
$\frac{9}{10}$	$\frac{5}{10}$
$\frac{4}{10}$	$\frac{5}{100}$

Literature Vocabulary
peering
trembled
coasted
engraved
bellowing
waddled
dangling
gleaming
teetered

Math Vocabulary
centimeters
millimeters
Repeated vocabulary
tenths
hundredths
decimal
fractions
factors
products
fact family

Materials
- base ten sets – 1 set per student
  - 3 flats
  - 15 longs
  - 15 units
- **BLM** Naming Decimals – 1 per student
- **BLM** Naming Decimals KEY

ELPS (*English Language Proficiency Standard*)
3E, 3G, 3H, 4G

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.C.3., I.E.2., II.C.1.
ELA IIA.2., II.B.1., III.A.2., III.B.2.
MATH IV.A.1., IV.B.2., IV.C.3.

Unit 3, Lesson 1 3-4

TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Relate decimals to fractions that name tenths and hundredths.
- Interpret the value of each place value position as 10 times the position to the right and as one-tenth of the value of the place to its left.
- Represent decimals, including tenths and hundredths, using concrete and visual models.

Language Objectives:
- Use the math vocabulary during the activity.
- Discuss answers and possible strategies with classmates.
- Explain decimal relationships.

Building Background
Let's use our base ten sets to show and compare decimals.

You used your base ten sets to model a few decimals today. We're going to use the set to show different representations of the model. (*Show the BLM Naming Decimals.*)

First, please model one and five-tenths. Please show your Classroom Teacher one and five-tenths using your base ten sets *(pause)*.

Let's use this model to begin to complete our Naming Decimals record sheet.

Comprehensible Input
- The first column is for us to describe our model. We're going to draw a picture of what we used (*one large square; five rods or even sticks*).
- The second column asks us to describe our decimal in words. How would you read this decimal model? (*one and five-tenths)*
- The third column asks us to represent our decimal in numbers. Let's write our decimal as 1.5. But remember, that is not how we read our decimal. How do we read our decimal? (*one and five-tenths*)
- And finally our fourth column wants us to represent that amount as a fraction. How would you represent one and five-tenths as a fraction? Please tell your Classroom Teacher. *(pause)*
- There are really two acceptable ways: 1 5/10; 1 ½. Let's write both, because both representations are correct.

CLASSROOM TEACHERS TV Teacher will give you time to discuss – please have students do so.	**Unit 3, Lesson 1** **3-4** **TV Lesson** - continued Show your Classroom Teacher three and nine-tenths. Now, let's fill in our chart (*fill in just as you did the first example*). • Great job with whole and tenths. Let's investigate this small cube now. What fractional part of the whole does this small cube represent? (*one-hundredth*) • How do you know? Remind your teacher how you know this little cube is one-hundredth (*It takes 100 cubes to be equivalent to the flat.)* • So four of these cubes would represent what fractional part? (*four-hundredths*) • Please show Your Classroom Teacher three and nine-hundredths (*flat and nine cubes*). • Let's fill in our chart for this decimal (*do so*). • Look at your models and your decimal representations on the chart. How would you compare three and nine-tenths to three and nine-hundredths? • Explain or justify your thinking (*3.9 is greater than 3.09. 3.09 is less than 3.9*). There is a place under your chart that asks you to record your comparisons. Please do so now, and read your comparisons to one another. When you use the materials, you can see the difference, can't you? As you work with decimals, I want you to visualize the fractional parts. It will make comparisons much easier. Remember, fractional parts are not numbers; they are physical parts of wholes. These numbers are only one representation.
CLASSROOM TEACHERS TV Teacher will give you time to discuss – please have students do so.	• Now show your Classroom Teacher two and 15-hundredths. (*Probably most students will show you the 15 cubes and two flats. You also want to model two flats, one long and five cubes. If no one models that, please show it and continue.*) • I see two models for this decimal. Talk in your class about why they are equivalent. (*The long represents 10 cubes, so you can trade 10 cubes for that long. You really have two wholes, one-tenth and five units.)* I have one last task for you. What is the greatest number you can make using the cubes you have in your base ten set? You can work with a partner for a bit. When you are finished, be sure to represent the number at the bottom of your record sheet. (*Take a generous pause*, *then justify the answer on the answer sheet.)* Fractions and decimals are a big part of life. Being able to visualize them will help you understand many of the things you will be doing with them as older students and adults.

Arthimus Portio's Corner **Unit 3 Lesson 1-** **Fraction Action** How did you solve the Fraction Action today?	**Unit 3, Lesson 1** **3-4** **TV Lesson** - continued  **Pirate:** And talking about having a better understanding**,** I would like to understand some of the strategies you used today in Fraction Action to solve that problem! Please log on to Arithmus' Corner and share your strategy with me! (*You will want to tell students that you have solved the problem, too, and are sharing your strategy online in the Corner.)* **Teacher:** Thank you! I'm sure everyone will go online so we'll all know one another. It will be exciting to see the different solution strategies! **Objectives:** And now before we go, let's review what we have learned today! (*do so*)

BLM Unit 3, TV Lesson 1 **Naming Decimals**

One set of cut out, laminated cards per pair of students.

Describe Model	Decimals in Words	Decimals in Numbers	Fractional Representation

Comparison: _____ _____

What is the greatest number you can make with your base ten set? Represent it:

Model

Words

Decimal

Fraction

BLM Unit 3, TV Lesson 1 **Naming Decimals**

One set of cut out, laminated cards per pair of students.

Describe el modelo	Decimales en palabras	Decimales en números	Representación fraccional

Comparación: _____ _____

¿Cuál es el número más grande que puedes hacer con un set to base diez? Represéntalo:

Modelo:

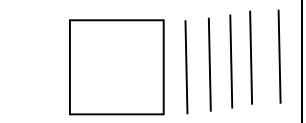
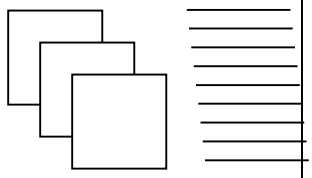
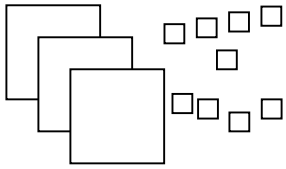
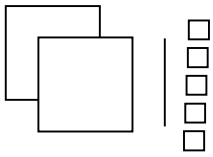
Palabras

Decimal

Fracción

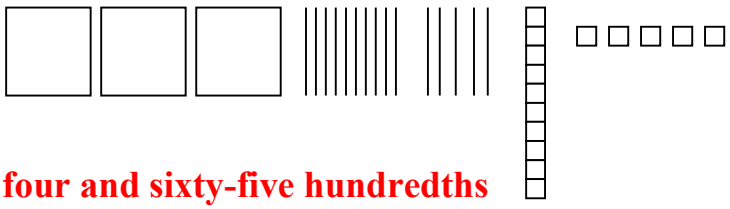
BLM Unit 3, TV Lesson 1 **Naming Decimals KEY**

One set of cut out, laminated cards per pair of students.

Describe Model	Decimals in Words	Decimals in Numbers	Fractional Representation
	one and five-tenths	1.5	1 5/10 1 1/2
	three and nine-tenths	3.9	3 9/10
	three and nine-hundredths	3.09	3 9/100
	Two and fifteen-hundredths	2.15	2 15/100

Comparison: 3.9 > 3.09 3.09 < 3.9

What is the greatest number you can make with your base ten set? Represent it:

Model 

Words four and sixty-five hundredths

Decimal 4.65

Fraction 4 65/100

Literature Vocabulary
peering
trembled
coasted
engraved
bellowing
waddled
dangling
gleaming
teetered

Math Vocabulary
centimeters
millimeters
Repeated vocabulary
tenths
hundredths
decimal
fractions
factors
products
fact family

Materials
- 1 set of cards from Decimal Battle - teacher set
- base ten sets – 1 set per student
  - 3 flats
  - 15 longs
  - 15 units

ELPS (*English Language Proficiency Standard*)
2C, 2E, 3E, 3G, 4G, 5B, 5C

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.C.3., I.E.2., II.C.1.
ELA I.A.1., I.A.2., I.A.3., II.A.2., III.B.2.
MATH IV.A.1., IV.B.2., IV.C.3.

Unit 3, Lesson 1 3-4
Follow-up

Math Objectives:
- Relate decimals to fractions that name tenths and hundredths.
- Interpret the value of each place value position as 10 times the position to the right and as one-tenth of the value of the place to its left.
- Represent decimals, including tenths and hundredths, using concrete and visual models.

Language Objectives:
- Listen and speak with a partner during our math activity.
- Use the math vocabulary during the activity.
- Write math journal response.

Building Background, Math
We've been playing Decimal Battle now for quite some time. Today we're going to model the decimals shown. I'll show you a card and you will model the decimal representation using your base ten materials.

For example, if I showed you this card:
- (*Show the decimal 0.09 card.*) How would you model that? (*9 cubes*)
- How do I read it? (*nine-hundredths*)
- If I see, as I do here, only a zero on the left of the decimal point, what does that mean? (*that you do not have any wholes)*

If I showed you this card
- *(Show the number line card showing 0.25.)* How would you model it? (*two longs and five cubes)*
- How do I read it? (*twenty-five hundredths)*
- Do I have any wholes? *(no)*
- How do you know? (*only number left of the decimal point is a zero*)
- This decimal is also a special decimal for us because we can easily place it on a number line and it can help us visualize other decimal places – does anyone remember what we call this decimal? *(benchmark)*
- What is another fractional representation for twenty-five hundredths? (*Looking for ¼ -- students might mention 25/100, which is still correct, just keep probing – perhaps having them look at the division lines on the number line – to see that 0.25 is also one-fourth.*)

Unit 3, Lesson 1 3-4

Follow-up - continued

If I showed you this card

- (*fraction representation 5/10)* How would you model it? *(five longs)*
- How do I read this decimal? (*five-tenths*)
- Can you think of another fractional representation for five-tenths? (*one-half*)

Practice and Application, Math

Now draw cards at random from the Decimal Battle deck, continuing in the same fashion.

?QUESTIONING – Question according to the card. Several suggested questions follow for each type of card.

Decimal Representation

- How would you model that?
- How do I read it?
- How do I write this number?
  (*Compare to an earlier decimal – students should use greater than and less than statements.)*

Number Line Representation

- How would you model that?
- How do I read it?
- How do I write this number?
- This number line has other marks on it. What decimals would you find at the other marks? *(these are the benchmarks)*

Fraction Representation

- How would you model that?
- How do I read it?
- How do I write this number?
  (*Compare to an earlier decimal – students should use greater than and less than statements.)*
  (Find equivalent fractions if possible, for example, ½ and ¾ are 0.5 or 0.50 and ¾ would be 0.75.)

Math Journal Writing

Students should have a spiral notebook into which they journal their thoughts daily about math. Today's journal prompt is:

✎🕮 **Explain your vision of 27 and 15-hundredths.**

Objectives: Review the objectives with the class, making sure they understand how they achieved each.

Math Objectives
- Represent equivalent fractions using pictorial models.
- Compare two fractions having the same denominator.
- Determine if two given fractions are equivalent.
- Recognize tenths and label in fraction and decimal form.

Language Objectives
- Discuss fraction comparisons.
- Discuss fraction equivalencies.
- Discuss fraction/decimal equivalencies.

Vocabulary
halves
thirds
sixths
equivalent
greater than, less than

Materials:
1 per student
- **BLM** Dill Pickle Fractions (2 pages)

Per Partners:
- 1 big dill pickle
- 2 paper plates
- plastic knife
- 2 paper towels
- 2 scissors
- 2 rulers and 2 markers
- 2 glue sticks
- Chart paper with question**: How did you find an equivalent fraction to 2/3?** Put a copy of the record sheet at the top of the chart with the question.

Unit 3, Lesson 1 3-4

Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

Have students look at the two record sheets for this activity.
- What is similar to previous units?
- What is different from previous units?
- What does it mean by "When I share with ___ other friend? "
- How many people are sharing in each question?

Do look now at the snack.
- What do you have to share? (*one large dill pickle*)
- Talk to your partner now about how you will share the snack fairly between you. When you have a plan, raise your hand and share your plan with me. (*Circulate the room listening to the partners' discussions. Be prepared to help them with the plastic knife – a pickle isn't the easiest snack to cut into two pieces with plastic. Let them share the pickle first, then continue with the rest of the activity.)*

(Ask of the whole class:)
- How did you share your pickles between you – what did the cut look like? Did anyone cut the pickle another way?
- How do you know you each have half?

Work with the rest of the sharing and comparing you are asked to do on the record sheets. *(Circulate the room.)*
- What do you call one of these portions?
- How many of these portions make a whole?
- Which is larger (*compare two fractional portions)?*
- (*After all three pickle rectangles have been cut*) How would one eighth compare to this fraction? How do you know?
- Can you tell me a way that you can tell by looking at a number unit fraction number representation, which fractional piece is larger?
- Show me how you found an equivalent fraction for 2/3.
- *(sixths)* What would you call two of these pieces? Three? Four? Five? Six?

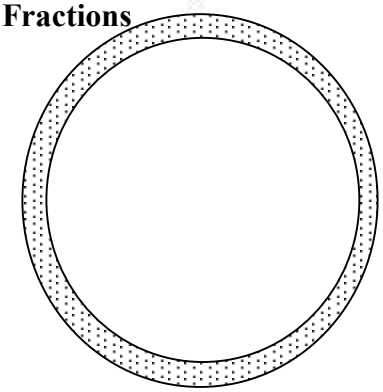
	Unit 3, Lesson 1 **3-4**  **Snack Fractions** **Snack Fraction Journal Writing: Dill Pickle Chart Paper** How do you know that 2/3 = 4/6? **Objectives:** Review the objectives with the class, making sure they understand how they achieved each.

BLM Unit 3, Snack Fraction Lesson 1 **Dill Pickle Fractions**
(One sheet per student)

My name is _____

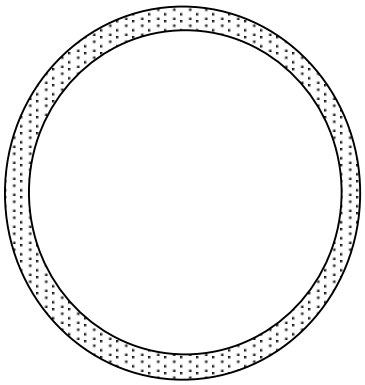
When I share with one other friend, my fraction part is _____.
(word)

I can represent that fraction with numbers: _____.



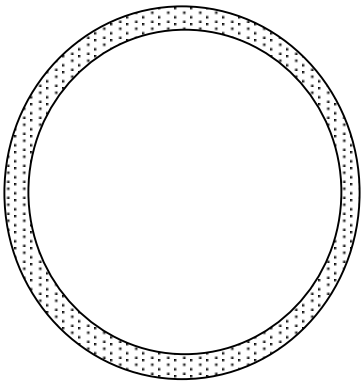
When I share with two other friends, my fraction part is _____.
(word)

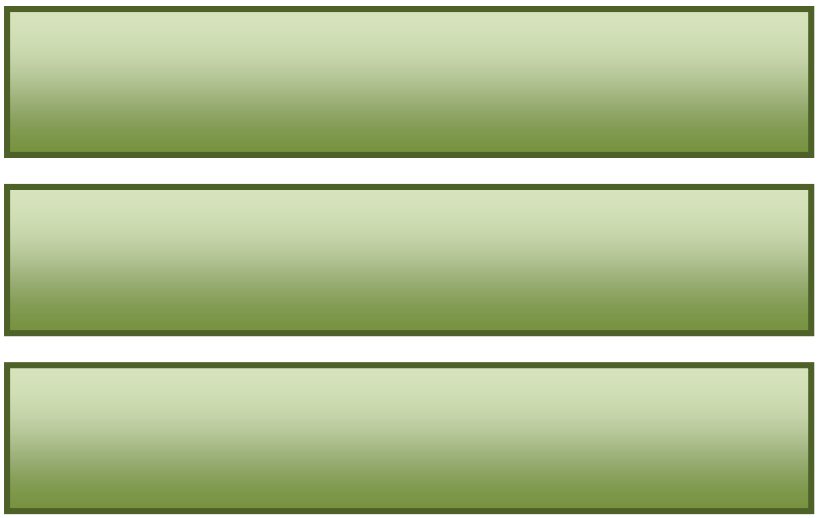
I can represent that fraction with numbers: _____.



When I share with five other friends, my fraction part is _____.
(word)

I can represent that fraction with numbers: _____.

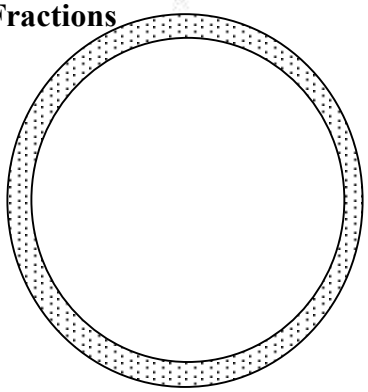




BLM Unit 3, Snack Fraction Lesson 1 **Dill Pickle Fractions**
(One sheet per student)

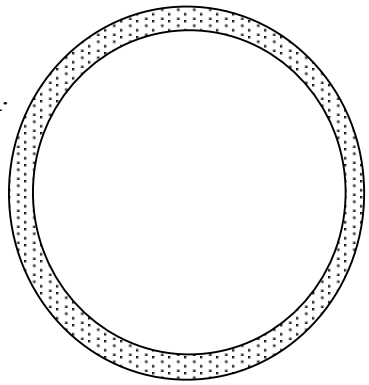
Mi nombre es _____

Cuando comparto con un amigo mi porción fraccional es _____.
(palabra)



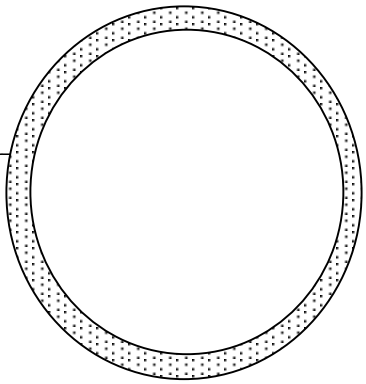
Puedo representar esta fracción con números: _____.

Cuando comparto con dos amigos mi porción fraccional es _____.
(palabra)

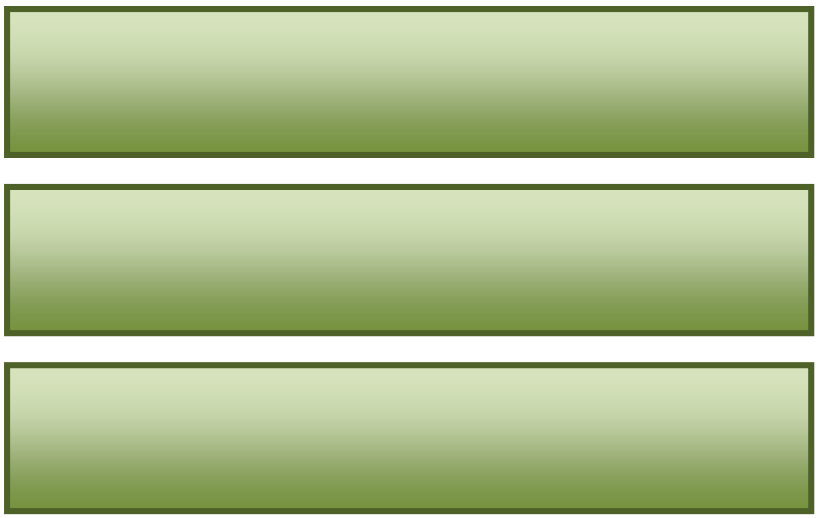


Puedo representar esta fracción con números: _____.

Cuando comparto con cinco amigos mi porción fraccional es _____
(palabra)



Puedo representar esta fracción con números: _____.



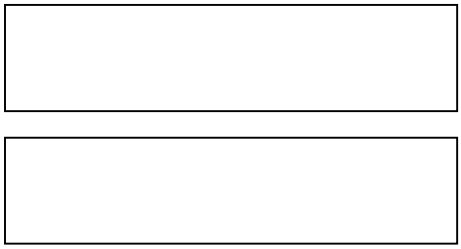
BLM Unit 3, Snack Fraction Lesson 1 **Dill Pickle Fraction Pieces**
(One sheet per student)

First of all, compare the three unit fractions by writing the fractions on the line and using < or > in the circle between the two fractions.

Circle the portion you would rather have. _____ ◯ _____ ◯ _____

Explain why you would rather have the portion you circled.

Now, use the two rectangles below to show how many sixths you would need to be equivalent to two-thirds.



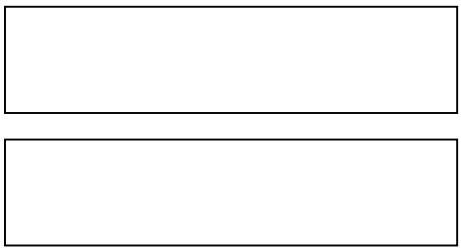
BLM Unit 3, Snack Fraction Lesson 1 **Dill Pickle Fraction Pieces**
(One sheet per student)

Antes que nada, compara las tres fracciones escribiéndolas en la línea y usando < o > en el círculo entre ambas fracciones.

Circula la porción que preferirías tener. _____ ◯ _____ ◯ _____

Explica por qué preferirías tener la porción que circulaste.

Ahora, usa los 2 rectángulos siguientes para mostrar cuántos sextos necesitarías para que sean equivalentes a dos tercios.



Family Fun – 3-4, Unit 3 Lesson 1

Our book for unit 3 is, ***The Magic Tree House, Dinosaurs Before Dark***
By Mary Pope Osborne

One fact I learned today in our reading is: _____

_____

_____

We worked with decimals in measurement today. Let's measure some items in our home using our metric ruler.

Thank you for helping me with my summer program!

_____
Your Child

Diversión familiar – 3-4, Unidad 3 Lección 1

Nuestro libro para la unidad 3 es ***The Magic Tree House, Dinosaurs Before Dark*** por Mary Pope Osborne

Un hecho que aprendí hoy en nuestra lectura es: _____

_____

_____

Hoy trabajamos con decimales en las medidas. Midamos algunos objetos de nuestra casa usando nuestra regla métrica.

¡Gracias por ayudarme con mi programa de verano!

_____
Tu hijo/a

Materials
- Unknown Quantity Cards – 1 set for classroom
- Metric rulers – 1 per student
- **BLM** Solve It, Unit 3
- **BLM** Emily's Taffy Share– 1 per student
- **BLM** Teacher Key
- **BLM** CGI Problems
- **BLM** Measuring with Decimals, Anatosaurus
- **BLM** Teacher Key

Math Objectives
- Find missing elements in an equation.
- Solve multi-step word problems.
- Use a variety of strategies to solve word problems.
- Find equivalent forms of fractional parts.
- Measure length in centimeters.

Balanced Literacy Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.
- Explain how they decided to rename the target number.
- *Discuss scarcity of money, choices and cost benefit.*

TEKS in TV and Flu
Lesson 1
- **3rd** –
- **4th** - 4.2AEG

Lesson 2
- **3rd** –3.4EHJ **(TM)**
- **4th** - 4.2EF

Lesson 3
- **3rd** –
- **4th** - 4.2AEFG

ELPS (*English Language Proficiency Standard*)
2A, 2D, 3A, 3D, 3J, 4F

Unit 3, Lesson 2 — 3-4
Daily Routine

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL
What's Missing? *(3rd assessment item 2)*
- **Lessons 1, 2, 3** *follow directions in the Daily Routine Explanations. Check the assessment items so that you are certain you include samples to practice the shape in the assessed location.*

Solve It! *(fundamental problem-solving skills for all items)*
- Lesson 1 – triad of students working on three related problems.
- **Lesson 2 - triad of students working on 3-step problem.**
- Lesson 3 – Partners working on unique problems

Fraction Action
- Lesson 1 – Which Route Should Carla Take? (*4th Assessment item 7*)
  - BLM Which Route Should Carla Take?
  - BLM Teacher Directions
  - BLM KEY

(Student partners should work lesson 2 and 3 together without teacher guidance. When all have finished, let students explain how they answered the questions.)
- **Lesson 2 - Emily's Taffy Share (*3rd Assessment item 6*)**
  - **BLM Emily's Taffy Share**
  - **BLM KEY**
- Lesson 3 – Steve's Project (*4th Assessment item 5*)
  - BLM Fr Steve's Project
  - BLM KEY

CGI
- Lesson 1 – Multiplication
- **Lesson 2 – Division, Measurement** (*3rd Assessment item 5*)
- Lesson 3 – Division, Partitive (*3rd Assessment item 4*)

Measurement Lab (*4th Assessment items 2, 4*)
Before beginning Lesson 1, walk through the special teacher guidance instructions with the students to establish centimeter – millimeter relationship.

Materials, per student:
- Metric ruler (centimeters and millimeters)
- **BLM** Teacher Guidance Instructions
- **BLM** for each Lesson
- **BLM Key** for each Lesson
- Lesson 1 – Measuring with Decimals, Pteranodon
- **Lesson 2 – Measuring with Decimals, Anatosaurus**
- Lesson 3 - Measuring with Decimals, Tyrannosaurus Rex

CCRS (*College and Career Readiness Standards)*
CROSS-CURRICULAR I.B.2., I.C.3., II.B.1., II.B.2.
ELA II.B.1., II.B.3., III.B.1., III.B.2., IV.B.1.
MATH I.B.1., II.B.1., II.C.1., IV.B.1., IV.B.2., VIII.A.2., IX.A.3.

Assessment Items
(As a result of experiencing this unit, students will be learning skills necessary to be successful on the following Assessment items.)

3rd - 2, 3, 6,7, 8
4th - 1, 2, 4, 5, 6, 7, 8

Arthimus Portio's Corner Unit 3 Lesson 2- Reading
What would you want to see if you found a Magic Tree House that sent you to the dinosaur age?

Unit 3, Lesson 2 3-4

Daily Routine - continued

OPTIONAL: *These activities, although not assessed, are fundamental skills that should be included in those sites providing five to six weeks of instruction.*

Target Number *(fundamental number sense for all items)*
- Lesson 1 – Target Number 25
- **Lesson 2 – Target Number 50**
- Lesson 3 – Target Number 75

Graphing
- Lesson 1 –
- **Lesson 2 – Which dinosaur would you rather meet?**
- Lesson 3 –

Graphing Questions:
Before asking any questions, have the students give you their observations about the data shown on the graph. Always ask students to explain how they know.
These are generic questions. Simply reword them to fit your graph topics.
- How many more ____ than ____?
- How do you know?
- How many fewer ____ than ____?
- How do you know?
- Which (item) was chosen by more students than any of the others choices?
- Why do you think more students chose that dinosaur?
- Why did you choose what you chose?
- How do you know?
- Which (item) was chosen by the fewest students?
- How do you know?
- What job could use this type of information? Why?
- If we asked this same question to other age groups, how do you think their answers would compare to ours? Why?

(Assessment Item 8 will be reviewed daily in Snack Fractions.)

Student Name _____

Emily shares her 12 inch taffy bar with a friend. Once she had cut the bar, but before Emily and her friend started eating, 4 more friends showed up. Emily took the fractional pieces and re-cut them so that all of them could share the bar.

Use the rectangle below to show the fractional part Emily would have had sharing with 1 friend and the fractional part Emily would have had sharing with 5 friends.

Use your answers above to answer these questions:

1. **What is Emily's share of the taffy bar with 1 friend? _____**
2. **What is Emily's share of the taffy bar with 5 friends? _____**
3. **Make these two comparison statements: _____ < _____ and _____ > _____**
4. **Now use the fraction bars above to model a different equivalent fraction to ½.**

½ = ___

Student Name _____

Emily comparte su dulce de 12 pulgadas con una amiga. Una vez que cortó la barra, pero antes de que Emily y su amiga empezaran a comer, llegaron 4 amigos más. Emily tomó las piezas fraccionales y volvió a cortarlas para que todos pudieran compartir el dulce.

Usa el rectángulo siguiente para mostrar la parte fraccional que habría tenido Emily al compartir con 1 amiga, y la parte fraccional que Emily habría tenido al compartir con 5 amigos.

Usa tus respuestas anteriores para responder estas preguntas:

1. **¿Cuál es la porción del dulce que tendría Emily con 1 amiga? _____**
2. **¿Cuál es la porción del dulce que tendría Emily con 5 amigos? _____**
3. **Haz estas 2 comparaciones: _____ < _____ y _____ > _____**
4. **Ahora usa las barras de fracción de arriba para modelar una fracción equivalente distinta a**

   ½.

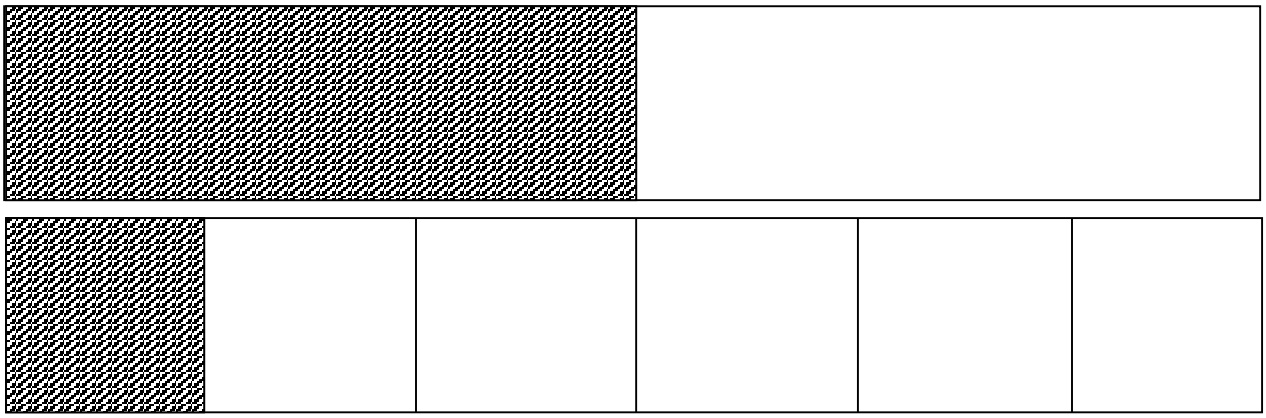
   ½ = ___

BLM Daily Routines Unit 3 Fraction Action, Lesson 2 **KEY Emily's Taffy Share**

Student Name _____

Emily shares her 12 inch taffy bar with a friend. Once she had cut the bar, but before Emily and her friend started eating, 4 more friends showed up. Emily took the fractional pieces and re-cut them so that all of them could share the bar.

Use the rectangle below to show the fractional part Emily would have had sharing with 1 friend and the fractional part Emily would have had sharing with 5 friends.



Use your answers above to answer these questions:

1. **What is Emily's share of the taffy bar with 1 friend? ___1/2____**
2. **What is Emily's share of the taffy bar with 5 friends? ___1/6____**
3. **Make these two comparison statements: ___1/6____ < __1/2___ and __1/2____ > __1/6___**
4. **Now use the fraction bars above to model a different equivalent fraction to ½.**

Students can model the 3/6 equivalent to half any reasonable way. They might over-shade the 1/6 which answers question two – that is OK as long as they understand that Emily's share was 1/6.

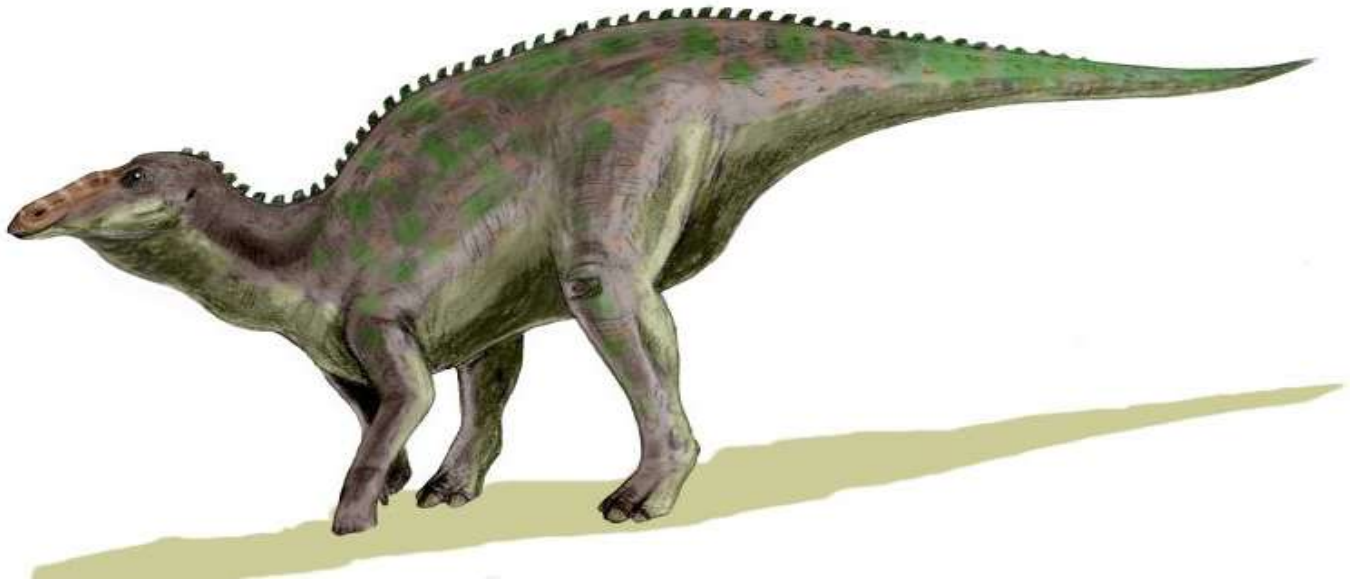
½ = _3/6__

BLM Daily Routines Unit 3, Lesson 2 Measurement **Measuring with Decimals, Anatosaurus**

One sheet per student

Materials:

- Metric ruler (measuring in cm and mm)



http://en.wikipedia.org/wiki/File:Anatotitan_BW.jpg#filelinks

We don't know what an Anatosaurus looked like exactly. No one was there with a camera when the creature lived. But scientists have found bones of what they've named the Anatosaurus and put them together as they would a puzzle. With this skeleton, they estimated what the outer creature might look like. This is a picture of what they think the Anatosaurus looked like.

Anatosaurus (ah-NAT-oh-SORE-us)

Measure the length of the picture of the Anatosaurus from tip of nose to tip of tail. Allow for the bends in the tail. Your measure will be an estimate.

How many centimeters (cm) long is it? _____cm How many millimeters? _____ mm

Write the width of the length from head to tip of tail as a mixed decimal (whole number and tenth) _____ cm

How do you read this measure as a decimal? _____

The measure of the wingspan in the picture of the Pteranodon was about 13.5 cm.
Write two comparison sentences using < and > to describe the relationship between the wing span measure of 13.5 cm and the measure of the Anatosaurus length from tip of nose to tip of tail.

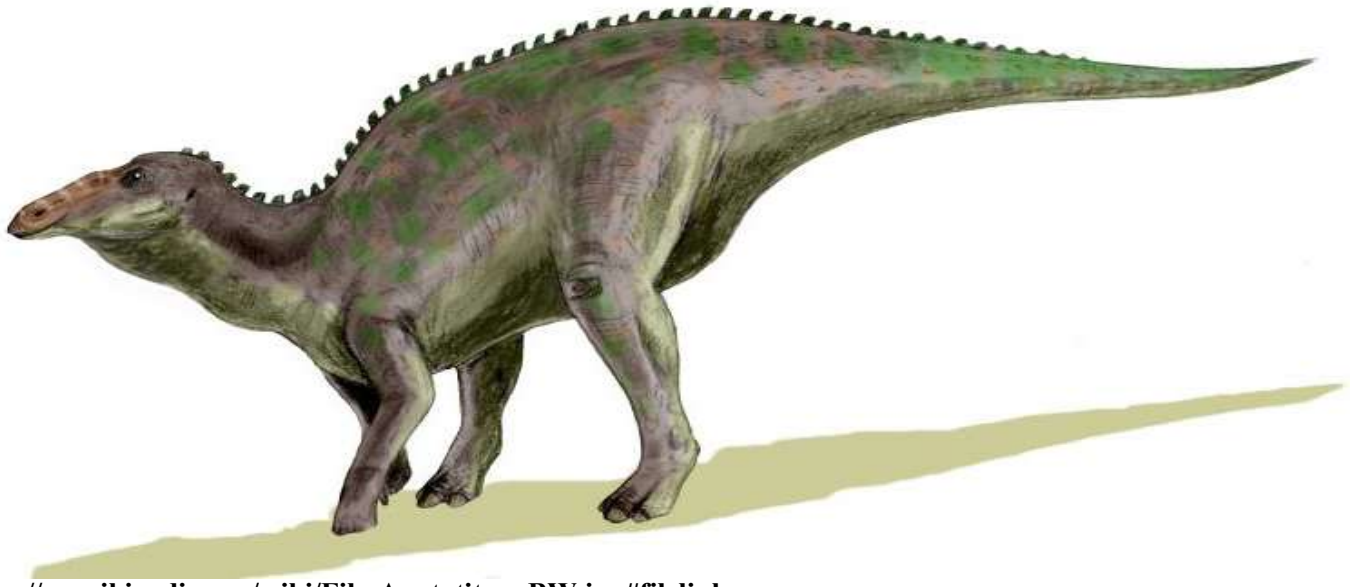
_____ < _____ _____ > _____

BLM Daily Routines Unit 3, Lesson 2 Measurement **Measuring with Decimals, Anatosaurus**

One sheet per student

Materials:

- Regla métrica (con medidas en cm y mm)



http://en.wikipedia.org/wiki/File:Anatotitan_BW.jpg#filelinks

No sabemos exactamente qué aspecto tenía un anatosaurio. Nadie estaba ahí con una cámara cuando la criatura vivía. Pero los científicos han encontrado huesos de un animal al que han llamado anatosaurio y los armaron como si fuera un rompecabezas. Con este esqueleto, han estimado cómo podría verse el exterior de la criatura. Esta es una imagen del aspecto que creen que tenía el anatosaurio.

Anatosaurio

Mide la longitud de la imagen del anatosaurio de la punta de la nariz a la punta de la cola. Considera las curvas de la cola. Tu medida será aproximada.

¿Cuántos centímetros (cm) tiene de largo? _____cm ¿Cuántos milímetros? _____ mm

Escribe el ancho de la longitud de la cabeza a la punta de la cola como un decimal mixto (número entero y décimos) _____ cm

¿Cómo lees esta medida en forma decimal?_____

La medida de la envergadura de las alas en la imagen del pteranodon era de unos 13.5 cm. Escribe 2 oraciones de comparación usando < y > para describir la relación entre la medida de la envergadura de 13.5 cm. y la medida de la longitud del anatosaurio de la punta de la nariz a la punta de la cola.

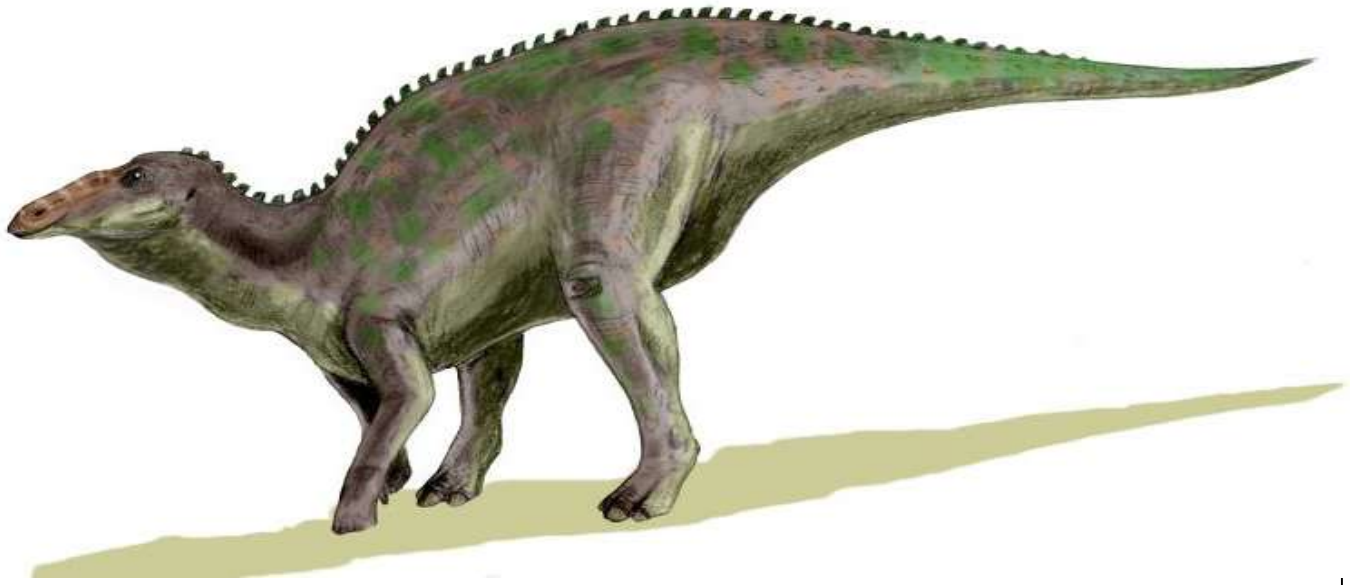
_____ < _____ _____ > _____

BLM Daily Routines Unit 3, Lesson 2 Measurement **Anatosaurus, Teacher Key**

1 sheet per student

Materials:

- Metric ruler (measuring in cm and mm)



We don't know what an Anatosaurus looked like exactly. No one was there with a camera when the creature lived. But scientists have found bones of what they've named the Anatosaurus and put them together as they would a puzzle. With this skeleton, they estimated what the outer creature might look like. This is a picture of what they think the Anatosaurus looked like.

Anatosaurus (ah-NAT-oh-SORE-us)

Measure the length of the picture of the Anatosaurus from tip of nose to tip of tail. Allow for the bends in the tail. **Your measure will be an estimate. (Accept measures within a reasonable range.)**

How many centimeters (cm) long is it? __**25**___cm How many millimeters? ____**8**___ mm

Write the width of the length from head to tip of tail as a mixed decimal (whole number and tenth) ___**25.8**_____ cm

How do you read this measure as a decimal? ***Twenty-five and eight-tenths centimeters***

The measure of the wingspan in the picture of the Pteranodon was about 13.5 cm.
Write two comparison sentences using < and > to describe the relationship between the wing span measure of 13.5 cm and the measure of the Anatosaurus length from tip of nose to tip of tail.

13.5 < 25.8 **25.8 > 13.5**

Solve It! Problems Unit 3, Lesson 2 **Triad (3)**

- Gentry and Evan went to the movie. Their tickets were $8.75 each. Gentry selected a popcorn and drink combo for $9.50. Evan planned to share Gentry's popcorn, and bought a soda regularly priced $5.50, but was on sale for half off. Gentry paid for the movie and snacks. What was his bill?

Problem #1 – Name: _____ | Verification – Name: _____

Problem #2 – Name: _____ | Verification – Name: _____

Problem #3 – Name: _____ | Verification – Name: _____

Final Solution – Name: _____ | Verification – Name: _____

You are free to take this apart any way you wish – on your own; together as a team; a mix of both. You are responsible, however, for your own paper having all problems identified and solved; verifying your Team member's page. Be sure to write your final solution with a label in the box.

Solve It! Problems Unit 3, Lesson 2 **Pairs**

- Gentry y Evan fueron al cine. Los boletos costaron $8.75 cada uno. Gentry compró un combo de palomitas y bebida por $9.50. Evan pensó compartir las palomitas de Gentry y compró una soda que costo $5.50, pero que estaba de oferta a medio precio. Gentry pagó los boletos y comida. ¿Qué es la cuenta?

Problema #1 – Name: _____ Verificación – Nombre: _____

Problema #2 – Name: _____ Verificación – Nombre: _____

Solución final – Nombre: _____ Verificación – Nombre: _____

Puedes resolver esto del modo que desees - por ti mismo; en equipo; una mezcla de ambos métodos. Sin embargo, tú eres responsable de que tu propio trabajo tenga todos los problemas identificados y resueltos; verificando la página del miembro de tu equipo. Asegúrate de escribir tu solución final con una etiqueta en la caja.

Literature Selection
The Magic Tree House, Dinosaurs Before Dark
by Mary Pope Osborne

Materials
Language Materials
- **BLM** Word Cards
- BLM Character Traits (lesson 1)
- Notebook paper for each student

Transition to Math Materials
- **BLM** Anatosaurus Eggs
- Decimal Battle Game - center activity

Literature Vocabulary
peering
trembled
coasted
engraved
bellowing
waddled
dangling
gleaming
teetered

Math Vocabulary
centimeters
millimeters
Repeated vocabulary
tenths
hundredths
decimal
fractions
factors
products
fact family

ELPS (*English Language Proficiency Standard*)
1E, 2F, 3B, 3D, 3F, 4E, 4E, 4J

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.C.1.,

Unit 3, Lesson 2 3-4

Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students should review to see if they have accomplished both math and language objectives.

Math Objectives:
- Represent decimals, including tenths and hundredths, using concrete and visual models.

Language Objectives:
- Ask questions about the text as they read.
- Make corrections and adjustments when understanding breaks down (identifying clues, using background knowledge, generating questions, re-reading a portion of text aloud).
- Describe the interaction of characters including their relationships and the changes they undergo.
- Sequence and summarize the plot's main events and predict future events using evidence from text for support.

BEFORE READING
Building Background: Vocabulary & Literature
Display the literature vocabulary cards in a pocket chart or board.
Group the words as shown here:

peering	trembled
bellowing	coasted
dangling	engraved
gleaming	waddled
	teetered

Ask, "Which words have a vowel pair in them?"
Clarify the meaning of vowel pair if needed.
Allow multiple students to come point and read.

Ask, "Which words dropped their last letter before add the suffix?"
Add- think about what we discovered yesterday when taking off the suffix.
Allow multiple students to come point and read.

II.A.2., II.A.A4. ELA II.A.1., II.A.3., II.A.4., II.B.1., III.B.2.	Ask, "What word means a deep roaring shout happening now?" Allow multiple students to come point and read Ask, "What word means to walk with short steps in the past?" Allow multiple students to come point and read. **Unit 3, Lesson 2** **3-4** **Classroom Lesson** - continued Ask, "Which words mean that it happened in the past?" Allow multiple students to come point and read. Ask, "Which words mean that it is happening now?" Allow multiple students to come point and read. Ask, "If I were to tell someone that their teeth were 'gleaming,' would that be an insult or a compliment?" Have students explain why. Ask, "What are some things that coast?" Allow for students to brainstorm and share. Ask, "What part of speech are all of these words?" Let's read all the words together. Say, "We're going to continue to explore these words by conjugating them with their base word form. Conjugating verbs means to change their tense depending on how they are being used." Direct students to take out a piece of notebook paper. Guide them in folding the paper into thirds vertically. Students write: **Present (now)** I _____ You _____ He, She, or it _____ We _____ They _____ **Past (yesterday)** I_____ You _____ He, She, or it _____ We _____ They _____ **Future (tomorrow)** I _____ You _____ He, She, or it _____ We _____ They _____ Students do not need to write all of the vocabulary words. You will write them on the board. It is most important to orally say the words

and students repeat them and allow student to generate the correct tense.

After all words have been conjugated orally as a class, allow students to orally tell sentences using different tenses to a partner.

Unit 3, Lesson 2 3-4

Classroom Lesson - continued

Review the sequence of events students assisted you in recording in lesson 1.
Ask, "Which dinosaurs do you think Jack and Annie will encounter today? Why do you think so?"

DURING READING
Comprehensible Input: Vocabulary & Literature
Read Chapters 5- 7 (three chapters)
As students read aloud, encourage them to explain their thinking the same as you demonstrate when reading, thereby providing a way to actively monitor their understanding of the strategies.
Depending on the reading level and language proficiencies of your students, pair the students off and allow them to partner read chapter 7.

Say, "Remember - during the reading of ***Dinosaurs Before Dark***, we will pause to take notes about the character traits of both the main characters *(Jack and Annie)*. Listen for attributes or traits that tell about their appearance, behavior, actions, and how others feel about them."

Begin reading, remembering to pause and check comprehension through clarifying, rereading, or reading on. When asking comprehension questions, allow for think time, partner share, and then sharing with class.

<u>Use these suggested questions to monitor comprehension and add other as needed: (pages might be different depending on edition of book)</u>
Chapter 5

- Pg. 25: What finally convinced Jack that they are in a time from long ago?
- Pg. 25: Why did Annie decide it was ok for them to go see the Triceratops?
- Pg. 26: Why do you think Jack had Annie 'promise' all of those things?
- Pg. 29: Why did Jack write 'nice' in his notes for the Triceratops?
- Pg. 32: Why does Jack believe someone was there before them? What do you think?

Chapter 6

- Pg. 36: How did the Anatosaurus respond when Annie went up to the nest of babies?
- Pg. 37: How did Annie get away from the dinosaur? Why do you think that worked?

Pg. 39: Why do you think Jack examined the babies instead of following after Annie and the dinosaur?
Pg. 39: Why was the Anatosaurus the only mama with all of the nests and babies?
Pg. 42: Why did the Anatosaurus stop eating flowers and run to the babies?

Unit 3, Lesson 2 3-4

Classroom Lesson - continued

Chapter 7

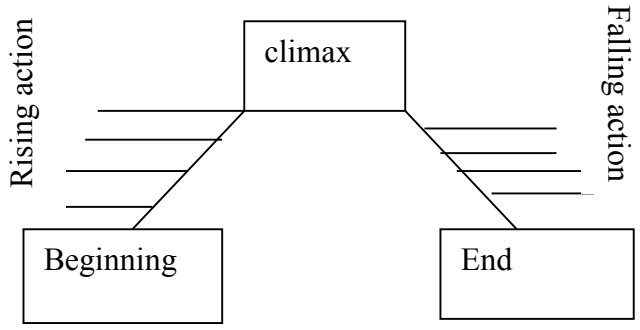
Pg. 43: Why do you think the author chose this for the title of this chapter?
Pg. 43: Where did Jack and Annie run to hide from the T-rex?
Pg. 44: Predict how you think they will return to Frog Creek.
Pg. 45: Why did Jack leave the tree house?
Pg. 46: Why do you think all of the Anatosaurus' all came back to their nests?
Pg. 46: What was blocking Jack from getting back to the tree house?

AFTER READING
Practice and Application: Vocabulary & Literature

Encourage students to share characteristics they have discovered or noticed about both Jack and Annie. Write the characteristics on the BLM character traits.

Say, "Time to record the main events that happened today. Let's add to the chart of events we started in lesson 1. The chart will help us understand the plot or sequence of events that make up the story. There are five main parts to the plot *(point to the five areas on the chart)*.Can you name them?"

Add lines for events in rising and falling actions as needed.



Say, "When we began reading today, we were still in the rising action. Think, look back to chapter 5 and 6, and tell your neighbor what you think the major events are we could add here. Decide on three to four

	events and then share them with your neighbor." Write student responses in short sentences or phrases. Say, "The rising action in the story will be multiple events that lead up to the most exciting part of the book…the climax." **Unit 3, Lesson 2** **3-4** **Classroom Lesson** - continued  Ask, "Do you think we have reached the climax of this story? Why do you think so?" Allow students to share thoughts. And record answers. Students need to justify their answers. Say, "The climax is the moment of greatest danger in the story. Usually it is the point in the story where a major decision has been made." If students believe the climax has been read today, record their responses. Let them commit to their decision and then corrections can occur tomorrow upon revisiting. For now - the very end of chapter 7 may seem to the reader as the climax. The climax will occur at the end of chapter 8. Say, "Fantastic reading today! I wonder how Jack will make it back to the tree house. I also wonder what the letter M stands for on the gold medallion he found in the grass. What do you wonder?" *(Stating and generating 'I wonder…' statements create a motivation and set a purpose for reading further.)* Say, "It is time for a fact check. We learned a lot about dinosaurs today from Jack and Annie's encounters. Let's check our facts we placed in that corner of the room. Which dinosaurs did Jack and Annie meet today?" Check students facts to the book, change cards around if needed.

Math Objectives

- Represent multiplication facts by using a variety of approaches.
- Determine a quotient using the relationship between multiplication and division.
- Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.

Math Vocabulary

centimeters
millimeters

Repeated vocabulary

tenths
hundredths
decimal
fractions
factors
products
fact family

Transition to Math Materials

- **BLM** Anatosaurus Eggs
- Decimal Battle Game - center activity

Fact Sheets: Anatosaurus (or Edmontosaurus)

http://www.ves55.johnsn.k12.il.us/anatosaurus.htm

http://www.enchantedlearning.com/subjects/dinosaurs/glossary/indexa4.shtml

ELPS (*English Language Proficiency Standard*)
EI, 3E, 3G, 3H, 4G

CCRS ***(College and Career Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.E.2., II.C.1.
MATH IV.A.1., IV.B.2., IV.C.3.

Classroom Lesson - continued

TRANSITION to Math

Building Background, Math

(*Use the Decimal Battle game during this unit as a center game or anytime you have extra minutes before transitioning to another part of the lesson.)*

The Anatosaurus, or more recently named the Edmontosaurus, that Annie and Jack met in the strange land gives us an interesting opportunity to practice a skill from Unit 2. They were "oviparous" animals, or animals that lay eggs. Scientists have found fossilized eggs inside nests that have been buried for millions of years.

Let's look at our record sheet.

The picture at the top is a replica of what scientists have found which they believe to be an Anatosaurus egg nest. We are going to use this nest to create a few multiplication and division problems.

Listen for the Math Movie as I read the problem. Scientists found an area filled with Anatosaurus eggs. There were three nests, and each nest had nine fossilized eggs in it. How many fossilized eggs were there in all?

What math movie did you see? (*Have a class discussion of what students saw in their minds and how they would use that to formulate their strategies– hopefully you will have a mixture of drawing pictures and using basic facts – let student volunteers come up and demonstrate different strategies*.)
Use this information first to fill in the blanks in the strategy column. Let's use a question mark to remind you what you are trying to solve for in the problem.

Now, whatever strategy you would use, please show your strategy in this first column. (*Make sure students do so*.)

What does the next column want you to supply? *(factors and products)*

- What do we mean by factors? (*two numbers you multiply together to get the answer, or product*)
- And what are the factors in this problem? (*3 and 9*)
- What does each product represent in this problem? (*3 nests, each with 9 eggs*)
- What do we mean by product? (*the answer you get when you multiply two factors)*
- What is the product in this problem, and what does it represent? (*27 – represents the total number of eggs in the problem)*

TRANSITION to Math

Building Background, Math

- Our last column asks for a Fact Family. What is the fact family posed in this problem? (*3, 9, 27: 3 x 9 = 27; 9 x 3 = 27; 27 ÷9 =3; 27 ÷ 3 = 9)*

You'll use this same process to solve the next two problems. This time, though, we won't discuss the problems as a class. You and a partner may quietly discuss the problems together and complete your own charts.

Problem 2:
Scientists counted a total of 28 eggs. They could see that there were four nests. If the eggs had been distributed equally among the nests, how many eggs would have been in each nest? (*Reread if students would like to hear it a second time. Give student partners time to complete the second problem, then have volunteers talk about their strategies. Always make sure you have asked, "Did anyone solve it a different way?")*

Problem 3:
Scientist found a large area where all but one nest had been destroyed. The one nest held three eggs. They counted a total of 15 eggs in the area. If each nest had contained the same number of eggs, how many nests had probably been in the area? (*Reread if students would like to hear it a second time. Give student partners time to complete the second problem, then have volunteers talk about their strategies. Always make sure you have asked, "Did anyone solve it a different way?")*

Our TV Lesson will once again be using decimals. Let's play our Decimal Battle till time for the TV Lesson.

Objectives: Review the math and language objectives to see how they were accomplished.

Distribute TV Lesson Materials

- base ten sets – 1 set per student
  - 3 flats
  - 15 longs
  - 15 units
- **BLM** Dino Decimals – 1 per student
- **BLM** Dino Decimals KEY

Technology:
www.mathnook.com/math/skill/decimalgames.php

TV Materials:

- Base ten sets from TM
- **BLM** Dino Decimals – 1 per student
- **BLM** Dino Decimals KEY

BLM TM Unit 3, Lesson 2 **Anatosaurus Eggs**
One page per student

Strategy	Factors and Product	Fact Family
___ nests each with ____ eggs		

Strategy	Factors and Product	Fact Family
___ nests each with ____ eggs		

Strategy	Factors and Product	Fact Family
___ nests each with ____ eggs		

BLM TM Unit 3, Lesson 2 **Anatosaurus Eggs**
One page per student

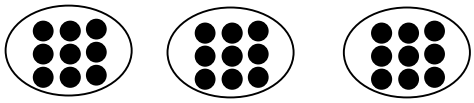
Estrategia	Factores y producto	Familia de hechos
___ nidos cada uno con ____ huevos		

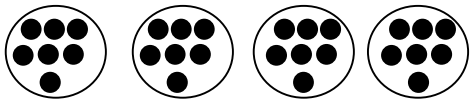
Estrategia	Factores y producto	Familia de hechos
___ nidos cada uno con ____ huevos		

Strategy	Factors and Product	Fact Family
___ nests each with ____ eggs		

BLM TM Unit 3, Lesson 2 **Anatosaurus Eggs KEY**

One page per student

Strategy	Factors and Product	Fact Family
__3_ nests each with _9__eggs, total __?_ ***Any appropriate strategy is acceptable.*** ***Skip counting & repeated addition also.*** **3 x 9 = 27** 	**Factors are 3, 9** **(*any order*)** **Product is 27**	**3 x 9 = 27** **9 x 3 = 27** **27 ÷ 3 = 9** **27÷9 = 3** **(*any order is acceptable*)**

Strategy	Factors and Product	Fact Family
_4__ nests each with _?_ eggs, total __28__ ***Any appropriate strategy is acceptable.*** ***Skip counting & repeated subtraction also.*** **28÷4 = 7 OR 4 x ? = 28 (*use fact family*)** 	**Factors are 4, 7** **(*any order*)** **Product is 28**	**3 x 9 = 27** **9 x 3 = 27** **27 ÷ 3 = 9** **27÷9 = 3** **(*any order is acceptable*)**

Strategy	Factors and Product	Fact Family
_?_ nests each with __3__ eggs, total __15_ ***Any appropriate strategy is acceptable.*** ***Skip counting & repeated subtraction also.*** **15÷3 = 5 OR ? x 3 = 15 (*use fact family*)** 	**Factors are 3, 5** **(*any order*)** **Product is 15**	**3 x 9 = 27** **9 x 3 = 27** **27 ÷ 3 = 9** **27÷9 = 3** **(*any order is acceptable*)**

Literature Vocabulary
peering
trembled
coasted
engraved
bellowing
waddled
dangling
gleaming
teetered

Math Vocabulary
centimeters
millimeters
Repeated vocabulary
tenths
hundredths
decimal
fractions
factors
products
fact family

Materials
- base ten sets – Teacher ONLY
  - 3 flats
  - 15 longs
  - 15 units
- **BLM** Dino Decimals, 2 pages – 1 per student
- **BLM** Dino Decimals KEY, 2 pages

ELPS (*English Language Proficiency Standard*)
3E, 3G, 3H, 4G

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.C.3., I.E.2., II.C.1.
ELA IIA.2., II.B.1., III.A.2., II.A.6., III.B.2.
MATH IV.A.1., IV.B.2., IV.C.3

CLASSROOM TEACHERS
TV Teacher will give you time to discuss – please have students do so.

Unit 3, Lesson 2 — 3-4

TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Interpret the value of each place value position as 10 times the position to the right and as one-tenth of the value of the place to its left.
- Represent decimals, including tenths and hundredths, using concrete and visual models.
- Compare and order decimals using concrete and visual models to the hundredths.

Language Objectives:
- Use the math vocabulary during the activity.
- Discuss answers and possible strategies with classmates.

Building Background,
The only reason that we learn about fractions and decimals, that we try to see them in our mind, is to use them as tools to solve problems. That is what we are going to do today. We are going to read problems, look for the Math Movie, and use decimals to solve them.

There are many ways to use decimals. What do you think you are asked to do in this next problem? Be sure to watch for the math movie to help you decide what you will need to do to answer the question.

Rather than using your base ten sets today, I'd like for you to draw the models of the different decimals. This is one strategy for solving problems.

Comprehensible Input
Let's work the first problem on your problem sheet.
- First, read the problem by yourself. Mark all the words that you have difficulty reading (*generous pause).*
- Now, listen to the problem while I read it. *(Perhaps Arthimus could tell the words that he had trouble with. Since these are words that other problems will use, (scientists, fossilized, skeletons, dinosaurs, average) take the time to briefly discuss them – perhaps put them on the SMARTBOARD Pictionary form.*)
- Let me read the problem to you, while you listen for the math movie. *(do so)* Discuss what you are expected to find. (*Give time for discussion, then go back to the question in the problem and read it).*

Unit 3, Lesson 2 3-4

TV Lesson - continued

- So how would you solve this problem? Discuss that now with a partner and devise a plan to answer the question. Be prepared to justify your answer. (*generous time*)

(*Arthimus might explain how he would solve it – talk in terms of the decimals and their relative size to one another, and draw pictures such as:*

SMARTBOARD – the sketch – please do not use base ten models – we want kids to be able to sketch using squares and sticks.

- In my mind, I can see four base ten flats (*draw four squares*). That will represent the four meters.
- When I look at my choices, I think that the three and 99-hundredths meters is closest, because that is only one-hundredth from four meters; but I need to check the rest of them. *(Draw the three squares and nine sticks and nine small squares. You could also model with base ten blocks to show the three flats, then the nine longs and nine cubes, then push the longs and cubes together to show there is only one cube missing.)*

CLASSROOM TEACHERS
TV Teacher will give you time to discuss – please have students do so.

- This three and nine-tenths meters looks pretty good, let me check that one.
  What do you think boys and girls – will it be closer? (*Draw three large squares and nine sticks. No, I can see that three and nine-tenths is less than three and 99-hundredths*.) No, I can see that three and 99-hundredths is larger than three and nine-tenths.
- How about this three and nine-hundredths? Will it be closest boys and girls? (*Draw three large squares and nine little squares.)* No, that's a lot smaller than the three and 99-hundredths!

CLASSROOM TEACHERS
There are some students in your class who might choose to simply line up the decimals and compare them that way. If they can explain what they are doing, and the relative sizes of the decimals, this is an acceptable response. HOWEVER, please make sure they understand the visual size relationships – this is very important to really understanding decimals instead of simply following procedures.

- I'm not even going to check the three and four-tenths meters. I know that is smaller than three and nine-tenths meters, and that one is too small, too.
- So, my answer is that three and 99-hundredths meters is closest to the average height of four meters.

The final task for the problem is for you to place the decimals that are the answer choices on your number line. The locations of the benchmark decimals are on the line for you. You may label those if you wish to help you, or you may simply use them in your mind – which-ever is most efficient for you. Take time now to talk to your partner about where you should place the answer choice decimals on your number line. (*generous pause*)

I'm going to prove my answer is correct by making sure that three and 99-hundredths is closest of these decimals to four.

- 99-hundredths is only one-hundredth away from the whole, so if I were to divide the distance from three to four into 100 spaces, I'd put three and 99-hundredths really, really close to the four like this (*plot the point*).

TV Lesson - continued

- I know that three and nine-tenths is very close to three and 99-hundredths. If I can think about this line from three to four divided into 10 sections, I would put three and nine-tenths about here (*do so*).
- Now look at three and nine-hundredths. That is only nine-hundredths away from three. That is very close to three. I'm thinking about dividing this line from three to four into 100 parts. I think three and nine-hundredths will go here *(plot it)*.
- That only leaves three and four-tenths. I know that this middle mark is the halfway distance, and that five-tenths is half. Four-tenths will be a little less than that. I will place three and four-tenths here *(do so)*.
- As I look at my number line, I feel very confident that three and 99-hundredths is the closest to four of these decimals.

There is another way I could have solved this problem. Once I have a very firm visual in my mind of what the decimal represents, I can line up the numbers and compare by place value. Let's work through that strategy.

- First, write all of your numbers in a long column. Be sure to line up the decimal points so that you are comparing place value to the same place values in the other numbers.
  3.9
  3.99
  3.09
  3.4
- Begin with the whole numbers. These are all three's. What does this mean? *(pause)* It means I can't compare them because they are all the same – none is larger or smaller than the rest. They are also all less than four.
- Now, look at the tenths place. What do you see? (*pause*) There are nine-tenths, nine-tenths, zero-tenths and four-tenths. I'm wanting a number as close to four as I can get. Which number would you eliminate now?
- *(pause*) Those nine-tenths are much larger than the four-tenths and the zero-tenths. I can eliminate those two. (*Draw a line through 3.4 and 3.09.)*
- Those are too small. The two decimals left are closer on the number line to four.
- I know that three and nine-tenths is the same as three and 90-hundredths. I can place a zero in the hundredths place of three and nine-tenths *(do so)*.
- Now, I can compare three and 90-hundredths and three and 99-hundredths. Which one is closer to four? *(pause)* As we saw on the number line three and 99-hundredths is closer to four.
- We found our answer using place value.

TV and Classroom Teachers Problem 2
This problem will be different because the closest decimal is GREATER than the average. It is important that students understand that closest means "nearest to" and can be less than or greater than the average.

	Unit 3, Lesson 2 **3-4** **TV Lesson** - continued  (*If you have time, begin the second problem, following this same procedure of allowing students to work in partners in stages through the problem, then clarifying a strategy to solve it. Classroom teachers will most likely need to complete this problem in the Follow-up Lesson.)* **Teacher:** We have certainly used decimals in this lesson to solve problems. And the problems we solved were a little different from our normal set of problems. **Pirate:** Yes they were! And my Corner is a little different this time, too, because I'm not asking a math question. I want to know what you would want to see in the dinosaur age if you could travel there in the Magic Tree House! And I'm going to put my answer up on MAS Space, too! **Teacher:** What a great idea, Arthimus! I think I will post what I'd like to see, too! I might have to do some research of that period to see what interesting things are there. **Objectives:** Now, let's see how we addressed our objectives today.
Arthimus Portio's Corner **Unit 3 Lesson 2-** **Reading** What would you want to see if you found a Magic Tree House that sent you to the dinosaur age?	

BLM Unit 3, TV Lesson 2 **Dino Decimals**
One per student

Problem 1
Scientists have found fossilized skeletons of dinosaurs. That is what gives us the information we have today on the huge beasts. The average height of those skeletons found of the Anatosaurus is 4 meters or about 13 feet. Which of the skeletons below is closest to the average height?

A. 3.9 meters

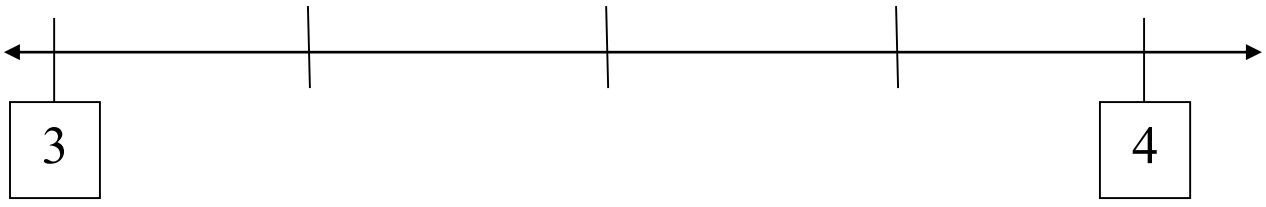
B. 3.99 meters

C. 3.09 meters

D. 3.4 meters

The skeleton that measured _____meters tall is closest to the average height of 4 meters.

Now, place the decimals on the number line. Your points on the line will be an estimate based on the benchmarks provided for you.



BLM Unidad 3, Lección TV 2 **Dino Decimales**

1 por estudiante

Problema 1

Los científicos han encontrado esqueletos fosilizados de dinosaurios. De ahí obtenemos la información que tenemos hoy sobre las enormes bestias. La altura promedio de los esqueletos que se han encontrado de anatosaurio es 4 metros, o unos 13 pies. ¿Cuál de los esqueletos siguientes está más cerca de la altura promedio?

A. 3.9 metros

B. 3.99 metros

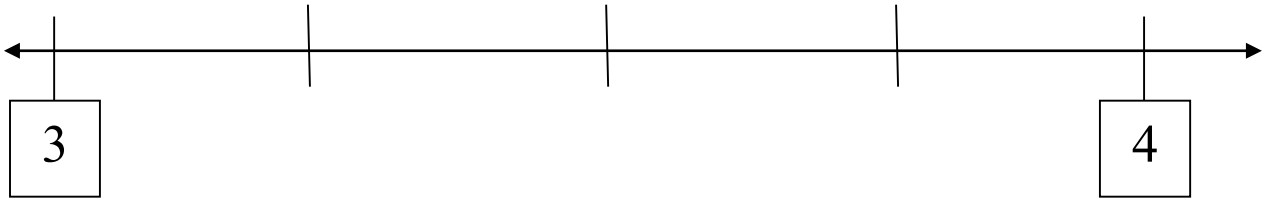
C. 3.09 metros

D. 3.4 metros

El esqueleto que midió _____metros de altura es el más cercano a la altura promedio de 4

metros.

Ahora, coloca los decimales en la recta numérica. Tus puntos en la línea serán una estimación basada en los puntos de referencia proporcionados.



BLM Unit 3, TV Lesson 2 **Dino Decimals KEY**
Teacher only

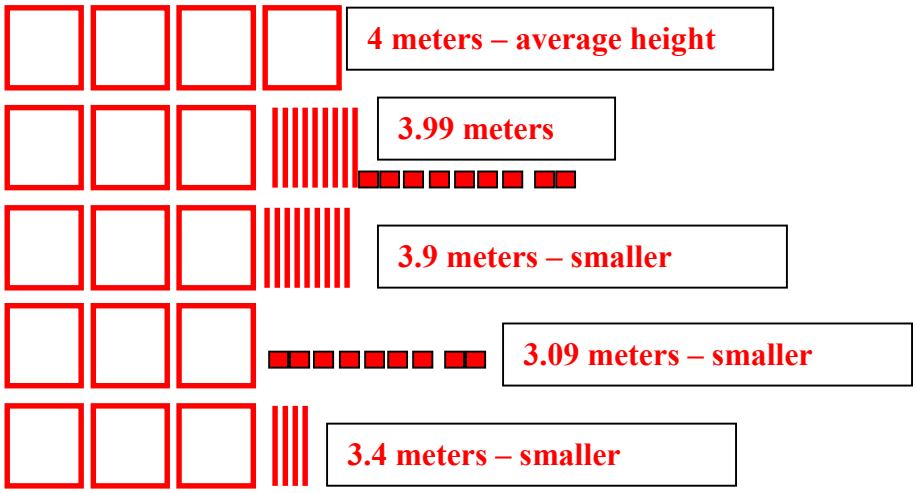
Problem 1
Scientists have found fossilized skeletons of dinosaurs. That is what gives us the information we have today on the huge beasts. The average height of those skeletons found of the Anatosaurus is 4 meters or about 13 feet. Which of the skeletons below is closest to the average height?

A. 3.9 meters

B. 3.99 meters

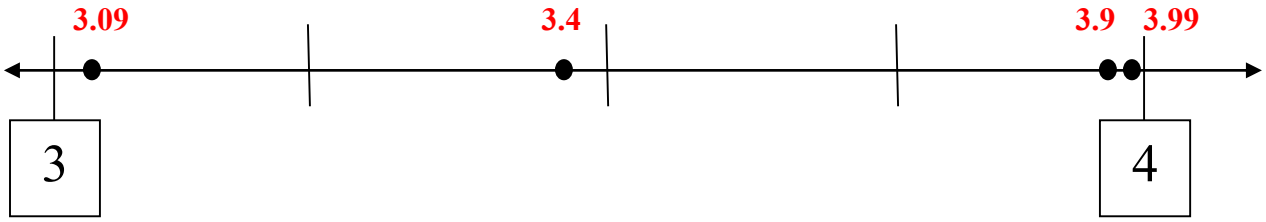
C. 3.09 meters

D. 3.4 meters



The skeleton that measured ___**3.99**___meters tall is closest to the average height of 4 meters.

Now, place and label the decimals on the number line. Your points on the line will be an estimate based on the benchmarks provided for you.



BLM Unit 3, TV Lesson 2 **Dino Decimals**
One per student

Problem 2
The Anatosaurus was much longer than it was tall. The average length of the Anatosaurus skeletons found is 12 meters or about 39 feet from tip of the nose to tip of the tail. Which of the skeletons below is closest to the average length of the Anatosaurus?

E. 11.89 meters

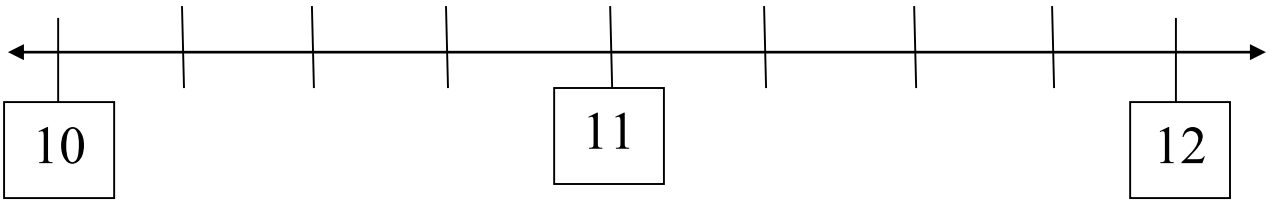
F. 11.9 meters

G. 12.1 meters

H. 10.99 meters

The skeleton that measured _____meters long is closest to the average length of 12 meters.

Now, place the decimals on the number line. Your points on the line will be an estimate based on the benchmarks provided for you.



BLM Unidad 3, Lección TV 2 **Dino Decimales**

Problema 2

El anatosaurio era mucho más largo que alto. La longitud promedio de los esqueletos de anatosaurio encontrados es de 12 metros, o unos 39 pies, de la punta de la nariz a la punta de la cola. ¿Cuál de los esqueletos siguientes está más cerca de la longitud promedio del anatosaurio?

A. 11.89 metros

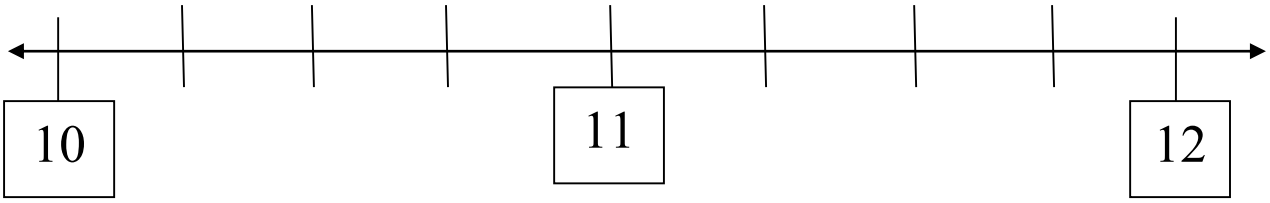
B. 11.9 metros

C. 12.1 metros

D. 10.99 metros

El esqueleto que midió _____metros de longitud es el más cercano a la longitud promedio de 12 metros.

Ahora, coloca los decimales en la recta numérica. Tus puntos en la línea serán una estimación basada en los puntos de referencia proporcionados.



BLM Unit 3, TV Lesson 2 **Dino Decimals KEY**
Teacher only

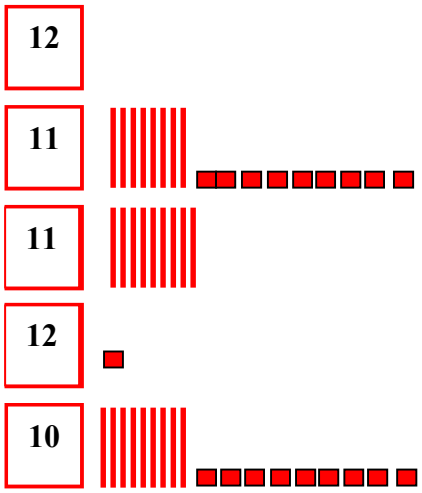
SAMPLE
The Anatosaurus was much longer than it was tall. The average length of the Anatosaurus skeletons found is 12 meters or about 39 feet from tip of the nose to tip of the tail. Which of the skeletons below is closest to the average length of the Anatosaurus?

E. 11.89 meters

F. 11.9 meters

G. 12.01 meters

H. 10.99 meters



12 meters – average length

11.89 meters

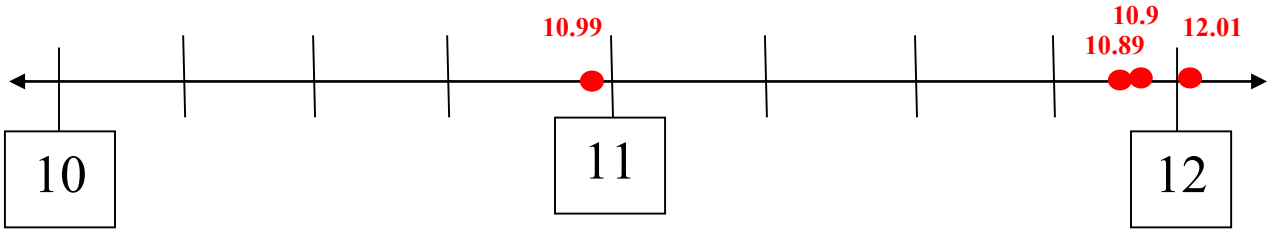
11.9 meters

12.01 meters

10.99 – smaller

The skeleton that measured ___**12.1**___meters tall is closest to the average length of 12 meters.

Now, place and label the decimals on the number line. Your points on the line will be an estimate based on the benchmarks provided for you.



Literature Vocabulary
peering
trembled
coasted
engraved
bellowing
waddled
dangling
gleaming
teetered

Math Vocabulary
centimeters
millimeters
Repeated vocabulary
tenths
hundredths
decimal
fractions
factors
products
fact family

Materials
- **BLM** from TV – Problem 2 – 1 per student

ELPS (*English Language Proficiency Standard*)
2C, 2E, 3E, 3G, 4G, 5B, 5C

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.C.3., I.E.2., II.C.1.
ELA I.A.1., I.A.2., I.A.3., II.A.2., III.B.2.
MATH IV.A.1., IV.B.2., IV.C.3.

Technology
http://www.kidsmathgamesonline.com/numbers/decimals.html
Great online game for students to estimate. They can change their orders as well.

Unit 3, Lesson 2 3-4
Follow-up

Math Objectives:
- Interpret the value of each place value position as 10 times the position to the right and as one-tenth of the value of the place to its left.
- Represent decimals, including tenths and hundredths, using concrete and visual models.
- Compare and order decimals using concrete and visual models to the hundredths.

Language Objectives:
- Listen and speak with a partner during our math activity.
- Use the math vocabulary during the activity.
- Write math journal response.

Practice and Application
Finish Problem 2 from the TV Lesson. Remember that this time the closest decimal is greater than the average. ***It is important that students understand that closest means "nearest to" and can be less than or greater than the average.***

Process:
- Students read the problem and identify words that are difficult for them. Share out the words and make a Pictionary on the board.
- Teacher reads the problem and class identifies the math movie as well as the question to be answered.
- Students discuss possible strategies with a partner.
- Ask students to share their thoughts. Also discuss the strategies that the TV Teacher used: drawings, number lines, place value.
- Tell students that they may solve the problem anyway they wish, but they must also use the number line.

Circulate the room, asking questions
QUESTIONS
- What is the average length of the dinosaur?
- Which decimal representation do you think is closest to the average length? Why?
- Describe your solution strategy.
- Explain how you are deciding where to place the decimals on the number line.
- How do you know that your answer is the closest decimal to 12 from the answer choices?

	Unit 3, Lesson 2 **3-4**
	Follow-up - continued 
	
	• Share out the students' work.
	  o First on the strategy used to find the closest to 12.
	  o Then on how they plotted on the number line.
	
	Math Journal Writing
	Students should have a spiral notebook into which they journal their thoughts daily about math. Today's journal prompt is:
	
	Explain your strategy for comparing 0.56 and 0.6.
	
	Objectives: Review the objectives with the class, making sure they understand how they achieved each.

Math Objectives

- Represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines.
- Compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models.
- Determine if two given fractions are equivalent using a variety of methods.
- Represent decimals, including tenths and hundredths, using concrete and visual models.
- Relate decimals to fractions that name tenths and hundredths.

Language Objectives

- Discuss fraction comparisons.
- Discuss fraction equivalencies.
- Discuss fraction/decimal equivalencies.

Vocabulary

halves
thirds
sixths
equivalent
greater than, less than

Materials:

1 per student

- **BLM** Jerky Fractions (2 pages)

Per Partners:

- 6 pieces of jerky
- 2 paper plates
- 2 paper towels
- 2 scissors
- Chart paper with question**:** ***Tell what this statement means, whether it is true or false, and explain why***. **When you look at number representations of fractions without models, you have to imply that the "whole" they represent are the same size if you are going to compare them.** Put a copy of the record sheet at the top of the chart with the question chart with the question.

Unit 3, Lesson 2 3-4

Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions

As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

Have students look at the two record sheets for this activity.

- What is similar to lesson 1, the dill pickle snack?
- What is different from lesson 1, the dill pickle snack?

Do look now at the snack.

- What do you have to share? (*6 pieces of jerky*)
- Talk to your partner now about how you will share the snack fairly between you. When you have a plan, raise your hand and share your plan with me. (*Circulate the room listening to the partners' discussions.)*

(Let them share the jerky first, then continue with the rest of the activity.)

(Ask of the whole class.)

- How did you share your jerky between you?
- How was today's sharing different from Lesson 1, dill pickle?
- How do you know you each have half?

Work with the rest of the sharing and comparing you are asked to do on the record sheets. *(Circulate the room.)*

- What do you call one of these portions?
- How many of these portions make a whole?
- Which is larger (*compare two fractional portions)?*
- When you think about the fractional portion of the jerky, how does the NUMBER representation compare to the NUMBER representation?
- How would one-fourth compare to this fraction? How do you know? (*Compare to each of the fractional portions – only 1/2 is larger.*)
- Can you tell me a way that you can tell by looking at a number unit fraction representation, which fractional piece is larger?
- Show me how you found an equivalent fraction for 2/3.
- *(sixths)* What would you call two of these pieces? Three? Four? Five? Six?

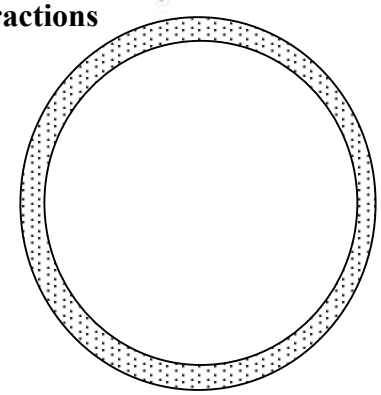
	Unit 3, Lesson 2 **3-4**  **Snack Fractions** **Snack Fraction Journal Writing: Jerky Chart Paper** ***Tell what this statement means, whether it is true or false, and explain why.*** When you look at number representations of fractions without models, you have to imply that the "whole" they represent are the same size if you are going to compare them. **Objectives:** Review the objectives with the class, making sure they understand how they achieved each.

BLM Unit 3, Snack Fraction Lesson 2 **Jerky Fractions**
(One sheet per student)

My name is _____

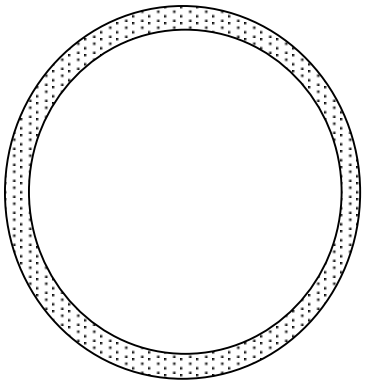
When I share with 1 other friend, my fraction part is _____.
(word)

I can represent that fraction with numbers: _____.



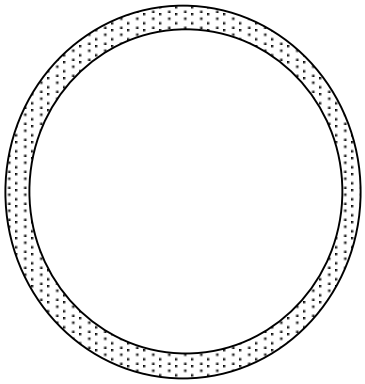
When I share with 2 other friends, my fraction part is _____.
(word)

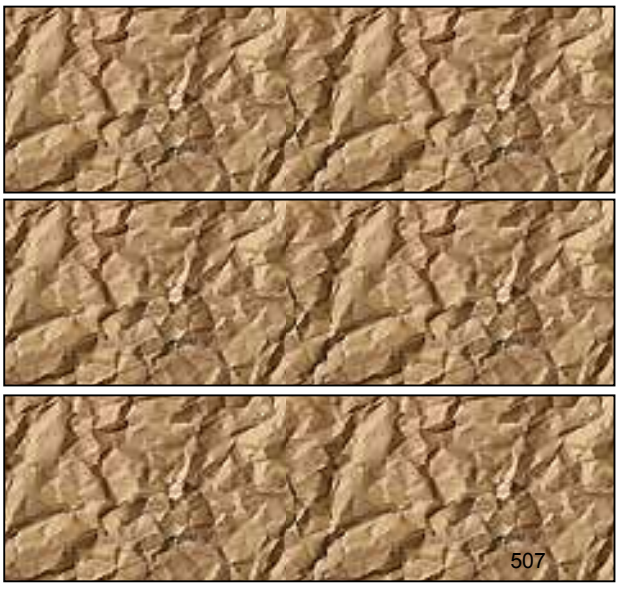
I can represent that fraction with numbers: _____.



When I share with 5 other friends, my fraction part is _____.
(word)

I can represent that fraction with numbers: _____.

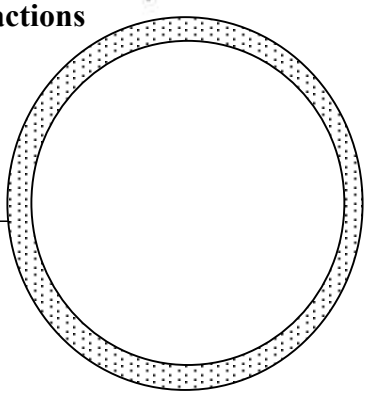




BLM Unit 3, Snack Fraction Lesson 2 **Jerky Fractions**
(One sheet per student)

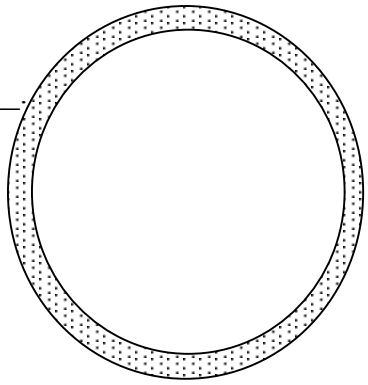
Mi nombre es _____

Cuando comparto con una persona mi porción fraccional es _____.
(palabra)



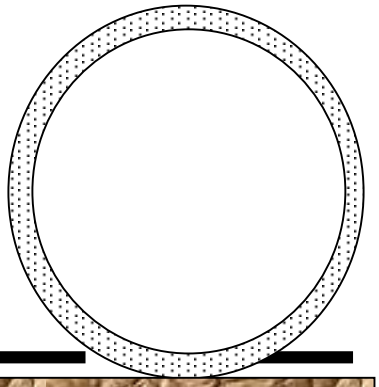
Puedo representar esta fracción con números: _____.

Cuando comparto con dos personas mi porción fraccional es _____.
(palabra)

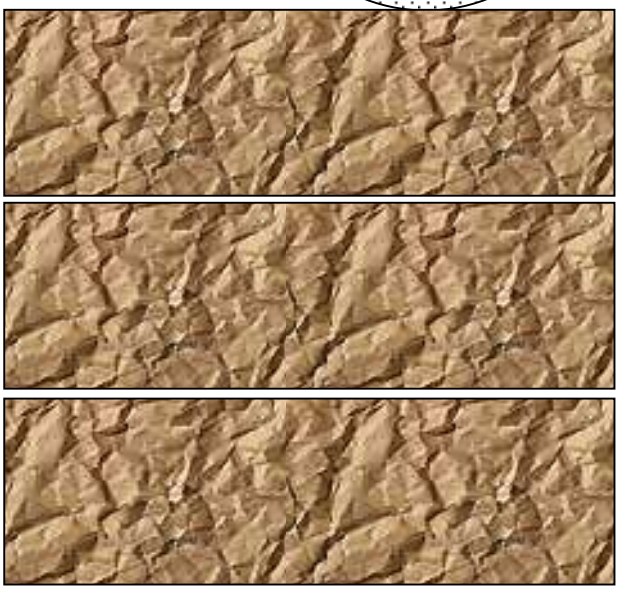


Puedo representar esta fracción con números: _____.

Cuando comparto con 5 amigos mi porción fraccional es _____.
(palabra)



Puedo representar esta fracción con números: _____.



(One sheet per student)

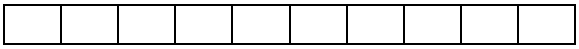
First of all, compare the three unit fractions by writing the fractions in the rectangle and using < or > in the circle between the two fractions.

Circle the portion you would rather have. _____ ◯ _____ ◯ _____

Explain why you would rather have the portion you circled.

Now, use the 2 rectangles below to show how many sixths you would need to be equivalent to two-thirds.

Decimals
Divide the bar in half. Name each portion with a decimal.



BLM Unidad 3, Fracciones de refrigerio Lección 2 **Fracciones de cecina**

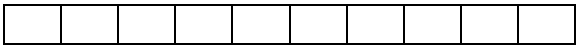
(1 hoja por estudiante)

Antes que nada, compara las tres fracciones escribiéndolas en el rectángulo y usando < o > en el círculo entre ambas fracciones.

Circula la porción que preferirías tener. _____ ◯ _____ ◯ _____

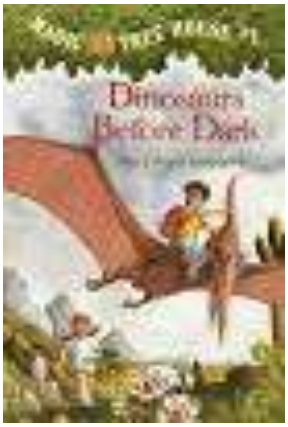
Explica por qué preferirías tener la porción que circulaste.

Decimales
Divide la barra a la mitad. Nombra cada porción con un decimal.



Ahora, usa los 2 rectángulos siguientes para mostrar cuántos sextos necesitarías para que sean equivalentes a dos tercios.

Family Fun – 3-4, Unit 3 Lesson 2



Our book for unit 3 is, ***The Magic Tree House, Dinosaurs Before Dark***
By Mary Pope Osborne

Decimals and multiplication are our math topics for this unit.

Did you know…

_____

_____

_____

_____

Thank you for helping me with my summer program!

_____
Your Child

Family Fun – 3-4, Unit 3 Lesson 2

Nuestro libro para la unidad 3 es ***The Magic Tree House, Dinosaurs Before Dark*** por Mary Pope Osborne

Nuestros temas para esta unidad son decimales y multiplicación.

Sabías…….

_____

_____

_____

¡Gracias por ayudarme con mi programa de verano!

_____
Tu hijo
Your Child

Materials
- Unknown Quantity Cards – 1 set for classroom
- Metric rulers – 1 per student
- **BLM** Solve It, Unit 3
- **BLM** Steve's Project– 1 per student
- **BLM** CGI Problems
- **BLM** Measuring with Decimals, Tyrannosaurus-Rex

Math Objectives
- Find missing elements in an equation.
- Solve multi-step word problems.
- Use a variety of strategies to solve word problems.
- Find equivalent forms of fractional parts.
- Measure length in centimeters.

Balanced Literacy
Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.
- Explain how they decided to rename the target number.
- *Discuss scarcity of money, choices and cost benefit.*

TEKS in TV and Flu
Lesson 1
- **3rd** –
- **4th** - 4.2AEG

Lesson 2
- **3rd** –3.4EHJ **(TM)**
- **4th** - 4.2EF

Lesson 3
- **3rd** –
- **4th** - 4.2AEFG

ELPS (*English Language Proficiency Standard*)
2A, 2D, 3A, 3D, 3J, 4F

Unit 3, Lesson 3 3-4
Daily Routine

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL
What's Missing? *(3rd assessment item 2)*
- **Lessons 1, 2, 3** *follow directions in the Daily Routine Explanations. Check the assessment items so that you are certain you include samples to practice the shape in the assessed location.*

Solve It! *(fundamental problem-solving skills for all items)*
- Lesson 1 – triad of students working on three related problems.
- Lesson 2 - triad of students working on 3-step problem.
- **Lesson 3 – Partners working on unique problems**

Fraction Action
- Lesson 1 – Which Route Should Carla Take? (*4th Assessment item 7*)
  - BLM Which Route Should Carla Take?
  - BLM Teacher Directions
  - BLM KEY

(Student partners should work lesson 2 and 3 together without teacher guidance. When all have finished, let students explain how they answered the questions.)
- Lesson 2 - Emily's Taffy Share (*3rd Assessment item 6*)
  - BLM Emily's Taffy Share
  - BLM KEY
- **Lesson 3 – Steve's Project** (*4th Assessment item 5*)
  - BLM Fr Steve's Project
  - BLM KEY

CGI
- Lesson 1 – Multiplication
- Lesson 2 – Division, Measurement (*3rd Assessment item 5*)
- **Lesson 3 – Division, Partitive** (*3rd Assessment item 4*)

Measurement Lab (*4th Assessment items 2, 4*)
Before beginning Lesson 1, walk through the special teacher guidance instructions with the students to establish centimeter – millimeter relationship.
Materials, per student:
- Metric ruler (centimeters and millimeters)
- **BLM** Teacher Guidance Instructions
- **BLM** for each Lesson
- **BLM Key** for each Lesson
- Lesson 1 – Measuring with Decimals, Pteranodon
- Lesson 2 – Measuring with Decimals, Anatosaurus
- **Lesson 3 - Measuring with Decimals, Tyrannosaurus Rex**

CCRS (*College and Career Readiness Standards)*
CROSS-CURRICULAR I.B.2., I.C.3., II.B.1., II.B.2.
ELA II.B.1., II.B.3., III.B.1., III.B.2., IV.B.1.
MATH I.B.1., II.B.1., II.C.1., IV.B.1., IV.B.2., VIII.A.2., IX.A.3.

Assessment Items
(As a result of experiencing this unit, students will be learning skills necessary to be successful on the following Assessment items.)

3rd - 2, 3, 6,7, 8
4th - 1, 2, 4, 5, 6, 7, 8

Arthimus Portio's Corner
Unit 3 Lesson 3-
Measurement Lab
Discuss the strategies for solving the problem at the end of the Measurement Lab today. Share with us some of the strategies used.

Unit 3, Lesson 3 3-4
Daily Routine - continued

OPTIONAL: *These activities, although not assessed, are fundamental skills that should be included in those sites providing five to six weeks of instruction.*

Target Number *(fundamental number sense for all items)*
- Lesson 1 – Target Number 25
- Lesson 2 – Target Number 50
- **Lesson 3 – Target Number 75**

Graphing
- Lesson 1 –
- **Lesson 2 – Which dinosaur would you rather meet?**
- Lesson 3 –

Graphing Questions:
Before asking any questions, have the students give you their observations about the data shown on the graph. Always ask students to explain how they know.
These are generic questions. Simple reword them to fit your graph topics.
- How many more ____ than ____?
- How do you know?
- How many fewer ____ than ____?
- How do you know?
- Which (item) was chosen by more students than any of the others choices?
- Why do you think more students chose that dinosaur?
- Why did you choose what you chose?
- How do you know?
- Which (item) was chosen by the fewest students?
- How do you know?
- What job could use this type of information? Why?
- If we asked this same question to other age groups, how do you think their answers would compare to ours? Why?

(Assessment Item 8 will be reviewed daily in Snack Fractions.)

Student Name _____

Steve had 2 3/8 yards of rope to use for a school project. He can choose one of 2 projects. The first project requires 2 ½ yards of rope. The second project calls for 2 ¼ yards of rope. Based on the yards of rope Steve has, which project should he choose?

Show your strategy below, then explain or justify your answer.

Nombre del estudiante _____

Steve tenía 2 3/8 yardas de cuerda para usar en un proyecto escolar. Él puede elegir uno de 2 proyectos. El primer proyecto requiere 2 ½ yardas de cuerda. El segundo proyecto necesita 2 ¼ yardas de cuerda. En base a las yardas de cuerda que tiene Steve, ¿qué proyecto debe elegir?

Muestra tu estrategia a continuación, luego explica o justifica tu respuesta.

BLM Daily Routines Unit 3 Fraction Action, Lesson 3 Steve's Project
Teacher Key

Student Name _____

Steve had 2 3/8 yards of rope to use for a school project. He can choose one of 2 projects. The first project requires 2 ½ yards of rope. The second project calls for 2 ¼ yards of rope. Based on the yards of rope Steve has, which project should he choose?

Show your strategy below, then explain or justify your answer.

Students may use any method to solve the problem that they can explain why it works – pictures or numbers.

Justification:

The first project requires 2 ½ yards of rope. Steve only has 2 3/8 yards of rope. Since 2 ½ = 2 4/8, Steve does not have enough rope to complete the first project.

The second project requires 2 ¼ yards of rope. Since 2 ¼ = 2 2/8, Steve has enough rope to complete the second project, and will have a little leftover when he finishes.

BLM Daily Routines Unit 3, Lesson 3 Measurement Measuring with Decimals, Tyrannosaurus Rex

One sheet per student

Materials:

- Metric ruler (measuring in cm and mm)

We don't know what a Tyrannosaurus Rex looked like exactly. No one was there with a camera when the creature lived.

But scientists have found bones of what they've named the Tyrannosaurus Rex and put them together as they would a puzzle. With this skeleton, they estimated what the outer creature might look like.

This is a picture of what they think the Tyrannosaurus Rex looked like.

Tyrannosaurus Rex (tih-RAN-oh-SORE-us REX)

Measure the height of the picture of the Tyrannosaurus Rex from top of its head to his foot on the ground. Your measure will be an estimate.

How many centimeters (cm) high is it? _____cm
How many millimeters? _____ mm

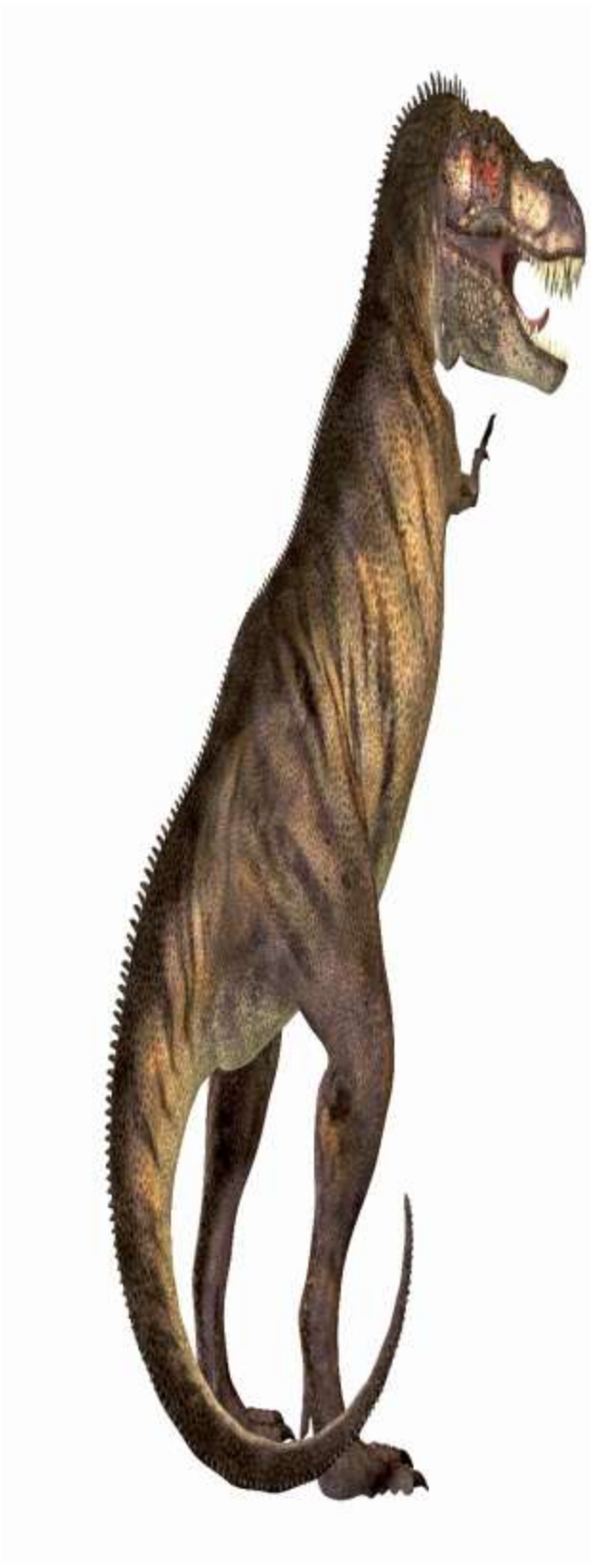
Write the height as a mixed decimal (whole number and tenth) _____ cm

How do you read this measure as a decimal?

_____

Solve the following problem.
Show your work on the back of this sheet.

Marta has a dinosaur model collection. She wants to display her models so that each is standing in an upright position. When shopping she found 3showcases: one that measures 35.5 cm tall and 20.8 cm wide; one that measures 24 cm tall and 26 cm wide; and a third that measures 26 cm tall and 24 cm wide. Using your measures of the 3 dinosaurs from our measurement lab, which showcase should she buy? Explain your answer.



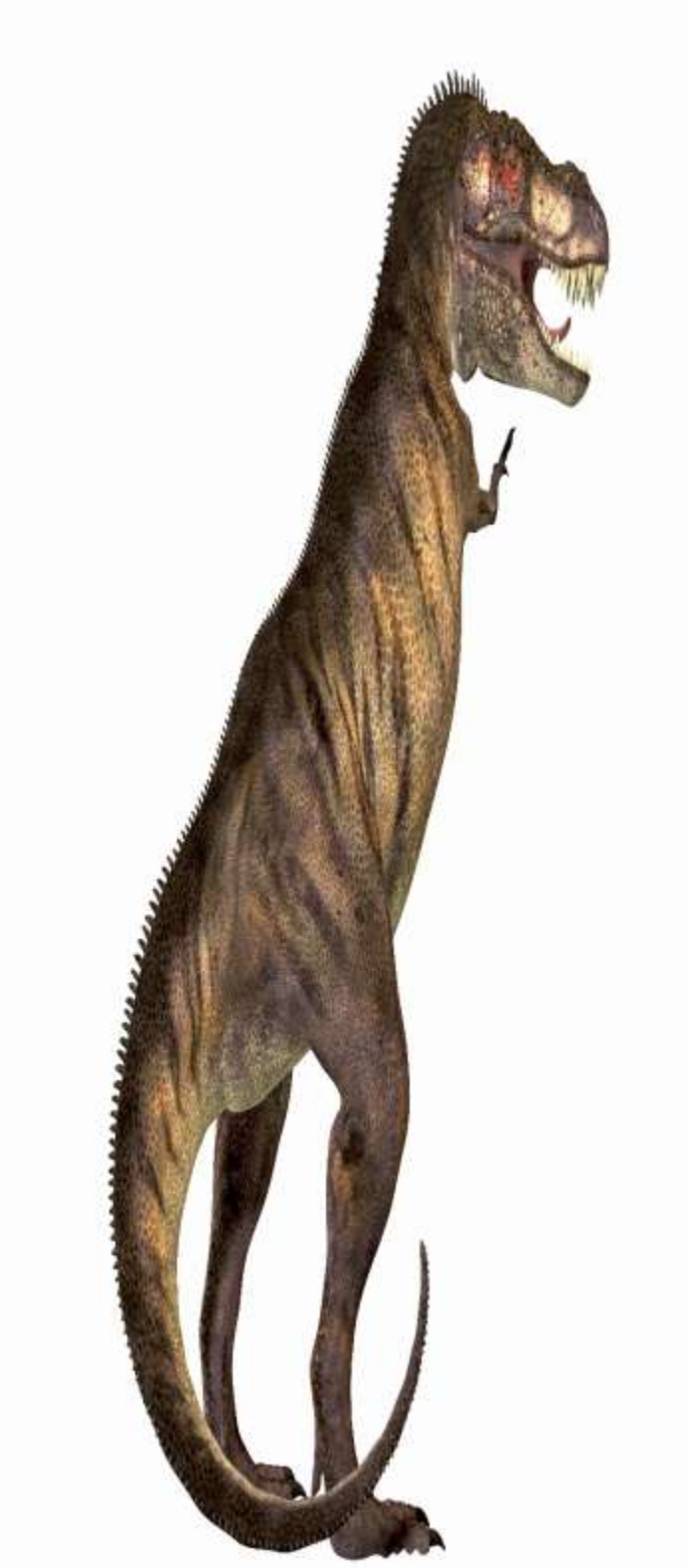
BLM Rutinas diarias, Unidad 3, Lección 3 Medidas Midiendo con decimales, Tiranosaurio Re
1 hoja por estudiante

Materiales:

- Regla métrica (con medidas en cm y mm)

No sabemos exactamente qué aspecto tenía un Tiranosaurio Rex. Nadie estaba ahí con una cámara cuando la criatura vivía.

Pero los científicos han encontrado huesos de un animal al que han llamado Tiranosaurio Rex y los armaron como si fuera un rompecabezas. Con este esqueleto, han estimado cómo podría verse el exterior de la criatura.



Mide la altura de la imagen del Tiranosaurio Rex de la parte superior de la cabeza hasta sus pies en el suelo. Tu medida será aproximada .

¿Cuántos centímetros (cm) tiene de alto? _____cm

¿Cuántos milímetros? _____ mm

Escribe la altura como un decimal mixto (número entero y décimos) _____ cm

¿Cómo lees esta medida en forma decimal?

_____

BLM Daily Routines Unit 3, Lesson 3 Measurement **Tyrannosaurus Rex, Teacher KEY**

One sheet per student

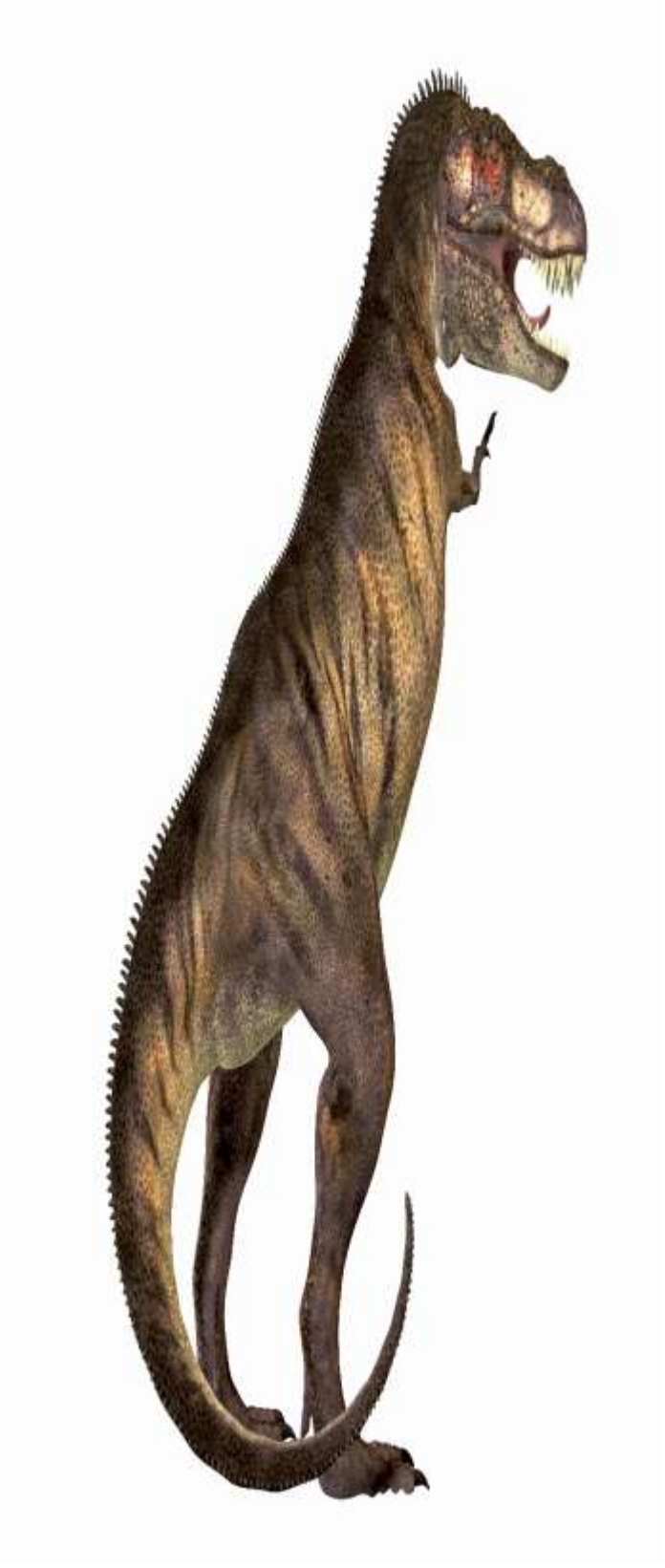
Materials:

- Metric ruler (measuring in cm and mm)

We don't know what a Tyrannosaurus Rex looked like exactly. No one was there with a camera when the creature lived.

But scientists have found bones of what they've named the Tyrannosaurus Rex and put them together as they would a puzzle. With this skeleton, they estimated what the outer creature might look like.

This is a picture of what they think the Tyrannosaurus Rex looked like.



Tyrannosaurus Rex (tih-RAN-oh-SORE-us REX)

Measure the height of the picture of the Tyrannosaurus Rex from top of its head to his foot on the ground. Your measure will be an estimate.

How many centimeters (cm) high is it? __**23**___cm
How many millimeters? ___**6**____ mm

Write the height as a mixed decimal (whole number and tenth) ___**23.6**_____ cm

How do you read this measure as a decimal?

_***twenty-three and six-tenths*** __

Solve the following problem.
Show your work on the back of this sheet.
Marta has a dinosaur model collection. She wants to display her models so that each is standing in an upright position. When shopping she found 3showcases: one that measures 35.5 cm tall and 20.8 cm wide; one that measures 24 cm tall and 26 cm wide; and a third that measures 23 cm tall and 24 cm wide. Using your measures of the 3 dinosaurs from our measurement lab, which showcase should she buy? Explain your answer.

Showcase that is 24 cm tall and 26 cm wide.
The first one is tall enough, but the Anatosaurus at 25.8 is too long to fit in an upright position.
The third showcase is too short for T-Rex and too narrow for Anatosaurus.

Solve It! Problems Unit 3, Lesson 3 **Pairs**

Solve your own problem today, showing your work. Verify your partner's problem solution when you both finish your own. Discuss your work.

Partner 1 Problem **Name _____ Date _____**

- Gentry headed to the sporting goods store to buy Evan a present for his birthday. He found several things he wanted and decided to buy them with the $20 he had to spend. Gentry found a football Jersey for $10.95 and a ball cap for his favorite college team that was regularly priced at $11.00, but was on sale for $3.25 off. Tax on the purchase came to $1.90. Gentry looked at the change from his purchase and knew he had exactly enough to buy a ball card. How much was the ball card?

Problem Solution Name:	**Problem Verification** Name:

Solve It! Problems Unit 3, Lesson 3 **Pairs**

Hoy, resuelve tu propio problema, mostrando el procedimiento. Verifica la solución de tu compañero cuando ambos terminen de hacerlo por sí mismos. Hablen sobre su trabajo.

Problema del compañero 1 Nombre _____ Fecha _____

- Gentry fue a la tienda de deportes para comprarle a Evan un regalo de cumpleaños. Encontró muchas cosas que deseaba y decidió compralas con los $20 que tenía para gastar. Gentry encontró un jersey de fútbol americano por $10.00 y un gorro de su equipo de universidad favorita a un precio normal de $11.00, pero que estaba de oferta a un descuento de $3.25. El impuesto salió a $1.90. Gentry miraba el cambio que recibió de las compras y sabía que tenía justo lo que necesitaba para comprar una tarjeta de béisbol. ¿Cuánto costó la tarjeta de béisbol?

Solución del problema Nombre:	**Verificación de la solución** Nombre:

Solve It! Problems Unit 3, Lesson 3 **Triad (3)**
Solve your own problem today, showing your work. Verify your partner's problem solution when you both finish your own. Discuss your work.

Partner 2 Problem **Name _____ Date _____**

- Evan was planning his birthday party. He had 9 of his best buds coming and wanted something special. He made sure that he and his friends each had 4 hotdogs. He noticed that hotdogs were sold in packages of 10 and the ones he wanted were $4 a package. How much did he spend on the hotdogs?

Problem Solution Name:	**Problem Verification** Name:

Solve It! Problems Unit 3, Lesson 3 **Pairs**

Hoy, resuelve tu propio problema, mostrando el procedimiento. Verifica la solución de tu compañero cuando ambos terminen de hacerlo por sí mismos. Hablen sobre su trabajo.

Problema del compañero 1 Nombre _____ Fecha _____

- Evan estaba organizando una fiesta para su compleaños. Había invitado a 9 de sus mejores amigos y quería algo especial.Quería estar seguro que él y cada uno de sus amigos tendrían 4 perritos calientes. Se dio cuenta de que los perritos calientes se vendieron en paquetes de 10 y los que quería costaban $4 por paquete. ¿Cuánto pagó por los perritos calientes?

Solución del problema Nombre:	**Verificación de la solución** Nombre:

Literature Selection
The Magic Tree House, Dinosaurs Before Dark
by Mary Pope Osborne

Materials
Language Materials
- **BLM** Word Cards
- **BLM** Story Flow Chart (1 per student)
  Family Fun Game Materials – sets for the classroom, and complete sets to take home.
- 50 counters – per student
- 18 x 24 pieces of newsprint or construction paper - 1 per student
- Scissors – 1 pair per student
- **BLM** Family Fun Game Array Paper

Literature Vocabulary
peering
trembled
coasted
engraved
bellowing
waddled
dangling
gleaming
teetered

Math Vocabulary
centimeters
millimeters
Repeated vocabulary
tenths
hundredths
decimal
fractions
factors
products
fact family

ELPS (*English Language Proficiency Standard*)
1E, 2F, 3B, 3D, 3F, 4E, 4E, 4J

CCRS *(College and Career Readiness Standards)*

Unit 3, Lesson 3 3-4

Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students should review to see if they have accomplished both math and language objectives.

Math Objectives:
- Read and compare fraction and decimal representations.
- Find equivalent fraction and decimal representations.

Language Objectives:
- Ask questions about the text as they read.
- Make corrections and adjustments when understanding breaks down (identifying clues, using background knowledge, generating questions, re-reading a portion of text aloud).
- Describe the interaction of characters including their relationships and the changes they undergo.
- Sequence and summarize the plot's main events and predict future events using evidence from text for support.

BEFORE READING
Building Background: Vocabulary & Literature
Display the literature vocabulary cards in a pocket chart or board.
Group the words as shown here:

peering	trembled
bellowing	coasted
dangling	engraved
gleaming	waddled
	teetered

Ask, "Which base words end in an 'e'?"
Allow multiple students to come point and read the derivatives and tell what the base word would be.

Ask, "Let's look at the word gleaming. What word do I form if I change the suffix to -ed?"
Allow multiple students to come point and read.

Ask, "What word means to carve or cut into?"
Allow multiple students to come point and read.

Ask, "What word means to sway back and forth?"
Allow multiple students to come point and read.

Ask, "What word means to shake or quiver?"

CROSS-CURRICULAR I.C.1., II.A.2., II.A.A4. ELA II.A.1., II.A.3., II.A.4., II.B.1., III.B.2.	Allow multiple students to come point and read. **Unit 3, Lesson 3** **3-4** **Classroom Lesson** - continued Ask, "If someone were to wear a pair of dangling earrings, what would they look like?" Allow students to respond - guiding them to understand they would hand down loosely from the earlobes. Ask, "Name some things that gleam." Allow students to respond. Ask, "Which words have base words that are two syllables?" Allow students to come point and read derivatives and tell what the base word would be. Say, "We are going to continue to explore these words by conjugating them with their base word form." Ask, "What does conjugating verbs mean?" Conjugating verbs means to change their tense depending on how they are being used. Direct students to take out their notebook paper grid created yesterday.

Present (now)	**Past (yesterday)**	**Future (tomorrow)**
I _____	I_____	I _____
You _____	You _____	You _____
He, She, or it _____	He, She, or it _____	He, She, or it _____
We _____	We _____	We _____
They _____	They _____	They _____

Practice for one minute conjugating the vocabulary words in their base word form orally. After one minute stop.

Say, "You and your neighbor are going to create three sentences. Write the three sentences on the back of your paper. Use three different vocabulary words."
(present) _____
(past)_____
(future)_____

Allow students to share their sentences if time allows.

Unit 3, Lesson 3 3-4
Classroom Lesson - continued

Review the sequence of events students assisted you in recording in lessons 1 and 2.
Ask, "How do you think Jack will get around the T-Rex? Why do you think so?"
Students can vote on which prediction they believe is correct.

DURING READING
Comprehensible Input: Vocabulary & Literature
Read Chapters 8- 10 (3 chapters)
As students read aloud, encourage them to explain their thinking the same as you demonstrate when reading, thereby providing a way to actively monitor their understanding of the strategies.

Depending on the reading level and language proficiencies of your students, pair the students off and allow them to partner read chapter 10.

Ask, "What are we noting about the characters as we read?
We will take notes about the character traits of both the main characters *(Jack and Annie)*." Listening for attributes or traits that tell about their appearance, behavior, actions, and how others feel about them.

Begin reading, remembering to pause and check comprehension through clarifying, rereading, or reading on. When asking comprehension questions, allow for think time, partner share, and then sharing with class.

<u>Use these suggested questions to monitor comprehension and add other as needed: (pages might be different depending on edition of book)</u>
Chapter 8
- Pg. 49: What did Jack decide to do when he realized he couldn't outrun the T-Rex?
- Pg. 52: Why did Jack think to himself that Annie was nuts?
- Pg. 53: What did Annie do to help her brother?
- Pg. 53: What did the T-Rex do when he heard Jack yell at Annie?

Chapter 9
- Pg. 54 (before reading): With a title like 'The Amazing Ride' what do you think this chapter will be about?
- Pg. 54: What words from Annie did Jack recall to encourage him to climb onto the Pteranodon's back?
- Pg. 55: How did the Pteranodon save Jack?
- Pg. 56: What was Jack feeling as he rode on the Pteranodon's back?
- Pg. 58: Why need to hurry up to the tree house when he landed?

Pg. 60: How are Jack and Annie trying to get back to Frog Creek?

Unit 3, Lesson 3 3-4

Classroom Lesson - continued

Chapter 10:

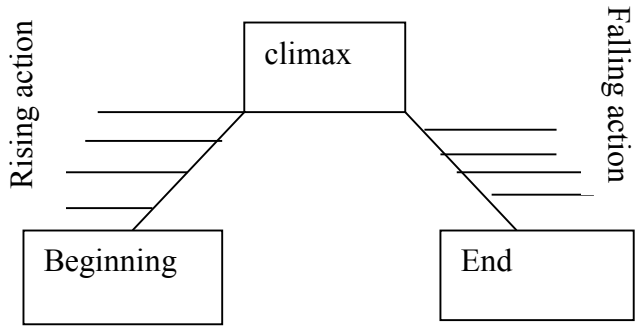
Pg. 61: What did Jack and Annie hear when they got home?
Pg. 64: How much time had passed since they'd left on their adventure? How do you think that is possible?
Pg. 67: Why did the children decide not to tell anyone about the tree house and their adventure?
Pg. 68: Who do you think built the tree house? Where do you think it came from? Why?
Pg. 68: What did Jack have from the adventure that helped him know their adventure was real?

AFTER READING
Practice and Application: Vocabulary & Literature

Encourage students to share characteristics they have discovered or noticed about both Jack and Annie. Write the characteristics on the BLM character traits.

Say, "Time to record the main events that happened today. Let's add to the chart of events we have started. The chart will help us understand the plot or sequence of events that make up the story. There are five main parts to the plot *(point to the five areas on the chart)*.Can you name them?"

Add lines for events in rising and falling actions as needed.



Say, "When we began reading today, we were thinking that we had arrived at the climax."
Ask, "Were we correct? Why do you think so?"
Say, "Look back to chapter 8. In the beginning of chapter 8, Jack is still trapped and deciding what to do next. The action is still rising."
Ask, "What part in chapter 8 did the rising action come to the highest point and Jack had to make a decision on what to do?"

	Say, "That is the climax. The climax is the moment of greatest danger in the story. Usually it is the point in the story where a major decision has been made." **Unit 3, Lesson 3** **3-4** **Classroom Lesson** - continued  Record one or two events students generate for chapter 8 on the chart and then fill in the climax. Say, "Now we come to the falling action. The falling action is the affect of the decision made in the climax. Look back at chapter 9 with your partner. Decide on three to four events and then share them with your neighbor." Allow students to share thoughts. And record answers. Students need to justify their answers. Say, "Now we have reached the last chapter, and the final events. In this chapter, we read the outcome of the plot or story. It is the conclusion or another name is the denouement, French for to untie. So, all of the problems begin to untie. Ask, "What should we write here in the 'end' box?" Accept students' answers; do not write them in the box. Say, "I wonder if they will return to the tree house tomorrow? What do you wonder?" Say, "Now it is your turn to work with a partner *(or small group)* to complete a story flow chart. The story flow chart helps us learn how to summarize information in short form. You have all of the information you need and you can go back to the book as many times as needed. You will have to write ONLY the ESSENTIAL information in the boxes provided. Students learn to be selective and purposeful about what they write. This chart will be utilized in the writing workshop for planning their story. Circulate the room and assist as necessary. Allow for sharing if time permits.

BLM Unit 3, Classroom Lesson 3 **Story Flow Chart**
(One for Teacher)

Title:

Author:

Favorite Character:

What is he/she like?

Where did the story happen?

What happened?

Beginning:

Climax:

End:

What will happen next?

What was your favorite part?

What was something you learned?

How well did you like this story?

Great___ OK___ Yuck___

Why?

BLM Unit 3, Classroom Lesson 3 **Story Flow Chart**
(One for Teacher)

Título:

Autor:

Personaje favorito:

¿Cómo es el/ella?

¿Dónde ocurrió la historia?

¿Qué ocurrió?

Al principio:

Clímax:

Final:

¿Qué pasará después?

¿Qué fue tu parte favorita?

¿Qué es algo que aprendiste?

¿Qué tal te gusto la historia?

Mucho___ Más o menos___ De nada

¿Por qué?

Math Objectives
- Read and compare fraction and decimal representations.
- Find equivalent fraction and decimal representations.

Math Vocabulary
centimeters
millimeters
Repeated vocabulary
tenths
hundredths
decimal
fractions
factors (TM Lesson 2)
products (TM Lesson 2)
fact family (TM Lesson 2)

Transition to Math Materials
- **Family Fun Game Materials** – sets for the classroom, and complete sets to take home.
- 50 counters – per student
- 18 x 24 pieces of newsprint or construction paper - 1 per student
- Scissors – 1 pair per student
- **BLM** Family Fun Game Array Paper

ELPS (*English Language Proficiency Standard*)
EI, 3E, 3G, 3H, 4G
CCRS ***(College and Career Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.E.2., II.C.1.
MATH IV.A.1., IV.B.2., IV.C.3.

Technology:
www.mathnook.com/math/skill/decimalgames.php

Classroom Lesson - continued

TRANSITION to Math

Building Background, Math

We are going to take this time to play our Family Fun Game. Let's play in partners today again. (*Allow time to partner up.)*

First, let's take a look at our Family Fun Game Cards to see if you have any questions about how to solve any of the problems.

(*Distribute the game cards. Have student partners look at the cards together, talking about how they would solve the problem – but tell them NOT to solve it yet, just talk about possible solution strategies.*

Circulate the room to listen to their discussion, and to answer any questions.

If you hear that the same problem is difficult for several pairs in the room, stop the partner discussion and have a class discussion over the problem. The class should be able to come up with several strategies which they can explain to solve the problem.

When the class has investigated all of the problems, let them play the game for a little while. Then have students trace the bottoms of their shoes.)

Before our TV Lesson, we each need to trace the soles of our shoes. (*Distribute the long paper and scissors.)* You can either bend over and trace your own, or work in partners to trace each other. Then cut out your shoe sole.

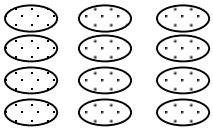
Fold the shoe sole in half as best you can so that you have a fold line that runs from the heel to the tip of your toe. We will need this for our TV Lesson. What do you think we are going to do?? (*Accept all predictions*.)

Objectives: Review the math and language objectives to see how they were accomplished.

Distribute TV Lesson Materials
- metric rulers – 1 per student
- metric measuring tape – 1 per student
- 1 base ten centimeter cube (the unit) – 1 per student
- 1 base ten flat – 1 per student
- new pencil – 1 per student
- student's shoe – 1 per student
- piece of yarn, string, or twine 3.5 meters long – 1 per student
- **BLM** – Metric Measures – 1 per student

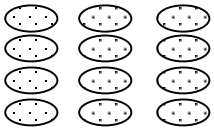
BLM Unit 3, Follow-up Lesson 3 **Family Fun Game Cards**

Printed in ***Green*** –one set per partners for class; one set per student for home. (There are two pages of cards.)

A. Jack wrote 0.75 of a page of notes on the Pteranodon, 0.25 of a page on the Anatosaurus, and 0.55 of a page of notes on the T-Rex. Write these pages of notes in order, least to greatest.	**B**. $48 \div \square = 8$	**C**. $\square \div 7 = 5$
D. The Pteranodon glided 10 feet every time it hopped off the ground. It hopped off the ground 5 times. How many feet did it glide in all?	**E**. Anatosaurus laid 15 eggs and put them equally in 5 nests. How many eggs were in each nest?	**F**. Annie gathered 27 magnolia flowers. She wanted to bag them with 9 in a bag. How many bags did she need?
G. Write the number sentence that represents this picture. 	**H**. Why does this picture represent 2 x 5? 	**I**. **Represent 5.5 as a fraction.**

BLM Unit 3, Follow-up Lesson 3 **Family Fun Game Cards**

Printed in ***Green***–one set per partners for class; one set per student for home. (There are two pages of cards.)

A. Jack escribió 0.75 páginas de notas sobre el pteranodon, 0.25 páginas de notas sobre en anatosaurio, y 0.55 páginas de notas sobre el T-Rex. Escribe estas páginas de notas en orden, de menos a más.	**B**. $48 \div \square = 8$	**C**. $\square \div 7 = 5$
D. El pteranodon planeaba 10 pies cada vez que saltaba del piso. Saltó del piso 5 veces. ¿Cuántos pies planeó en total?	**E**. El anatosaurio puso 15 huevos y los puso de manera equitativa en 5 nidos. ¿Cuántos huevos había en cada nido?	**F**. Annie reunió 27 flores de magnolia. Ella quería meterlas en bolsas, con 9 en cada bolsa. ¿Cuántas bolsas necesitó?
G. Escribe la oración numérica que representa a esta imagen. 	**H**. ¿Por qué esta imagen representa 2 x 5? 	**I**. **Representa 5.5 como fracción.**

BLM Unit 3, Follow-up Lesson 3 **Family Fun Game Cards**

Printed in ***Green***–one set per partners for class; one set per student for home. (There are two pages of cards.)

J.
Write the following fraction as a decimal.

$3\frac{12}{100}$

K.
Write the fact family for

7, 8, 56

L.
Draw a picture model of

4 x 5

M.
How do you read this number?

10.05

N.
This model show $\frac{1}{2}$

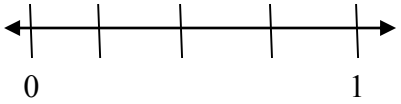
Model and name a different equivalent fraction.

O.
What part is UNshaded?

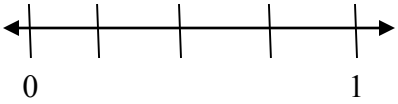
P.

Draw an array to model 5 x 8.
You may use the array paper.

Q.
Show where you would place **0.25** on the number line.



R.
Show where you would place **0.9** on the number line.



BLM Unit 3, Follow-up Lesson 3 **Family Fun Game Cards**

Printed in ***Green***–one set per partners for class; one set per student for home. (There are two pages of cards.)

J.
Escribe la siguiente fracción en forma decimal.

$3\frac{12}{100}$

K.
Escribe la familia de hechos para

7, 8, 56

L.
Dibuja una imagen modelo de

4 x 5

M.
¿Cómo lees este número?

10.05

N.
Este modelo muestra

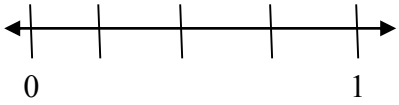
Modela y nombra una fracción
equivalente distinta.

O.
¿Qué parte está SIN sombrear?

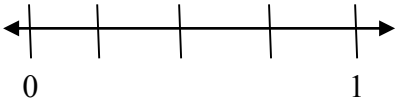
P.

Dibuja una matriz para modelar 5 x 8.
Puedes usar el papel para matrices.

Q.
Muestra dónde colocarías **0.25** en la recta numérica.



R.
Muestra dónde colocarías **0.9** en la recta numérica.



BLM TM Unit 3, Lesson 3 **Family Fun Game Array Paper**

BLM TM Unit 3, Lesson 3 Special 3rd – 4th – Instructions

Materials:

- Paper and pencil
- 50 counters – beans, pebbles from home or counters from classroom
- 3-4 Family Fun Problem Cards (green)
- Family Fun Movement Cards (white)
- Family Fun Game Board
- **BLM** Special 3rd-4th Instructions
- **BLM** Unit 3 Family Fun Game Answer Key, all levels
- **BLM** Family Fun Game Array Paper

Solution Expectations

Problems A

- Students arrange the decimals in order from least to greatest.

Problems B – C

- Students use whatever strategy they wish to find the missing number in the equation.

Problems D - F

- Students use whatever strategy they wish to solve the problems including models, pictures and basic facts.

Problem G _ H

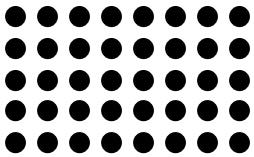
- **G** – Students write the number sentence that represents the picture.
- **H** – Students must explain that the picture represents 2 x 5 because there are 2 equal groups of 5.

Problems I

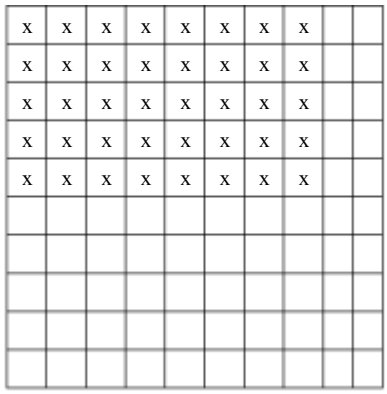
- Student simply write the fractional form of a decimal – remember that simplified or un-simplified fractions are acceptable.

Review Problems

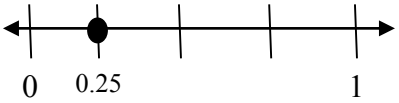
- **J** – fraction to decimal representation
- **K** – fact family: all 4 number sentences
- **L** – any picture model, with group indicators or without.
- **M** – read appropriately
- **N** – any equivalent fraction other than ½
- **O** – note the **UN**shaded reference
- **P** – use the array paper or just dots on a paper or counters



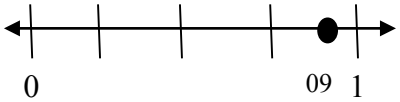
Array may be drawn with or without the grid paper and any shape or letter is acceptable.



- **Q** – benchmark decimal



- **R** – must use a benchmark decimal to estimate the location of 0.9.



BLM Unidad 3, Lección 3 Instrucciones especiales 3º – 4º

Materiales:

- Papel y lápiz
- 50 contadores - frijoles, piedritas de casa o contadores del salón de clases
- 3-4 cartas de problemas de Diversión Familiar (verdes)
- Cartas de movimiento de Diversión Familiar (blancas)
- Tablero de juego de Diversión Familiar
- Instrucciones especiales 3º-4º de **BLM**
- Guía de respuestas del juego de Diversión Familiar de la Unidad 3 de **BLM**, todos los niveles
- Papel para matrices del juego de Diversión Familiar **BLM**

Expectativas de solución

Problema A

- Los estudiantes ordenan los decimales del menor al mayor.

Problemas B – C

- Los estudiantes utilizan cualquier estrategia que deseen para encontrar el número faltante en la ecuación.

Problemas D – F

- Los estudiantes utilizan cualquier estrategia que deseen para resolver los problemas, incluyendo modelos, imágenes y hechos básicos.

Problemas G _ H

- **G** - Los estudiantes escriben la oración numérica que representa a la imagen.
- **H** - Los estudiantes deben explicar que la imagen representa 2 x 5 porque hay 2 grupos iguales de 5.

Problema I

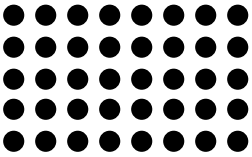
- El estudiante simplemente escribe la forma fraccional de un decimal - recuerde que las fracciones simplificadas o sin simplificar son aceptables.

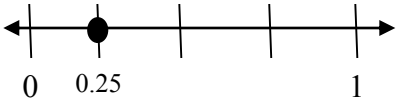
Problemas de repaso

- **J** - representación de fracción a decimal
- **K** - familia de hechos: todas las 4 oraciones numéricas
- **L** - cualquier modelo de imagen, con o sin indicadores de grupo
- **M** - leer apropiadamente
- **N** – cualquier fracción equivalente diferente de ½
- **O** - note la referencia a **SIN** sombrear
- **P** - use el papel de matrices o sólo puntos en un papel o contadores
- **Q** - punto de referencia decimal
- **R** - debe usar un punto de referencia decimal para estimar la ubicación de 0.9

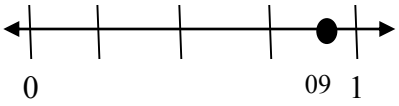
BLM Unidad 3, Lección 3 **Instrucciones especiales 3º – 4º**

La matriz puede ser dibujada con o sin el papel cuadriculado y cualquier forma o letra es aceptable.

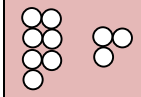
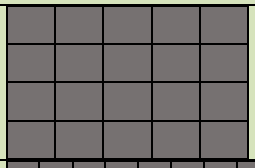
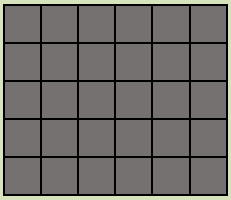




x	x	x	x	x	x	x	x		
x	x	x	x	x	x	x	x		
x	x	x	x	x	x	x	x		
x	x	x	x	x	x	x	x		
x	x	x	x	x	x	x	x		



BLM All-School Unit 5, Lesson 3 **Family Fun Game Answer Key**

Problem Letter	Kinder	1-2	3-4	5-6	7-8
A	5 baby ducks	23	10	0.5	3 units
B	9 baby ducks	39	6	$8\frac{1}{8}$	1 unit
C	9 baby ducks	70	48	$0.01	2 units
D	3 kernels	37	8 cells	1,111,111,110	50%
E	8 kernels	6	6 bees	54.657 grams salt	50%
F	1 crumb	17	40 plants	11.92% chemical B	75%
G	 10	21		$27.45 tax	20
H		66		$350 tip	32.5
I	Half OR one of 2 equal pieces OR fair shares. (See Kinder Special Instructions for answer to second part.)	$\frac{1}{8}$		$90 interest	18
J	Dime	Cut the cake into 8 shares	5.21	$230 charged	$5.00 earned
K	Penny	Yes. There are 2 equal pieces	5 x 7 = 35 7 x 5 = 35 35 ÷ 7 = 5 35÷ 5 = 7	3 cups cashews	$6.00 earned
L	Nickel	8	xx xx xx xx xx xx	10% tip	$16.74 total bill with tip
M	Quarter	4 + 5 = 9	Eleven and seven hundredths	False. Scale factor not consistent	$3.00 tip
N	Top group	12 – 2 =10	 2/4  4/8	True. Scale factor = (÷4) or (x $\frac{1}{4}$)	$11.10 tip
O	Bottom group	12	0.3	120 cotton balls: 1 bag	$6.97
P	14	9	Line closest to 0	48 babies	$20.00 retail
Q	9	7, 3	Line in the middle	$\frac{12}{12}$ or 1 whole	$22.50 sales price
R	15 beans Card 15	9+ 5 – 14 5 + 9 = 14 14 – 9 = 5 14 – 5 = 9	Between 0.5 and 0.75, closer to 0.75	$2\frac{7}{15}$	$9.00 sales price

Literature Vocabulary
peering
trembled
coasted
engraved
bellowing
waddled
dangling
gleaming
teetered

Math Vocabulary
centimeters
millimeters
Repeated vocabulary
tenths
hundredths
decimal
fractions
factors (TM2)
products (TM2)
fact family (TM2)

Materials
- metric rulers – 1 per student
- metric measuring tape – 1 per student
- 1 base ten centimeter cube (the unit) – 1 per student
- 1 base ten flat – 1 per student
- new pencil – 1 per student
- student's shoe – 1 per student
- piece of yarn, string, or twine 3.5 meters long – 1 per student
- **BLM** – Metric Measures – 1 per student

Time Clue
BB = 1 minute
CI = 26 minutes
AC = **1** minute

ELPS (*English Language Proficiency Standard*)
3E, 3G, 3H, 4G

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.C.3., I.E.2., II.C.1.
ELA IIA.2., II.B.1., III.A.2., III.B.2.
MATH III.A.4., IV.A.1., IV.B.2., IV.C.3

Unit 3, Lesson 3 3-4
TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Interpret the value of each place value position as 10 times the position to the right and as one-tenth of the value of the place to its left.
- Represent decimals, including tenths and hundredths, using concrete and visual models.
- Compare and order decimals using concrete and visual models to the hundredths.

Language Objectives:
- Use the math vocabulary during the activity.
- Discuss answers and possible strategies with classmates.
- Explain the relationship between meters and centimeters.

Building Background
Measurement is a lifelong skill, and if you are measuring in metric, you need to understand decimals.

You have been measuring using metric units of measure in your measurement lab, and we have had several word problems that involved metric measures.

Today, we are going to measure things in the room. Before we measure each item, though, we are going to ESTIMATE how long we think that item is. Estimation helps us to think carefully about the unit of measure so that we begin to think about it and visualize the measure.

Comprehensible Input
Let's begin with the graphic at the top of your BLM page. How long do you think the space is between the arrows? That is from here (*point to the very tip of the left arrow*) to here (*point to the very tip of the right arrow*).

Write down your estimate in the second column – no measuring now, we just want you to ESTIMATE in centimeters! *(slight pause)*

OK, I estimate the distance to be … (*Make an estimate that is close but not exact to show that estimation doesn't need to be spot on.*)

Now measure to find the actual distance. *(pause)* Mine measured three and nine-tenths centimeters. Sometimes printers distort images. What did yours measure? *(pause)*

Unit 3, Lesson 3 3-4

TV Lesson - continued

CLASSROOM TEACHERS
TV Teacher will give you time to discuss – please have students do so.

I wanted you to have a base 10 unit cube *(show yours)*. This cube is pretty special. We have used it to represent ONES. We have used it to represent HUNDREDTHS. There is another attribute I'd like you to know about this cube.

Please ESTIMATE the length of one of the edges of this cube in centimeters. *(pause)* I'm not going to write my estimate, because I KNOW how special this is.

Alright, now please measure that edge of the cube *(pause)*. What did you find the actual measurement to be? *(pause)* That's right, the edge is one centimeter long. Well, if this edge is one centimeter, what are the other edges and why do you know that? Talk quickly in your room. *(pause)*

SMARTBOARD
Use to demonstrate.

This shape is a cube. All of the faces are squares, and all of the edges are the same length! Cool, eh?

CLASSROOM TEACHERS
TV Teacher will give you time to discuss – please have students do so.

Now, what about the edge of the flat *(hold up the flat)*. ESTIMATE the length *(pause)*.

Before you measure, tell your teacher what you estimated and why you estimated what you did. *(pause)*

TEACHERS:
Please do NOT talk about moving the decimal point here or there – we want students to visualize these relationships so they make sense. Believe me, adults do not always convert properly because they have nothing to fall back on except the "move the decimal point." Teach for understanding, please.

I know that a flat is 100 cubes. If I look at the flat, it is a 10 by 10 array. *(Run fingers along the row and column edges.)* Well, if this is 10 unit cubes long, and a unit cube is one centimeter on each edge, then I think my flat must be 10 centimeters long. Let's see *(measure to verify)*. Yup! How many of you were able to reason that one out?

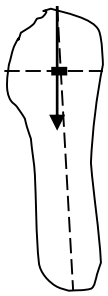
You have a new pencil. How many centimeters long do you ESTIMATE the new pencil to be? Write that estimate please *(pause)*. I estimate that it is *(estimate with tenths)* long.

CLASSROOM TEACHERS

Let's measure *(do so)*. How close were you to your estimate? Did you include those millimeters in your measure? Remember, a millimeter is one-tenth of a centimeter.

(Repeat with the diameter of new pencil eraser – show students what the diameter is: estimate, pause, then measure.)

Now for the cut out of your shoe sole. Before we estimate and measure, I'd like for you to make a fold across what you think is the widest part of your shoe. We can do this together.



- Just look at the cut out and put a little line on the center FOLD where you think the widest part is.
- Bring your toe down past that mark so that the mark will be on a fold line across the width *(model)*.
- Now we know approximately where the widest part of your shoe is.

(*Continue the ESTIMATING and MEASURING process for the length and width of the shoe sole.*)

Now we have a very long piece of string or yarn. We can use our tape measure for this one.

Open the tape measure. You should see the centimeter marks, but you should also, at the 100 centimeter mark, see another notation. Does anyone know what this is? *(pause)* This tells me how many METERS I've measured. So, if we are at the 100 centimeter mark, how many centimeters are there in one meter? *(100)*

First, ESTIMATE the measure in centimeters. How many centimeters long do you think this piece of yarn is? Write your estimate in this first cell of the split column.

Let's use our tape measure to first measure in centimeters (*pause, then measure*). I found that my yarn is 105 centimeters. Record that in the first cell of the split column for actual measurement.

Now, use logical reasoning now based on what you know about centimeters and meters. What is your ESTIMATE about how many meters long this yarn is? Talk about it with your class. *(longer pause)* We'll talk about my estimate after we've measured, because I know how long it is in meters.

Measure using the tape measure, and this time meters are your unit of measure. *(pause)* I found that the yarn is one meter and five centimeters long. How can I write that as a meter measure? Talk in your class, please. *(pause)*

One meter and five centimeters. Well, I know that the meter in this case is the whole. And I know that there are 100 centimeters to a meter, so one centimeter would be one-hundredth, five centimeters would be ……. Yes, five-hundredths. How do I write one and five-hundredths meters? 1.05 meters.

Arthimus Portio's Corner **Unit 3 Lesson 3-** **Measurement Lab** Discuss the strategies for solving the problem at the end of the Measurement Lab today. Share with us some of the strategies used.	**Unit 3, Lesson 3** **3-4** **TV Lesson** - continued  In your spare time, or maybe at home, you are going to complete the last two measurements as a scavenger hunt! Notice, I haven't put in any of the objects, only a range of measures as the estimate. You are to find objects that fit those ranges, then measure and record the actual measurements. But again, you'll not have time during the Follow-up Lesson. I know that your teacher has planned something very special for you today!! **Teacher:** We have certainly used decimals in this unit in many ways, haven't we, from measuring to using them to solve problems. **Pirate:** We certainly have! I really liked the problem at the end of the Measurement Lab today. There were several ways of solving it. Could you share your strategies with us? **Teacher:** What a great idea, Arthimus! Sharing strategies really helps us all see different ways we might use next time in problem solving. **Objectives:** Now, let's see how we addressed our objectives today.

BLM Unit 3, TV Lesson 3 **Metric Measures**
One per student

Student name _____

Object	Estimated Measurement in Centimeters or Meters	Actual Measurement in Centimeters or Meters
Distance between the arrows on the graph above		
edges of base ten unit		
edges of base ten flat		
length of new pencil		
diameter of new pencil eraser		
length of your sole tracing from heel to toe		
width of your sole tracing at widest part		
length of piece of yarn		
	between 26 cm and 50 cm	
	more than a meter but less than 1.5 meters	

BLM Unidad 3, Lección TV 3 **Medidas métricas**

1 por estudiante

Nombre del estudiante _____

Objeto	Medida estimada en centímetros o metros	Medida real en centímetros o metros
Distancia entre las flechas en la gráfica anterior		
bordes de la unidad base diez		
bordes del tablero base diez		
longitud de un lápiz nuevo		
diámetro del borrador de un lápiz nuevo		
longitud de la silueta de tu suela desde el talón hasta la punta		
ancho de la silueta de tu suela en la parte más ancha		
longitud de un trozo de hilo		
	entre 26 cm y 50 cm	
	más de un metro pero menos de 1.5 metros	

Literature Vocabulary
peering
trembled
coasted
engraved
bellowing
waddled
dangling
gleaming
teetered

Math Vocabulary
centimeters
millimeters
Repeated vocabulary
tenths
hundredths
decimal
fractions
factors (TM Lesson 2)
products (TM Lesson 2)
fact family (TM Lesson 2)

Transition to Math Materials
- Bananas, assortment of long and short ones – 1 per student /teacher
- Metric tape measure
- Chart tables (optional if you do not have a board)
- **http://www.dinosaurdays.com/fullversion/factcards/CRT_tyrannosaurus_fact.pdf?bytes_loaded=1354875&bytes_total=1354875&getPercent=1&loadText=100%25 Teacher will read the fact sheet.**
- **BLM** T-Rex Teeth

Optional: Tyrannosaurus Rex
http://www.enchantedlearning.com/subjects/dinosaurs/facts/Trex/

http://www.sciencekids.co.nz/sciencefacts/dinosaurs/tyrannosaurusrex.html

http://www.kidsdigdinos.com/Dinosaurs/trex.htm

Unit 3, Lesson 3 3-4
Follow-up

Math Objectives:
- Interpret the value of each place value position as 10 times the position to the right and as one-tenth of the value of the place to its left.
- Represent decimals, including tenths and hundredths, using concrete and visual models.
- Compare and order decimals using concrete and visual models to the hundredths.

Language Objectives:
- Listen and speak with a partner during our math activity.
- Use the math vocabulary during the activity.
- Write math journal response.

Practice and Application
Jack and Annie barely escaped that Tyrannosaurus Rex when they were in the land of the dinosaurs! That is really a scary creature!

Do you know much about the T-Rex? *(Wait for answers.)*
Would you like to know a little more about this ferocious beast? (*hopefully)*

I'd like to read a little about this powerful creature. (*Read the Fact Sheet – notice that Montana and Texas were habitats for the beast.)*

Scary! Just think of those teeth! They were the size of bananas! WHOA! And how many of those long teeth did the Fact Sheet mention T-Rex had? *(about 60)*

We are going to measure bananas today to see how long those teeth would have been. You are going to work in Teams of four today. Each of you will measure the T-Rex tooth *(banana)* to the nearest tenth of a centimeter.

- What do we call the measures that are one-tenth of a centimeter? *(millimeters*)
- Why are they tenths of a centimeter? (*because it takes 10 millimeters to be equivalent to one centimeter)*
- Suppose I had a measure of 35 centimeters and nine millimeters? How would I record that as a decimal in centimeters? (*35.9 centimeters*) How do we read that measure? (*35 and nine-tenths centimeters*)

You are ready to work with your Team to measure your T-Rex teeth.

ELPS (*English Language Proficiency Standard*)
2C, 2E, 3E, 3G, 4G, 5B, 5C

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.C.3., I.E.2., II.C.1.
ELA I.A.1., I.A.2., I.A.3., II.A.2., III.B.2.
MATH IV.A.1., IV.B.2., IV.C.3.

Technology
http://www.kidsmathgamesonline.com/numbers/decimals.html
Great online game for students to estimate. They can change their orders as well.

Unit 3, Lesson 3 3-4

Follow-up - continued

What are you asked to do on the table? (*Write the measures noting both the centimeters and the millimeters, then write the measures in centimeters to the nearest tenth.*)

What else are you asked to do on the page? (*Write the decimals in order from shortest to longest; represent the decimals as fractions, written from shortest to longest.)*

Circulate the room, asking students questions about their findings. The answers, of course, will depend up the size of the bananas in their group.

(*When all teams have finished, begin a discussion of the T-Rex teeth.)* Select a member of your Team to come to the board *(or chart tablet)* and write your longest tooth measure. (*Wait for every team to comply*.)

Which measure is the longest? (*Wait for teams to confer, then ask their decision and how they made it. Class must come to consensus.)*

Select a different member of your Team to come to the board *(or chart tablet)* and write your shortest tooth measure. (*Wait for every team to comply*.)

Which measure is the shortest? (*Wait for teams to confer, then ask their decision and how they made it. Class must come to consensus.)*

T-Rex had some big teeth! But we seem to have a very large range of sizes. What is our shortest? Our longest? Why do we have such a large variance? (*because the bananas vary in size*) What do you think about using the banana as the benchmark for the length of the T-Rex teeth? (*Accept all answers, but hopefully someone will note that perhaps it would have been better to have used something more standard.)*

I read another article on T-Rex teeth that said the teeth ranges in size from very small to over 23 cm. Do our measurements fall within that range? (*Depends on your data, but probably most measure do not exceed the 23 cm.)* So maybe, now that we know the teeth had a great range, the banana was not such a bad indicator of the size?

Keep those bananas. You are going to use them for our Snack Fractions!

	Unit 3, Lesson 3 **3-4** **Follow-up -** continued  **Math Journal Writing** Students should have a spiral notebook into which they journal their thoughts daily about math. Today's journal prompt is: ✎🕮 **Explain how you would represent 45 centimeters and nine millimeters in both centimeters to the nearest tenth, and fractions. Write how we read the length in centimeters.** **Objectives:** Review the objectives with the class, making sure they understand how they achieved each.

BLM TM Unit 3, Lesson 3 **T-Rex Teeth**
One page per student

Materials:

- This BLM per student
- Metric tape measures per student
- 4 T-Rex teeth (bananas) per team

Work in Teams of four.
My Team Members: _____ _____

_____ _____

Our T-Rex Teeth Measurements

Team Members' Names	Centimeters and Millimeters	Measure of T-Rex Teeth in Centimeters to nearest Tenth.
My name:		
2.		
3.		
4.		

Arrange the teeth measures from shortest to longest:

_____ _____ _____ _____

Now write a fractional representation for each measurement from shortest to longest.

_____ _____ _____ _____

BLM Unidad 3, Lección 3 **Los dientes del T-Rex**

1 página por estudiante

Materiales:

- Este BLM para cada estudiante
- Cinta métrica para cada estudiante
- 4 dientes de T-Rex (plátanos) por equipo

Trabajen en equipos de 4

Mis compañeros de equipo: _____

_____

_____ _____

Nuestras medidas de los dientes de T-Rex

Nombres de los miembros del equipo	Centímetros y milímetros	Medida del diente de T-Rex en centímetros hasta el décimo más cercano.
Mi nombre:		
2.		
3.		
4.		

Ordena las medidas de los dientes del más corto al más largo:

_____ _____ _____ _____

Ahora escribe una representación ficticia de cada medida, de la mas corta a la más larga.

Math Objectives

- Represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines.
- Compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models.
- Determine if two given fractions are equivalent using a variety of methods.
- Represent decimals, including tenths and hundredths, using concrete and visual models and money.
- Relate decimals to fractions that name tenths and hundredths.

Language Objectives

- Discuss fraction comparisons.
- Discuss fraction equivalencies.
- Discuss fraction/decimal equivalencies.

Vocabulary

halves
thirds
sixths
equivalent
greater than, less than

Materials:

1 per student

- **BLM** raisin Bread and Banana Fractions (2 pages)

Per Partners:

- 2 pieces ROUND raisin bread
- 2 T peanut butter (allergy alert)
- 1 banana
- 2 Paper plates
- 2 paper towels
- 2 scissors
- Chart paper with question**:** ***Tell what this statement means, whether it is true or false, and explain why***.
- **When you look at number representations of fractions without models, you have to imply that the "whole" they represent are the same size if you are going to compare them.** Put a

Unit 3, Lesson 3 3-4

Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions

As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

Have you ever eaten a peanut butter and banana sandwich? It's really pretty tasty, especially on raisin bread. Your job is to decide how to make the sandwich, then how to divide it so that you and your partner each have equal shares.

Do look now at the snack.

- What do you have to share? (*4 pcs bread, 4 T peanut butter, 1 banana*)
- Talk to your partner now about how you will share the snack fairly between you. When you have a plan, raise your hand and share your plan with me. (*Circulate the room listening to the partners' discussions, and as hands pop up, listen to their plans.)*

Work with the rest of the sharing and comparing you are asked to do on the record sheets. *(Circulate the room.)*

- What do you call one of these portions?
- How many of these portions make a whole?
- Which is larger (*compare two fractional portions.)?*
- When you think about the fractional portion of the bread, how does the NUMBER representation compare to the NUMBER representation?
- How would one-fourth compare to this fraction? How do you know? (*compare to each of the fractional portions – only 1/2 is larger*)
- Can you tell me a way that you can tell by looking at a number unit fraction representation, which fractional piece is larger?
- Show me how you found an equivalent fraction for 2/3.
- (sixths) What would you call two of these pieces? 3? 4? 5? 6?

copy of the record sheet at the top of the chart with the question chart with the question.	**Unit 3, Lesson 3** **3-4**  **Snack Fractions** **Snack Fraction Journal Writing: Chart Paper** ***Tell what this statement means, whether it is true or false, and explain why***. **When you look at number representations of fractions without models, you have to imply that the "whole" they represent is the same size if you are going to compare them.** **Objectives:** Review the objectives with the class, making sure they understand how they achieved each.

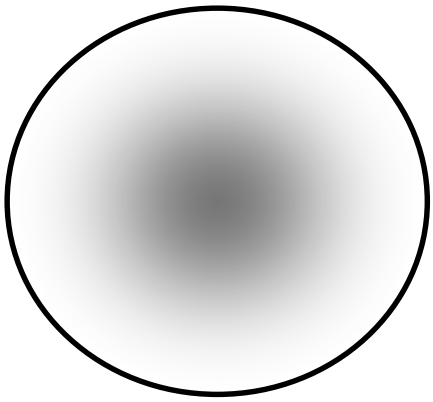
BLM Unit 3, Snack Fraction Lesson 3 **Raisin Bread Sandwich Fractions**
(One sheet per student)

My name is _____

Today, the circles represent your Raisin Bread Sandwich. Please draw lines to divide the circle into the appropriate fractional parts.

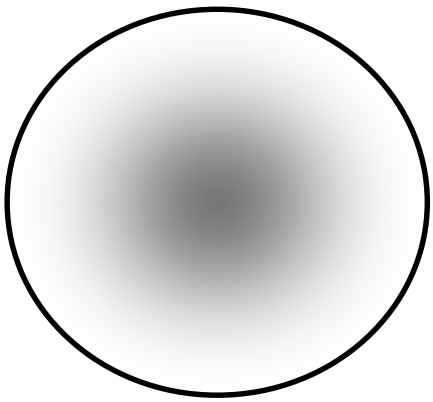
When I share with 1 other friend, my fraction part is _____
(word)

I can represent that fraction with numbers: _____



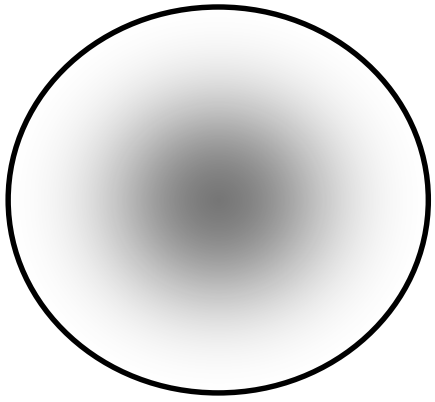
When I share with 2 other friends, my fraction part is _____
(word)

I can represent that fraction with numbers: _____



When I share with 5 other friends, my fraction part is _____
(word)

I can represent that fraction with numbers: _____



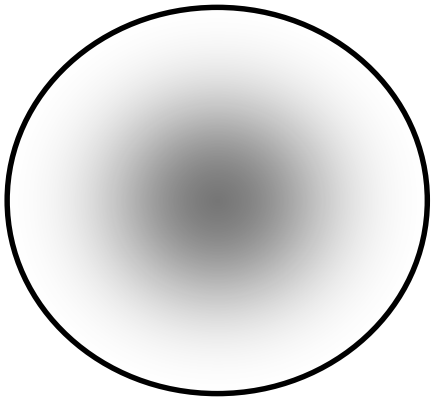
BLM Unit 3, Snack Fraction Lesson 3 **Raisin Bread Sandwich Fractions**
(One sheet per student)

Mi nombre es _____

Hoy, los círculos representan un sándwich de pan con pasas. Dibuja líneas para divider el círculo en las partes fraccionales apropriadas.

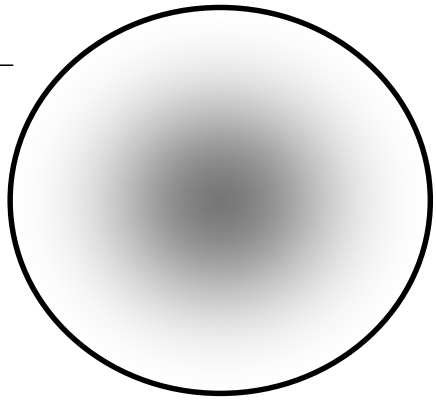
Cuando comparto con un amigo mi parte fraccional es _____
(palabra)

Puedo representar esa fracción con números: _____



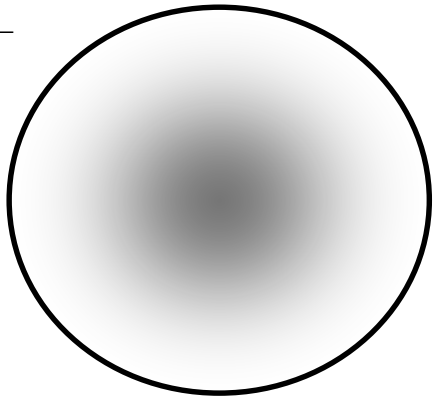
Cuando comparto con dos amigo mi parte fraccional es _____
(palabra)

Puedo representar esa fracción con números: _____



Cuando comparto con cinco amigo mi parte fraccional es _____
(palabra)

Puedo representar esa fracción con números: _____



BLM Unit 3, Snack Fraction Lesson 3 **Raisin Bread Sandwich Fractions**
(One-half sheet per student)

First of all, compare the three unit fractions by writing the fractions in the rectangle and using < or > in the circle between the two fractions.

Circle the portion you would rather have. _____ ◯ _____ ◯ _____

Explain why you would rather have the portion you circled.

Now, use the two rectangles below to show how many sixths you would need to be equivalent to two-thirds.

Decimals
Divide the bar in half. Shade four-tenths. Name each portion as a decimal and as a fraction.

Decimal _____ _____

Fraction _____ _____

BLM Unidad 3, Fracciones de refrigerio Lección 3 **Fracciones de sándwich de pan con pasas**
(1 media hoja por estudiante)

Antes que nada, compara las tres fracciones escribiéndolas en el rectángulo y usando < o > en el círculo entre ambas fracciones.

Circula la porción que preferirías tener. _____ ◯ _____ ◯ _____

Explica por qué preferirías tener la porción que circulaste.

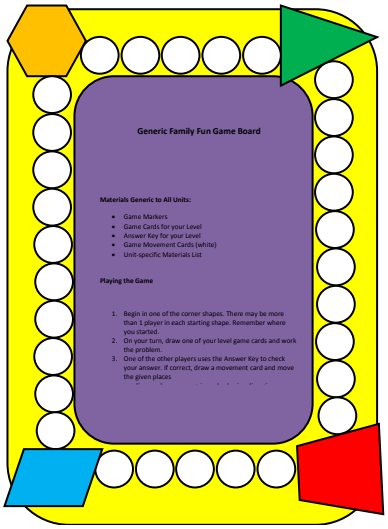
Decimales
Divide la barra a la mitad. Sombrea cuatro décimos. Nombra cada porción como decimal y como fracción.

Decimal _____ _____

Fracción _____ _____

Ahora, usa los 2 rectángulos siguientes para mostrar cuántos sextos necesitarías para que sean equivalentes a dos tercios.

Family Fun – 3rd -4th, Unit 3 Lesson 3



Family Fun Game!

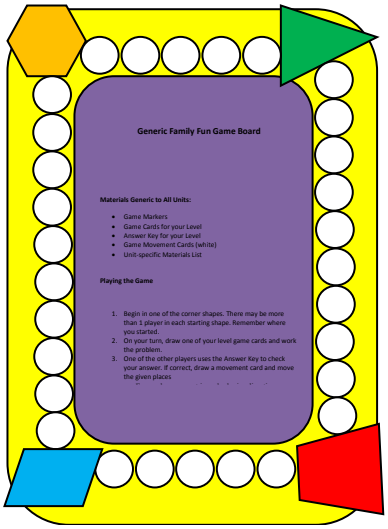
It's our Family Fun Game time for this unit. We'll be practicing the skills we learned in this unit and in Units 1 and 2!

Here are some of the skills I especially want to practice.

Thank you for sharing fun and summer learning with all of us!

_____

Diversión familiar – 3º -4º, Unidad 3 Lección 3



¡Juego de Diversión Familiar!

Es hora de nuestro juego de Diversión Familiar para esta unidad. ¡Estaremos practicando las habilidades que aprendimos en esta unidad y en las unidades 1 y 2!

Estas son algunas de las habilidades que quiero practicar especialmente.

¡Gracias por compartir la diversión y el aprendizaje en este verano con todos nosotros!

_____

FAMILY FUN Involvement **3rd-4th**

Overview for Unit 3, ***The Magic Tree House, Dinosaurs Before Dark***

This overview will provide a one-page view of the suggested Family Fun Activities for this unit, as well as other opportunities provided for Family Involvement.

Lesson 1

- Vocabulary Cards so students can practice language and math vocabulary at home
- Family Fun Unit 3 Lesson 1 Letter with ideas for involving the family in money matter

Lesson 2

- Family Fun Unit 3 Lesson 2 Letter

Lesson 3

- Family Fun Unit 3, Lesson 3 attached to the Family Fun Game supplies.
- Family Fun Game

Enrichment Suggestions

- Make a diorama of a dinosaur scene.

This portion of the curriculum, although NOT required, should be used as needed to supplement and enrich the Unit's activities.

Family Fun Suggestions:

- Art Project – make a diorama of a dinosaur scene. Send home materials and have students research at school.

Possible Center Suggestions:

- Online Math Games
- Art Project
- Create new Decimal Battle cards to take home.

ENRICHMENT Suggestions **3rd-4th**

Unit 3 ***The Magic Tree House, Dinosaurs Before Dark***

MATH WALK

Tree House Walk – Walk the campus. Is there a tree where a tree house could be built? Or perhaps a large area for a free-standing "tree" house? Ask students to design a tree house that would fit in the area, then to write what they would put in the tree house. Would it be magical? If so, what would it do? Where would it go? How would you activate the tree house?

Technology Connections

- **Math Practice**
  http://mrnussbaum.com/decimals_games/
  Decimal games
  http://www.amblesideprimary.com/ambleweb/mentalmaths/dividermachine.html
  Division games
  http://www.multiplication.com/games/play/jungle-jim-and-monkeys
  Multiplication games
- **Science Connection**
  http://www.kidsdinos.com/
  More about dinosaurs
- **Social Studies Connection**
  http://www.enchantedlearning.com/subjects/dinosaurs/mesozoic/
  The Mesozoic Era
- **Art Connection**
  http://www.deepspacesparkle.com/2011/05/15/dinosaur-art-project/
  Painted dinosaur
  http://www.thatartistwoman.org/2009/05/silhouettes-dinosaur-art-project-2.html
  Dinosaur silhouettes
  http://www.eduplace.com/monthlytheme/october/dinosaurs.html
  Many dinosaur projects

Math Objectives

(TV1) More Decimal Concepts
(TV2) More Decimal Application

- Interpret the value of each place value position as 10 times the position to the right and as one-tenth of the value of the place to its left.
- Represent decimals, including tenths and hundredths, using concrete and visual models.
- Compare and order decimals using concrete and visual models to the hundredths.

(TM2) More Multiplication Concepts

- Represent multiplication facts by using a variety of approaches.
- Determine a quotient using the relationship between multiplication and division.
- Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.

Differentiate

You are given three very different lessons from which to choose based on your students' needs. TV 1 is 4th grade conceptual decimals; TV 2 is 4th grade application decimals; TM2 is application of 3rd grade multiplication division skills.

Snack Fraction Notice

All snack fractions are common throughout the grade bands. Lesson 3 has been suggested for its ease of delivery. The only difference in the lessons 1, 2 and 3 are the foods which are divided equally. Lesson 3 has been chosen, however, because it gives practice in dividing round wholes.

Materials

(TV1)

***BLM TM Lesson 1 – Decimal Battle –** 1 set of cards per pair – good center game, but NOT instructional

- base ten sets – 1 set per student
  - 3 flats, 15 longs, 15 units
- **BLM** Naming Decimals – 1 per student
- **BLM** Naming Decimals KEY

(TV2)

- **BLM** Dino Decimals, 2 pages – 1 per student
- **BLM** Dino Decimals KEY, 2 pages

(TM2)

- **BLM** Anatosaurus Eggs

Family Fun

- Game markers
- 50 counters per student
- **BLM** Family Fun Game Array Paper
- **BLM** 3-4 Special Instructions
- **BLM** Family Fun Problem Cards (green)
- **BLM** Family Fun Answer Key – all levels

Snack Fractions – Follow-up Lesson 2

- 2pieces ROUND raisin bread
- 1 banana
- 2 paper plates
- 2 paper towels
- 2 scissors
- **BLM** Raisin Bread Sandwich Fractions (2 pages)
- Chart paper with question**:**
  Tell what this statement means, whether it is true or false, and explain why.

When you look at number representations of fractions without models, you have to imply that the "whole" they represent are the same size if you are going to compare them.

QUESTIONING

As a result of this lesson, your students should be able to respond to the following:

- How do you read this decimal?
- What is the (fractional/ decimal) representation of this (decimal/fraction)?
- Describe the Math Movie you see when you read this problem?

(for TM2)

- What are the factors in this problem? The product?
- Name the fact family for this problem and their associated number sentences.
- What is the math movie you see in this problem?
- What are you asked to solve for in this problem?

Math Vocabulary

centimeters, millimeters, (rest are review: tenths, hundredths, decimal, fractions, factors, products, fact family)

CGI Problem (select one)

- Division, Measurement (3rd assessment Item 5)
- Multiplication

Journal Writing

(Follow-up Lesson 1) Explain your vision of 27 and 15-hundredths.
(TM2) What is the fact family for 6, 7, 42?

Family Fun (A generic game board is being used in all grade levels, differentiated by game cards specific to the grade level.) There is only one type of game this year. All games will have problem cards and an answer key at all levels. Please be sure the 3rd-4th grade cards are printed on ***green*** cardstock.

Snack Fractions TV Lesson 3 - ROUND Raisin bread, Peanut Butter and Banana
You can select any of the three snacks that are appropriate for your homes – all three snacks in 3rd - 4th grade level will practice the same skills, although comparison and equivalent fractions will be for different fractional pieces depending on the lesson you choose. This particular lesson gives you practice in dividing round wholes.

Assessment – Students will be introduced to and practice skills for items
3rd - 2, 3, 6,7, 8 *(Daily Routines, TM2 and Snack Fractions)*
4th - 1, 2, 4, 5, 6, 7, 8 *(Daily Routines, TV 1, 2 and Snack Fractions)*

Overview

Unit 4 *Children of the Dragon*

This is a quick snapshot of the three math lessons for this unit. For detailed instructions, balance literacy objectives/extended activities, enrichment ideas refer to the complete lesson plans for each lesson.

Lesson Segment	Math Objectives	Language Objectives	Activity	Materials	Blackline Masters
Unit 4 **Lesson 1** ***Daily Routine*** 30 – 45 minutes	**ESSENTIAL** **Math Objectives** • Find missing elements in an equation. • Solve multi-step word problems. • Use a variety of strategies to solve word problems. • Find equivalent forms of fractional parts. • Measure length in centimeters. **OPTIONAL** Compose and decompose values to show a new representation of the value. Graph class responses and analyze data.	**ESSENTIAL** **Language Objectives** • Speak to partners, teacher, and class using vocabulary. • Discuss problem solving process and strategies. • Explain how they decided to rename the target number. • *Discuss scarcity of money, choices and cost benefit.* **If you are giving the Mid-assessment, please take time to give it today.** **OPTIONAL** Discuss ways to compose and decompose values. Analyze graph results.	**ESSENTIAL** • Fraction Action • CGI • What's Missing? • Measurement Lab • Solve It **OPTIONAL** • Target Number • Graphing - none Money Matters is now found on MAS Space	**ESSENTIAL** • Unknown Quantity Cards – 1 set for classroom	**ESSENTIAL** • **BLM** Solve It, Unit 4 • **BLM** Who Ate More? – 1 per student • **BLM** CGI Problems • **BLM** Vietnamese Dragon – 1 per student • **BLM** Vietnamese Dragon Key – teacher only

Classroom **Lesson 1** 1 to 1.5 hour	**Math Objectives** Represent multiplication facts by using equal-sized groups. Represent the multiplication/division relationship by determining fact families and related number sentences.	**Language Objectives:** Use the context of the sentence to determine the meaning of unfamiliar words or multiple meaning words. Summarize and explain the lesson or message of a work of fiction as its theme. Listen attentively to speakers, ask relevant questions, and make pertinent comments. Write literary texts to express their ideas and feelings about real or imagined people, events, and ideas.	***Language*** ***Children of the Dragon, Selected Tales from Vietnam*** by Sherry Garland **Vocabulary Building** obediently boisterous gilded squirming flourished banyan	***Language***	***Language*** • **BLM** Word Cards • **BLM** Cloze Summary (optional)
		Math Objectives: Represent multiplication facts by using equal-sized groups. Represent the multiplication/division relationship by determining fact families and related number sentences.	***TM Math*** **Building Background** Game to practice basic facts **Vocabulary** **Repeated vocabulary** factors products fact family	***TM Math*** • Base ten units – 40 per student • Dice –2 per pair of students	***TM Math*** • **BLM TM** Dragon Roll – 1 per student, plus 2 for the teacher demonstration • **BLM** Decimal Battle – if time permits, let student partners play Decimal Battle (repeated from Units 2&3).
TV **Lesson 1** 30 minutes	Use a variety of strategies that include arrays, partial products, related facts, and the traditional algorithm to solve 2-digit times 2-digit arithmetic problems.	Use the math vocabulary during the activity. Discuss answers and possible strategies with classmates. Explain decimal relationships.	**Vocabulary Building** **Repeated vocabulary** factors products fact family **Comprehensible Input** Students work through the process of double-digit multiplication with base ten arrays and with grid arrays.	• Base ten sets – 1 set per student ○ 3 flats ○ 15 longs ○ 15 units • Scratch paper • Light colored crayon	• **BLM** Array Model – teacher only • **BLM** Grid paper – 3 per student, 1 for TV and 2 for Follow-up Lesson • **BLM**– The Flying Dragon Lizard -1 per student (TV Teacher will read with the students, but problem will be solved in Follow-up lesson)

Follow-Up and Snack Fraction **Lesson 1**
 	
.5 to 1 hour
	Use a variety of strategies that include arrays, partial products, related facts, and the traditional algorithm to solve multi-step word problems.	Listen and speak with a partner during our math activity.
		Use the math vocabulary during the activity.
		Write math journal response.
			Practice and Application
			Solve 2 word problems using arrays, and 1 other strategy.
				• Scratch paper
				• Light colored crayon
				• Base ten sets – 1 set per student
				  ○ 3 flats
				  ○ 15 longs
				  ○ 15 units
					• **BLM** Array Model – teacher only to use as model
					• **BLM** Grid paper –2 per student (requested in TV Lesson)
					• **BLM**– The Flying Dragon Lizard -1 per student from TV Reading
					• **BLM** Quince Monitor Lizard – 1 per student

	SNACK FRACTIONS:
	Represent equivalent fractions using pictorial models.
	Compare two fractions having the same denominator.
	Determine if two given fractions are equivalent.
	Recognize tenths and label in fraction and decimal form.
		SNACK FRACTIONS:
		Discuss fraction comparisons.
		Discuss fraction equivalencies.
		Discuss fraction – decimal equivalencies.
			SNACK FRACTIONS
			Building Background
			This one is a little different – parts of a set and problem embedded.
			
			Vocabulary
			halves
			fourths
			sixteenths
			equivalent
			greater than, less than
				SNACK FRACTIONS:
				Per Partners:
				• Skewers (1 per student)
				• Food items in Ziploc bags:
				  ○ 16 1”cubes of cooked meat or chicken
				  ○ 8 cubes of cheese
				  ○ 8 cubes pineapple
				  ○ 8 cherry tomatoes
				• 16 lima beans available
				• 2 paper plates
				• 2 paper towels
				• Chart paper with question**: How did you find an equivalent fraction to 3/4?** Put a copy of the record sheet at the top of the chart with the question.
					SNACK FRACTIONS:
					• **BLM** Kabob Fractions – 1 per student

Lesson Segment	Math Objectives	Language Objectives	Activity	Materials	Blackline Masters
Unit 4 Lesson 2 ***Daily Routine*** 30 – 45 minutes	**ESSENTIAL** Find missing elements in an equation. Solve multi-step word problems. Use a variety of strategies to solve word problems. Find equivalent forms of fractional parts. Measure length in centimeters	**ESSENTIAL** Speak to partners, teacher, and class using vocabulary. Discuss problem solving process and strategies. Explain how they decided to rename the target number. *Discuss scarcity of money, choices and cost benefit.* .	**ESSENTIAL** • Fraction Action • CGI • What's Missing? • Measurement Lab • Solve It **OPTIONAL** • Target Number • Graphing – None Money Matters is now found on MAS Space	**ESSENTIAL** • Unknown Quantity Cards (add/subtract)	**ESSENTIAL** • **BLM** Solve It, Unit 4 Lesson 2 • **BLM** Model Equivalencies – 1 per student and KEY for teacher • **BLM** CGI Problems • **BLM** Rice Paddy Area – 1 per student and Key for teacher • **BLM** Model Equivalencies – 1 per student
Classroom **Lesson 2** 1 to 1.5 hour	***Math Objectives*** Represent multiplication facts by using equal-sized groups. Represent the multiplication /division relationship by determining fact families and related number sentences.	**Language Objectives:** Use the context of the sentence to determine the meaning of unfamiliar words or multiple meaning words. Summarize and explain the lesson or message of a work of fiction as its theme. Listen attentively to speakers, ask relevant questions, and make pertinent comments. Write literary texts to express their ideas and feelings about real or imagined people, events, and ideas.	***Language*** ***Children of the Dragon, Selected Tales from Vietnam*** by Sherry Garland **Vocabulary Building** obediently boisterous gilded squirming flourished banyan	***Language***	***Language*** • **BLM** Word Cards • **BLM** Folktale Elements/Plot Chart

		Math Language Objectives Discuss activity strategies with partner. Verbally verify comparative sizes of decimal representations.	***TM Math*** **Building Background** Game to practice basic facts **Vocabulary** **Repeated vocabulary** factors products fact family	***TM Math*** • base ten units – 40 per student • dice –2 per pair of students	***TM Math*** • **BLM TM** Dragon Roll – 1 per student, plus 2 for the teacher • **BLM** Decimal Battle – if time permits, let student partners play Decimal Battle once again.

TV
Lesson 2
 	
30 minutes
	Use a variety of strategies that include arrays, partial products and traditional algorithm to solve multi-step word problems.	Use the math vocabulary during the activity.
		Discuss solution strategies.
		Explain decimal relationships.
			Vocabulary Building
			Repeated vocabulary
			factors
			products
			fact family
			
			Comprehensible Input
			Solve division word problems using arrays, and one other strategy.
				• Base ten sets – 1 set per student
				  ○ 3 flats
				  ○ 15 longs
				  ○ 15 units
				• Scratch paper
				• Light colored crayon
					• **BLM** Grid paper – 2 per student
					• **BLM**– Planting the Paddy #1-1 per student
					• **BLM #1 KEY –** Classroom Teachers should be familiar with this before the lesson to know what to watch for as you circulate the room.
					• **BLM** Planting the Paddy #2 – 1 per student
					• **BLM #2 KEY** - Classroom Teachers should be familiar with this before the lesson to know what to watch for as you circulate the room.

Follow-Up and Snack Fraction **Lesson 2** .5 to 1 hour	Use a variety of strategies that include arrays, partial products and the traditional algorithm to solve multi-step word problems.	Listen and speak with a partner during our math activity. Use the math vocabulary during the activity. Write math journal response.	**Practice and Application** Sample mozzarella cheese. Solve word problems using one strategy to solve and a different strategy to check solution. Multi-step problem included.	• Sample of Mozzarella cheese – 1 per student • Scratch paper • Light colored crayon	• **BLM** Grid paper –1 per student • **BLM**– Water Buffalo - 1 per student • **BLM** Water Buffalo KEY – teacher only

	SNACK FRACTIONS: Represent equivalent fractions using pictorial models. Compare two fractions having the same denominator. Determine if two given fractions are equivalent. Represent decimals, including tenths and hundredths, using concrete and visual models and money. Relate decimals to fractions that name tenths and hundredths.	**SNACK FRACTIONS:** Discuss fraction comparisons. Discuss fraction equivalencies. Discuss fraction – decimal equivalencies.	**SNACK FRACTIONS** **Building Background** Students work with partner to complete assignment. Teacher will circulate the room. **Vocabulary** halves fourths eighths equivalent greater than, less than	**SNACK FRACTIONS:** **Per Partners:** • 1 individual serving bag of 100 calorie snack • 8 lima beans **Per Partners:** • 2 paper plates • 2 paper towels • Chart paper with question**:** **How do you know that 3/4 = 6/8?**	**SNACK FRACTIONS:** • **BLM** Snack Bag Fractions • 1 per student
Lesson Segment	**Math Objectives**	**Language Objectives**	**Activity**	**Materials**	**Blackline Masters**
Unit 4 Lesson 3 ***Daily Routine*** 30 – 45 minutes	**ESSENTIAL** Find missing elements in an equation. Solve multi-step word problems. Use a variety of strategies to solve word problems. Find equivalent forms of fractional parts. Measure length in centimeters.	**ESSENTIAL** Speak to partners, teacher, and class using vocabulary. Discuss problem solving process and strategies. Explain how they decided to rename the target number. *Discuss scarcity of money, choices and cost benefit.* **OPTIONAL** Discuss ways to compose and decompose values. Analyze graph results.	**ESSENTIAL** • Fraction Action • CGI • What's Missing? • Measurement Lab • Solve It **OPTIONAL** • Target Number • Graphing – none Money Matters is now found on MAS Space	**ESSENTIAL** • Unknown Quantity Cards (add/subtract)	**ESSENTIAL** • **BLM** Solve It, Unit 4 • **BLM** Who Ate More? – 1 per student • **BLM** CGI Problems • **BLM** Jesse's Homework – 1 per student • **BLM** Jesse's Homework Key – teacher only • BLM – Area Arrays – 1 per student

Classroom **Lesson 3** 1 to 1.5 hour	Represent multiplication facts by using equal-sized groups. Represent the multiplication /division relationship by determining fact families and related number sentences.	Represent multiplication facts by using equal-sized groups. Represent the multiplication/division relationship by determining fact families and related number sentences.	***Language*** ***Children of the Dragon, Selected Tales from Vietnam*** by Sherry Garland **Vocabulary Building** obediently boisterous gilded squirming flourished banyan	***Language*** • 6 - 3x5 index cards for each pair of students	***Language*** • **BLM** Word Cards • **Lesson 2 BLM** Folktale Elements/Plot chart
		Math Language Objectives Verbally compare various decimal representations. Discuss game cards with partner and group.	***TM Math*** **Building Background** Solve arithmetic problems, then color a Dragon sheet. **Vocabulary** **Repeated vocabulary** factors products fact family	***TM Math*** • fine-tipped marker sets – 1 set per student	***TM Math*** • **BLM TM** Math Word Cards • **BLM TM** Decimal Battle (as center) • **BLM TM** Vietnamese Dragon – 1 per student • **BLM TM KEY**
TV **Lesson 3** 30 minutes	Use a variety of strategies that include arrays, partial products and traditional algorithm to solve multi-step word problems.	Use the math vocabulary during the activity. Discuss answers and possible strategies with classmates. Explain the relationship between meters and centimeters.	**Vocabulary Building** **Repeated vocabulary** factors products fact family **Comprehensible** Solve two story problems using strategy of their choice, and a different strategy to check their answer.	• base ten sets – 1 set per student ○ 3 flats ○ 15 longs ○ 15 units • scratch paper • light colored crayon	• **BLM** grid paper – 2 per student • **BLM**– The Banyan Tree #1-1 per student • **BLM #1 KEY –** Classroom Teachers should be familiar with this before the lesson to know what to watch for as you circulate the room. • **BLM** The Banyan Tree #2 – 1 per student • **BLM #2 KEY** - Classroom Teachers should be familiar

					with this before the lesson to know what to watch for as you circulate the room.

Follow-up and Snack Fraction **Lesson 3**
 	
.5 to 1 hour
	Review skills taught to this point in the curriculum.	Explain strategies.
		Listen and speak with a partner during our math activity.
		Use the math vocabulary during the activity.
		Write your math journal response.
			Read through and analyze the Family Fun problem cards and then play game in partners.
			
			Vocabulary
			Repeated vocabulary
			factors
			products
			fact family
				• scratch paper
				• light colored crayon
				• way to project game cards so all students can see them
				• Family Fun Game board
				• Family Fun Movement Cards
				• Game pieces
				• base ten sets
				  ○ 4 hundreds
				  ○ 15 tens
				  ○ 15 units
					• **BLM** Family Fun Problem Cards – 1 set per partners
					• **BLM** Family Fun Array Paper –1 per student
					• **BLM** All-level Answer Key
					• **BLLM** Special 3-4 Instructions
					• **Family Fun Game supplies to take home**

	SNACK FRACTIONS Represent equivalent fractions using pictorial models. Compare two fractions having the same denominator. Determine if two given fractions are equivalent. Represent tenths in decimal and fractional forms.	**SNACK FRACTIONS** Discuss fraction and decimal equivalencies. Discuss fraction comparisons. Discuss fractions/decimal equivalencies.	**SNACK FRACTIONS** **Building Background** Students should be able to work with their partners today while teacher circulates the room. **Vocabulary** halves fourths eighths equivalent greater than, less than	**SNACK FRACTIONS** **Per Partners:** • 3 graham crackers (full sheets) • 2 T peanut butter • 2 plastic knives • 2 paper plates • 2 paper towels • 2 scissors • 2 glue sticks • Chart paper with question**: How do you know that 3/4 = 6/8?**	**SNACK FRACITONS** 1 per student • **BLM** Peanut Butter and Cracker Fractions - 1 per student

Unit 4	Lesson 1		Lesson 2		Lesson 3	
	TV and Follow-up	**Snack Fractions**	**TV and Follow-up**	**Snack Fractions**	**TV and Follow-up**	**Snack Fractions**
3rd Grade Assessment Items • Lesson 1:1, 2, 3, 4, 7 • Lesson 2: 1, 2, 3, 4, 7 • Lesson 3: 1, 2, 3, 4, 7 Daily Routines • Measurement (1) • What's Missing (2) • CGI (5) • CGI (4) • Fraction Action (6) Snack Fractions (6, 8) **4th Grade** Assessment Items • Lesson 1: 3 • Lesson 2: 3 • Lesson 3: 3 Daily Routines • Measurement (3, • Fraction Action (1, 2, 4, 5, 6, 7) Snack Fractions (8)	**3.4(E)** represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting. **3.4(G)** use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products and the commutative associative and distribute properties. **3.4(H)** determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines. **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods. **4.2(E)** represent decimals, including tenths and hundredths, using concrete and visual models and money. **4.2(G)** relate decimals to fractions that name tenths and hundredths.	**3.4(E)** represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting. **3.4(H)** determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines. **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods. **4.2(E)** represent decimals, including tenths and hundredths, using concrete and visual models and money. **4.2(G)** relate decimals to fractions that name tenths and hundredths.	**3.4(E)** represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting. **3.4(G)** use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products and the commutative associative and distribute properties. **3.4(H)** determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines. **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods. **4.2(E)** represent decimals, including tenths and hundredths, using concrete and visual models and money. **4.2(G)** relate decimals to fractions that name tenths and hundredths.

Project SMART/Math MATTERS 2014

Grade Level: 3-4	Unit 4 / Lessons 1 – 2 - 3

Daily Routine Math Objectives:
Solve word problems using a variety of strategies and support their strategies.
Model and solve 2-step word problems.
Determine a missing number in an equation.
Measure area.
Construct concrete models of fractions.
Compare fractional parts of whole in a problem situation using concrete models, fraction names and number representations.
Model fraction quantities greater than one.

Daily Routine Language Objectives:
Speak to partners, teacher, and class using vocabulary introduced in the Daily Routines.
Listen to, read, speak and write the labels of the graph.
Discuss problem solving strategies in partners, small groups and whole groups.
Listen to, read, speak and write to understand action in word problems.

Unit Math Objectives (Integrated Lesson including snack fractions):
Represent multiplication facts by using a variety of approaches.
Determine a quotient using the relationship between multiplication and division.
Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.
Determine the corresponding decimal to the tenths or hundredths place of a specified point on a number line.
Represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models.
Compare two fractions having the same numerator or denominator in problems by reasoning about the sizes and justifying the conclusion using symbols, words, objects, and pictorial models.
Determine if two given fractions are equivalent using a variety of methods.

Unit Language Objectives:
Think, pair, share questions throughout the unit.
Learn and use new vocabulary.
Listen to nonfiction writing for information and to develop an understanding of the vocabulary.
Listen to, speak, read and write unit vocabulary in a variety of group and individual settings.
Share-write math sentences.
Describe why a snack is or is not half.

Technology Objectives:
Use research skills and electronic communication, with appropriate supervision, to create new knowledge.
Technology suggested in this unit: iPad, SMART Board or other "smart" projection device, Internet

Key Vocabulary, MATH: Repeat Vocabulary: factors, products, fact family
Key Vocabulary, LANGUAGE: obediently, boisterous, gilded, squirming, flourished, banyan

Resources/Literacy Links
Children of the Dragon, Selected Tales from Vietnam by Sherry Garland
Related links: http://kids.nationalgeographic.com/kids/places/find/vietnam/
Excellent resource for quickly familiarizing students with Vietnam.
http://www2.needham.k12.ma.us/eliot/technology/lessons/global/r2r/viet.html /
Kid-friendly information about Vietnam

Lesson Sequence

- Daily Routine: 30 to 45 minutes
- Classroom Lesson: 1 to 1.5 hour
- TV Lesson: 30 minutes
- Classroom Follow-up including Snack Fractions: .5 to 1 hour

MATH WALK
Comparison Walk

Technology Connections

- **Math Practice**
  http://mrnussbaum.com/decimals_games/
  Decimal games
  http://www.amblesideprimary.com/ambleweb/mentalmaths/dividermachine.html
  Division games
  http://www.multiplication.com/games/play/jungle-jim-and-monkeys
  Multiplication games
- **Science Connection**
  http://amazing-funfacts.blogspot.com/2011/02/great-banyan-tree.html
  Facts about the banyan tree
  http://www.livescience.com/27409-buffalo.html
  Facts about water buffalo
  http://www.bbc.co.uk/nature/life/Water_Buffalo
  Water buffalo
  http://ngm.nationalgeographic.com/2011/01/largest-cave/peter-photography
  Interesting facts about the world's largest cave in Vietnam.
- **Social Studies Connection**
  http://www.timeforkids.com/destination/vietnam/day-in-life
  Day in the life of an 11-year-old boy.
  http://www.adoptvietnam.org/vietnamese/tet-lessonplan.htm
  Four Corners activity, and many more interesting activities.
- **Art Connection**
  http://www.adoptvietnam.org/vietnamese/tet-puppet.htm
  Dragon puppet
  http://www.adoptvietnam.org/vietnamese/dragonboat.htm
  Dragon boat
  http://www.fengshuiweb.co.uk/advice/angpow.htm
  History of and directions for making Ang Pow red envelopes for Tet.

Unit 4 OPTIONAL All-School Project

Because all grade bands will be reading, learning and researching within the same unit theme, we are offering OPTIONAL projects in which all ages can participate.

Unit Theme: Folktales

Unit 4: Folktale Presentations

Defined:
Students create scenery, props, costumes and a script then perform their folktale to the rest of the school. The presentation might be a: live performance, choral reading, puppet show, shadow puppet show, PowerPoint presentation and live reading, radio broadcast, movie, or any other venue that you and your class decide upon. The presentation, however, should be part of a whole-school event during which each grade band presents the folktale read during this unit. 7-8 can participate by selecting one of the 4 books read thus far.

Materials:
- Materials are based on your chosen presentation venue.

Objectives: (add your own objectives to the project)
- Students understand the elements of a folktale.
- Students work cooperatively to produce a presentation of their folktale.
- Students write brief descriptions of the memorable images.

Procedures:
STAFF:
- Teaching staff should plan the all-school event ahead of time, selecting time, place, and name of all-school event such as Rooster Crow Productions or Sundown Theater, or Folktale Spin Productions, or whatever clever name you devise. Think about an MC for the event.
- It would be wise that the teachers select the presentation venue for the event based on the talents, resources and time each grade band teacher believes her/his class can contribute.
- You might be able to involve community leaders in helping students with costumes, props, script writing, etc., based on your production venue selections.

STUDENTS
- Students work into cooperative groups that will create various parts of the presentation based on the venue: script, costumes, scenery, sound-effects, etc. NOTE: Kinder and 1-2 will need much more guidance than 3-4 and 5-6 in the planning process.
- Pull the components of the presentation together and practice.
- Present the venue to the larger group in the main event.

Unit 4 OPTIONAL All-School Project

Online Resources:
These videos are just examples of different types of visual presentations, not necessarily folktale presentations; but they can give you an idea of possible presentation venues.

- http://www.youtube.com/watch?v=eQY3h3kkhY4&feature=youtube_gdata – hard to hear, but show how simple the presentations can be
- http://www.youtube.com/watch?v=-2aAPKx_4MQ&feature=youtube_gdata – silent movies theme
- http://www.youtube.com/watch?v=OxcY7bA2FPY&feature=youtube_gdata – slide show to music
- http://www.youtube.com/watch?v=T5QgL0jzFx8&feature=youtube_gdata – cartoons, captions, and crooning – interesting combo
- http://www.youtube.com/watch?v=U1n_pocRa1U&feature=youtube_gdata – movie of a fairy tale
- http://www.youtube.com/watch?v=tlz-rUuSdEw&feature=youtube_gdata – life-size diorama comes to life
- http://www.youtube.com/watch?v=91MkLF55By4&feature=youtube_gdata – very young to older children involved in creating puppet shows
- http://www.youtube.com/watch?v=M_uX5lhPb4I&feature=youtube_gdata – video a mixture of puppets and real life backdrop
- http://www.youtube.com/watch?v=nn646hwJwoU&feature=youtube_gdata – first grade presentation – hard to hear, but simple presentation style
- http://www.youtube.com/watch?v=sBlw6BRkCnM&feature=youtube_gdata – animation ideas for older children
- http://www.youtube.com/watch?v=I3NvkxNpjGg&feature=youtube_gdata – shadow play and choral reading
- http://www.youtube.com/watch?v=lhcu45ticaY&feature=youtube_gdata – Using “Book Writer”
- http://www.youtube.com/watch?v=d_F-4u0ygLc&feature=youtube_gdata Hmong folktale presentation
- http://www.youtube.com/watch?v=a8Nj3KDsA-U&feature=youtube_gdata – musical presentation by Kinders
- http://www.youtube.com/watch?v=Qs-zlzALYNU&feature=youtube_gdata – OK, so this is like a Broadway musical, but, it’s cool.
- http://www.youtube.com/watch?v=c5RlZN9fxzg&feature=youtube_gdata

Project Title: _____

Student Name: _____

Date: _____ Teacher: _____

Math MATTERS Project Rubric

	1 point	2 points	3 points	4 points	Score
Amount of Project Completed	Little effort made, most items are unaddressed or incomplete	Some parts of the project were addressed and complete	Most of the project parts were addressed and complete, a few may be missing	All parts of the project were addressed and complete	
Quality of Work	Could not read project, project poorly organized	Project was partially organized, many parts were confusing or unrelated	Project was mostly organized, a few parts may be confusing or unrelated	Project highly organized and all parts clearly related to the topic	
Use of Time and Effort	Did not use time effectively	Used some time effectively, but was often off task	Used most time effectively, occasionally off task	Student used all available time to the fullest	
Presentation	Student could not explain own project	Student needed to be prompted to explain own project	Student explained project with little prompting	Student easily explained the project and could answer questions	
				Total	

A total score of 12 or more points is needed to consider the project complete.

Notes:

Rubric is an adaptation of Rcampus Math Project Rubric: Fraction Word Problems
http://www.rcampus.com/rubricshowc.cfm?code=F945W8&sp=true&

Materials
- Unknown Quantity Cards – 1 set for classroom
- Metric rulers – 1 per student
- **BLM** Solve It, Unit 4
- **BLM** Who Ate More? – 1 per student
- **BLM** CGI Problems
- **BLM** Vietnamese Dragon – 1 per student
- **BLM** Vietnamese Dragon Key – teacher only

Math Objectives
- Find missing elements in an equation.
- Solve multi-step word problems.
- Use a variety of strategies to solve word problems.
- Find equivalent forms of fractional parts.
- Measure length in centimeters.

Balanced Literacy
Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.
- Explain how they decided to rename the target number.
- *Discuss scarcity of money, choices and cost benefit.*

TEKS in TV and FlU
Lesson 1
- **3rd** – 3.4EGH
- **4th** - (DR thorough review)

Lesson 2
- **3rd** –3.4EGH
- **4th** (DR thorough review)

Lesson 3
- **3rd** – 3.4EGH
- **4th** (DR thorough review)

Unit 4, Lesson 1 3-4

Daily Routine

If you give the Mid-assessment, please give it today!

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL
What's Missing? *(3rd assessment item 2)*
- **Lessons 1, 2, 3** *follow directions in the Daily Routine Explanations. Check the assessment items so that you are certain you include samples to practice the shape in the assessed location.*

Solve It! *(fundamental problem-solving skills for all items)*
- **Lesson 1 – Triad of students working on three related problems.**
- Lesson 2 - Triad of students working on 3-step problem.
- Lesson 3 – Partners working on unique problems.

Fraction Action *(Student partners should work together without teacher guidance. When all have finished, let students explain how they answered the questions.)*
- **Lesson 1 – Who ate more?** (*4th Assessment item 7*)
  - **BLM Who ate more?**
  - **BLM KEY**
- Lesson 2 - Model Equivalencies (*3rd Assessment item 6*)
  - BLM Model Equivalencies
  - BLM KEY
- Lesson 3 – Jesse's Homework (*4th Assessment item 5*)
  - BLM Jesse's Homework
  - BLM KEY

CGI
- **Lesson 1 – Multiplication**
- Lesson 2 – Division, Measurement (*3rd Assessment item 5*)
- Lesson 3 – Division, Partitive (*3rd Assessment item 4*)

Measurement Lab (*3rd Assessment item 1; 4th Assessment item 3*)

Materials, per student:
- **Metric ruler – 1 per student**
- **BLM** for each Lesson
- **BLM Key** for each Lesson

- **Lesson 1 – Vietnamese Dragon**
- Lesson 2 – Rice Paddy Area
- Lesson 3 - Area Arrays and Multiplication

ELPS (*English Language Proficiency Standard*)
2A, 2D, 3A, 3D, 3J, 4F

CCRS (*College and Career Readiness Standards)*
CROSS-CURRICULAR I.B.2., I.C.3., II.B.1., II.B.2.
ELA II.B.1., II.B.3., III.B.1., III.B.2., IV.B.1.
MATH I.B.1., II.B.1., II.C.1., IV.B.1., IV.B.2., VII.A.1., VIII.A.2., IX.A.3.

Assessment Items
(As a result of experiencing this unit, students will be learning skills necessary to be successful on the following Assessment items.)

3rd - 1, 2, 3, 4, 5, 6, 7, 8
4th - 1, 2, 3, 4, 5, 6, 7, 8 (DR)

Arthimus Portio's Corner
Unit 4 Lesson 1-
Fraction Action
How did you solve the Fraction Action today?

Unit 4, Lesson 1 3-4
Daily Routine - continued

OPTIONAL: *These activities, although not assessed, are fundamental skills that should be included in those sites providing five to six weeks of instruction.*

Target Number *(fundamental number sense for all items)*

- **Lesson 1 – Target Number 25**
- Lesson 2 – Target Number 50
- Lesson 3 – Target Number 75

Graphing – none this unit

(Assessment Item 8 will be reviewed daily in Snack Fractions.)

Unit 4 **CGI Problems for *Children of the Dragon, Tales from Vietnam***

	Multiplication	Measurement Division	Partitive Division
Grouping and Partitioning	There were __ trees. There were __ ravens in every tree. How many ravens are there? 10, 6 12, 10 25, 4	There were __ mangos on the ground. __ fell from each tree. How many trees dropped mangos? 60, 15 90, 30 125, 25	Chu Cuoi had __ sticks. He had __ bundles. If there were the same number of sticks in each bundle, how many sticks in each? 44, 4 48, 12 60, 5
Rate	The water buffalo walks at a rate of__ km/h. How far can he walk in __ hours? 3, 6 4, 24 12, 12	The tiger runs at a rate of __ km/h. How many hours will it take to run __ km? 3, 15 5, 30 6, 3	The tiger runs __ km in 15 minutes. If he runs the same speed the whole way, how far can he run in __ minutes? 2, 60 3, 30 1.5, 75
Price	Chu Coui sold bundles of sticks for $__ each. If he sells __ bundles in a week, how much money he make in one week? How much in one month? How much in one year? 6, 12 12, 12 15, 9	Nguyet Tien sold her flowers for $__ per bunch. How many bunches could be purchased for $__? 8, 64 5, 100 12, 144	Chu Coui sold __ bundles of sticks for a total value of $__. How much was each bundle worth? 10, 60 15, 90 25, 275
Compare	A tiger weighs __ pounds. A water buffalo weighs __ times more than a tiger. How much does a water buffalo weigh? 60, 3 100, 12 80, 20	Nguyet Tien planted __ pink flowers and __ yellow flowers. How many times more pink flowers than yellow flowers did she plant? 15, 5 49, 7 45, 15	Chu Coui's new house cost __ gold coins to build. That is __ times as much as the hut cost. How many golden coins did the hut cost? 30, 5 32, 8 39, 13

Unit 4 **CGI Problems for *Children of the Dragon, Tales from Vietnam***

	Multiplicacion	Division de medicion	Division partitiva
Agrupamiento y division	Había __ arboles. Había __ cuervos en cada arbol. ¿Cuántos cuervos había? 10, 6 12, 10 25, 4	Había __ mangos en el suelo. __ cayeron de cada arbol. ¿Cuántos arboles soltaron mangos? 60, 15 90, 30 125, 25	Chu Cuoi tenía __ palos. Tenía __ bultos. Si cada bulto tenía el mismo numero de palos, ¿Cuántos palos hay en cada uno? 44, 4 48, 12 60, 5
Razon	El búfalo de agua caminaba__ km/h. ¿Qué tal lejos puede caminar en __ horas? 3, 6 4, 24 12, 12	El tigre corre a una razón de __ km/h. ¿Cuántas horas necesita para correr __ km? 3, 15 5, 30 6, 3	El tigre corre __ km en 15 minutos. Si corre a la misma velocidad por toda la distancia, ¿qué tal lejos puede correr en __ minutos? 2, 60 3, 30 1.5, 75
Precio	Chu Coui vendió bultos de palos por $__ cada uno. Si vende__ bultos en una semana, ¿Cuánto dinero gana en una semana? ¿Cuánto gana en un mes? ¿Cuánto gana en un año? 6, 12 12, 12 15, 9	Nguyet Tien vendió sus flores por $__ cada manojo. ¿Cuántos manojos se puede comprar por $__? 8, 64 5, 100 12, 144	Chu Coui vendió __ bultos de palos por un valor total de $__. ¿Cuánto vale cada bulto? 10, 60 15, 90 25, 275
Comparar	Un tigre pesa __ libras. Un búfalo de agua pesa __ veces más que un tigre. ¿Cuánto pesa un carabao? 60, 3 100, 12 80, 20	Nguyet Tien plantó __ flores rosadas y__ flores amarillas. ¿Cuántas veces mas flores rosadas que flores amarillas plantó? 15, 5 49, 7 45, 15	La nueva casa de Chu Coui costó __ monedas de oro para construir. Esto es __ más que costo construir la choza. ¿Cuántas monedas de oro costó la choza? 30, 5 32, 8 39, 13

BLM Daily Routines Unit 4 Fraction Action, Lesson 1 **Who Ate More?**
One sheet per student

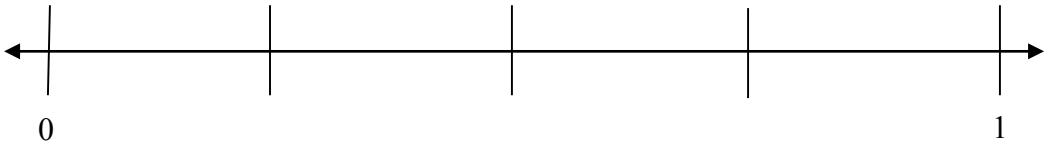
Student Name _____

Carrie's dad brought home personal pan pizzas for the family. Carrie ate 0.35 of her pizza. Dad ate 0.9 of his pizza. Mom ate 0.7 of her pizza. Big Brother Bill ate 0.99 of his pizza. Who ate more pizza?

Using the decimal amounts, arrange what the family ate in a line from least pizza to greatest amount of pizza.

Now, arrange the decimal portions on the number line below as follows:

1. First, label the benchmark decimals 0.75, 0.5 and 0.25.
2. Then arrange the decimals from the story on the line based on the benchmarks. You will not be exact, but you should be close in relationship to the benchmark decimals.



Now, answer the question. Who ate more pizza? Explain your thinking.

BLM Daily Routines Unit 4 Fraction Action, Lesson 1 **Who Ate More?**
One sheet per student

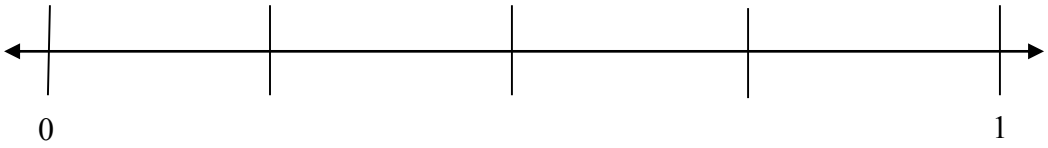
Student Name _____

El papá de Carrie trajo a casa pizzas personales para la familia. Carrie se comió 0.35 de su pizza. Papá se comió 0.9 de su pizza. Mamá se comió 0.7 de su pizza. Su hermano mayor Bill se comió 0.99 de su pizza. ¿Quién comió más pizza?

Organiza lo que la familia comió en una línea de menos pizza a mayor cantidad de pizza.

Ahora, ordena los decimales en la recta numérica siguiente como se muestra.

1. Primero, etiqueta los puntos de referencia decimales 0.75, 0.5 y 0.25.
2. Después, acomoda los decimales de la historia en la línea con base en los puntos de referencia. No será exacto, pero debes estar cerca en relación a los puntos de referencia.



Ahora, responde la pregunta. ¿Quién comió más pizza? Explica tu razonamiento.

Student Name _____

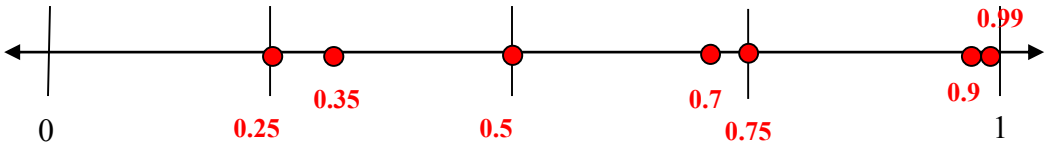
Carrie's dad brought home personal pan pizzas for the family. Carrie ate 0.35 of her pizza. Dad ate 0.9 of his pizza. Mom ate 0.7 of her pizza. Big Brother Bill ate 0.99 of his pizza. Who ate more pizza?

Arrange what the family ate in a line from least pizza to greatest amount of pizza.

0.35, 0.7, 0.9, 0.99

Now, arrange the decimal portions on the number line below as follows:

1. First, label the benchmark decimals 0.75, 0.5 and 0.25.
2. Then arrange the decimals from the story on the line based on the benchmarks. You will not be exact, but you should be close in relationship to the benchmark decimals.



Student's plotting of the problem decimals will not be exact, but they should be able to tell you why they placed the decimals where they did on the line. For example: 0.35 is a little more than 1/3 or 0.33, so I thought of the line in 3 pieces; 0.7 is almost 0.75, so I put that one close to 0.75. And 0.9 is real close to 1. 0.99 is only 0.01 away from one, so it's the closest.

Now, answer the question. Who ate more pizza? Explain your thinking.

Big Brother Bill ate more pizza – he left only 1-hundredth of his. Not even Dad ate that much. (Any reasonable explanation works, as long as the student can explain that 0.99 is the largest.)

Solve It! Problems Unit 4, Lesson 1 **Triad (Team of 3 - #1, #2, #3)**

First Problem

- Avery took Micah to lunch. They each had a combo that cost $8.50. How much did Avery pay for the combos?
    - What is the answer to the question? Show your solution strategy.

Problem Solution (#1 Problem Solver) Name:	**Solution Verification (**#2 Problem Solver**)** Name:

Second Problem

- Micah had a shake with his combo which cost $3.00. Micah added a dessert which cost twice as much as Micah's shake. How much did Avery pay for the combo and dessert?
    - What do you need from the first problem to solve the problem?
    - Be sure to verify the answer to the first problem before solving this problem.
    - What is the answer to the question? Show your solution strategy.

Problem Solution (#2 Problem Solver**)** Name:	**Solution Verification (**#3 Problem Solver**)** Name:

Third Problem

- Avery paid $3.00 in tax, and doubled the tax for a tip. What was Avery's full bill for lunch?
    - What do you need from the second problem to solve the problem?
    - Be sure to verify the answer to the second problem before solving this problem.
    - What is the answer to the question? Show your solution strategy.

Problem Solution (#3 Problem Solver**)** Name:	**Solution Verification (**#1 Problem Solver**)** Name:

Solve It! Problems Unit 4, Lesson 1 **Pairs**

Primer problema

- Avery le invitó a Micah a comer. Los dos comieron unos combos que costaron $8.50. ¿Cuánto pagó Avery por los combos?
    - ¿Cuál es la respuesta a la pregunta? Muestra tu estrategia de solución.

Solución del problema (#1) Nombre:	**Verificación de la solución (**#2**)** Nombre:

Segundo problema

- Micah pidió un batido con su combo que costó $3.00. Avery comió postre que costó dos veces más que el batido. ¿Cuánto pagó Avery por el combo y postre?
    - ¿Qué necesitas del problema 1 para resolver este problema?
    - Asegúrate de verificar la respuesta del problema 1 antes de resolver este problema.
    - ¿Cuál es la respuesta a la pregunta? Muestra tu estrategia de solución.

Solución del problema (#1) Nombre:	**Verificación de la solución (**#2**)** Nombre:

Solve It! Problems Unit 4, Lesson 1 **Pairs**

Third Problem

- Avery pagó $3.00 de impuesto y calculó el doble del impuesto para la propina. ¿Qué fue la cuenta total para la comida?
    - ¿Qué necesitas del problema 2 para resolver este problema?
    - Asegúrate de verificar la respuesta del problema 1 antes de resolver este problema.
    - ¿Cuál es la respuesta a la pregunta? Muestra tu estrategia de solución.

Solución del problema (#1) Nombre:	**Verificación de la solución (**#2**)** Nombre:

BLM Daily Routines Unit 4, Measurement Lesson 1 **Vietnamese Dragon**
One sheet per student

According to legend, Vietnam's history began when the Dragon Prince, Lac Long Quan, married the Fairy Princess, Au Co. To the Vietnamese, the Dragon is considered to be the luckiest and wisest of all mythical creatures.

Find the area of this painting of a Dragon. Round your measurements to the nearest centimeter.

Length _____ cm **Width _____ cm** **The area is _____ cm^2**

Show your work.

Although this is not a "basic fact," there are four related number sentences using the two factors and the product.

Think of how you find the fact family for basic facts. Write the related number sentences below.

_____ _____

_____ _____

BLM Rutinas diarias, Unidad 4, Lección 1 Medidas **El dragón de Vietnam**
Una hoja por estudiante

De acuerdo con la leyenda, la historia de Vietnam empezó cuando el Príncipe Dragón, Lac Long Quan, se casó con la Princesa Hada, Au Co. Entre los vietnamitas, el Dragón se considera la criatura mítica más afortunada y sabia.

Encuentra el área de esta pintura de un dragón. Redondea tus medidas al centímetro más cercano.

Largo _____ cm **Ancho _____ cm** **El área es _____ cm^2**

Muestra tu procedimiento.

Aunque este no es un "hecho básico", hay cuatro oraciones numéricas relacionadas que usan los dos factores y el producto.

Piensa en cómo encontrarías la familia de hechos para los hechos básicos. Escribe las oraciones numéricas relacionadas abajo.

_____ _____

BLM Daily Routines Unit 4, Measurement Lesson 1 Vietnamese Dragon KEY
One sheet per student

According to legend, Vietnam's history began when the Dragon Prince, Lac Long Quan, married the Fairy Princess, Au Co. To the Vietnamese, the Dragon is considered to be the luckiest and wisest of all mythical creatures.

Find the area of this painting of a Dragon. Round your measurements to the nearest centimeter.

Length ___17___ cm **Width __12__ cm** **The area is __204__ cm²**

Show your work. **Students may use any strategy they wish, including partial products, algorithm, arrays, or other multiplication methods such as lattice if they know it to use.**

17	17
x12	x12
14	34
20	170
70	204
100	
204	

Related Number Sentence

17 x 12 = 204
12 x 17 = 204

204 ÷ 17 = 12
204 ÷12 = 17
(any order is acceptable)

Literature Selection
Children of the Dragon
by Sherry Garland

Materials
Language Materials
- **BLM** Word Cards
- **BLM** Cloze Summary (optional)

Transition to Math Materials
- base ten units – 40 per student
- dice –2 per pair of students
- **BLM TM** Dragon Roll – 1 per student, plus 2 for the teacher
- **BLM** Decimal Battle – if time permits, let student partners play Decimal Battle once again (repeated from Units 1-2).

Literature Vocabulary
obediently
boisterous
gilded
squirming
flourished
banyan

Math Vocabulary
Repeated vocabulary
factors
products
fact family

Suggested Online Resources for Background Knowledge:
http://www2.needham.k12.ma.us/eliot/technology/lessons/global/r2r/viet.html

http://kids.nationalgeographic.com/kids/places/find/vietnam/

http://www.timeforkids.com/destination/vietnam

ELPS (*English Language Proficiency Standard*)
1F, 1G, 3C, 3E, 4E, 5A, 5B

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.C.1., I.C.2., II.A.2., II.A.4., II.B.1
ELA I.A.1., I.A.2., II.A.2.,

Unit 4, Lesson 1 3-4
Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students should review to see if they have accomplished both math and language objectives.

Math Objectives:
- Represent multiplication facts by using equal-sized groups.
- Represent the multiplication/division relationship by determining fact families and related number sentences.

Language Objectives:
- Use the context of the sentence to determine the meaning of unfamiliar words or multiple meaning words.
- Summarize and explain the lesson or message of a work of fiction as its theme.
- Listen attentively to speakers, ask relevant questions, and make pertinent comments.
- Write literary texts to express their ideas and feelings about real or imagined people, events, and ideas.

BEFORE READING
Building Background: Vocabulary & Literature
Reveal the literature vocabulary cards one at a time to the students and display in a pocket chart or board. Follow the same line of discovery questioning for each word.
Point to the first word (*obediently*).

Ask, "Who can read this word?"
Say, "Give me a thumbs up for 'I can' or thumbs down for 'not sure.'"
Allow students to indicate their response.
Say, "Read the word aloud with me."
Read the word together. Then, ask students to reread the word aloud after you.
Say, "Clap as you say the word in parts."
Example: o-be-di-ent-ly
Ask, "How many times did you clap?" Allow for responses. This word has five parts or five syllables.
Ask, "Who has heard this word used before or read it before today?" Allow for responses.
Say, "I think I have heard this word during dog trainings at the pet store and veterinary office. I remember hearing someone say they took their dog to obedience school. Is that the same word?"

II.B.1., III.A.2., IV.A.2.

Vocabulary guide for discovery questioning framework:

- **boisterous:**
  3 syllables (bois-ter-ous) adj
  Sample sentence- *The boisterous students ended up in time out because they didn't calm down.*
  Definition- behavior that is noisy, energetic, and rowdy. Also, can be used to describe events like the wind or waves in the ocean.

- gilded:
  2 syllables (gild-ed) adj
  Sample sentence- *My mom kept her jewelry inside a gilded box engraved with flowers.*
  Definition- covered thinly with gold or gold paint.
  German origin related to word meaning gold.

- squirming:
  2 syllables squirm- ming (suffix is added by doubling rule for spelling) Discuss the base word: squirm verb.
  Sample sentence- *The little girl began to squirm in her seat when the scary part of the movie was on.*
  Definition- wriggle or twist from side to side.

- flourished:
  3 syllables flour-ish-ed (past tense) Discuss the base word: flourish verb
  Sample sentence: *After caring for the plant carefully all winter, it flourished in the spring.*
  Definition: growing or developing in a healthy way. Animals, plants, and humans can flourish.

Classroom Lesson - continued

Ask, "Who thinks this is the same word? Give thumbs up or thumbs down."
Say, "Let's look at it in writing next to our vocabulary word."

Write: obediently
Obedience

Say, "It almost looks the same doesn't it? What is the difference in the two words spelling?"

Allow students to respond. Circle or highlight the differences in the words as the students name them.

Say," These words begin the same, but the ending is different…hmmm I bet that means obediently is actually not the base word."
Erase or cover the –ly ending.

Say, "Obedient is the base word and the ending can change depending on its usage in the sentence or what we are speaking about. Adding –ly makes the word a describing word for a verb."

The large dog sat obediently when his master pointed to the ground.

Ask, "Used in this sentence, what is the verb that obediently describes?" Allow for responses.

Say, "Obediently comes from obedient. The base word obedient comes from a Latin word meaning "to obey." We use obedient to describe someone who knows the rules and follows them. The word can be used when speaking about a person, a group, or even animals."

Write: obedient (adjective)
obediently (adverb)
obedience (noun)

Say, "Let's read this word again together."
Read the word as you point to the word.

Ask, "Who can use the word in a sentence? Give thumbs up or thumbs down."

Say, "Turn to your shoulder partner and tell them the sentence. Each person should share a sentence."

- banyan:
  2 syllables (ban-yan) noun
  Sample sentence: *The leaves of the banyan tree are large and leathery looking.*
  Definition: Originally from India, type of Indian fig tree whose branches produce roots that later become accessory trunks.
  Picture:

Go to: www.britannica.com/EBchecked/topic/52268/banyan

Continue in the same manner of discovery questioning for each word on the literature vocabulary list. Add in questions that expand the connection of the vocabulary to real life. Other questions include: *Why is (vocabulary word) important to us? What does (vocabulary word) also make you think of? What do you think the opposite of (vocabulary word) might be? What are other words that sound the same?*

Upon completion of the list, have students reread each word aloud in class together benefiting the proficient and non-proficient English speaker through repeated exposure.

NOTE: To build your students background knowledge bring in additional library books with pictures of Vietnam, a globe or map, and any online resources *(some have been provided)*. ***Preview*** *all online sites prior to students watching to ensure their connection*.
The links provide videos, photographs, and insight as into the culture of Vietnam and day to day life.

Say, "Many countries and cultures have stories *(tales)* or legends that are retold by folk generation after generation orally. Some of the stories are told to explain why something is as it is or how something in nature came to be. These specific folktales that tell why are called, pourquoi stories. Pourquoi *(write on board)* is French for 'why.'
Say, "We will be reading two folktales from Vietnam. These two folktales were told by Vietnam folk for generations.
The first is titled "How the Tiger Got Its Stripes" and the second is titled "Chu Cuoi- the Man in the Moon." Before we read the folktales let's think about what we know about Vietnam."

Ask, "What have you heard, learned, or read about Vietnam?"
Allow students to respond. You may even add brief statements that you know. Do not correct students' prior knowledge if incorrect knowledge is presented. List the ideas or thoughts on the board or on chart paper. Encourage students to tell you anything they might have heard, seen, or remember from other classes about Vietnam's land, people, culture, history, way of life, etc. If no students mention a war, ask if they have heard of the Vietnam War.

Locate: Vietnam on the globe or map *(maps are available with online links provided)*.

Show students the cover of the book.
Ask, "Why do you think the title is *Children of the Dragon*?
What makes you think that?"

Unit 4, Lesson 1 3-4

Classroom Lesson - continued

Say, "Let's read and find out why Sherry Garland, the author, chose this for the name of her book…by the way, the author works with Vietnamese immigrants in her hometown of Houston, Texas. She has always been fascinated with Vietnamese culture and visited the country firsthand.

DURING READING
Comprehensible Input: Vocabulary & Literature
Begin with reading aloud to students modeling your reading processes one at a time in a think-aloud. The purpose of reading the introduction is to clarify prior knowledge and to build background knowledge.

Say, "As we read today we are going to listen for new information we did not know about Vietnam. We might even discover we were incorrect in some of our prior knowledge."

Begin reading Introduction.
Pg. 1: Begin reading from "To most Americans…" Stop after reading "…folklore of this ancient country."

Say, "In this paragraph the author mentions a war. What war is she speaking about?"
Guide students into discovering the author's reference is to the Vietnam War. Share a bit about the Vietnam War.

Begin reading from "For ten years…" Stop after reading "…poetry, art, festivals, and folklore."

Ask, "How have relations with Westerners and Vietnam changed since the Vietnam War?" Allow for students to respond. Ask, "What evidence was given by the author that this is true?"

Encourage popcorn reading at this point, if students have not been reading aloud.
Begin reading from "The land itself is rugged…" Stop after reading "…retain their independence and culture."

Re-identify Vietnam on the map or globe.
Say, "Let's list some facts the author stated about Vietnam's landforms, climate, and location."
Guide students in extracting facts from this portion of reading. Model how to paraphrase the information for note taking.

View the video online:
http://kids.nationalgeographic.com/kids/places/find/vietnam/

Unit 4, Lesson 1 3-4

Classroom Lesson - continued

Make connections to learning from reading.
Then, visit the website:
http://www.timeforkids.com/destination/vietnam

Begin reading from "According to legend…" Stop after reading "... 'children of the dragon.'"

Ask, "Why does the author choose the title for this book "Children of the Dragon"?"

Share photos of the legend of the dragon prince and the fairy princess. Or if time permits allow students 5-8 minutes to do a quick draw of the mind movie in their head for the legend. Many illustrations depict Lac Long Quan as part dragon.

Begin reading from "Vietnamese historians show…" Stop after reading "…still evident in much of Vietnamese folklore."

During reading, pause at any time to clarify confusing parts or words. This section discusses the people of Vietnam.

Ask, "What greatly influenced Vietnams culture and customs?"
Allow for students to respond with support from the passage.

Set up students for partner reading. Guide students to sit shoulder to shoulder facing one another. This enables reader to be heard directly in the listener's ear. While sitting next to their partner, direct students to silently read the next designated section of the introduction, then reread the same segment with their partner.

Begin reading from "Some of the country's…" Stop after reading "…preserve their culture."

Ask, "What are some things that might be added to folktales as they are passed down generations?"
Allow students to respond and prove their response.

Unit 4, Lesson 1 3-4

Classroom Lesson - continued

Ask, "How is the culture of the descendants of the dragon prince preserved?"

Say, "Tell one attribute you read about a folktale."

TEACHER **reads aloud the final paragraph** of the introduction.

Discuss with students the similarities and differences from Vietnamese with their home language, as well as with English. Explain that these words might be difficult to read, but we will read them the best we can with pronunciation.

Visit a previewed online resource for examples of the Vietnamese alphabet. http://www.omniglot.com/writing/vietnamese.htm

AFTER READING

Practice and Application: Vocabulary & Literature

Revisit the information students generated at the beginning of class about Vietnam. Correct any prior knowledge that has been covered with the reading and or online *(additional)* resources.

Three options depending on time remaining:

1. Students partner up and orally share their predictions for what the upcoming two folktales will be about: *How the Tiger Got Its Stripes* and *Chu Cuoi- The Man in the Moon*. Write the predictions and students may vote on the one they think is correct.
2. Students reread the *introduction* with a partner *(or group)* and complete the cloze activity as a summary. Students reconvene as a class and share their responses.
3. Read aloud to students the final folktale. Do not show illustrations and have the students draw three pictures depicting the beginning, middle, and end of the folktale on paper folded into thirds. Guide the students to listen carefully and then share with a partner prior to drawing. The middle picture should include the climax as discussed in Unit 3.

BLM Unit 4, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

obediently

boisterous

gilded

squirming

BLM Unit 4, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

flourished

banyan

BLM Unit 4, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

obedientemente

bullicioso

dorado

retorciendo

BLM Unit 4, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

floreció

banyan

BLM Unit 4, Classroom Lesson 1 **Cloze Summary**
One copy per partner

Today's tourists and businessmen that travel to _____are exposed to a different side of the country, than the one seen during the _____ 39 years ago. They witness a country with an ancient _____ and unique _____.

Three-fourths of Vietnam is covered by _____ and more than two hundred _____. Most Vietnamese live in small _____ _____ in the river deltas. Jungles and valleys make up the rest of the landscape in Vietnam.

Vietnamese have _____fiercely to retain their independence and culture. Vietnam's history began _____ years ago when a dragon prince married a fairy princess. They had _____ children, all boys. The parents agreed to separate and each taking _____ children. The fairy princess moved to the _____ and the dragon prince moved to _____. Their oldest son founded the _____ kingdom. The _____ has always been special to Vietnamese. It is considered the luckiest and _____ of all mythological creatures.

Historians believe the country's first inhabitants were _____ people. Their descendants developed and became _____ and artists. They named their _____after the dragon prince and fairy princess. Eventually, their kingdom spread and emperors named it _____.

The elderly traditionally tell _____ to children. The tales teach lessons about heroes, ancient Viet rulers, and famous battles. The stories would be added to as each generation passed the _____ down to the next. Telling folktales is just one way in which the descendants of the _____ _____ save their culture.

Math Objectives
- Represent multiplication facts by using equal-sized groups.
- Represent the multiplication / division relationship by determining fact families and related number sentences.

Math Vocabulary
Repeated vocabulary
factors
products
fact family

Transition to Math Materials
- Base ten units – 40 per student
- Dice –2 per pair of students
- **BLM TM** Dragon Roll – 1 per student, plus 2 for the teacher
- **BLM** Decimal Battle – If time permits, let student partners play Decimal Battle once again.

ELPS (*English Language Proficiency Standard*)
1E, 2D, 3D, 3E, 3H, 4G

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.C.2., I.E.2., II.C.1.
MATH I.B.1., II.A.1., VIII.C.1., IX.A.2.

Technology:
www.mathnook.com/math/skill/decimalgames.php

Unit 4, Lesson 1 3-4
Classroom Lesson - continued

TRANSITION to Math
Building Background, Math

We are going to practice basic facts today in a game format. (*Distribute the supplies and arrange students in partners.)*

We have worked with drawing pictures of arrays for multiplication, but we have also worked with drawing pictures of equal sets.

Today, you are going to
- roll the dice to find your two factors
- draw a picture to represent the number of equal sets
- generate the number sentence that represents your sentence
- record your product.

I need a volunteer who will play one full round with me (*Choose a volunteer who comes to the front of the room to be your partner*).

Let's divide the class in half. *(do so)* This half will be rooting for (*volunteer*) and this half for me. We will ask you what we should write on our record sheets.

(*Teacher starts. Walk through your turn as outlined above, asking your half of the class what to record after each step. Notice that when you draw the picture, there are two arrangements you can make – example: factors 2, 4 could be two groups of four or four groups of two – that's up to the players.)*

Repeat the process with the Volunteer's half of the class.)

Our product is (*product*).
(*Volunteer's*) product is (*product*).

This product is also our score for the round. Who won that round? *(higher product)* Whoever wins the round puts a star by the product. We will do something with that after the game. *(Do so)* At the end of the five rounds, you will simply find the sum – what does that mean? *(the answers)* It's the answer when you add – find the sum of your products. Highest sum wins the game.

Alright, you and your partner are to play the five rounds. Any questions? *(Answer questions, then have students begin the game.)*

Classroom Lesson - continued

TRANSITION to Math
Building Background, Math

Circulate the room while students are playing, asking questions.
QUESTIONS:

- What does this picture represent?
- What other arrangement could you have made for these two factors? (*Reverse, example factors of 2, 4 could have two groups of four or four groups of two*)?
- Explain what your number sentence means (*You are looking for them to tell you (factor) groups of (factor) = (product).*
- What is a division problem you could make using these two factors and their product?
- (*Make sure everyone puts a star beside the rounds they personally win*.)

(*At the end of the game, have students find their totals. You will probably want to find the highest total.*

You will definitely want to see what the greatest product was – could be at large as 36 if you are using 6-faced dice. Why? 6 x 6

What is the lowest product possible? (1) 1 x 1)

Now, circle all of your winning rounds. *(Do so)* You are to write the fact families for all of the related facts in the rounds you won. There are boxes at the bottom of the page, or you may use the back of your record sheet. (*Circulate to make sure they remember how to write the fact families*.)

Now, let's play our Decimal Battle until time for the TV Lesson.

Objectives: Review the math and language objectives to see how they were accomplished.

Distribute TV Lesson Materials

- Base ten sets – 1 set per student
  - 3 flats
  - 15 longs
  - 15 units
- **BLM** Naming Decimals – 1 per student
- **BLM** Naming Decimals KEY

BLM TM Unit 4, Classroom Lesson 1 **Dragon Roll**

Partner 1
1. Roll the dice – these are your factors.
2. Draw a picture which represents the multiplication problem.
3. Write your number sentence.
4. Record your product.

Partner 2 – Repeat the process

At the end of the game, find the sum of your products for your score.

Materials:
- Dice
- Base ten blocks
  - 40 units

Factors	Picture	Number Sentence	Product
		Game Total	

BLM –TM Unidad 4, Lecciones en salón de clases 1 **Dados de dragón**

Compañero 1

1. Tira los dados – estos son tus factores.
2. Haz un dibujo que represente el problema de multiplicación.
3. Escribe tu oración numérica.
4. Registra tu producto.

Compañero 2 - repite el proceso.

Al final del juego, encuentra la suma de tus productos para conocer tu puntuación.

Materiales:

- Dados
- Bloques base diez
  - 40 unidades

Factores	Dibujo	Oración numérica	Producto
		Total	

BLM –TM Unit 4, Classroom Lesson 1 - 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students. You used these in Units 2 & 3, and do not have to duplicate again if you still have those cards available for center work.

This game is played like the card game Battle or War, and is played with a partner.

1. Deal out the cards so that each player has half of the deck. Do not look at the cards, but keep them in a stack face down in front of you.

2. Both players turn the top card of their own stack face up on the table. Whoever turned the card with the higher value takes both cards and adds them face down to the bottom of their stack.

3. Repeat the process.

4. If the cards turned up are equivalent, there is a BATTLE. The equivalent cards stay on the table and both players play the next card in their stack. The card with the higher value wins the battle. BATTLE continues until the cards turned up are not equivalent. The person with the higher value wins all of the cards in the BATTLE and puts them face down at the bottom of their stack.

5. Game continues until one player has taken all of the cards, or until one player can no longer play a card.

0.1	**0.01**
0.10	**0.15**

BLM –TM Unit 4, Classroom Lesson 1 - 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students. You used these in Units 2 & 3, and do not have to duplicate again if you still have those cards available for center work.

Este juego es parecido al juego de cartas Batalla o Guerra, y se juega con un compañero.

1. Reparte las cartas de modo que cada jugador tenga la mitad del mazo. No veas las cartas; mantenlas en una pila boca abajo frente a ti.

2. Ambos jugadores voltean la carta superior de su pila y la colocan boca arriba sobre la mesa. Quien haya volteado la carta con valor más alto toma ambas cartas y las agrega boca abajo a la parte inferior de su pila.

3. Repite el proceso.

4. Si las cartas volteadas son equivalentes, hay una BATALLA. Las cartas equivalentes permanecen en la mesa, y ambos jugadores juegan la siguiente carta de su pila. La carta con el valor más alto gana la batalla. La BATALLA continúa hasta que las cartas volteadas no sean equivalentes. La persona con el valor más alto gana todas las cartas en la BATALLA y las agrega boca abajo a la parte inferior de su pila.

5. El juego continúa hasta que un jugador tenga todas las cartas, o hasta que un jugador ya no pueda jugar una carta.

0.1	**0.01**
0.10	**0.15**

BLM –TM Unit 4, Classroom Lesson 1 - 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.

0.2	0.02
0.25	0.20
0.3	0.03
0.30	0.33

BLM –TM Unit 4, Classroom Lesson 1 - 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.

0.40	0.45
0.4	0.04
0.05	0.5
0.50	0.55

BLM –TM Unit 4, Classroom Lesson 1 - 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.

0.60	**0.62**
0.6	**0.06**
0.07	**0.7**
0.70	**0.75**

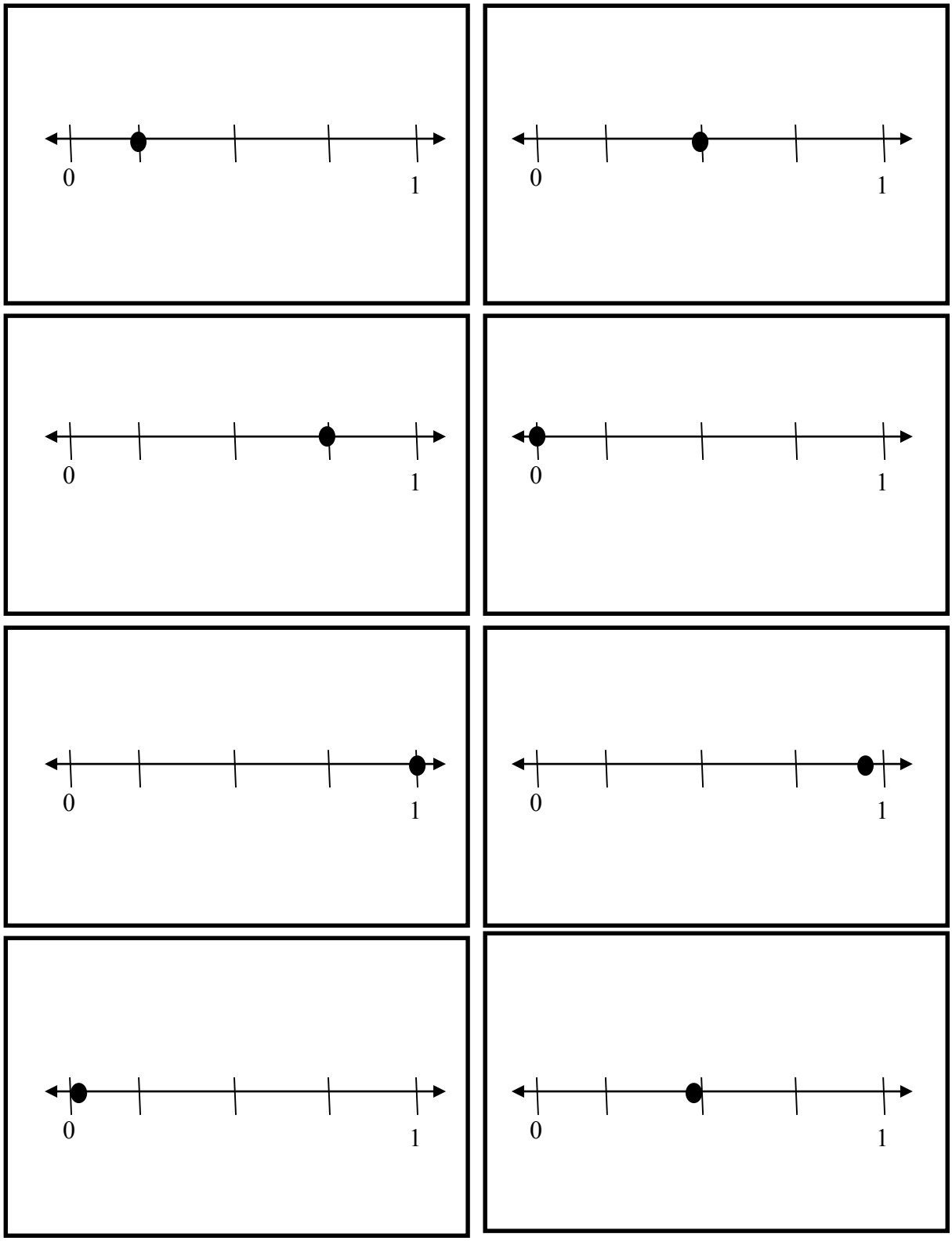
BLM –TM Unit 4, Classroom Lesson 1 - 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.

0.80	**0.83**
0.8	**0.08**
0.09	**0.9**
0.90	**0.92**

BLM –TM Unit 4, Classroom Lesson 1 -3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.



BLM –TM Unit 4, Classroom Lesson 1- 3 **Decimal Battle**

One set of cut out, laminated cards per pair of students.

$\frac{1}{2}$	$\frac{1}{4}$
$\frac{1}{100}$	$\frac{3}{4}$
$\frac{9}{10}$	$\frac{5}{10}$
$\frac{4}{10}$	$\frac{5}{100}$

Literature Vocabulary
obediently
boisterous
gilded
squirming
flourished
banyan

Math Vocabulary
Repeated vocabulary
factors
products
fact family

Materials
- Base ten sets – 1 set per student
  - 3 flats
  - 15 longs
  - 15 units
- Scratch paper
- Light colored crayon
- **BLM** Array Model – teacher only
- **BLM** Grid paper – 3 per student, 1 for TV and 2 for Follow-up Lesson
- **BLM**– The Flying Dragon Lizard -1 per student (TV Teacher will read with the students, but problem will be solved in Follow-up lesson)

ELPS (*English Language Proficiency Standard*)
2B, 2C, 3B, 3F, 4E, 4I

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.A.1., I.B.4., I.C.2., I.C.3., II.C.1
ELA II.A.3., II.A.6., III.A.1., IV.A.3.
MATH I.B.1., II.A.1., II.B.1., VIII.A.1., VIII.A.3.

CLASSROOM TEACHERS
TV Teacher will give you time to discuss – please have students do so.

Unit 4, Lesson 1 3-4
TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Use a variety of strategies that include arrays, partial products, related facts, and the traditional algorithm to solve 2-digit times 2-digit arithmetic problems.

Language Objectives:
- Use the math vocabulary during the activity.
- Discuss answers and possible strategies with classmates.
- Explain decimal relationships.

Building Background
You practiced basic facts during the Transition to Math lesson. You will need to know those facts to help you solve the problems we're going to work on today. These are 2-digit math problems, and they are kind of cool because they're about lizards!

To the Vietnamese, the Dragon is the wisest and luckiest of all of the mythical creatures in their culture. It symbolizes nobility and power. Interestingly, though, there are many lizards in Vietnam that have physical qualities similar to the mythical dragons. You will be solving two lizard word problems during your Follow-up Lesson.

Comprehensible Input,
Let's practice building a base ten array, drawing the array, then solving with partial products and the traditional algorithm.

12 x 38

Base Ten Array
First, draw your open puzzle board. We'll build our factor frame outside the border, and our product inside the frame.

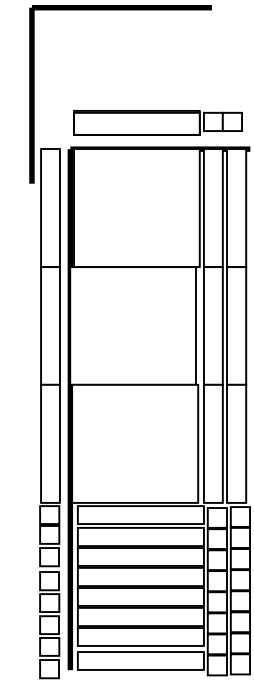
What is the fewest number of base ten blocks you can use to make 12 *(1 ten and 2 ones)*?

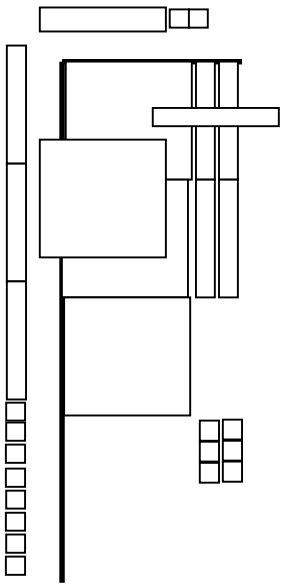
And the fewest number of base ten blocks you can use to make 38 *(3 tens and 8 ones)*?

We have our two FACTORS. Now, Let's find the PRODUCT.

SMARTBOARD – the base ten array building

CLASSROOM TEACHERS
Students must build their own arrays.





Unit 4, Lesson 1 3-4

TV Lesson - continued

What is the largest block you can use to begin to fill in the inside of the frame? *(Hundred)* Let's fill in with hundreds until no more hundreds will work. *(Do so, each time showing how you are filling in with a 10 x 10 piece, or a hundred – 10 x 10 equal 100.)*

What pieces now? *(The tens – call attention to the 1 x 10 each time.)*

And finally, the only block we can fit are the ones *(and those are 1 x 1 places)*.

Now, move the factors out of the way and let's see what we have.

Ones – Can we make an exchange, regroup, or trade? Sure– 10 ones can trade for one ten. *(Do so, removing the ten ones).* And we will just put this ten we just traded for at an angle so we can see it later.

Tens – Can we make an exchange, regroup or trade? Sure – 10 tens can trade for one hundred. *(Do so, removing the ten tens)*. And let's just put this hundred we just traded for a little off so we can see it later.

Hundreds – Can we make an exchange, regroup or trade? No, we don't have 10 hundreds to trade up.

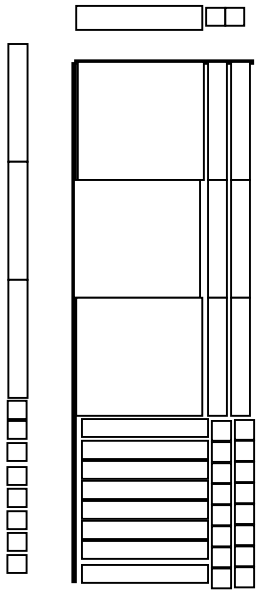
Let's count: 4 hundreds + 5 tens + 6 ones = 456

Now, I'd like to go back to our model before all of the exchanging, regrouping and trading. (*Show model*)

PARTIAL PRODUCTS
Let's take a look at partial products. Partial products is the number representation of this model. In this arithmetic, every time we multiply, we will write the product.

38
x12
16
60
80
300
456

- 2 x 8 = 16. Write the product 16.
- The 3 in 38 represents 3 tens or 30, so our next multiplication is 2 x 30 = 60
- Look now at the 1 in 12. What does that represent? (1 ten) So now we are multiplying 10 x 8 which is…80.
- And finally, what are we multiplying with the 3 in the 38 and the 1 in the 12? That's right 10 x 30 which is 300.
- How do I find the total of all of my partial products? … Add them.



Unit 4, Lesson 1 3-4

TV Lesson - continued

Go back now to our model before the exchanges.

- Can you find the 16 ones? Sure. (*Point to the 16 ones*).
- How about 6 tens? (*Point to them*) And the 8 tens? (*Point to them)*
- And our 3 hundreds? (A*gain point to them*) In partial products, you don't' have to worry about anything but multiplying and keeping your place value.

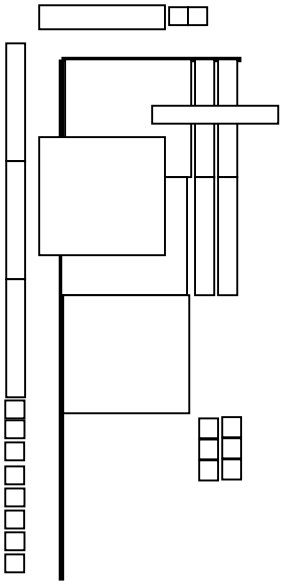
TRADITIONAL ALGORITHM

You know, mathematicians are inherently lazy. They want to find the fastest, most efficient way of finding answers. Some very wise mathematician in years gone by looked at the partial product method and saw that several of the skips could be collapsed by regrouping, trading, exchanging. Let's take a look at this faster way to multiply.

$$\begin{array}{r} {\scriptstyle 1} \\ 38 \\ \times 12 \\ \hline 76 \\ 380 \\ \hline 456 \end{array}$$

- 2 x 8 = 16, We will record the 6 in the ones place *(do so)*, and we'll REGROUP that 10 into the tens place and add it in later. *(Do so)*
- Now, again we are multiplying 2 x 30, which is 60, and we add in our 10: 60 + 10 = 70. Notice that the 7 is recorded in the 10's place.
- Now we'll multiply by our 10 in 12. 10 x 8 = 80, so record 80. Almost done.
- 10 time 30 is still 300, so record the 3 in the hundred's place. *(Do so)* Add up the products.

Again, 456!



ARRAY MODEL

You've been working with arrays and the area model for the basic multiplication facts, creating rows and columns. Just in case you'd like to use this model for the 2-digit multiplication, I will show you a way to use the array model on grid paper that will help you count the area much faster.

(*You will need to refer to the BLM Array Model – Teacher Only, as your guide to modeling this strategy*.)

You now have four ways to multiply. There are many more – perhaps you know them. The best way for you to multiply? Well, the way that you can remember, of course! Ultimately you will want an efficient strategy; but for now, use the one that makes the most sense to you.

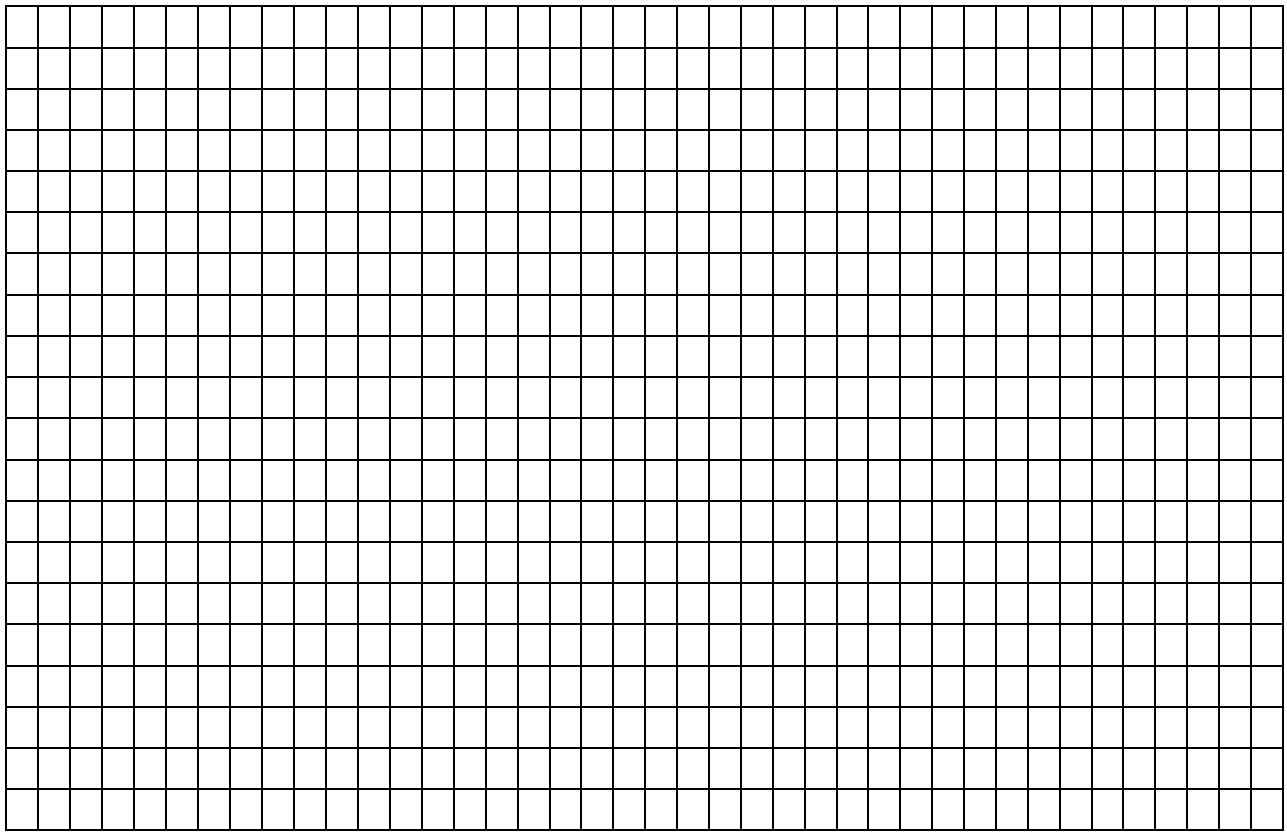
It is almost time for your Follow-up Lesson.

Arthimus Portio's Corner **Unit 4 Lesson 1-** **Fraction Action** How did you solve the Fraction Action today?	**Unit 4, Lesson 1** **3-4** **TV Lesson** - continued  Remember to use your math movie problem solving reading to solve these problems. 1. Read the problem one time out loud together. Classroom Teachers, please be sure that your students are reading with you. There are a few difficult words to conquer, but I know you can do it. 2. When you finish that first reading, your Classroom Teacher will give you a little time to discuss the MATH MOVIE in your class. What action do you see when you read the story? What do you know and what do you need to find out? Also, are there any conversions that you need to accomplish before you can solve the problem? I have made these a little tricky for you, so be careful! 3. You will be asked to solve the problem two ways: a. Using an array, you'll have grid paper you may use for that, OR you may create a base ten array and draw the base ten array on your paper, or partial products, and we've practiced the traditional algorithm. b. Using any other method you wish. There are many ways of solving the problems. We have practiced four. (*Hopefully you will have time to* r*ead the problem. Please note the fact that you have two time periods – per day and two weeks.*) **Pirate:** Now that's a cool lizard! And speaking of things that are cool, I would like to understand some of the strategies you used today in Fraction Action to solve that problem! Please log on to Arthrimus' Corner and share your strategy with me! (*You will want to tell students that you have solved the problem, too, and are sharing your strategy online in the Corner.)* **Teacher:** Thank you! I'm sure everyone will go online so we will all know one another. It will be exciting to see the different solution strategies! And while you are at it, why not post your solutions to one of the Vietnamese Lizard problems. **Objectives:** And now before we go, let's review what we have learned today! (*do so*)

BLM Unit 4, TV Lesson 1 **Grid Paper**

Three grid papers per student – one for TV and two for Follow-up

38 x 12

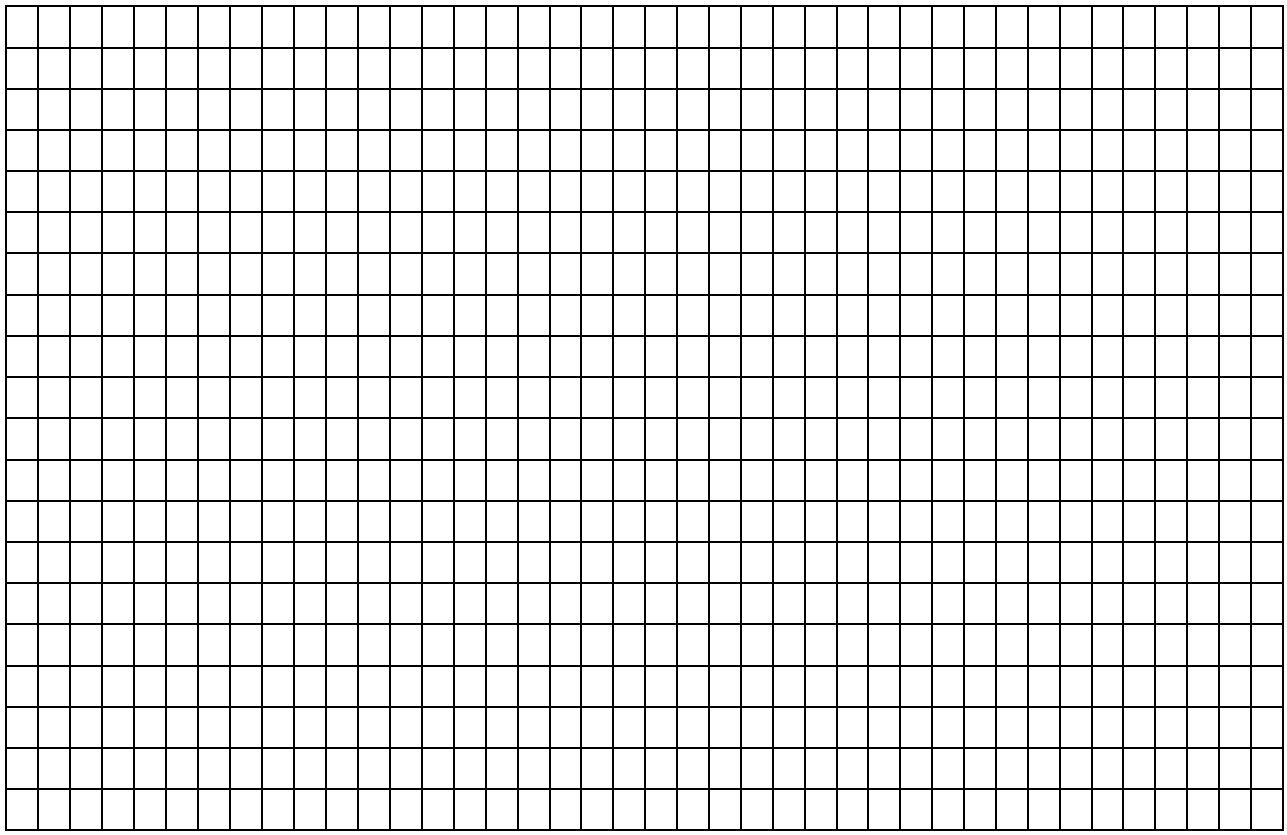


1. Color in the array – 38 columns and 12 rows.
2. Now go back and outline the base ten blocks – this configuration is a little different from the base ten that we created because of the layout of the grid, but the answer will be the same. Outline the hundreds, then the tens, then the ones.
3. Go back and count 300 + 140 + 16 = 456.

BLM Unit 4, TV Lesson 1 **Grid Paper**

Three grid papers per student – one for TV and two for Follow-up

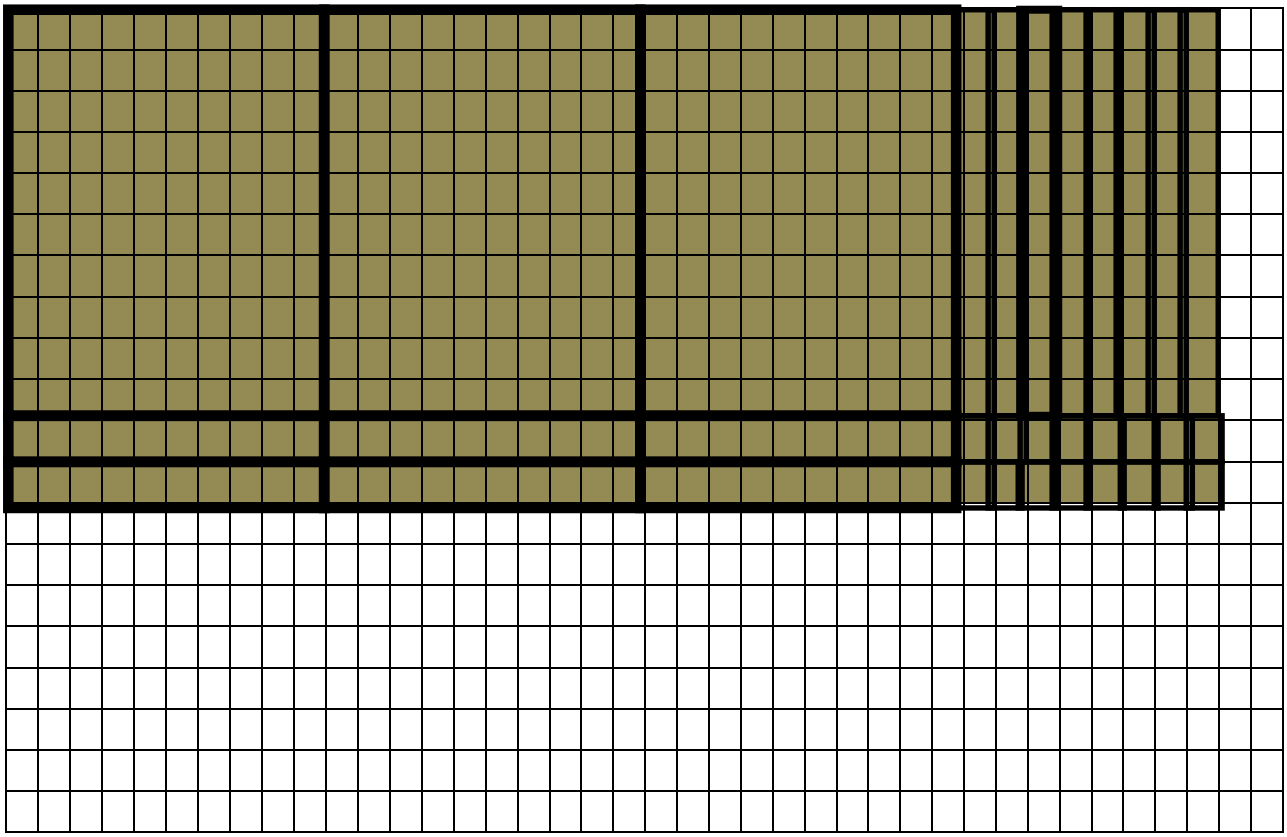
38 x 12



1. Colorea la matriz – 38 columnas y 12 renglones.
2. Ahora regresa y delinea los bloques base diez – esta configuración es un poco diferente de la base diez que hemos creado, debido a la disposición de la cuadrícula, pero la respuesta será la misma. Siluetea las centenas, luego las decenas, y luego las unidades.
3. Regresa y cuenta 300 + 140 + 16 = 456.

BLM Unit 4, TV Lesson 1 **Array Model, Teacher Only**
Teacher only as a guide

38 x 12



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3. Go back and count 300 + 140 + 16 = 456.

Literature Vocabulary
obediently
boisterous
gilded
squirming
flourished
banyan

Math Vocabulary
Repeated vocabulary
factors
products
fact family

Materials
- Scratch paper
- Light colored crayon
- **BLM** Array Model – teacher only to use as model
- **BLM** Grid paper –2 per student (requested in TV Lesson)
- **BLM**– The Flying Dragon Lizard -1 per student from TV Reading
- **BLM** Quince Monitor Lizard – 1 per student

ELPS (*English Language Proficiency Standard*)
2C, 2E, 3E, 3G, 4G, 5B, 5C

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.C.3., I.E.2., II.C.1.
ELA I.A.1., I.A.2., I.A.3., II.A.2., III.B.2.
MATH II.A.1., II.A.2., VIII.A.3., VIII.A.4.

Technology
http://news.nationalgeographic.com/news/colorful-new-lizard-vietnam-animals-science/
Here is a new lizard spotted in the rainforest of Vietnam – now this looks like a dragon for sure!

Unit 4, Lesson 1 3-4
Follow-up

Math Objectives:
- Use a variety of strategies that include arrays, partial products, related facts, and the traditional algorithm to solve multi-step word problems.

Language Objectives:
- Listen and speak with a partner during our math activity.
- Use the math vocabulary during the activity.
- Write math journal response.

Building Background, Math
Discuss the various strategies with the students.
- What do they like about each?
- Which do they feel most comfortable using and why?
- What are the benefits of using each strategy?

Read The Flying Dragon again, discussing the math movie.
- What facts do they know from the story?
- What do they need to find out?
- The TV Teacher mentioned a tricky part of the problem. What might that be? (*Lizard eats the number of termites in one DAY, but the question asks how many termites then would be eaten in two WEEKS. Students need to change the weeks to day*.)

Practice and Application, Math
Provide time for the students to solve the problem using one of the array (*grid array or base ten array*) models AND one additional strategy.

Circulate the room asking questions.
?QUESTIONING

Array Representation
- Tell me what each of these *(blocks, grid squares)* represents.
- Where do you represent the factors in this model? The product?
- How will you count the product?

Partial Products
- Explain each step in the partial product process.
- How does this answer compare to your array model?

Remember to use your math movie problem solving reading to solve these problems.

1. Read the problem one time out loud together. There are a few difficult words to conquer, but I know you can do it.
2. When you finish that first reading, discuss the MATH MOVIE. What action do you see when you read the story? What do you know and what do you need to find out? Also, are there any conversions that you need to accomplish before you can solve the problem?
3. Solve the problem two ways:
   a. Using an array, base ten or grid model.
   b. Using any other method you wish such as partial products or the traditional algorithm, or any other strategy you know and can explain.

NOTE: Teachers, you can view the PD in a Flash in MAS Space for Multiplication and Division to see these and other processes demonstrated.

Follow-up - continued

Traditional Algorithm

- Explain each step in the traditional algorithm process.
- How does this answer compare to your array model?

When everyone has completed the problem, have students who have solved it differently explain their processes.

Repeat the process with the second problem. This is a multi-step problem as well. Be sure that students see that in the Math Movie.

Math Journal Writing

Students should have a spiral notebook into which they journal their thoughts daily about math. Today's journal prompt is:

Which multiplication strategy do you prefer and why?

Objectives: Review the objectives with the class, making sure they understand how they achieved each.

BLM Unit 4, TV & Follow-up Lesson 1 **The Flying Dragon Lizard**
One per student – this will be read during the TV Lesson

The Flying Lizard (Draco Blanflordii) is sometimes called the Flying Dragon Lizard. The adult male is about 38 cm long from the tip of his nose to the end of his tail.

This lizard eats termites when they are available. Suppose the lizard could eat a number of termites equivalent to its length every day? How many termites would a Flying Dragon Lizard eat in two weeks?

Solve your problem using an array (grid paper is provided if you want to use that type of array), or any other strategy you wish.

BLM Unit 4, TV & Follow-up Lesson 1 **The Flying Dragon Lizard**
One per student – this will be read during the TV Lesson

El lagarto volador (Draco Blanflordii) a veces se conoce como el lagarto dragón volador. El macho adulto mide unos 38 cm. de largo desde la punta de la nariz hasta la punta de la cola.

This lizard eats termites when they are available. Suppose the lizard could eat a number of termites equivalent to its length every day? How many termites would a Flying Dragon Lizard eat in two weeks?

Solve your problem using an array (grid paper is provided if you want to use that type of array), or any other strategy you wish.

BLM Unit 4, Follow-up Lesson 1 **The Quince Monitor Lizard**

One per student

This handsome monitor really resembles some of the Vietnamese art forms of their Dragons. The name “monitor” may have come from the observation that this creature occasionally stands on its hind legs, appearing to “monitor” or check out the area around it! And it grows quite large – from 80 to 120 cm.

A female monitor can lay from 7 to 35 eggs, often covering them with dirt to protect them from predators. Suppose 8 monitors laid 24 eggs each, and all but 7 hatched. How many baby monitors hatched?

Solve your problem using an array model (base ten or grid) and one other strategy.

BLM Unit 4, Follow-up Lesson 1 **The Quince Monitor Lizard**
One per student

Este apuesto monitor realmente se parece a algunas ilustraciones vietnamitas de sus dragones. El nombre “monitor” puede provenir de la observación de que esta criatura ocasionalmente se para sobre sus patas traseras, ¡dando la apariencia de “monitorear” u observar el área a su alrededor! Y crece bastante - de 80 a 120 cm.

Una monitor hembra puede poner entre 7 y 35 huevos, a menudo cubriéndolos con tierra para protegerlos de los depredadores. Supón que 8 monitores pusieron 24 huevos cada una, y todos nacieron excepto 7. ¿Cuántos bebés monitor nacieron?

Resuelve tu problema usando un modelo de matriz (base diez o cuadrícula) y una estrategia más.

BLM Unit 4, TV & Follow-up Lesson 1 **The Flying Dragon Lizard KEY**
One per student – this will be read during the TV Lesson

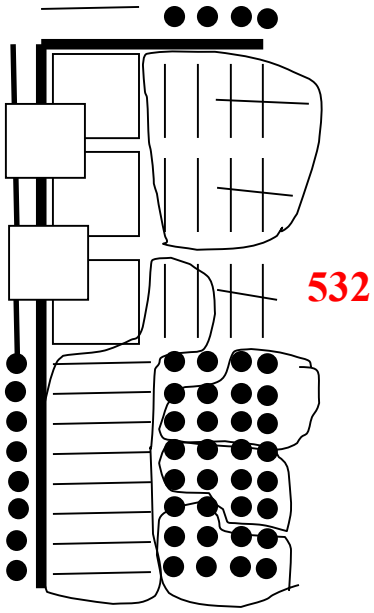
The Flying Lizard (Draco Blanflordii) is sometimes called the Flying Dragon Lizard. The adult male is about 38 cm long from the tip of his nose to the end of his tail.

This lizard eats termites when they are available. Suppose the lizard could eat a number of termites equivalent to its length every day? How many termites would a Flying Dragon Lizard eat in two weeks?

Solve your problem using an array (grid paper is provided if you want to use that type of array), or any other strategy you wish.

First, change the 2 weeks to 14 days.
List what you know: length 38 cm. 1 day 38 termites How many in 14 days?
Number Sentence: 14 x 38

Base Ten Array (You may need to remind students how to circle tens and create trades. Drawing can be sticks and circles, rectangles and squares – whatever works for students as long as they keep the one-to-one correspondence close enough so that they can count the blocks.)



Partial Products

38
x14
32
120
80
+300
532

Traditional Algorithm

3
38
x14
152
+380
532

Grid Array Model (*or use the grid paper model)*
– create a 14 x 38 area on grid paper and divide

into hundreds, tens and ones.)

BLM Unit 4, Follow-up Lesson 1 **The Quince Monitor Lizard KEY**
One per student

This handsome monitor really resembles some of the Vietnamese art forms of their Dragons. The name "monitor" may have come from the observation that this creature occasionally stands on its hind legs, appearing to "monitor" or check out the area around it! And it grows quite large – from 80 to 120 cm.

A female monitor can lay from 7 to 35 eggs, often covering them with dirt to protect them from predators. Suppose 8 monitors laid 24 eggs each, and all but 7 hatched. How many baby monitor hatched?

Solve your problem using an array model (base ten or grid) and one other strategy.

2-step problem: We know that 8 laid 24 eggs, and all but 7 eggs hatched
We want to know how many baby monitors hatched.

8 x 24, then subtract 7.

Array for 8 x 24, then subtract 7 blocks or squares.
These can be either the base ten model OR the grid array.

Partial Products

24
x8
32
+160
192

192
-7
185

Math Objectives
- Represent equivalent fractions using pictorial models.
- Compare two fractions having the same denominator.
- Determine if two given fractions are equivalent.
- Recognize tenths and label in fraction and decimal form.

Language Objectives
- Discuss fraction comparisons.
- Discuss fraction equivalencies.
- Discuss fraction/decimal equivalencies.

Vocabulary
halves
fourths
sixteenths

Materials:
- 1 per student
- **BLM** Kabob Fractions

Per Partners:
- Skewers (1 per student)
- Food items in Ziploc bags:
  - 16 1"cubes of cooked meat or chicken
  - 8 cubes of cheese
  - 8 cubes pineapple
  - 8 cherry tomatoes
- 16 lima beans available
- 2 paper plates
- 2 paper towels
- Chart paper with question**: How did you find an equivalent fraction to 3/4?** Put a copy of the record sheet at the top of the chart with the question.

Unit 4, Lesson 1 3-4

Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

Look at the snack.
- What do you have to share? (*food for Kabobs)*
- Talk to your partner now about how you will share the snack fairly between you. When you have a plan, raise your hand and share your plan with me. (*Circulate the room listening to the partners' discussions, and then allow them to share the snack.)*

(Ask of the whole class)
- How did you share your food pieces between you?
- How do you know you each have half?

Let's look at our BLM, Kabob Fractions. Suppose you had all of those pieces of meat to share with your little sister, or a much younger friend. Since the smaller person wouldn't eat as much as your age person would, you would give the younger person 1/4 of the meat. Talk to your partner about how you would divide the 16 pieces of meat into the two unequal groups. I also have lima beans for each group if you would like to use them. (*Let students work on the problem. Listen to their discussion. Have groups share their strategies for dividing up the meat. Any type of counter may be used to practice.)*

Now work with your partner to determine the equivalent fraction in sixteenths for the younger person's share. (*Let students work on the problem. Listen to their discussion. Have groups share their strategies for finding the equivalent fraction.)*

The rest of the sheet you and your partner should work together. We will share strategies when everyone is finished. (*Circulate the room. Share when all are finished)*

Snack Fraction Journal Writing: Kabob Chart Paper
How do you know that 3/4 = 12/16?

Objectives: Review the objectives with the class, making sure they understand how each was achieved.

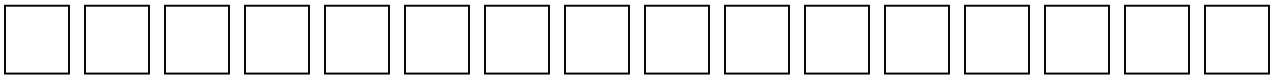
BLM Unit 4, Snack Fraction
(One sheet per student)

Name _____

Kabob Fractions

Suppose you and your little sister were sharing the 16 pieces of meat. You little sister only wants $\frac{1}{4}$ of the meat, and you may have the rest.

1. Use the pictures to show your little sister's portion and your portion.



2. Your sister's portion is $\frac{1}{4}$ of the pieces. What is the equivalent fraction in sixteenths?

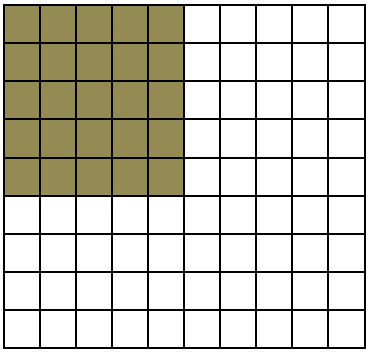
3. If your sister's portion is $\frac{1}{4}$ of the meat, what fractional part is your portion?

4. What is the equivalent fraction for your portion in sixteenths?

Explain how you determined:

1. Your fractional portion of the meat:

2. The equivalent fractional portion in sixteenths for your part of the meat:



What decimal represents the shaded part of this square?

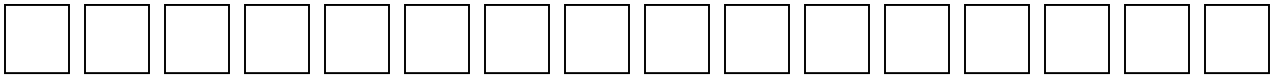
How do you read this decimal?

_____

BLM Unidad 4, Fracción de refrigerio **Fracciones de kabob**

Supón que tú y tu hermanita estaban compartiendo los 16 trozos de carne. Tu hermanita sólo $\frac{1}{4}$ quiere de la carne, y tú puedes comer el resto.

5. Usa las imágenes para mostrar la porción de tu hermanita y tu porción.



6. La porción de tu hermana es $\frac{1}{4}$ de las piezas. ¿Cuál es la fracción equivalente en dieciseisavos?

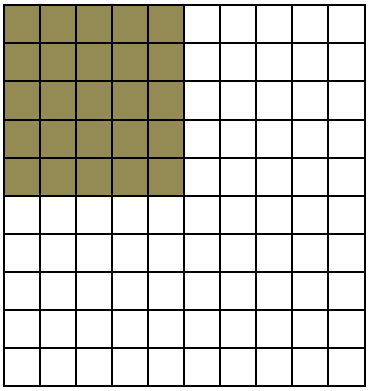
7. Si la porción de tu hermana es $\frac{1}{4}$ de la carne, ¿qué parte fraccional es tu porción?

8. ¿Cuál es la fracción equivalente a tu porción en dieciseisavos?

Explica cómo determinaste:

3. tu parte fraccional de la carne:

4. la porción fraccional equivalente en dieciseisavos de tu parte de la carne:

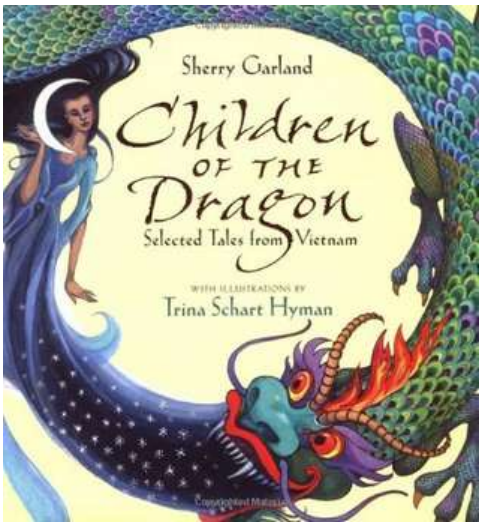


¿Qué decimal representa la parte sombreada de este cuadro?

¿Cómo lees este decimal?

_____

Family Fun – 3-4, Unit 4 Lesson 1



Our book for Unit 4 is a collection of folktales from Vietnam, ***Children of the Dragon*** by Sherry Garland

One fact I learned today about Vietnam in our reading is:

_____

_____

_____

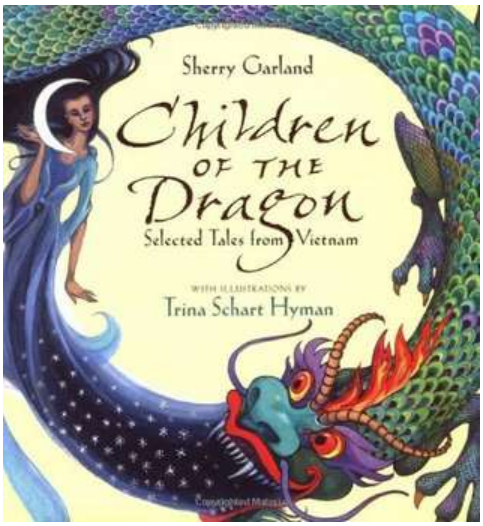
We solved multiplication problems today. One strategy that we practiced for multiplying is:

_____

Thank you for helping me with my summer program!

_____
Your Child

Diversión familiar – 3-4, Unidad 4 Lección 1



Nuestro libro para la unidad 4 es una colección de historias folklóricas ***Children of the Dragon*** por Sherry Garland

Un hecho que aprendí hoy sobre Vietnam en nuestra lectura es:

_____

_____

_____

Hoy resolvimos problemas de multiplicación. Una estrategia que practicamos para multiplicar es:

_____

¡Gracias por ayudarme con mi programa de verano!

_____
Tu hijo

Materials

- Unknown Quantity Cards – 1 set for classroom
- **BLM** Solve It, Unit 4
- **BLM** Model Equivalencies – 1 per student and KEY for teacher
- **BLM** CGI Problems
- **BLM** Rice Paddy Area – 1 per student and Key for teacher
- **BLM** Model Equivalencies – 1 per student

Math Objectives

- Find missing elements in an equation.
- Solve multi-step word problems.
- Use a variety of strategies to solve word problems.
- Find equivalent forms of fractional parts.
- Measure length in centimeters.

Balanced Literacy Language Objectives

- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.
- Explain how they decided to rename the target number.
- *Discuss scarcity of money, choices and cost benefit.*

TEKS in TV and FlU

Lesson 1

- **3rd** – 3.4EGH
- **4th** - (DR thorough review)

Lesson 2

- **3rd** –3.4EGH
- **4th** - (DR thorough review)

Lesson 3

- **3rd** – 3.4EGH
- **4th** - (DR thorough review)

Unit 4, Lesson 2 3-4

Daily Routine

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL

What's Missing? *(3rd assessment item 2)*

- **Lessons 1, 2, 3** *follow directions in the Daily Routine Explanations. Check the assessment items so that you are certain you include samples to practice the shape in the assessed location.*

Solve It! *(fundamental problem-solving skills for all items)*

- Lesson 1 – Triad of students working on three related problems.
- **Lesson 2 - Triad of students working on 3-step problem.**
- Lesson 3 – Partners working on unique problems.

Fraction Action (Student partners should work together without teacher guidance. When all have finished, let students explain how they answered the questions.)

- Lesson 1 – Who ate more? (*4th Assessment item 7*)
  - BLM Who ate more?
  - BLM KEY
- **Lesson 2 - Model Equivalencies (*3rd Assessment item 6*)**
  - **BLM Model Equivalencies**
  - **BLM KEY**
- Lesson 3 – Jesse's Homework (*4th Assessment item 5*)
  - BLM Jesse's Homework
  - BLM KEY

CGI

- Lesson 1 – Multiplication
- **Lesson 2 – Division, Measurement** (*3rd Assessment item 5*)
- Lesson 3 – Division, Partitive (*3rd Assessment item 4*)

Measurement Lab (*3rd Assessment item 1; 4th Assessment item 3*)

Materials, per student:

- **Metric ruler – 1 per student**
- **BLM for each Lesson**
- **BLM Key** for each Lesson

- Lesson 1 – Vietnamese Dragon
- **Lesson 2 – Rice Paddy Area**
- Lesson 3 - Area Arrays and Multiplication

ELPS (*English Language Proficiency Standard*)
2A, 2D, 3A, 3D, 3J, 4F

CCRS (*College and Career Readiness Standards)*
CROSS-CURRICULAR I.B.2., I.C.3., II.B.1., II.B.2.
ELA II.B.1., II.B.3., III.B.1., III.B.2., IV.B.1.
MATH I.B.1., II.B.1., II.C.1., IV.B.1., IV.B.2., VII.A.1., VIII.A.2., IX.A.3.

Assessment Items
(As a result of experiencing this unit, students will be learning skills necessary to be successful on the following Assessment items.)

3rd - 1, 2, 3, 4, 5, 6, 7, 8
4th - 1, 2, 3, 4, 5, 6, 7, 8 (DR)

Arthrimus Portio's Corner
Unit 4 Lesson 2- CGI
Explain the math movie you saw when you solved your CGI problem today.

Unit 4, Lesson 2 3-4
Daily Routine - continued

OPTIONAL: *These activities, although not assessed, are fundamental skills that should be included in those sites providing five to six weeks of instruction.*

Target Number *(fundamental number sense for all items)*

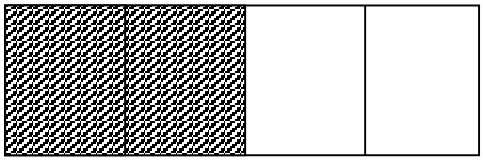
- Lesson 1 – Target Number 25
- **Lesson 2 – Target Number 50**
- Lesson 3 – Target Number 75

(Assessment Item 8 will be reviewed daily in Snack Fractions.)

BLM Daily Routines Unit 4 Fraction Action, Lesson 2 **Model Equivalencies**

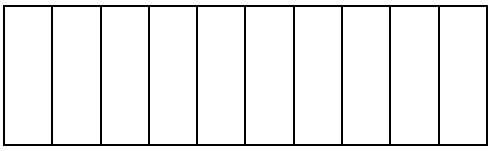
One sheet per student

The model below shows $\frac{2}{4}$. Use the second rectangle to model a different fraction that is equivalent to $\frac{2}{4}$.



2/4

Write the name of this fraction.



Write the name of this decimal.

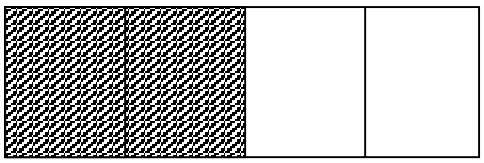
Now use the partitioned rectangle to model a decimal that is equivalent to two-fourths.

Write the name of this decimal.

How would you read this decimal?

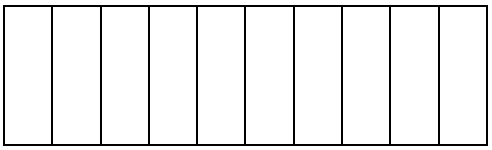
BLM Daily Routines Unit 4 Fraction Action, Lesson 2 **Model Equivalencies**
One sheet per student

El model a continuación muestra $\frac{2}{4}$. Usa el segundo rectángulo para modelar una fracción que sea equivalente a $\frac{2}{4}$.



2/4

Escribe el nombre de esta fracción.



Escribe el nombre del decimal.

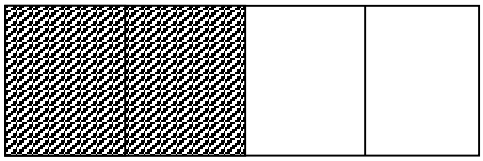
Ahora usa el rectángulo particionado para modelar un decimal que sea equivalente at dos-cuartos.

Escribe el nombre del decimal.

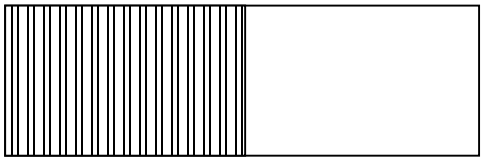
¿ Cómo leerías este decimal?

BLM Daily Routines Unit 4 Fraction Action, Lesson 2 Model Equivalencies KEY
One sheet per student

The model below shows $\frac{2}{4}$. Use the second rectangle to model a different fraction that is equivalent to $\frac{2}{4}$.



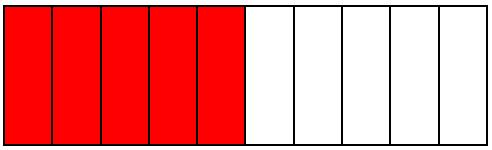
$\frac{2}{4}$



$\frac{1}{2}$ **Any fractional representation – probably will represent halves or eighths; but any will be acceptable. Halves are modeled.**

Write the name of this fraction.

0.5



Write the name of this decimal.

Now use the partitioned rectangle to model a decimal that is equivalent to two-fourths.

How would you read this decimal? ***Five-tenths***

Solve It! Problems Unit 4, Lesson 2 **Triad (3)**

- Avery and Micah went to the movie. Their tickets were $6.50 each. Avery chose a popcorn and drink combo for $7.50. Micah planned to share Avery's popcorn, and bought a soda regularly priced for $4.00, but was on sale for half off. Micah paid for the movie and snacks. What was his bill?

Problem #1 – Name: _____ Verification – Name: _____

Problem #2 – Name: _____ Verification – Name: _____

Problem #3 – Name: _____ Verification – Name: _____

Final Solution – Name: _____ Verification – Name: _____

You are free to take this apart any way you wish – on your own; together as a team; or a mix of both. You are responsible, however, for your own paper having all problems identified and solved; and verifying your Team member's page. Be sure to write your final solution with a label in the box.

Solve It! Problems Unit 4, Lesson 2 **Pairs**

- Avery y Micah fueron al cine. Los boletos costaron $6.50 cada uno. Avery compró un combo de palomitas y bebida por $7.50. Micah pensó compartir las palomitas de Avery y compró una soda que costo $4.00, pero que estaba de oferta a medio precio. Micah pagó los boletos y comida. ¿Qué es la cuenta?

Problema #1 – Name: _____ Verificación – Nombre: _____

Problema #2 – Name: _____ Verificación – Nombre: _____

Solución final – Nombre: _____ Verificación – Nombre: _____

Puedes resolver esto del modo que desees - por ti mismo; en equipo; una mezcla de ambos métodos. Sin embargo, tú eres responsable de que tu propio trabajo tenga todos los problemas identificados y resueltos; verificando la página del miembro de tu equipo. Asegúrate de escribir tu solución final con una etiqueta en la caja.

BLM Daily Routines Unit 4, Measurement Lesson 2 Rice Paddy Area
One sheet per student

Rice has been grown in Vietnam for thousands of years.

Vietnam is now the second largest exporter of rice. Thailand is the largest producer.

Rice farmers in the mountains terrace their hills with irregularly shaped paddies to grow the rice. Farmers with flat land make rectangular paddies for their rice field.

Use the grid to determine the area of the rice paddy below.

The area of this rice paddy is

_____ square units.

Explain how you can use the array to answer that question.

Write a multiplication number sentence that represents this array and solve it.

Related Number Sentences

_____ _____

_____ _____

BLM Daily Routines Unit 4, Measurement Lesson 2 Rice Paddy Area
One sheet per student

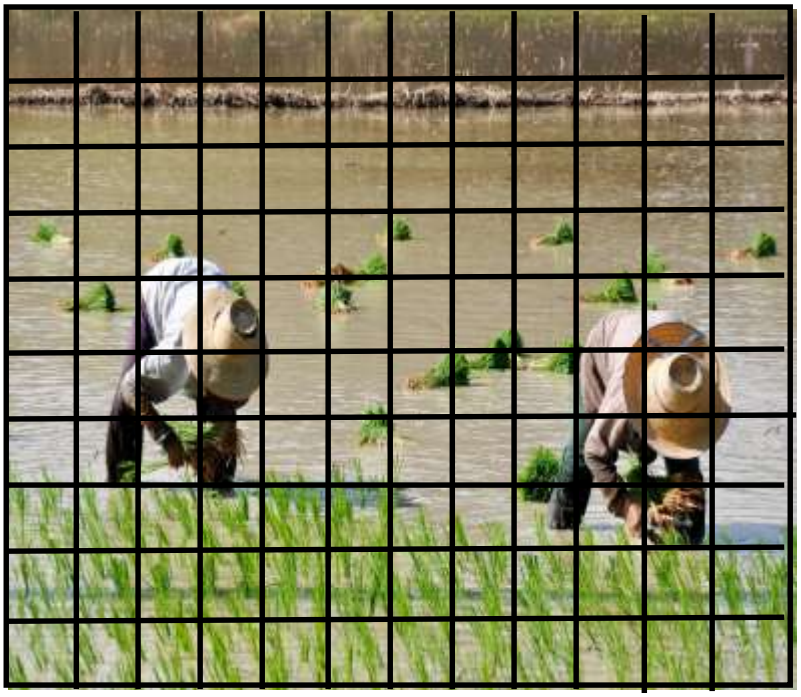
\

En Vietnam han cultivado arroz durante miles de años.

Vietnam es hoy el segundo mayor exportador de arroz. Tailandia es el principal productor.

Los granjeros de arroz en las montañas hacen terrazas en sus colinas con campos de forma irregular para cultivar el arroz. Los granjeros con tierras planas hacen campos rectangulares para sus arrozales.

Usa la cuadrícula para determinar el área del siguiente arrozal.



El área de este arrozal es

_____ unidades cuadradas.

Explica cómo puedes usar la matriz para responder esa pregunta.

Escribe una oración numérica de multiplicación que represente esta matriz y resuélvela.

Oraciones numéricas relacionadas

_____ _____

_____ _____

BLM Daily Routines Unit 4, Measurement Lesson 2 Rice Paddy Area KEY

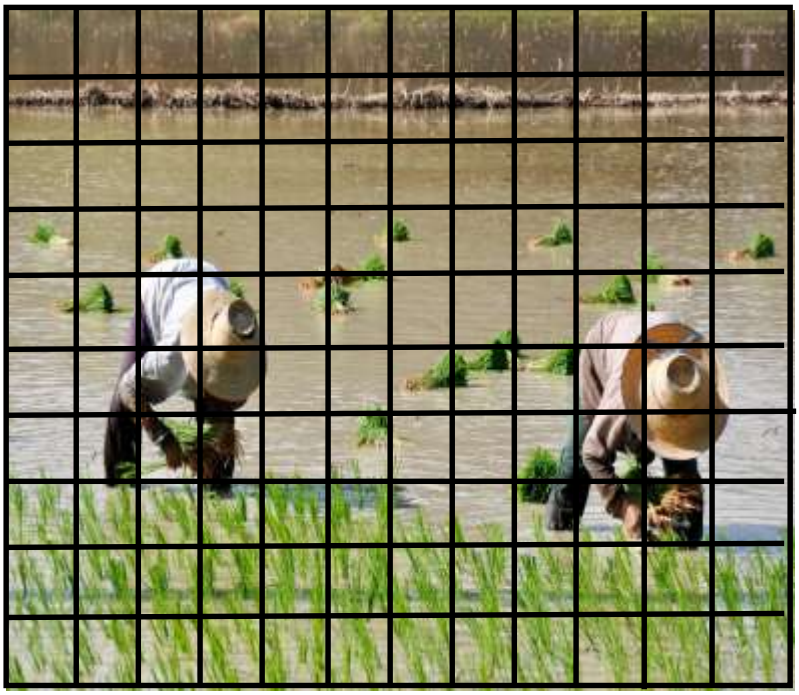
One sheet per student

Rice has been grown in Vietnam for thousands of years.

Vietnam is now the second largest exporter of rice. Thailand is the largest producer.

Rice farmers in the mountains terrace their hills with irregularly shaped paddies to grow the rice. Farmers with flat land make rectangular paddies for their rice field.

Use the grid to determine the area of the rice paddy below.



The area of this rice paddy is

__120___ square units.

Explain how you can use the array to answer that question.

This array is a 10 by 12.
10 times 12 equals 120

Related Number Sentences

12 x 10 = 120
10 x 12 = 120
120 ÷10 = 12
120 ÷12 = 10

(any order acceptable)

Write a multiplication number sentence that represents this array and solve it.

This is a basic fact – students should NOT need to perform double-digit multiplication.

12
x10
120

Literature Selection
Children of the Dragon
by Sherry Garland

Materials
Language Materials
- **BLM** Word Cards
- **BLM** Folktale Elements/Plot Chart

Transition to Math Materials
- Base ten units – 40 per student
- Dice –2 per pair of students
- **BLM TM** Dragon Roll – 1 per student, plus 2 for the teacher
- Decimal Battle Card Game

Literature Vocabulary
obediently
boisterous
gilded
squirming
flourished
banyan
Math Vocabulary
Repeated vocabulary
factors
products
fact family

Suggested online resources:
https://www.google.com/search?q=pics+of+water+buffalo+in+Mei+Kong+Delta&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official&client=firefox-a&channel=sb
Pictures of water buffalo in the Mei Kong Delta

ELPS (*English Language Proficiency Standard*)
1F, 1G, 3C, 3E, 4E, 5A, 5B

Unit 4, Lesson 2 — 3-4
Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students should review to see if they have accomplished both math and language objectives.

Math Objectives:
- Represent multiplication facts by using equal-sized groups.
- Represent the multiplication/division relationship by determining fact families and related number sentences.

Language Objectives:
- Use the context of the sentence to determine the meaning of unfamiliar words or multiple meaning words.
- Summarize and explain the lesson or message of a work of fiction as its theme.
- Listen attentively to speakers, ask relevant questions, and make pertinent comments.
- Write literary texts to express their ideas and feelings about real or imagined people, events, and ideas.

BEFORE READING
Building Background: Vocabulary & Literature
Display the literature vocabulary in groups of three according to three parts of speech. (verb, noun, adjective) Write 'obediently' outside the groups.

flourished squirming	banyan	gilded boisterous

obediently

Say, "Read the literature vocabulary with me."
Guide the students in echoing or simultaneously reading the vocabulary words with you.

Ask, "Why is obediently not in a group?" Allow students to respond.
If students are having difficulty-
Say, "Let's discover what is the same about the words in the groups and maybe that will give us an idea as to why obediently is not included."

Reread the words in the first box.
Ask, "Which of these two words means wriggling or twisting from side to side?" Allow for students to respond.

CCRS *(College and Career Readiness Standards)* CROSS-CURRICULAR I.C.1., I.C.2., II.A.2., II.A.4., II.B.1 ELA I.A.1., I.A.2., II.A.2., II.B.1., III.A.2., IV.A.2.	**Unit 4, Lesson 2** **3-4** **Classroom Lesson** - continued  Ask, "What does the –ing at the end of the word mean?" Allow for response. Say, "If it means that it is happening 'right now,' then that must mean this is an action word. What do we call words that we use that show action?" Allow response. Say, "Let's check to see if flourished is a verb, too. What is the meaning of flourished?" Allow response. Ask, "What do you notice at the end of the word flourished?" Allow response. "What does –ed mean as a suffix?" Allow response. Say, "So, if – ed means happened in the past, the base word must show action. That means that flourished is also a verb. Great! Now we know that both of these words are verbs. We also know that they both have a suffix." Ask, "Can you 'obediently'? Would you be able to do this action like you can wriggle and flourish?" Allow for response. Say, "Maybe 'obediently' doesn't belong here." Say, "Let's examine the second box. I notice there is only one word in this box. There are two in the other boxes…I wonder if this is where obediently should go. I remember looking at the pictures in lesson 1 of a banyan tree." Ask, "What part of speech is banyan if it is the name of a tree?" Allow for response. Say, "Great- so this word is a noun." Ask, "What word do I form if I add suffix –s?" Say, "Suffix –s means more than one." Ask, "Does obediently have a suffix –s?" Say, "Hmmm, then maybe it doesn't belong in this box." Say, "Let's look at the third box." Ask, "How many words? What do you notice about these two words?" Guide students in discovering gilded could have a suffix –ed, but boisterous does not have a suffix. Ask, "Which of these words means events or noises that are loud, disruptive, and rowdy? Say, "Boisterous would be used then to describe the noise in a gymnasium filled with hyper screaming children. Ask, "What else could be described as boisterous?" Allow for students to brainstorm. Say, "Words that are used to describe a noun are called adjectives."

Classroom Lesson - continued

Say, "Gilded in our story will be used as an adjective. The word comes from Germanic origins for the word gold. So, something that is described as gilded is covered in gold. The word will be describing a noun."
Ask, "What could be gilded with gold?" Allow for brainstorming.

Ask, "What is the root word of gilded? What did we discover already about the suffix –ed?"
Say, "So this word could be both the action of covering something in gold or describing something covered in gold. It depends on its placement in the sentence it is being used in."

Ask, "Where do you think we should place obediently?"
Guide students in discovering it doesn't belong in any of the boxes in its current form.

Say, "In its current form, obediently is an adverb. It tells how something does an action. So, it will be used just before an action."
Ask, "What word do I form if I remove –ly? What part of speech does the word become?"
Guide the student in discovering that obedient is an adjective.

Ask, "Where would we place this word in its new form?"
Say, "Let's place this form in the adjective box. We can label the other form as an adverb in its own box."

Say, "We will be reading the Vietnamese folktale titled 'How the Tiger Got Its Stripes.'"
Ask, "How do you think the tiger got its stripes according to the folktale? I'll write our predictions and we can vote."

Say, "In lesson 1, we learned folktales begin in most cultures as stories told orally. The stories are passed down through the generations and may change slightly. What else did we learn about folktales?"

Write students thoughts in word or short phrases on a chart or on the board.

Say, "I have a graphic organizer for you that lists some of the elements included in a folktale. As we read the folktale today, listen for these elements listed. If you feel that one of these elements is included in the folktale, check it off in the box next to the element."
Direct the students to fold their paper so that only the top chart is viewable. The bottom will be completed after reading.

Unit 4, Lesson 2 3-4

Classroom Lesson - continued

DURING READING

Comprehensible Input: Vocabulary & Literature

Begin with reading aloud to students modeling your reading processes one at a time in a think-aloud. Acknowledge literature vocabulary words as you come across them in reading. Stop to clarify unfamiliar words, use context clues to figure them out.

Teacher reads page 4, modeling thought process.

Stop. Direct students to check off any elements they might have heard. Ask, "Who are the characters in the story so far? Who do you think the main character is?"

Popcorn Students to continue reading starting on page 5.

"*Meanwhile, in the shadowy jungle…"* Stop after reading "…*into the rice paddy or run away*."

Direct students to think about the folktale elements then, share with their neighbor or partner which elements they read. Encourage them to provide proof of the elements from the story.

Popcorn Students to continue reading aloud starting on page 6. "*The dark gray water buffalo…"* Stop after reading "…*I must go back to my hut to fetch it.*"

Encourage students to identify vocabulary words they read during this section. Then, direct students to think over the folktale elements and check off what they've read providing proof of these elements.

Ask, "What are your thoughts now about the main character? Is the main character still the same? What is it that the tiger wants? What is it that the farmer wants?"

Students are grouped for partner reading. Prior to reading aloud with partner, direct **students to silently read page 7**, stopping at the bottom of the page. Then, students will **reread page 7 aloud** with their partner. Direct students to check over and provide proof of the elements of a folktale included on this page.

Ask, "What do think about the tiger? Why do you think that?
What do you think about the farmer? Why do you think that?
What do you predict will happen next? Why?"

Staying with their partner, direct **students to silently read page 8** beginning with "*Yes, I will show you my wisdom…"* Stop after reading"…*and the tiger has stripes."* Then, students will **reread page 8 aloud** with their partner.

Unit 4, Lesson 2 3-4

Classroom Lesson - continued

Direct students to check over and provide proof of the elements of a folktale included on this page.
Ask, "How did the story end? What do you think of this folktale?"

Teacher reads aloud the remainder of this passage that explains the facts of tigers in Vietnam and the importance of water buffalos.
Visit the online resource provided for pictures.

https://www.google.com/search?q=pics+of+water+buffalo+in+Mei+Kong+Delta&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official&client=firefox-a&channel=sb
Pictures of water buffalo in the Mei Kong Delta.

AFTER READING
Practice and Application: Vocabulary & Literature
Number the students off 1-3 or1-4 depending on the total number of students in your classroom. The students will share their thoughts on the elements in this folktale and why they checked off certain elements through numbered heads together. All the ones get to one group. All the twos, and so forth.

Afterwards allow the groups to work together to complete the Plot Chart below the elements checklist. The first box can be either any character, but then the following boxes must make sense according to the character chosen.

Share Plot Charts with class and allow students to discover that this summary can be changed around depending on the character chosen.

BLM TM Unit 4, Classroom Lesson 2 **Folktale Elements / Plot Chart**

element	How the Tiger Got Its Stripes	Chu Cuoi-the Man in the Moon
lesson learned		
wonder of the world explained		
supernatural or magical element		
main character represent a human quality of good or bad		
main character changes from beginning to end of tale		
plot contains problem and solution		

How The Tiger Got Its Stripes:

Somebody
wanted
so
but
so
In the end

BLM TM Unit 4, Classroom Lesson 2 **Folktale Elements / Plot Chart**

elemento	Como el tigre consiguió sus rayas	Chu Cuoi-el hombre en la luna
Lección aprendido		
Maravilla del mundo		
Elemento sobrenatural o mágico		
Carácter principal representa una calidad humana buena o mala		
Carácter principal cambia del principio al final		
El trama tiene un problema y solución		

Como el tigre consiguió sus rayas:

Alguien
quería
así
pero
así
Al final

Math Objectives

- Represent multiplication facts by using equal-sized groups.
- Represent the multiplication / division relationship by determining fact families and related number sentences.

Math Vocabulary
Repeated vocabulary
factors
products
fact family
Transition to Math Materials

- base ten units – 40 per student
- dice –2 per pair of students
- **BLM TM** Dragon Roll – 1 per student, plus 2 for the teacher
- Decimal Battle Card Game

ELPS (*English Language Proficiency Standard*)
1E, 2D, 3D, 3E, 3H, 4G

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.C.2., I.E.2., II.C.1.
MATH I.B.1., II.A.1., VIII.C.1., IX.A.2.

Technology:
www.mathnook.com/math/skill/decimalgames.php
TV Lesson Materials

- Base ten sets – 1 set per student
  - 3 flats
  - 15 longs
  - 15 units
- Scratch paper
- Light colored crayon
- **BLM** Grid paper – 2 per student,
- **BLM** Planting the Paddy #1-1 per student
- **BLM #1 KEY –** Classroom Teachers should be familiar with this before the lesson to know what to watch for as you circulate the room.
- **BLM** Planting the Paddy #2 – 1 per student
- **BLM #2 KEY -** Classroom Teachers should be familiar with this before the lesson to know what to watch for as you circulate the room.

Unit 4, Lesson 2 — 3-4

Classroom Lesson - continued

TRANSITION to Math

Building Background, Math

Play Dragon Roll again today.

Look over the students' game record sheets from Lesson 1, noting particularly the pictures they used.
Before they play the game today, talk to the students about their experiences with the game in Lesson 1.

- Are there facts that they could remember quickly?
- Which facts do they still need practice to remember?
- How many fact families did they write on their record sheets?
- Use your observations from their pictures to correct any misconceptions. If there were several incorrect pictures, use them as anonymous board practice by saying, "what fact does this picture represent?" *(answers which class verifies)* How could we model? *(The number sentence it should have been)*

Reminder of the progression of the game:

- roll the dice to find your two factors
- draw a picture to represent the number of equal sets
- generate the number sentence that represents your sentence
- and record your product.

Partner up students and have them play the game.

Circulate the room while students are playing, this time simply listening to the students' discussions. Clarify if needed.

If you have time and the students could use a little fast-paced game, play Decimal Battle until time for the TV Lesson.

Objectives: Review the math and language objectives to see how they were accomplished.

Distribute TV Lesson Materials
NOTE: Classroom Teachers should be familiar with the **KEYS** that will be used in the TV Lesson. These will guide you in your observations as you circulate the room during the TV Lesson.

BLM TM Unit 4, Classroom Lesson 2 **Dragon Roll**

Compañero 1
1. Tira los dados – estos son tus factores.
2. Haz un dibujo que represente el problema de multiplicación.
3. Escribe tu oración numérica.
4. Registra tu producto.

Compañero 2 - repite el proceso.
Al final del juego, encuentra la suma de tus productos para conocer tu puntuación.

Materiales:
- Dados
- Bloques base diez
  - 40 unidades

Factores	Dibujo	Oración numérica	Producto
		Total del juego	

BLM TM Unit 4, Classroom Lesson 2 **Dragon Roll**

Partner 1

5. Roll the dice – These are your factors.
6. Draw a picture which represents the multiplication problem.
7. Write your number sentence.
8. Record your product.

Partner 2 – Repeat the process

At the end of the game, find the sum of your products for your score.

Materials:

- Dice
- Base ten blocks
  - 40 units

Factors	Picture	Number Sentence	Product
		Game Total	

Literature Vocabulary
obediently
boisterous
gilded
squirming
flourished
banyan

Math Vocabulary
Repeated vocabulary
factors
products
fact family

Materials
- Base ten sets – 1 set per student
  - 3 flats
  - 15 longs
  - 15 units
- Scratch paper
- Light colored crayon
- **BLM** grid paper – 2 per student,
- **BLM**– Planting the Paddy #1-1 per student
- **BLM #1 KEY –** Classroom Teachers should be familiar with this before the lesson to know what to watch for as you circulate the room.
- **BLM** Planting the Paddy #2 – 1 per student
- **BLM #2 KEY -** Classroom Teachers should be familiar with this before the lesson to know what to watch for as you circulate the room.

ELPS (*English Language Proficiency Standard*)
2B, 2C, 3B, 3F, 4E, 4I

CCRS ***(College and Career Readiness Standards)***
CROSS-CURRICULAR I.A.1., I.B.4., I.C.2., I.C.3., II.C.1
ELA II.A.3., II.A.6., III.A.1., IV.A.3.
MATH I.B.1., II.A.1., II.B.1., VIII.A.1., VIII.A.3.

Unit 4, Lesson 2 3-4
TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Use a variety of strategies that include arrays, partial products and the traditional algorithm to solve multi-step word problems.

Language Objectives:
- Use the math vocabulary during the activity.
- Discuss answers and possible strategies with classmates.
- Explain decimal relationships.

Building Background
You measured the area of a rice field today. Rice fields are pretty interesting gardens.

Rice seeds are first planted in nursery beds and allowed to grow for about 40 days. At that time the seedlings are pulled out in bundles and prepared for transplanting to the rice paddies. Rice farmers plant small bundles of seedlings by hand in rows in a flooded paddy.

The stories we are going to solve today involve planting in the rice paddy, paddies just like those the Rice Farmer, water buffalo, and tiger talked about in your story today.

Remember to use your math movie problem solving reading to solve these problems.
1. Read the problem one time to see the math movie in the story.
2. Look first for what you know, what you need to know, and a possible number sentence that will help you solve it.
3. You will be asked to solve the problem three ways:
   a. Drawing a picture to represent the math movie.
   b. Creating an array with a grid OR with base ten blocks and picture.
   c. Using an algorithm.

Comprehensible Input
1. Let's read the problem out loud together (*CLASSROOM TEACHERS, please be sure that students are reading with the TV Teacher*).

<table>
<tr>
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<td>
Unit 4, Lesson 2 3-4
TV Lesson - continued

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<tr>
<td>CLASSROOM TEACHERS
TV Teacher will give you time to discuss – please have students do so.</td>
<td>
TEACHER: Talk in your class about what you know from the problem, and what you have to find out. (pause)

(Write the following on the white marker board.)
• You know Hoang planted 54 seedlings.
• And you know that that he planted them in bundles of six seedlings.
• What you want to know is how many bundles he planted.

TEACHER: What math movie did you see as we read the problem? And how does what you know and need to know play in the movie? Please talk about the math movie in your class (generous pause).

PIRATE: (Respond - Hoang taking six seedlings at a time from his 54 seedlings and planting them in the paddy.)

TEACHER: Everyone please draw a representation of the math movie. (generous pause) Arthrimus, what does your drawing look like?
</td>
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<tr>
<td>CLASSROOM TEACHERS
Please follow the KEY so that you can observe students as they create the drawing.</td>
<td>
PIRATE: (See the key for one drawing possibility, but draw whatever you “see” - talk through this.) Well, I knew that Hoang bundled the seedlings into groups of six, so I drew groups of six until I had “planted” all 54 of the seedlings. Then I just went back and counted the groups. There are nine of them. So, Hoang planted nine bundles of rice seedlings.

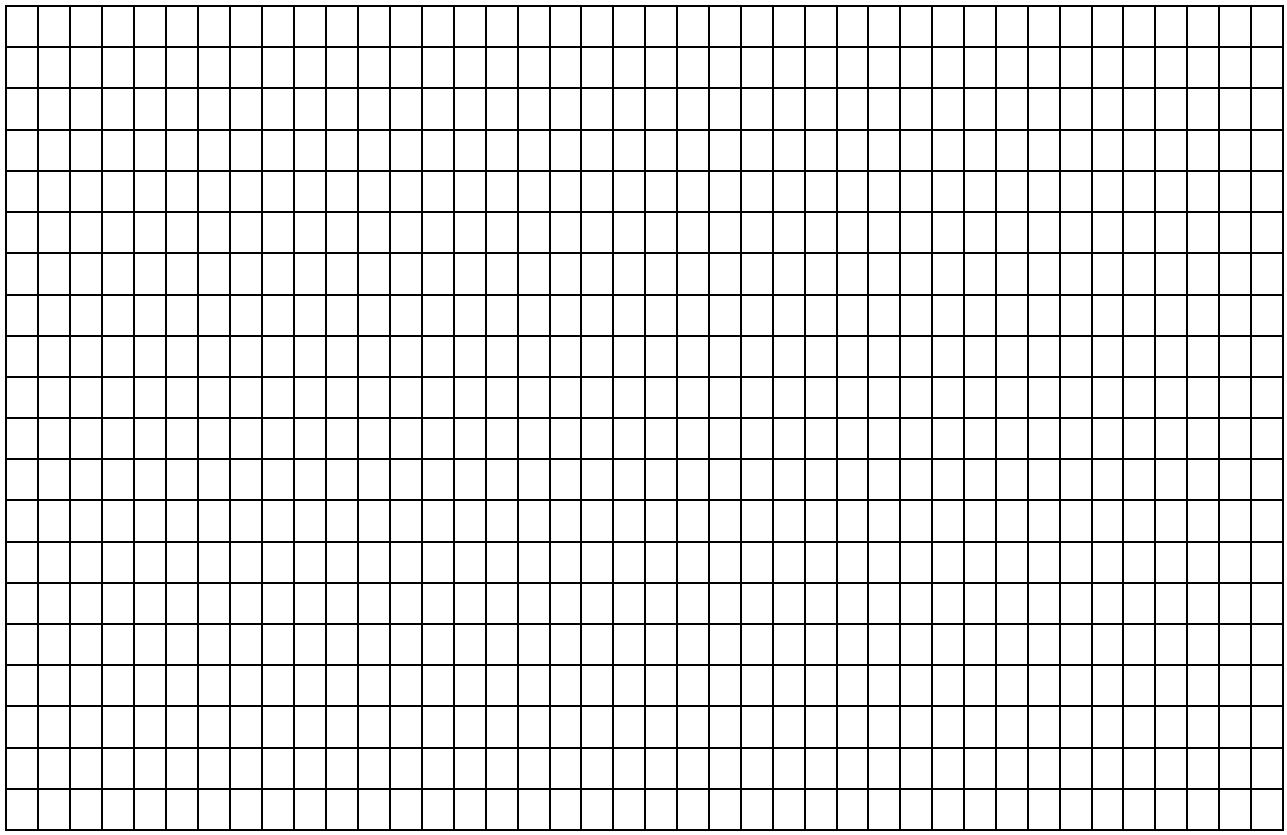
TEACHER: Well, done! Boys and girls, how did that compare to your math movie and drawing representation? Next, you are to create either a grid array or a base ten array. I will give you time to accomplish that. (The KEY gives you the base ten array, and it gives you a grid-sheet array. You can use the explanation on the KEY for both arrays. Talk as you model.)

Now, for the algorithm. This is a basic fact, so you can write this either in the horizontal form as we do when we write fact families; or with the division sign that some people call the “little house.” (Write each as you describe.)

Now, please write the fact family for 6, 9, 54. (Write the four number sentences).
</td>
</tr>
</table>

	Unit 4, Lesson 2 **3-4** **TV Lesson** - continued  *Follow the same procedure for Planting the Paddy #2* **Pirate:** We have been sharing our math movies as we solved these problems. Now, I'd like for you to share your math movies with us! Please go to my corner on MAS Space and describe your math movies for the CGI in the Daily Routines today. **Teacher:** I hope everyone shares – think of all the different versions of math movies we could "see" if everyone shares!
Arthrimus Portio's Corner **Unit 4 Lesson 2- CGI** Explain the math movie you saw when you solved your CGI problem today.	**Objectives:** And now before we go, let's review what we have learned today! (*do so*)

BLM Unit 4, TV Lesson 2 **Grid Paper**
Two grid papers per student



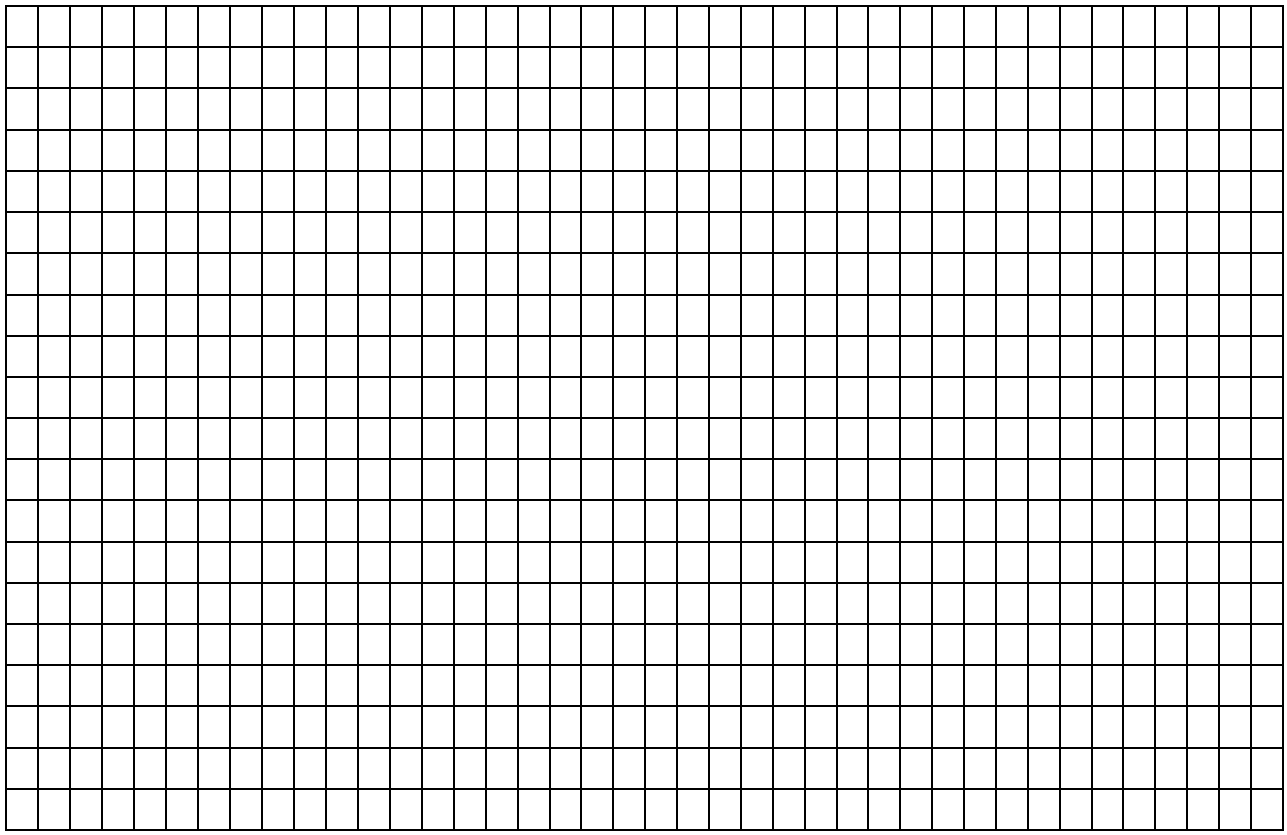
1. Color in the array.
2. Now go back and outline the base ten blocks. Outline the hundreds, then the tens, then the ones.
3. Go back and count to see the sum of your partial products.

My number sentence: _____

How many hundreds, tens, ones? ____ ____ _____

Product _____

BLM Unit 4, TV Lesson 2 **Grid Paper**
Two grid papers per student



1. Colorea la matriz.
1. Ahora regresa y delinea los bloques base diez. Siluetea las centenas, luego las decenas, y luego las unidades.
2. Regresa y cuenta para ver la suma de los productos parciales.

Mi oración numérica: _____

¿Cuántas centenas, decenas, unidades? ____ ____ _____

Producto_____

BLM Unit 4, TV & Follow-up Lesson 2 **Planting the Paddy# 1**

\One per student

Hoang planted 54 rice seedlings in the rice paddy. Each planting bundle was made up of 6 seedlings. How many bundles did Hoang plant?

Draw a picture to represent the math movie.

Create an array with a grid OR with base ten blocks and picture.

Use an algorithm or numbers as a strategy and write the fact family.

BLM Unit 4, TV & Follow-up Lesson 2 **Planting the Paddy# 1**

One per student

Hoang plantó 54 semillas de arroz en el arrozal. Cada conjunto de plantas tenía 6 semillas. ¿Cuántos conjuntos sembró Hoang?

Dibuja una imagen para representar la película matemática.

Crea una matriz con una cuadrícula O con bloques base diez y un dibujo.

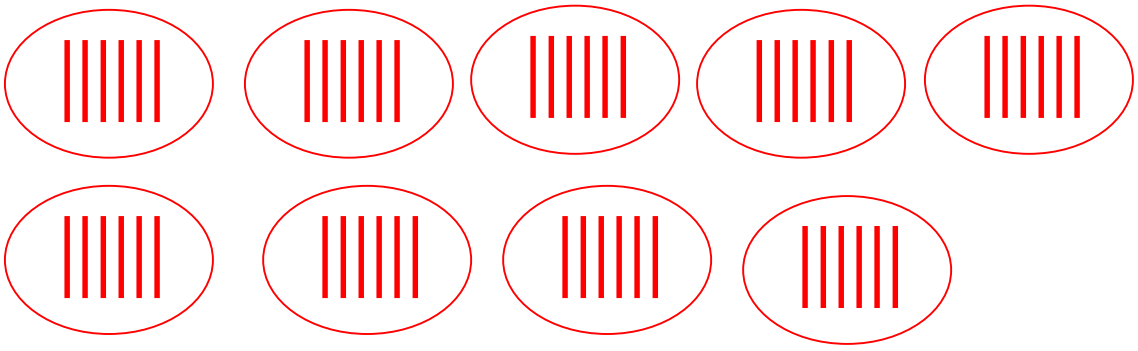
Usa un algoritmo o números como estrategia y escribe la familia de hechos.

BLM Unit 4, TV & Follow-up Lesson 2 **Planting the Paddy #1 KEY**

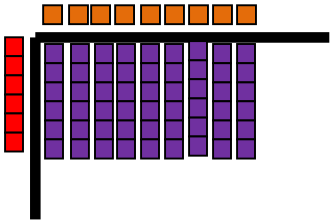
One per student

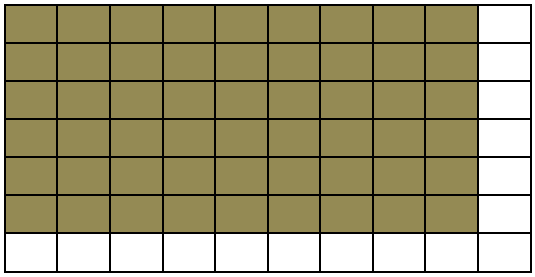
Hoang planted 54 rice seedlings in the rice paddy. Each planting bundle was made up of 6 seedlings. How many bundles did Hoang plant?

Draw a picture to represent the math movie. You can see if students understand by watching how they draw the picture. This is a division, measure problem – students would draw a group of 6 objects (shape doesn't matter) and would repeat the bundle of 6 until they have all 54 rice seedlings represented. They then count the bundles, or groups, to see that there are NINE bundles.



Create an array with a grid OR with base ten blocks and picture. Again, watching the students will tell you how they understand this problem. They would begin the base ten array OR the grid array with the known factor, 6, then complete the array until they have 54 in the product. The missing factor will be obvious. They may place the known factor in either position. This sample shows the known in the "rows" position. The "columns" position was deduced once the bundles of 6 cubes was distributed to 54 cubes. The grid would be shaded in the same way, 6 squares in a column, until 54 squares are shaded. Then, just count the top row to find the missing factor.





Use an algorithm or numbers as a strategy. Since this is a basic fact, students can use either the horizontal or vertical algorithm.

9

54 ÷ 9 = 6 54 ÷ 6 = 9
9 x 6 = 54 6 x 9 = 54

54 ÷ 6 = 9 $6\overline{)54}$

BLM Unit 4, TV & Follow-up Lesson 2 **Planting the Paddy#2**

One per student

Nam planted 42 rice seedling bundles in the rice paddy. He planted an equal amount of bundles in each of 7 rows. How many bundles did Nam plant in each row?

Draw a picture to represent the math movie.

Create an array with a grid OR with base ten blocks and picture.

Use an algorithm or numbers as a strategy.

BLM Unit 4, TV & Follow-up Lesson 2 **Planting the Paddy#2**

One per student

Nam plantó 42 conjuntos de semillas de arroz en el arrozal. Plantó una cantidad equivalente de conjuntos en cada uno de 7 surcos. ¿Cuántos conjuntos sembró Nam en cada surco?

Dibuja una imagen para representar la película matemática.

Crea una matriz con una cuadrícula O con bloques base diez y un dibujo.

Usa un algoritmo o números como estrategia y escribe la familia de hechos.

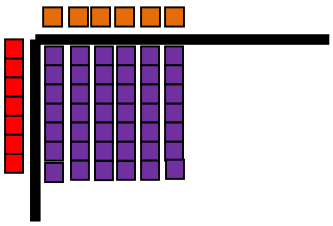
BLM Unit 4, TV & Follow-up Lesson 2 **Planting the Paddy#2 KEY**

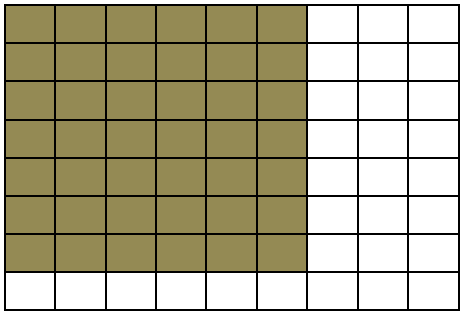
One per student

Nam planted 42 rice seedlings in the rice paddy. He planted an equal amount of bundles in each of 7 rows. How many bundles did Nam plant in each row?

Draw a picture to represent the math movie. You can see if students understand by watching how they draw the picture. This is a division, partitive problem – students would draw 7 groups, then divvy out the 42 objects (shape doesn't matter) until the bundles are evenly distributed. They then count the number of bundles in 1 group, to see that there are 6 bundles per group.

Create an array with a grid OR with base ten blocks and picture. Again, watching the students will tell you how they understand this problem. They would begin the base ten array OR the grid array with the known factor, 6, then complete the array until they have 42 in the product. The missing factor will be obvious. They may place the known factor in either position. This sample shows the known in the "rows" position. The "columns" position was deduced once the bundles of 7 cubes was distributed to 42 cubes. GRID: color in columns of 7 until all 42 squares are shaded.





Use an algorithm or numbers as a strategy. Since this is a basic fact, students can use either the horizontal or vertical algorithm.

42 ÷ 7 = 6

$$7\overline{)42}\quad 6$$

Literature Vocabulary
obediently
boisterous
gilded
squirming
flourished
banyan

Math Vocabulary
Repeated vocabulary
factors
products
fact family

Materials
- Sample of Mozzarella cheese – 1 per student
- Scratch paper
- Light colored crayon
- **BLM** grid paper –1 per student
- **BLM**– Water Buffalo - 1 per student
- **BLM** Water Buffalo KEY – teacher only

ELPS (*English Language Proficiency Standard*)
2C, 2E, 3E, 3G, 4G, 5B, 5C

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.C.3., I.E.2., II.C.1.
ELA I.A.1., I.A.2., I.A.3., II.A.2., III.B.2.
MATH II.A.1., II.A.2., VIII.A.3., VIII.A.4.

Technology
For Class, if possible
http://wiki.answers.com/Q/100_pounds_of_milk_makes_how_much_cheese?#slide=1
100 pounds of milk makes how much cheese? (*If possible, show after you have solved the problem.)*

Extra
http://www.youtube.com/watch?v=MrrQuGBaWsg
Wordless PowerPoint type video of rice fields in Vietnam – beautiful fields, workers preparing the fields, planting and harvesting.

Unit 4, Lesson 2 3-4
Follow-up

Math Objectives:
- Use a variety of strategies that include arrays, partial products and the traditional algorithm to solve multi-step word problems.

Language Objectives:
- Listen and speak with a partner during our math activity.
- Use the math vocabulary during the activity.
- Write math journal response.

Building Background, Math
Discuss the various strategies used in the TV Lesson with the students.
- What do they like about each?
- Which do they feel most comfortable using and why?
- What are the benefits of using each strategy?

Before we begin our last problem, I'd like to offer you a bite of cheese. (D*istribute and let the students taste and perhaps guess the type of cheese.*) The significance of this cheese will become apparent when we solve our problem for today. But first, a little background on water buffalo.

The rice fields in Vietnam could not be farmed were it not for the water buffalo. The water buffalo is the traditional symbol of Vietnam, representing bravery, happiness and prosperity. And the water buffalo is also food for the Vietnamese. Let's look at our story problem now.

Practice and Application, Math
Read Water Buffalo, discussing the math movie.
- What facts do they know from the story?
- What do they need to find out?
- There is a tricky part of our problem. What might that be? (*Multi-step problem – first you have to find out how many gallons there are in 16 pounds of milk, then how many days to make 40 pounds of cheese.*)

You may work with a partner to solve the problem using any strategy to solve it, and a second strategy to prove your answer is correct. Both of you, however, must show your own work on the record sheet. And you **don'**t both have to solve it the same way.

(Circulate the room asking questions. See questions below.)

Unit 4, Lesson 2 3-4

Follow-up - continued

?QUESTIONING – Question according to the strategy selected by the student. Several suggested questions follow for each type of strategy – use the questions that fit the particular student's needs.

Generic, Getting Started Questions

- What does this problem mean to you?
- How do the facts in the story help you?
- We've already said this is a multi-step problem. What do you think would be important to figure first?
- How can you find that?
- How will you use that answer to continue working the problem?

Array Representation

- Tell me what each of these *(blocks, grid squares)* represents.
- Where do you represent the factors in this model?
- What does the product represent in this model?
- How will you find the missing factor?

Partial Products

- Explain each step in the partial product process.
- How does this answer compare to your array model?

Traditional Algorithm

- Explain each step in the traditional algorithm process.
- How does this answer compare to your array model?

When everyone has completed the problem, have students who have solved it differently explain their processes.

If you wish and have the capability, watch the PowerPoint presentation online. http://wiki.answers.com/Q/100_pounds_of_milk_makes_how_much_cheese?#slide=1 See if the data in this presentation matches the data in the story problem. The type of question is a bit different, but the facts are there.

Math Journal Writing

Students should have a spiral notebook into which they journal their thoughts daily about math. Today's journal prompt is:

Which division strategy do you prefer and why?

Objectives: Review the math and language objectives to see how they were accomplished.

BLM Unit 4, Follow-up Lesson 2 **Water Buffalo**

One per student

Water buffalos are not only for working the rice fields. The cows provide milk. In fact 15% of the world's milk supply is water buffalo milk, much of it used to make some of the world's best mozzarella cheeses. The United States imports about 90,000 lbs. of water buffalo cheese a year.

A water buffalo produces about 16 pounds of milk daily. There are about 8 pounds of milk per gallon. An average gallon of milk makes about 1 pound of cheese. How many days would it take to gather enough milk to make 40 pounds of cheese?

Solve your problem using any strategy you wish. Check your answer using another strategy.

BLM Unit 4, Follow-up Lesson 2 **Water Buffalo**

One per student

Los búfalos de agua no sólo sirven para trabajar en los arrozales. Las hembras dan leche. De hecho, el 15% de la producción mundial de leche es leche de búfalo de agua, de la cual se usa mucha para producir algunos de los mejores quesos mozzarella del mundo. Los Estados Unidos importan alrededor de 90,000 libras de queso de búfalo de agua al año.

Un búfalo de agua produce alrededor de 16 libras de leche al día. Hay unas 8 libras de leche en un galón. Un galón promedio de leche hace alrededor de 1 libra de queso. ¿Cuántos días tomará reunir suficiente leche para hacer 40 libras de queso?

Resuelve tu problema usando cualquier estrategia que desees. Verifica tu respuesta usando otra estrategia.

BLM Unit 4, Follow-up Lesson 2 **Water Buffalo KEY**

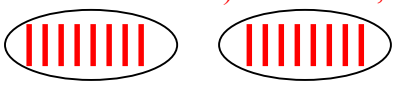
One per student

Water buffalos are not only for working the rice fields. The cows provide milk. In fact 15% of the world's milk supply is water buffalo milk, much of it used to make some of the world's best mozzarella cheeses. The United States imports about 90,000 lbs. of water buffalo cheese a year.

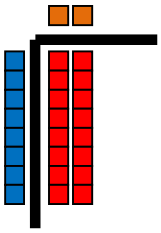
A water buffalo produces about 16 pounds of milk daily. There are about 8 pounds of milk per gallon. An average gallon of milk makes about 1 pound of cheese. How many days would it take to gather enough milk to make 40 pounds of cheese?

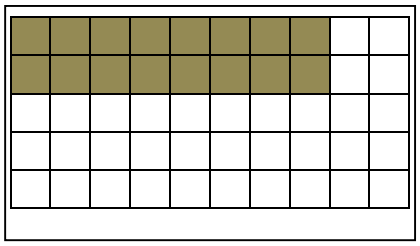
This is a 2-step problem. Students may use a variety of strategies to solve it choosing from either array, drawing or number sentence.

Step 1 – students must determine how many pounds of cheese can be made from 16 pounds of milk. We know that 8 pounds of milk will make 1 pound of cheese (8 lbs. milk – 1 gallon and 1 gallon milk makes 1 lb. cheese). Therefore, 16 pounds of milk would make 2 pounds of cheese.

DRAWING:  *Take the 16 pounds and divided into groups of 8. Each group equals 1 gallon. There are 2 groups, so 16 pounds makes 2 gallons of milk.*

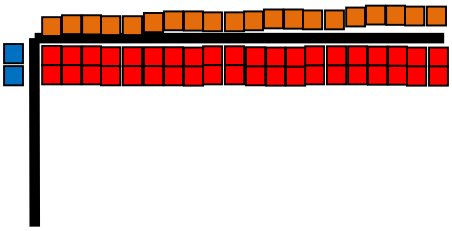
ARRAYS: Base Ten *Divvy the 16 pounds into columns of 8 pounds – you'll make 2 columns. You know the one factor is 8, the other factor is 2. That is the number of gallons in 16 pounds.*
Grid Array: *Color in 8 squares – either in the row as I've done, or as a column. This represents the 8 pounds per gallon. Now keep coloring in 8 till you color in 16 squares. The one factor is 8. You can see that the second factor is 2. Two represents the number of gallons in 16 pounds.*

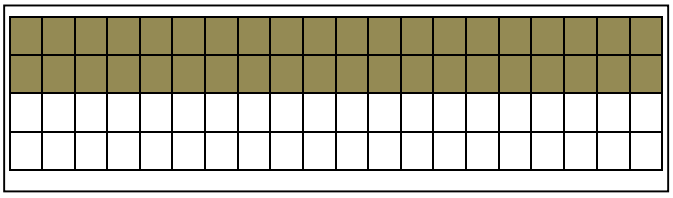




16 ÷8 = 2

Step 2 – students must use the 2 gallons of milk per day to divide the 40 pounds of cheese by. It would take 20 days of gathering milk to make 40 pounds of cheese. *Use the same options for step 2. This time, you are dividing the 40 pounds of cheese by the 2 gallons of milk. This gives you the days needed to gather the milk, if you get 2 gallons in 1 day.*





Math Objectives
- Represent equivalent fractions using pictorial models.
- Compare two fractions having the same denominator.
- Determine if two given fractions are equivalent.
- Recognize tenths and label in fraction and decimal form.

Language Objectives
- Discuss fraction comparisons.
- Discuss fraction equivalencies.
- Discuss fraction/decimal equivalencies.

Vocabulary
halves
fourths
eighths

Materials:
Per Student
- **BLM** Snack Bag Fractions
- 1 individual serving bag of 100 calorie snack
- 8 lima beans

Per Partners:
- 2 paper plates
- 2 paper towels
- Chart paper with question**: How do you know that 3/4 = 6/8?**

Unit 4, Lesson 2 3-4

Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

Today's snack fraction, although we will be practicing the same skills, is very different from others we have enjoyed.

First of all, each of you will have your own snack bag. This bag is sold "by the weight," and not by the individual number of pieces of snack that are in the bag. My first question to you is:

Did the snack bag give you and your partner fair shares, or halves, if we count PIECES of snack?

Please open your bags and compare your number of pieces in order to answer that question. (*Give them time to finish, and report back on their findings. As they are enjoying their snack, have them read through the BLM with you. This is similar to Lesson 1, except the amount shared is 8 rather than 16.)*

Snack Fraction Journal Writing: Snack Fraction Chart Paper
How do you know that 3/4 = 6/8?

Objectives: Review the objectives with the class, making sure they understand how they achieved each.

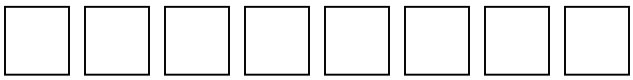
BLM Unit 4, Snack Fraction 2 **Snack Bag Fractions**
(One sheet per student)

Name _____

Suppose there were 8 snacks in your bag, and you were going to share with your little cousin.

Your little cousin only wanted $\frac{1}{4}$ of the bag.

1. Use the pictures to show your little cousin's portion and your portion.



2. Your cousin's portion is $\frac{1}{4}$ of the pieces. What is the equivalent fraction in eighths?

3. If your cousin's portion is $\frac{1}{4}$ of the snack, what fractional part is your portion?

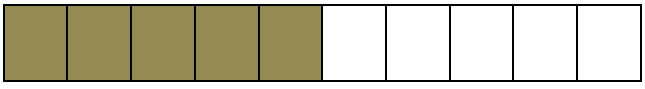
4. What is the equivalent fraction for your portion in eighths?

Explain how you determined:

1. Your fractional portion of the snack:

2. The equivalent fractional portion in eighths for your part of the snack:

Would you rather have $\frac{1}{4}$ or $\frac{1}{8}$ of your favorite snack? _____ Why?



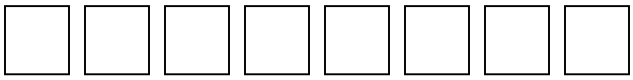
Name the UNshaded part of the bar.
Would this be greater than or less than 1/4?

BLM Unidad 4, Fracción de refrigerio 2 **Fracciones de bolsas de refrigerios**

Imagina que hay 8 refrigerios en tu bolsa, y que quieres compartirlos con tu primito.

Tu primito sólo quería $\frac{1}{4}$ de la bolsa.

1. Usa las imágenes para mostrar la porción de tu primito y tu porción.



2. La porción de tu primo es $\frac{1}{4}$ de las piezas. ¿Cuál es la fracción equivalente en octavos?

3. Si la porción de tu primo es $\frac{1}{4}$ de los refrigerios, ¿qué parte fraccional es tu porción?

4. ¿Cuál es la fracción equivalente a tu porción en octavos?

Explica cómo determinaste:

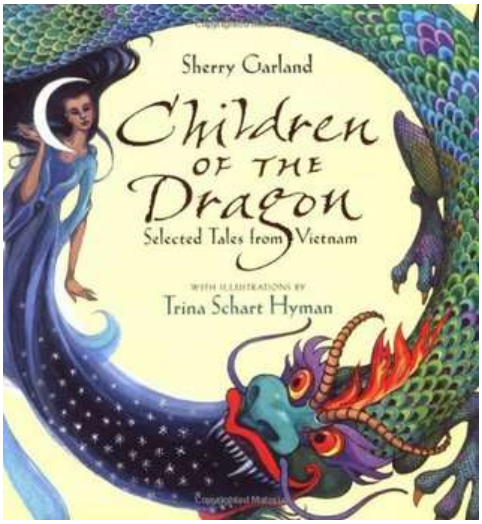
1. tu parte fraccional de los refrigerios:

2. la porción fraccional equivalente en octavos de tu parte de la carne:

¿Preferirías tener $\frac{1}{4}$ ó $\frac{1}{8}$ de tu refrigerio favorito? _____ ¿Por qué?

Nombra la parte SIN sombrear de la barra.
¿Esto sería más o menos que $\frac{1}{4}$

Family Fun – 3-4, Unit 4 Lesson 2



Dear _____

Our book for unit 4 is a collection of folktales from Vietnam, ***Children of the Dragon*** by Sherry Garland

In math we…

_____

_____

_____

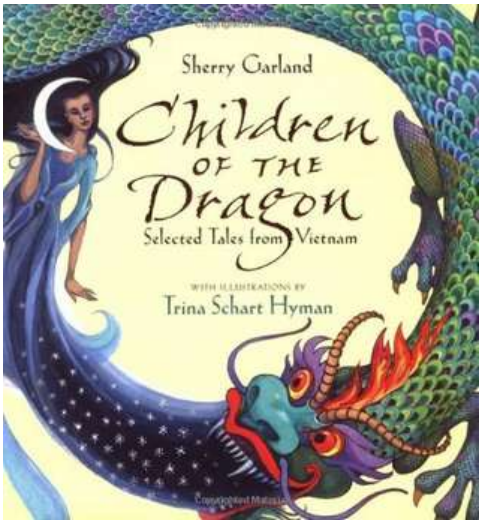
I think this will be helpful when I…

_____

Thank you for helping me with my summer program!

_____
Your Child

Family Fun – 3-4, Unit 4 Lesson 2



Querido _____

El libro para esta unidad es una coleccion de cuentos de Vietnam, ***Children of the Dragon*** por Sherry Garland

En la clase de matemáticas…

_____

_____

_____

Creo que será útil cuando…

_____

Gracias por ayudarme con las lecciones del verano.

_____

Tu hijo/a

Materials
- Unknown Quantity Cards – 1 set for classroom
- **BLM** Solve It, Unit 4
- **BLM** Who Ate More? – 1 per student
- **BLM** CGI Problems
- **BLM** Jesse's Homework – 1 per student
- **BLM** Jesse's Homework Key – teacher only

Math Objectives
- Find missing elements in an equation.
- Solve multi-step word problems.
- Use a variety of strategies to solve word problems.
- Find equivalent forms of fractional parts.
- Measure length in centimeters.

Balanced Literacy
Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.
- Explain how they decided to rename the target number.
- *Discuss scarcity of money, choices and cost benefit.*

TEKS in TV and FlU
Lesson 1
- **3rd** – 3.4EGH
- **4th** - (DR thorough review)

Lesson 2
- **3rd** –3.4EGH
- **4th** (DR thorough review)

Lesson 3
- **3rd** – 3.4EGH
- **4th** (DR thorough review)

Unit 4, Lesson 3 3-4
Daily Routine

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL
What's Missing? *(3rd assessment item 2)*
- **Lessons 1, 2, 3** *follow directions in the Daily Routine Explanations. Check the assessment items so that you are certain you include samples to practice the shape in the assessed location.*

Solve It! *(fundamental problem-solving skills for all items)*
- Lesson 1 – Triad of students working on three related problems.
- Lesson 2 - Triad of students working on 3-step problem.
- **Lesson 3 – Partners working on unique problems.**

Fraction Action (Student partners should work together without teacher guidance. When all have finished, let students explain how they answered the questions.)
- Lesson 1 – Who ate more? (*4th Assessment item 7*)
  - BLM Who ate more?
  - BLM KEY
- Lesson 2 - Model Equivalencies (*3rd Assessment item 6*)
  - BLM Model Equivalencies
  - BLM KEY
- **Lesson 3 – Jesse's Homework (*4th Assessment item 5*)**
  - **BLM Jesse's Homework**
  - **BLM KEY**

CGI
- Lesson 1 – Multiplication
- Lesson 2 – Division, Measurement (*3rd Assessment item 5*)
- **Lesson 3 – Division, Partitive** (*3rd Assessment item 4*)

Measurement Lab (*3rd Assessment item 1; 4th Assessment item 3*)

Materials, per student:
- **Metric ruler – 1 per student**
- **BLM for each Lesson**
- **BLM Key** for each Lesson

- Lesson 1 – Vietnamese Dragon
- Lesson 2 – Rice Paddy Area
- **Lesson 3 - Area Arrays and Multiplication**

ELPS (*English Language Proficiency Standard*)
2A, 2D, 3A, 3D, 3J, 4F

CCRS (*College and Career Readiness Standards)*
CROSS-CURRICULAR I.B.2., I.C.3., II.B.1., II.B.2.
ELA II.B.1., II.B.3., III.B.1., III.B.2., IV.B.1.
MATH I.B.1., II.B.1., II.C.1., IV.B.1., IV.B.2., VII.A.1., VIII.A.4.,

Assessment Items
(As a result of experiencing this unit, students will be learning skills necessary to be successful on the following Assessment items.)

3rd - 1, 2, 3, 4, 5, 6, 7, 8
4th - 1, 2, 3, 4, 5, 6, 7, 8 (DR)

Arthrimus Portio's Corner
Unit 4 Lesson 3 Write Problem
Write a class story problem for Cuckoo. She can be saving seeds, or singing her song, or anything you want Cuckoo to do. Be sure you can answer the problem, though.

Unit 4, Lesson 3 3-4
Daily Routine - continued

OPTIONAL: *These activities, although not assessed, are fundamental skills that should be included in those sites providing five to six weeks of instruction.*

Target Number *(fundamental number sense for all items)*

- Lesson 1 – Target Number 25
- Lesson 2 – Target Number 50
- **Lesson 3 – Target Number 75**

Graphing – none this unit

(Assessment Item 8 will be reviewed daily in Snack Fractions.)

BLM Daily Routines Unit 4, Fraction Action Lesson 3 Jesse's Homework
One sheet per student

Jesse had $1\ \frac{2}{3}$ hour before time for dinner. He wanted to finish part of his homework in that time. One of the assignments he knew would take him about $1\ \frac{1}{2}$ hour to complete. The other he estimated would take $1\ \frac{5}{6}$ hour to complete.

If Jesse wants one assignment completed before dinner, which assignment should he start?

Justify your answer.

BLM Daily Routines Unit 4, Fraction Action Lesson 3 Jesse's Homework
One sheet per student

Jesse tenía $1\ \frac{2}{3}$ hora antes de que fuera hora de cenar. Él quería terminar parte de sus tareas en ese tiempo. Sabía que una de las tareas le tomaría alrededor de $1\ \frac{1}{2}$ hora terminar. Estimó que terminar la otra le tomaría $1\ \frac{5}{6}$ hora.

Si Jesse quiere terminar una tarea antes de la cena, ¿cuál tarea debe empezar?

Justifica tu respuesta.

BLM Daily Routines Unit 4, Fraction Action Lesson 3 Jesse's Homework KEY
One sheet per student

Jesse had $1\frac{2}{3}$ hour before time for dinner. He wanted to finish part of his homework in that time. One of the assignments he knew would take him about $1\frac{1}{5}$ $\frac{1}{5}$ hour to complete. The other he estimated would take $1\frac{5}{6}$ hour to complete.

If Jesse wants one assignment completed before dinner, which assignment should he start?

Jesse should start the 1 ½ hour assignment.

Justify your answer.

Justification can be as simple as finding equivalent fractions. Or students might explain in writing their thinking such as:

Dinner will be served in 1 2/3 hours, which is equivalent to 1 4/6 hours.

The 1 5/6 hours, although very close, would take too long and Jesse probably wouldn't finish before dinner.

1 3/6 hours (1 ½) is a little less than 1 4/6, so Jesse has a better chance of finishing.

Solve It! Problems Unit 4, Lesson 3 **Pairs**

Solve your own problem today, showing your work. When finished, verify your partner's problem solution. Discuss your work.

Partner 1 Problem **Name _____ Date _____**

- Micah headed to the sporting goods store to buy Avery a present for his birthday. He found several things he wanted and decided to buy them with the $20 he had to spend. Micah found a football Jersey for $9.95 and a ball cap for his favorite college team that was regularly priced at $10.00, but was on sale for just $6.05. Tax on the purchase came to $1.70. Micah looked at the change from his purchase and knew he had exactly enough to buy a ball card. How much was the ball card?

Problem Solution Name:	**Problem Verification** Name:

Solve It! Problems Unit 4, Lesson 3 **Pairs**

Hoy, resuelve tu propio problema, mostrando el procedimiento. Verifica la solución de tu compañero cuando ambos terminen de hacerlo por sí mismos. Hablen sobre su trabajo.

Problema del compañero 1 Nombre _____ Fecha _____

- Micah fue a la tienda de deportes para comprarle a Avery un regalo de cumpleaños. Encontró muchas cosas que deseaba y decidió compralas con los $20 que tenía para gastar. Micah encontró un jersey de fútbol americano por $9.95 y un gorro de su equipo de universidad favorita a un precio normal de $1.00, pero que estaba de oferta por $6.05. El impuesto salió a $1.70. Micah miraba el cambio que recibió de las compras y sabía que tenía justo lo que necesitaba para comprar una tarjeta de béisbol. ¿Cuánto costó la tarjeta de béisbol?

Solución del problema Nombre:	**Verificación de la solución** Nombre:

Solve It! Problem Unit 4, Lesson 3 **Triad (3)**
Solve your own problem today, showing your work. When finished, verify your partner's problem solution. Discuss your work.

Partner 2 Problem **Name _____ Date _____**

- Avery was planning his birthday party. He had 9 of his best friends coming and wanted something special. He made sure that he and his friends each had 4 hotdogs. He noticed that hotdogs were sold in packages of 10 and the ones he wanted were $5 a package. How much did he spend on the hotdogs?

Problem Solution Name:	**Problem Verification** Name:

Solve It! Problems Unit 4, Lesson 3 **Pairs**

Hoy, resuelve tu propio problema, mostrando el procedimiento. Verifica la solución de tu compañero cuando ambos terminen de hacerlo por sí mismos. Hablen sobre su trabajo.

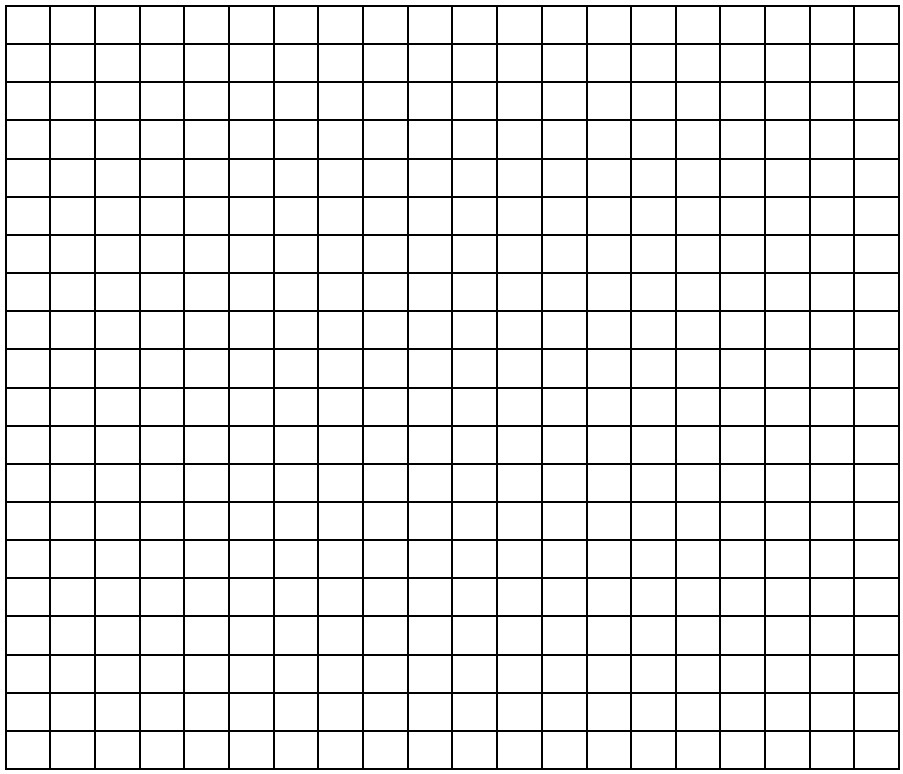
Problema del compañero 1 Nombre _____ Fecha _____

- Evan estaba organizando una fiesta para su compleaños. Había invitado a 9 de sus mejores amigos y quería algo especial.Quería estar seguro que él y cada uno de sus amigos tendrían 4 perritos calientes. Se dio cuenta de que los perritos calientes se vendieron en paquetes de 10 y los que quería costaban $5 por paquete. ¿Cuánto pagó por los perritos calientes?

Solución del problema Nombre:	**Verificación de la solución** Nombre:

BLM Daily Routines Unit 4, Measurement Lesson 3 Area Arrays and Multiplication
One sheet per student

Represent 14 x 15 using an array. **Array Area = _____ sq. units**



Show one other method to find the product.

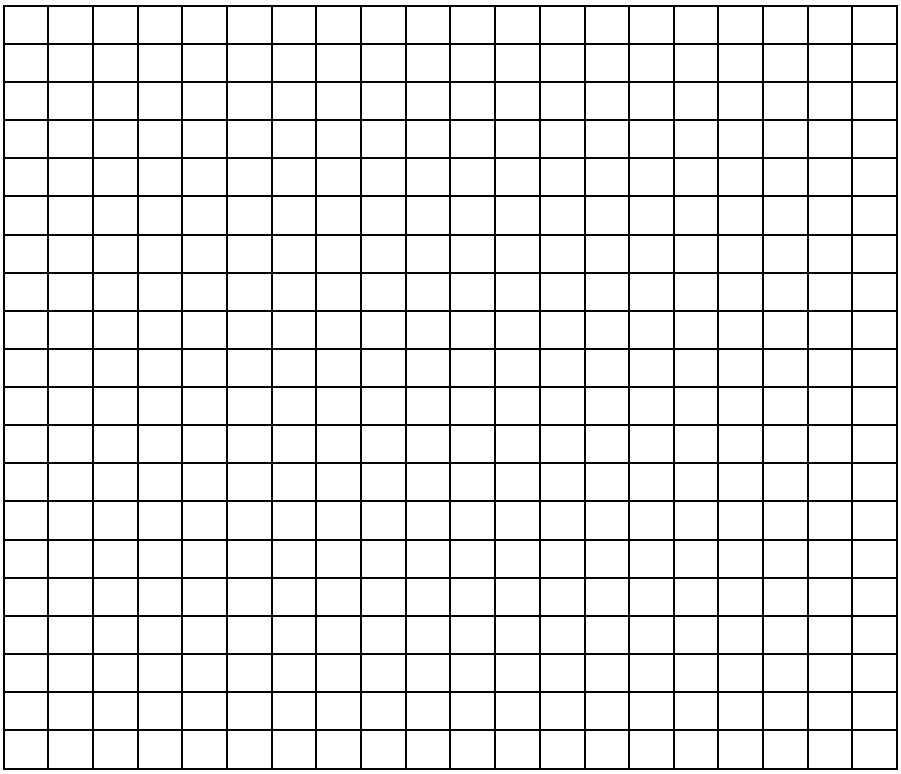
Related Number Sentences

_____ _____

_____ _____

BLM Daily Routines Unit 4, Measurement Lesson 3 Area Arrays and Multiplication
One sheet per student

Representa 14 x 15 usando una matriz. **Area de la matriz = _____** **sq. unidades**



Muestra otro método para encontrar el producto.

Oraciones numéricas relacionadas

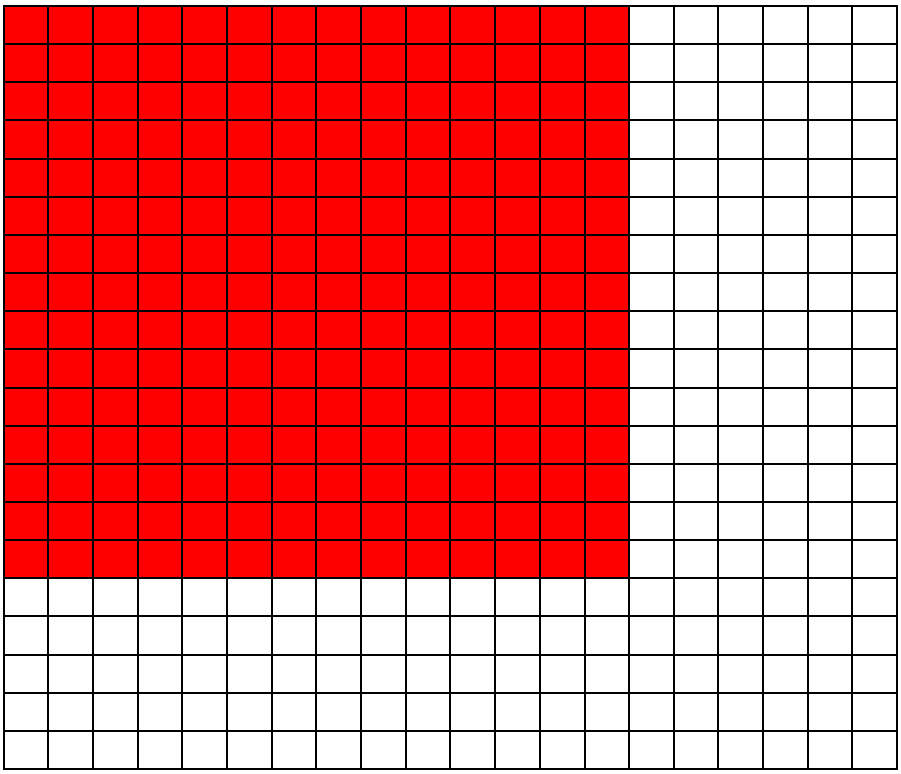
_____ _____

_____ _____

BLM Daily Routines Unit 4, Measurement Lesson 3 **Area Arrays & Multiplication KEY**
One sheet per student

Represent 14 x 15 using an array.

Array Area = sq. units



The array above may be colored in as 14 x 15 or 15 x 14

Show one other method to find the product. **Students may use any other method they wish. Partial products and traditional algorithm are presented below; however, if they know lattice or other methods, they are acceptable.**

14	14
x15	x15
20	70
50	140
40	210
100	
210	

Related Number Sentences
14 x 15 = 210
15 x 14 = 210

210- ÷14 = 15
210 ÷ 15 = 14

Literature Selection
Children of the Dragon
by Sherry Garland

Materials
Language Materials
- **BLM** Word Cards
- 6 - 3x5 index cards for each pair of students
- **Lesson 2 BLM** Folktale Elements/Plot chart

Transition to Math Materials
- **BLM TM** Math Word Cards
- **BLM TM** Decimal Battle (as center)

Literature Vocabulary
obediently
boisterous
gilded
squirming
flourished
banyan

Math Vocabulary
Repeated vocabulary
factors
products
fact family

ELPS (*English Language Proficiency Standard*)
1F, 1G, 3C, 3E, 4E, 5A, 5B

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.C.1., I.C.2., II.A.2., II.A.4., II.B.1
ELA I.A.1., I.A.2., II.A.2., II.B.1., III.A.2., IV.A.2.

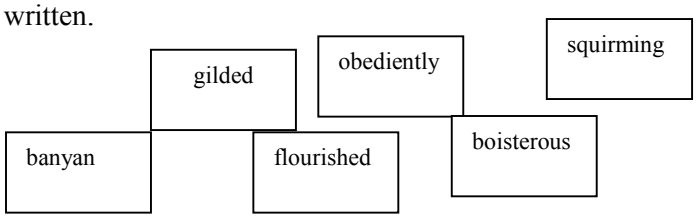
Unit 4, Lesson 3 3-4
Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students should review to see if they have accomplished both math and language objectives.

Math Objectives:
- Represent multiplication facts by using equal-sized groups.
- Represent the multiplication/division relationship by determining fact families and related number sentences.

Language Objectives:
- Use the context of the sentence to determine the meaning of unfamiliar words or multiple meaning words.
- Summarize and explain the lesson or message of a work of fiction as its theme.
- Listen attentively to speakers, ask relevant questions, and make pertinent comments.
- Write literary texts to express their ideas and feelings about real or imagined people, events, and ideas.

BEFORE READING
Building Background: Vocabulary & Literature
Distribute three 3x5 index cards to each student *(if you have an even number of students)*. Partner students with one another. Direct students to write one literature vocabulary word on each card until all six words are written.



Direct the students to touch each card and read aloud the word with their partner. Students will alphabetize the words with their partner. Allow students to place their cards in ABC order. As a class, read aloud the words as arranged to check word ordering.

Say, "Hold up the card with the correct word written on it for each of these questions.
- Which word could be used to describe the events of waves in the ocean? *(Boisterous)*
- Which word could be used to describe the movements of a puppy held in your arms? *(Squirming)*
- Which word names something with roots? *(Banyan)*
- Which word has a suffix that means happened in the past? *(Flourished)*
- Which word comes from Germanic origins for the word, gold?" *(Gilded)*

Say, "Reread the words with your partner as you stack the cards."
Collect the cards or allow the students to keep.

Say, "We will be reading the Vietnamese folktale titled, 'Chu Cuoi- the Man in the Moon.'"

Ask, "What is a folktale? Allow for students to respond.
Ask, "What are some elements of folktales?" Encourage students to think, pair, and then share with the class.

Ask, "Have you heard anyone refer to 'the man in the moon'? What do you think the phrase means?"
Share your own experiences with the phrase, 'the man in the moon,' and its meaning.

Say, "We are going to use the graphic organizer from lesson 2 to identify the elements included in a folktale. Remember, if you think that one of these elements is included in the folktale check it off in the box next to the element."

Say, "Let's read and find out why the Vietnamese culture believes there is a man in the moon."

DURING READING
Comprehensible Input: Vocabulary & Literature
Begin with reading aloud to students modeling your reading processes one at a time in a think-aloud. Acknowledge literature vocabulary words as you come across them in reading. Stop to clarify unfamiliar words, use context clues to figure them out.

Teacher reads page 11, modeling thought process.
Stop after reading "…*limp deer at her feet*" on page 12.
Direct students to check off any elements they might have heard.
Ask, "Who are the characters in the story so far? Who do you think the main character is?"

Popcorn Students to continue reading starting on page 12, "*With a scream…"* Stop after reading "*…and they began to eat."*
Direct students to think about the folktale elements then, share with their neighbor or partner which elements they read. Encourage them to provide proof of the elements from the story.
Ask, "What is the surprising thing that happened in this part? What do you think Chu Cuoi is going to do next?"

Classroom Lesson - continued

Popcorn Students to continue reading aloud starting on page 12, "*After the family of tigers…"* Stop after reading "*…down the path as good as new.*"
Direct students to think over the folktale elements and check off what they have read providing proof of these elements.
Ask, "What would you do if you were Chu Cuoi and you realized the leaves were from an enchanted tree?"

Popcorn Students to continue reading aloud starting on page 12, "*It is an enchanted tree…"* Stop after reading "*…red good luck banners.*"
Direct students to think over the folktale elements and check off what they have read providing proof of these elements.
Ask, "Why does Chu Cuoi love the lunar New Year's celebration? What does lunar mean? What did Chu Cuoi see as he walked down the street that was unexpected?"

Popcorn Students to continue reading aloud starting on page 13, "*Excuse me, Honorable Uncle,…"* Stop after reading "*…lord's daughter should die.*"
Direct students to think over the folktale elements and check off what they've read providing proof of these elements.
Ask: What do you think Chu Cuoi will do next? Why do you think this?

Popcorn Students to continue reading aloud starting on page 14, "*Ever since Chu Cuoi…"* Stop after reading "*…smiled at her father, who stood nearby.*"
Direct students to think over the folktale elements and check off what they have read providing proof of these elements.
Ask, "Why did the guard think Chu Cuoi was a beggar? What is a beggar? What do you predict will happen next? Why do you think this?"

Popcorn Students to continue reading aloud starting on page 15, "*Her father threw…"* Stop after reading "*…for his new bride.*"
Ask, "What other major character(s) have been added to the story?"
Say, "We can tell that this is not the end of the story because there are a couple of more pages. What do you think will happen next? What makes you think this?"

Students are grouped for partner reading. Prior to reading aloud with a partner, direct **students to silently read page 16**, stopping at the bottom of the page. Then, students will **reread page 17 aloud** with their partner.
Direct students to check over and provide proof of the elements of a folktale included on this page.
Ask, "If you were Nguyet Tien, what would you have done when you ran out of space to plant? What do you think about the Nguyet Tien's actions? Why do you think that?"

Unit 4, Lesson 3 — 3-4
Classroom Lesson - continued

Say, "The author wrote - *she would plant the new dahlia tubers under the banyan tree*."
Ask, "What are tubers? What are the clues in this sentence to help you figure out the meaning of the word? What do you predict will happen next? Why?"

Staying with their partner, direct **students to silently read page 18.** Stop after reading"…*wonders how he will ever get back home."* Then, students will **reread page 18 aloud** with their partner.

Direct students to check over and provide proof of the elements of a folktale included on this page.
Ask, "How did the story end? What do you think of this folktale? Does this folktale teach a lesson? If so, what is the lesson? Does this folktale explain a wonder of the world? If so, what does it explain?"

The teacher reads aloud the remainder of this passage that explains the tradition of retelling this folktale and briefly tells the origins of banyan trees.

Visit the online resource provided for pictures
https://www.google.com/search?q=pics+banyan+trees&client=firefox-a&hs=9tc&rls=org.mozilla:en-US:official&channel=sb&tbm=isch&tbo=u&source=univ&sa=X&ei=kbL2UsemF-nsyQHp5oCQBQ&ved=0CCwQsAQ&biw=966&bih=456
Pictures of banyan trees

https://www.google.com/search?q=pics+That+celebrations+in+Vietnam&client=firefox-a&hs=2FI&rls=org.mozilla:en-US:official&channel=sb&tbm=isch&tbo=u&source=univ&sa=X&ei=27L2UvbnK8nayAHT1YGwDA&ved=0CCwQsAQ&biw=966&bih=456
TET celebrations in Vietnam (The Moon Festival, Vietnamese New Year)

AFTER READING
Practice and Application: Vocabulary & Literature
Number the students off 1-3 or 1-4 depending on the total number of students in your classroom. All the ones get to one group. All the twos, and so forth. The students will share their thoughts on the elements in this folktale and why they checked off certain elements through numbered heads together.

Afterwards allow the groups to work together to write a brief summary utilizing the Plot Chart from lesson 2 as a guide. The summary may be written on back of the paper. The '*Somebody*' can be any main character, but then the following boxes must make sense according to the character chosen.

Math Objectives

- Represent multiplication facts by using equal-sized groups.
- Represent the multiplication/division relationship by determining fact families and related number sentences.

Math Vocabulary
Repeated vocabulary
factors
products
fact family

Transition to Math Materials

- Fine-tipped marker sets – 1 set per student
- **BLM TM** Vietnamese Dragon – 1 per student
- **BLM TM KEY**

ELPS (*English Language Proficiency Standard*)
1E, 2D, 3D, 3E, 3H, 4G

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.C.2., I.E.2., II.C.1.
MATH I.B.1., II.A.1., VIII.C.1., IX.A.2.

Technology:
www.mathnook.com/math/skill/decimalgames.php

Classroom Lesson - continued

Students in the groups select a reader who will share the summary with the class.

Encourage students to give feedback to groups. Does it make sense? Did the summary include the major events? Is the 'somebody' a major character?

TRANSITION to Math
Building Background, Math

I have a simple practice sheet for you today. Once you finish the sheet, you can come to me for a quick check. When all the answers are correct, you are free to color the dragon.

You must show how you solved problems that are beyond basic facts. When you complete the work, come to me and I will give you the Vietnamese Dragon and fine-tipped markers to work on for the rest of the period before the TV Lesson.

This is individual work today, please.

Objectives: Review the math and language objectives to see how they were accomplished.

Distribute TV Lesson Materials

15	22	16	12	12
x 12	x 18	x 11	x 14	x 17

☐ x 5 = 50 6 x ☐ = 48 ☐ x 3 = 21

☐ ÷ 6 = 7 36 ÷ 6 = ☐ 15 ÷ ☐ = 3

BLM TM Unit 4, Classroom Lesson 3 **Vietnamese Dragon Problems** **KEY**

Partial Products are modeled in the 2-digit multiplication, but traditional algorithm is certainly acceptable, as are grids or base ten models.

15	22	16	12	12
x 12	x 18	x 11	x 14	x 17
10	16	6	8	14
20	160	10	40	70
50	20	60	20	20
+100	+200	+100	+100	+100
180	396	176	168	204

[10] x 5 = 50 6 x [8] = 48 [7] x 3 = 21

[42] ÷ 6 = 7 36 ÷ 6 = [6] 15 ÷ [5] = 3

Vietnamese Dragon

Literature Vocabulary
obediently
boisterous
gilded
squirming
flourished
banyan

Math Vocabulary
Repeated vocabulary
factors
products
fact family

Materials
- Base ten sets – 1 set per student
  - 3 flats
  - 15 longs
  - 15 units
- Scratch paper
- Light colored crayon
- **BLM** grid paper – 2 per student,
- **BLM**– The Banyan Tree #1-1 per student
- **BLM #1 KEY** – Classroom Teachers should be familiar with this before the lesson to know what to watch for as you circulate the room.
- **BLM** The Banyan Tree #2 – 1 per student
- **BLM #2 KEY** - Classroom Teachers should be familiar with this before the lesson to know what to watch for as you circulate the room.

ELPS (*English Language Proficiency Standard*)
2B, 2C, 3B, 3F, 4E, 4I

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.A.1., I.B.4., I.C.2., I.C.3., II.C.1
ELA II.A.3., II.A.6., III.A.1., IV.A.3.
MATH I.B.1., II.A.1., II.B.1., VIII.A.1., VIII.A.3.

CLASSROOM TEACHERS
TV Teacher will give you time to

Unit 4, Lesson 3 3-4
TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Use a variety of strategies that include arrays, partial products and the traditional algorithm to solve multi-step word problems.

Language Objectives:
- Use the math vocabulary during the activity.
- Discuss answers and possible strategies with classmates.
- Explain decimal relationships.

Building Background
Your story today talked about Chu Cuoi and the banyan tree he transplanted to his yard. The banyan tree really is a very useful tree, and although it hasn't really brought creatures back to life, it does have medical properties. Let's read our stories to see what a few of the properties might be.

Remember to use your math movie problem solving reading to solve these problems.
1. Read the problem one time to see the math movie in the story.
2. Look first for what you know, what you need to know, and a possible number sentence that will help you solve it.
3. You will be asked to solve the problem three ways:
   a. Drawing a picture to represent the math movie.
   b. Creating an array with a grid OR with base ten blocks and picture.
   c. Using an algorithm.

Comprehensible Input
Let's read the problem out loud together (*CLASSROOM TEACHERS, please be sure that students are reading with the TV Teacher*).

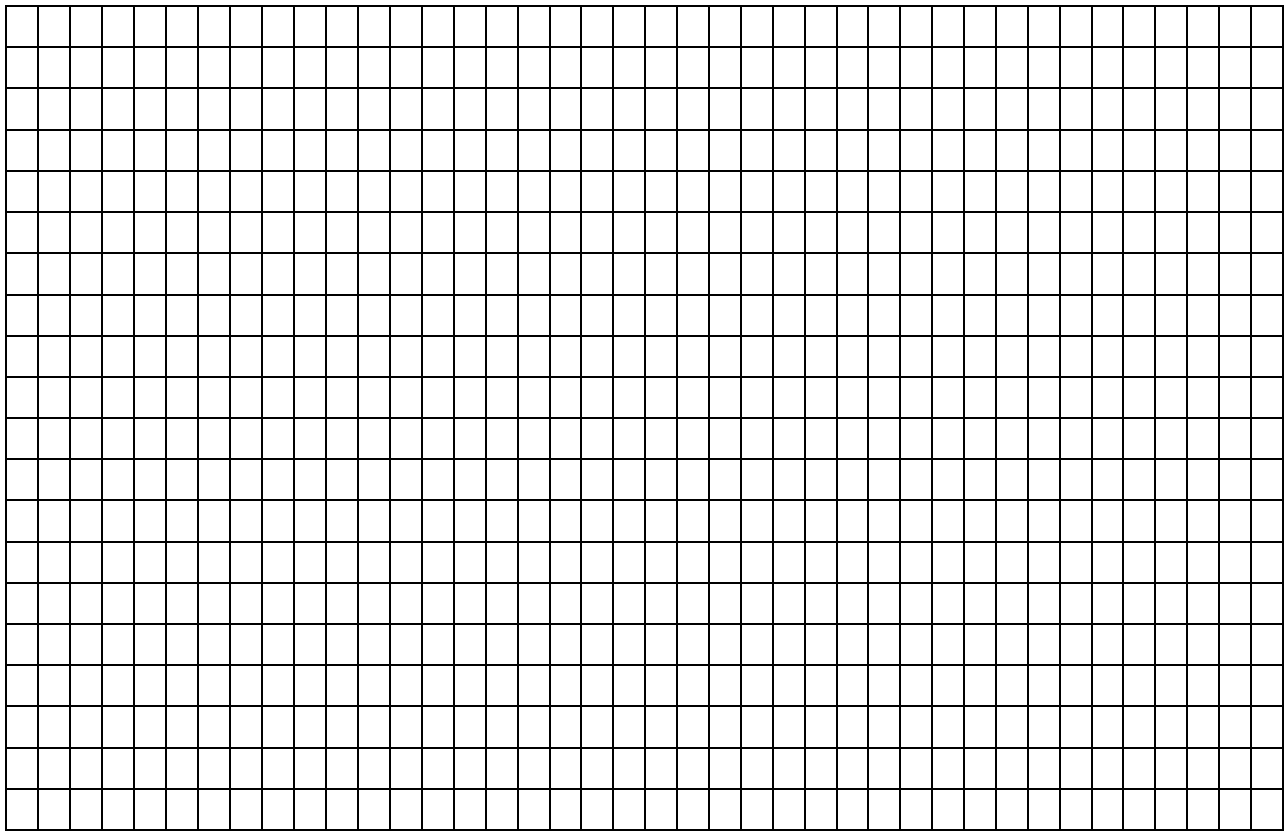
Talk in your class about what you know from the problem, and what you have to find out. *(Pause)*

(*Collect what you know and what you need to find out on the board.*)

What math movie did you see as we read the problem? And how does what you know and need to know play in the movie? Please talk about the math movie in your class *(generous pause)*.

discuss – please have students do so.	**Unit 4, Lesson 3** **3-4** **TV Lesson** - continued  (*Respond with a math movie.)* Everyone please draw a representation of the math movie. *(generous pause)* *(Share a drawing on the SMARTBOARD.)*
SMARTBOARD – the base ten array building	**TEACHER:** Well, done! Boys and girls, how did that compare to your math movie and drawing representation? Next, you are to create either a grid array or a base ten array. I will give you time to accomplish that. (*The KEY gives you the base ten array, and it gives you a grid-sheet array. You can use the explanation on the KEY for both arrays. Talk as you model.)*
CLASSROOM TEACHERS Please follow the KEY so that you can observe students as they create the drawing.	Now, for the algorithm. This is a basic fact, so you can write this either in the horizontal form as we do when we write fact families; or with the division sign that some people call the "little house." (*Write each as you describe.*) Now, please write the fact family for 6, 9, 54 (*write the four number sentences*). *Follow the same procedure for Planting the Paddy #2*
Arthrimus Portio's Corner **Unit 4 Lesson 3 Write Problem** Write a class story problem for Cuckoo. She can be saving seeds, or singing her song, or anything you want Cuckoo to do. Be sure you can answer the problem, though.	**Pirate:** The students have been solving OUR math story problems. Now I would like to solve some of theirs! *(Explain the task.)* **Teacher:** That sounds great! Remember, though, boys and girls, you cannot place a problem on MAS Space unless you can solve it, too! This will be great! Can you stump Arthrimus? **Objectives:** And now before we go, let's review what we have learned today! (*Do so*)

BLM Unit 4, TV Lesson 3 **Grid Paper**
Two grid papers per student



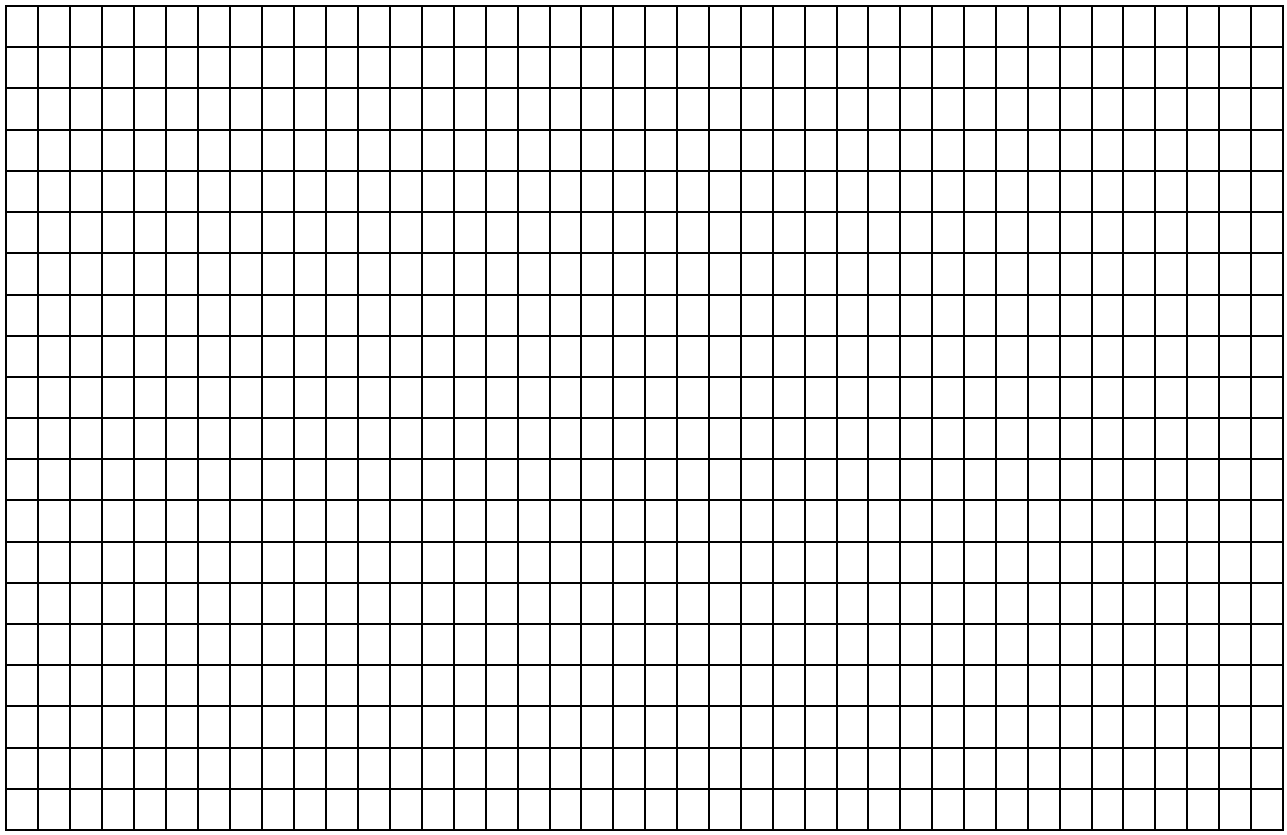
1. Color in the array.
2. Now go back and outline the base ten blocks. Outline the hundreds, then the tens, then the ones.
3. Go back and count to see the sum of your partial products.

My number sentence: _____

How many hundreds, tens, ones? ____ ____ _____

Product _____

BLM Unit 4, TV Lesson 2 **Grid Paper**
Two grid papers per student



1. Colorea la matriz.
1. Ahora regresa y delinea los bloques base diez. Siluetea las centenas, luego las decenas, y luego las unidades.
2. Regresa y cuenta para ver la suma de los productos parciales.

Mi oración numérica: _____

¿Cuántas centenas, decenas, unidades? ____ ____ _____

Producto_____

BLM Unit 4, TV & Follow-up Lesson 3 **The Banyan Tree # 1**

v

One per student

The leaf of the banyan tree can be used to treat red and burning skin. Chu Cuoi chewed the leaf and applied it to the patient. Crushing the leaf does release a healing substance. Suppose a Vietnamese medicine man picked 40 leaves and wanted to tie 5 together in a bundle. How many bundles would he have?

Draw a picture to represent the math movie.

Create an array with a grid OR with base ten blocks and picture.

Use an algorithm or numbers as a strategy and write the fact family.

BLM Unit 4, TV & Follow-up Lesson 3 **The Banyan Tree # 1**

One per student

La hoja del árbol banyan puede usarse para tratar piel enrojecida y quemada. Chu Choi masticó la hoja y la aplicó al paciente. Aplastar la hoja libera una sustancia curativa. Supón que un curandero vietnamita recogió 40 hojas y quería atarlas en manojos de 5. ¿Cuántos manojos tendría?

Dibuja una imagen para representar la película matemática.

Crea una matriz con una cuadrícula O con bloques base diez y un dibujo.

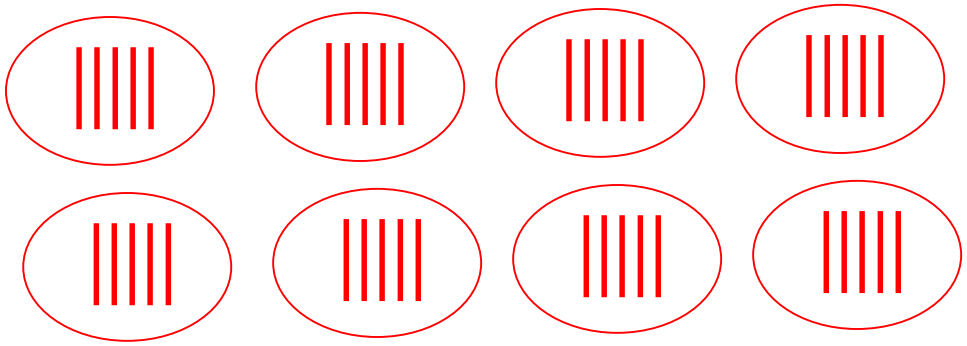
Usa un algoritmo o números como estrategia y escribe la familia de hechos.

BLM Unit 4, TV & Follow-up Lesson 3 **KEY** **The Banyan Tree # 1**

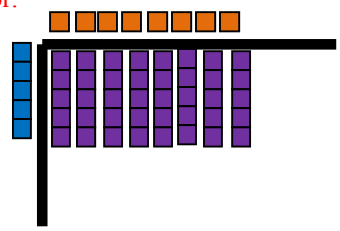
One per student

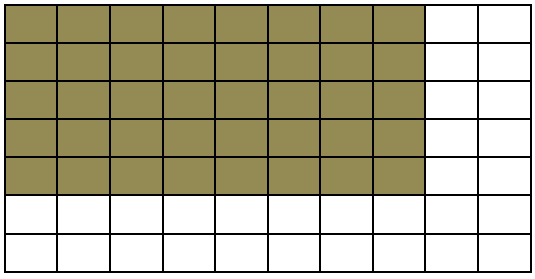
The leaf of the banyan tree can be used to treat red and burning skin. Chu Cuoi chewed the leaf and applied it to the patient. Crushing the leaf does release a healing substance. Suppose a Vietnamese medicine man picked 40 leaves and wanted to tie 5 together in a bundle. How many bundles would he have?

Draw a picture to represent the math movie. You can see if students understand by watching how they draw the picture. This is a division, measure problem – students would draw a group of 5 objects (shape doesn't matter) and would repeat the group of 5 until they have all 40 banyan tree leaves represented. They then count the bundles, or groups, to see that there are EIGHT bundles.



Create an array with a grid OR with base ten blocks and picture. Again, watching the students will tell you how they understand this problem. They would begin the base ten array OR the grid array with the known factor, 5, then complete the array until they have 40 in the product. The missing factor will be obvious. They may place the known factor in either position. This sample shows the known in the "rows" position. The "columns" position was deduced once the bundles of 5 cubes was distributed to 40 cubes. The grid would be shaded in the same way, 5 squares in a column, until 40 squares are shaded. Then, just count the top row to find the missing factor.





Use an algorithm or numbers as a strategy. Since this is a basic fact, students can use either the horizontal or vertical algorithm.

40 ÷ 5 = 8

$$5\overline{)40}\quad 8$$

40 ÷ 5 = 8 **40÷ 8 = 5**
5 x 8 = 40 **8 x 5 = 40**

BLM Unit 4, TV & Follow-up Lesson 3 **The Banyan Tree#2**

One per student

Yes, this really is ONE banyan tree. The tree has roots that grow into the soil to create new trunks, but they are all from one central tree. Twigs from the banyan tree are used by some in Vietnam to clean and whiten teeth. Perhaps the family in the picture is collecting banyan tree twigs. If they collect 45 twigs and want to share them equally among their 5 family members, how many twigs will each person receive?

Draw a picture to represent the math movie.

Create an array with a grid OR with base ten blocks and picture.

Use an algorithm or numbers as a strategy.

BLM Unit 4, TV & Follow-up Lesson 3 **The Banyan Tree#2**

One per student

Sí, este es realmente UN árbol banyan. El árbol tiene raíces que se hunden en la tierra para crear nuevos troncos, pero todas provienen del mismo árbol central. Las ramitas del árbol banyan se usan en Vietnam para limpiar y aclarar los dientes. Quizá la familia de la imagen está recogiendo ramitas del árbol banyan. Si recogieron 45 ramitas y quieren compartirlas de manera equitativa entre los 5 integrantes de la familia, ¿cuántas ramitas recibirá cada persona?

Dibuja una imagen para representar la película matemática.

Crea una matriz con una cuadrícula O con bloques base diez y un dibujo.

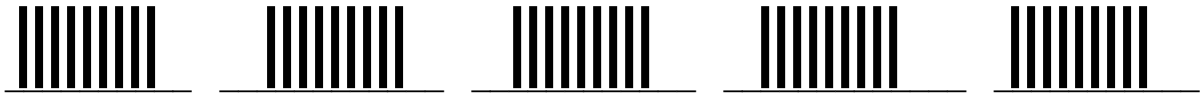
Usa un algoritmo o números como estrategia y escribe la familia de hechos.

BLM Unit 4, TV & Follow-up Lesson 3 **KEY The Banyan Tree #2**

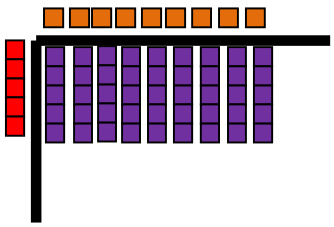
One per student

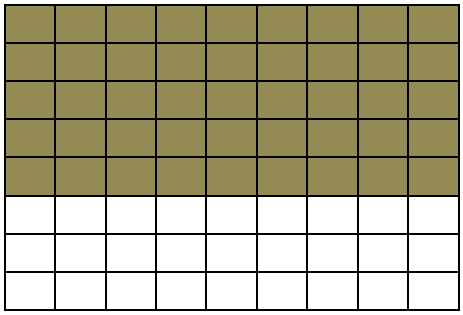
Yes, this really is ONE banyan tree. The tree has roots that grow into the soil to create new trunks, but they are all from one central tree. Twigs from the banyan tree are used by some in Vietnam to clean and whiten teeth. Perhaps the family in the picture is collecting banyan tree twigs. If they collect 45 twigs and want to share them equally among their 5 family members, how many twigs will each person receive?

Draw a picture to represent the math movie. You can see if students understand by watching how they draw the picture. This is a division, partitive problem – students would draw 5 groups, then divvy out the 45 objects (shape doesn't matter) until the twigs are evenly distributed. They then count the number of twigs in 1 group, to see that there are 9 twigs per family group.



Create an array with a grid OR with base ten blocks and picture. Again, watching the students will tell you how they understand this problem. They would begin the base ten array OR the grid array with the known factor, 5, then complete the array until they have 45 in the product. The missing factor will be obvious. They may place the known factor in either position. This sample shows the known in the "rows" position. The "columns" position was deduced once the bundles of 5 cubes was distributed to 45 cubes. GRID: color in columns of 5 until all 45 squares are shaded.





Use an algorithm or numbers as a strategy. Since this is a basic fact, students can use either the horizontal or vertical algorithm.

45 ÷ 5 = 9

$$5\overline{)45}\quad 9$$

45 ÷ 5 = 9 **45÷ 9 = 5**
5 x 9 = 45 **9 x 5 = 45**

Literature Vocabulary
obediently
boisterous
gilded
squirming
flourished
banyan

Math Vocabulary
Repeated vocabulary
factors
products
fact family

Materials
- Scratch paper
- Light colored crayon
- Way to project game cards so all students can see them
- Family Fun Game Board
- Family Fun Movement Cards
- Game pieces
- Base Ten Sets
  - 4 hundreds
  - 15 tens
  - 15 units
- **BLM** Family Fun Problem Cards – 1 set per partners
- **BLM** Family Fun Array Paper –1 per student
- **BLM** All-level Answer Key
- **BLLM** Special 3-4 Instructions
- **Family Fun Game supplies to take home**

ELPS (*English Language Proficiency Standard*)
2C, 2E, 3E, 3G, 4G, 5B, 5C

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.C.3., I.E.2., II.C.1.
ELA I.A.1., I.A.2., I.A.3., II.A.2., III.B.2.
MATH II.A.1., II.A.2., VIII.A.3., VIII.A.4.

Technology

Unit 4, Lesson 3 3-4

Follow-up

Math Objectives:
- Use a variety of strategies that include arrays, partial products, and the traditional algorithm to solve multi-step word problems.

Language Objectives:
- Listen and speak with a partner during our math activity.
- Use the math vocabulary during the activity.
- Write math journal response.

Building Background, Math
Today is Family Fun Game day. We have been learning a great deal about multiplication, division, fractions, and decimals.

Before we break into partners and play the game, I'd like for us to look at each problem card to talk about how we would solve the problem.

(*Go through each card with the students. Ask students to suggest solution strategies and explain why they would use them. Let the strategies come from the students, not from the teacher.)*

Practice and Application, Math
(*Play the game for as long as you have time. Circulate the room asking questions to make sure students do understand the problems.)*

?QUESTIONING – Question according to the strategy selected by the student. Several suggested questions follow for each type of strategy – use the questions that fit the particular student's needs.
- What are you asked to do here?
- What is one strategy for solving this problem?
- Could you solve it another way?
- (*Fraction Equivalencies*) Can you find another equivalent fraction different from these?
- How are you finding the unknown?
- How can knowing fact families help you?

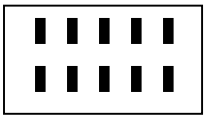
Math Journal Writing
Students should have a spiral notebook into which they journal their thoughts daily about math. Today's journal prompt is:

Create a multiplication or division story problem.

Objectives: Review the math and language objectives to see how they were accomplished.

BLM Unit 4, Follow-up Lesson 3 **Family Fun Game Cards**

Printed on ***Green*** –one set per partners for class; one set per student for home. (There are two pages of cards.)

A. $21 \div \square = 7$	**B**. $54 \div \square = 6$	**C**. $\square \div 7 = 6$
D. The rice farmer had 48 rice plants. He wanted 8 bundles. If he put the same number of seedlings in each bundle, how many would be in each?	**E**. The rice farmer had 56 rice plants. He wanted to bundle them 7 to a bundle. How many bundles would he have?	**F**. A rice farmer had 5 fields that looked like this. How many bundles did he plant? 
G. Draw an array to model 4 x 3. You may use the array paper.	**H**. Draw an array to model 4 x 8. You may use the array paper	**I**. Draw an array to model 5 x 3. You may use the array paper

BLM Unit 4, Follow-up Lesson 3 **Family Fun Game Cards**

Printed on ***Green*** –one set per partners for class; one set per student for home. (There are two pages of cards.)

A. $21 \div \quad = 7$	**B**. $54 \div \quad = 6$	**C**. $\div \ 7 = 6$
D. El granjero de arroz tenía 48 plantas de arroz. Él quería hacer 8 conjuntos. Si puso la misma cantidad de semillas en cada conjunto, ¿cuántas habría en cada uno?	**E**. El granjero de arroz tenía 56 plantas de arroz. Ella quería ponerlas en manojos, 7 por manojo. ¿Cuántos manojos tendría?	**F**. Un granjero de arroz tenía 5 campos con este aspecto. ¿Cuántos conjuntos sembró?
G. Dibuja una matriz para modelar 4 x 3. Puedes usar el papel para matrices.	**H**. Dibuja una matriz para modelar 4 x 8. Puedes usar el papel para matrices.	**I**. Dibuja una matriz para modelar 5 x 3. Puedes usar el papel para matrices.

BLM Unit 4, Follow-up Lesson 3 **Family Fun Game Cards**

Printed on ***Green*** –one set per partners for class; one set per student for home. (There are two pages of cards.)

J.
Write the following fraction as a decimal.

$3\frac{21}{100}$

K.
Write the fact family for

6, 7, 42

L.
Draw a picture model of

3 x 6

M.
How do you read this number?

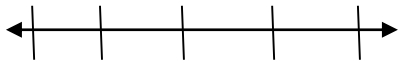
11.7

N. This model shows $\frac{1}{2}$

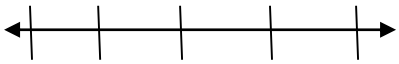
Model and name a different equivalent fraction.

O.
What part is shaded? Write as a decimal.

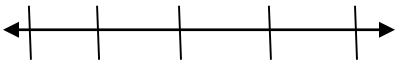
P.
Show where you would place **0.33** on the number line.



Q.
Show where you would place **0.75** on the number line.



R.
Show where you would place **0.5** on the number line.



BLM Unit 4, Follow-up Lesson 3 **Family Fun Game Cards**

Printed on ***Green*** –one set per partners for class; one set per student for home. (There are two pages of cards.)

J. Escribe la siguiente fracción en forma decimal. $3\ \frac{21}{100}$	**K**. Escribe la familia de hechos para **6, 7, 42**	**L**. Dibuja una imagen modelo de **3 x 6**
M. ¿Cómo lees este número? **11.7**	**N**. Este modelo muestra $\frac{1}{2}$  Modela y nombra una fracción equivalente distinta.	**O**. ¿Qué parte está sombreada? Escribe en forma decimal. 
P. Muestra dónde colocarías **0.33** en la recta numérica.	**Q.** Muestra dónde colocarías **0.75** en la recta numérica.	**R.** Muestra dónde colocarías **0.5** en la recta numérica.

BLM TM Unit 4, Lesson 3 **Family Fun Game Array Paper**

BLM TM Unit 4, Lesson 3 **Special 3rd – 4th – Instructions**

Materials:

- Paper and pencil
- Base ten kit – 4 hundreds, 15 longs, 15 ones
- 50 counters – beans, pebbles from home or counters from classroom
- Game marker
- **BLM** Unit 4 3-4 Family Fun Problem Cards (green)
- Family Fun Movement Cards (white)
- Family Fun Game Board
- **BLM** Special 3rd-4th Instructions
- **BLM** Unit 4 Family Fun Game Answer Key, all levels
- **BLM** Family Fun Game Array Paper

Solution Expectations

Problems A - C

- Students are expected to find the unknown. Using Fact Families would be most helpful.

Problems D-F

- Students use whatever strategy they wish to solve the word problems. Be careful with F – the farmer had 5 fields like the one drawn.

Problems G - I

- Students are expected to draw arrays. They may be base ten arrays, grid arrays (for which grids are provided), or hand-drawn arrays.

Review Problems

- **J –** fraction to decimals
- **K** – fact family: all four number sentences
- **L** – any picture model, with group indicators or without
- **M** – read appropriately (11 AND 7 tenths)
- **N** – any equivalent fraction other than ½
- **O** – identify the shaded portion as a decimal
- **P** – must use a benchmark decimal to estimate the location of .33
- **Q** – benchmark decimal
- **R** – benchmark decimal

BLM Unidad 4, Lección 3 Instrucciones especiales 3º – 4º

Materiales:

- Papel y lápiz
- Equipo de base diez - 4 centenas, 15 largos, 15 unidades
- 50 contadores - frijoles, piedritas de casa o contadores del salón de clases
- Piezas de juego
- **BLM** Unidad 4 3-4 cartas de problemas de Diversión Familiar (verdes)
- Cartas de movimiento de Diversión Familiar (blancas)
- Tablero de juego de Diversión Familiar
- Instrucciones especiales 3º-4º de **BLM**
- Guía de respuestas del juego de Diversión Familiar de la Unidad 4 de **BLM**, todos los niveles
- Papel para matrices del juego de Diversión Familiar **BLM**

Expectativas de solución

Problemas A – C

- Se espera que los estudiantes encuentren el valor desconocido. Usar familias de hechos sería lo más útil.

Problemas D-F

- Los estudiantes utilizan cualquier estrategia que deseen para resolver los problemas razonados. Cuidado con F - el granjero tenía 5 campos como el mostrado.

Problemas G – I

- Se espera que los estudiantes dibujen matrices. Pueden ser matrices base diez, matrices de cuadrícula (para las que se proporcionan cuadrículas), o matrices dibujadas a mano.

Problemas de repaso

- **J** - fracción a decimales
- **K** - familia de hechos; todas las cuatro oraciones numéricas
- **L** - cualquier modelo de imagen, con o sin indicadores de grupo
- **M** - leer apropiadamente (11 Y 7 décimos)
- **N** – cualquier fracción equivalente diferente de ½
- **O** - identificar la porción sombreada en forma decimal
- **P** - debe usar un punto de referencia decimal para estimar la ubicación de 0.33
- **Q** - punto de referencia decimal
- **R** - punto de referencia decimal

Generic Family Fun Game Board

Materials Generic to All Units:

- Game Markers
- Game Cards for your Level
- Answer Key for your Level
- Game Movement Cards (white)
- Unit-specific Materials List

Playing the Game

1. Begin in one of the corner shapes. There may be more than 1 player in each starting shape. Remember where you started.
2. On your turn, draw one of your level game cards and work the problem.
3. One of the other players uses the Answer Key to check your answer. If correct, draw a movement card and move the given places
   - Forward movement in a clockwise direction.
   - Backward movement in a counter clockwise direction.

   If incorrect, do not move.
4. Game is over when the first person runs the entire track, ending back on the starting shape.

Tablero de juego

Materiales genéricos para todas las unidades:

- Fichas para jugar
- Tarjetas del juego para su nivel
- Clave de respuestas para su nivel
- Tarjetas de movimiento del juego (blancas)
- Lista de materiales específicos de la unidad

Cómo se juega

1. Empiece en una de las esquinas. Puede haber más de
1 jugador en cada figura de inicio.
2. Cuando sea su turno, saque una de las tarjetas de
juego de su nivel y resuelva el problema.
3. Uno de los otros jugadores usa la clave de respuestas
para ver si su respuesta es correcta. Si es correcta, saque una tarjeta de movimiento y mueva su ficha como lo indica la tarjeta.
   - Movimiento hacia adelante en el sentido de las manecillas del reloj.
   - Movimiento hacia atrás en el sentido contrario a las manecillas del reloj.

   Si es incorrecta, no se mueve.
4. El juego se acaba cuando la primera persona recorre
toda la pista y termina en la figura de inicio.

BLM **Follow-up Lesson 3** **Family Fun Game Movement Cards**

Printed in White – 1 set for the TV Lesson Demo. 1 set per partners for class; 1 set per student for home.

Move forward 1 space	**Move forward 1 space**	**Move forward 1 space**
Move forward 1 space	**Move forward 1 space**	**Move forward 1 space**
Move forward 2 spaces	**Move forward 2 spaces**	**Move forward 2 spaces**
Move back 1 space	**Move back 1 space**	**Move back 1 space**
Move forward 3 spaces	**Move forward 2 spaces**	**Move forward 3 spaces**

FAMILY FUN

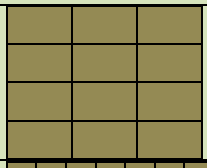
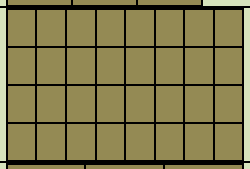
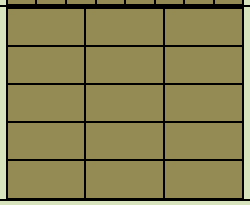
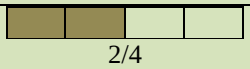
One per student for home
One per partner pair in class

*Print on **white** paper.*

Family Fun – Movement Cards

Avanza un espacio	**Avanza un espacio**	**Avanza un espacio**
Avanza un espacio	**Avanza un espacio**	**Avanza un espacio**
Avanza 2 espacios	**Avanza 2 espacios**	**Avanza 2 espacios**
Retrocede 1 espacio	**Retrocede 1 espacio**	**Retrocede 1 espacio**
Avanza 3 espacios	**Avanza 3 espacios**	**Avanza 3 espacios**

BLM All-School Unit 4, Lesson 3 **Family Fun Game Answer Key**

Problem Letter	Kinder	1-2	3-4	5-6	7-8
A	11 seeds	23	3	$6\frac{1}{4}$ or 6.25	short = 6 long = 8
B	4 seeds	23	9	$\frac{5}{8}$ or 0.625 cups	6
C	4 seeds	39	42	$423,294,920.10	1
D	5 seeds	4	6 seedlings	2134.448	3
E	10 seeds	17	8 bundles	$7400 down	(x3)
F	3 seeds	13	50 bundles	10% water	(x $\frac{1}{3}$)
G	(see special instructions)	14		$48.50 tax	(x $\frac{1}{2}$)
H	(see special instructions)	68		$33 late fee	(x3)
I	2 equal parts	23		$375 earned	(x5)
J	Nickel	Divided into four equal parts	3.21	$39.64	(x3)
K	Dime	Parts are equal	6 x 7 = 42 7 x 6 = 42 42 ÷7 = 6 42 ÷ 6 = 7	$12.20 tip	(x5)
L	Quarter	5	xx xx xx xx xx xx xx xx xx	25% tip	(x5)
M	Penny	4 + 3 = 7	Eleven and seven tenths	no. labels flipped	15
N	Bottom line	12 – 2 = 10	 2/4  4/8	yes. scale factor of (x6)	no – # of shirts varies from each closet
O	Top line	5 wild things	0.7	60 students:1 bus	yes – 2 wheels on each bicycle
P	11	4	Between 0.25 and 0.5	30 notes hit	no – no scale factor

Q	8	4 and 6 are compatible	Line closest to 1	$\frac{17}{12}$ or $1\frac{5}{12}$	yes – scale factor (x20)
R	13 beans 13	$8 + 5 = 13$ $5 + 8 = 13$ $13 - 8 = 5$ $13 - 5 = 8$	Line in the middle	$4\frac{1}{8}$	yes – scale factor (x10)

Math Objectives
- Represent equivalent fractions using pictorial models.
- Compare two fractions having the same denominator.
- Determine if two given fractions are equivalent.
- Recognize tenths and label in fraction and decimal form.

Language Objectives
- Discuss fraction comparisons.
- Discuss fraction equivalencies.
- Discuss fraction/decimal equivalencies.

Vocabulary
halves
fourths
eighths

Materials:
Per Student
- **BLM** Peanut Butter and Cracker Fractions

Per Partners:
- 3 graham crackers (full sheets)
- 2 T peanut butter
- 2 plastic knives
- 2 paper plates
- 2 paper towels
- 2 scissors
- 2 glue sticks
- Chart paper with question: **How do you know that 3/4 = 6/8?**

Unit 4, Lesson 3 3-4

Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

We're going to share our snacks first again today. You and your partner must determine the portions that you will have in sharing three graham crackers and two tablespoons of peanut butter.

Discuss how you will share the snack, share it and call me to your group before you start eating it.

QUESTIONS to ask after all have shared:
- Which was easier to share, peanut butter or crackers? (*Probably the peanut butter – it was already in an amount easily divided by two.)*
- How did you share the crackers? (*Some might have split all three crackers into halves and given each three halves; some may have seen that they each got a whole and half of another.)*
- When you think about your crackers, you know that you each have HALF of the snack provided. But, how many crackers did you each get in your half? Prove that to me. (*You just want them to see that 3/2 = 1 ½.*)

As you are enjoying your snack, please work together to solve the equivalent fraction problem on your BLM.

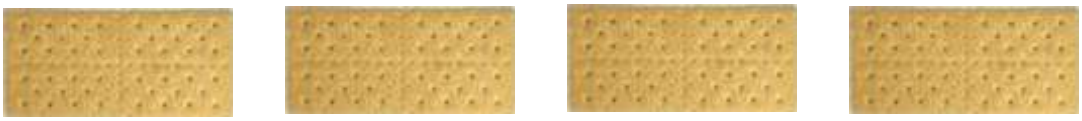
Snack Fraction Journal Writing: Snack Fraction Chart Paper
How do you know that 3/4 = 6/8?

Objectives: Review the objectives with the class, making sure they understand how they achieved each.

BLM Unit 4, Snack Fraction 3 **Peanut butter and Crackers Fractions**
(One sheet per student)

Name _____

Marty and his little sister Anna shared graham crackers and peanut butter for snack. There were four crackers already smeared with the peanut butter. Anna ate one of them, and Marty ate the rest.
Use the picture below to show the fractional relationship between Anna and Marty's share.

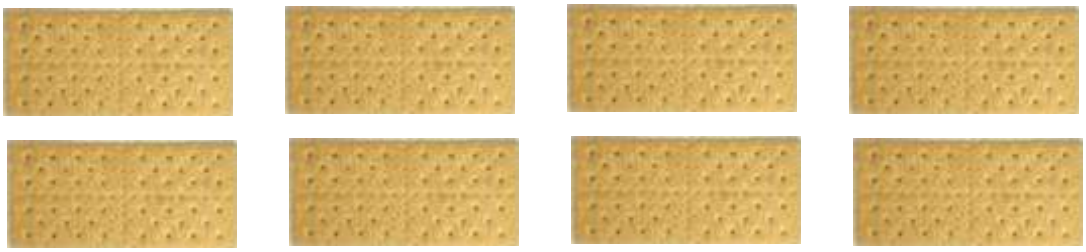


What fractional part of the snack did Anna eat? _____

What fractional part of the snack did Marty eat? _____

The next day, Marty and his little sister Anna shared graham crackers and peanut butter for snack. There were eight crackers already smeared with the peanut butter. Anna ate ¼ of them, and Marty ate the rest.

Use the picture below to show the fractional relationship between Anna and Marty's share.

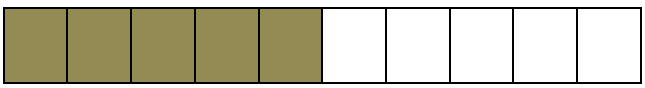


If Anna ate ¼ of them, how many crackers did she eat? _____

How many eighths did Anna eat? _____
Write the fraction using eight as the denominator that describes Anna's portion of the snack ___.

Using eight as the denominator, write a fraction that describes the fractional part of the snack Marty ate. _____

Write a comparison statement about $\frac{3}{4}$ and $\frac{6}{8}$ using <, >, or = _____ _____

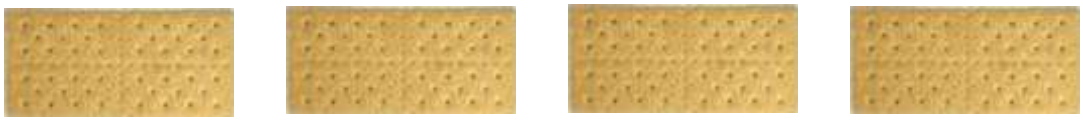


Use <, >, = to compare the shaded part of the bar to 6/8. _____ _____

BLM Unidad 4, Fracción de refrigerio 3 Fracciones de galletas con crema de maní

Nombre _____

Marty y su hermanita Anna compartieron galletitas con crema de maní para el refrigerio. Había cuatro galletas que ya tenían crema de maní. Anna se comió una de ellas, y Marty se comió las demás.
Usa la siguiente imagen para mostrar la relación fraccional entre la porción de Anna y la de Marty.

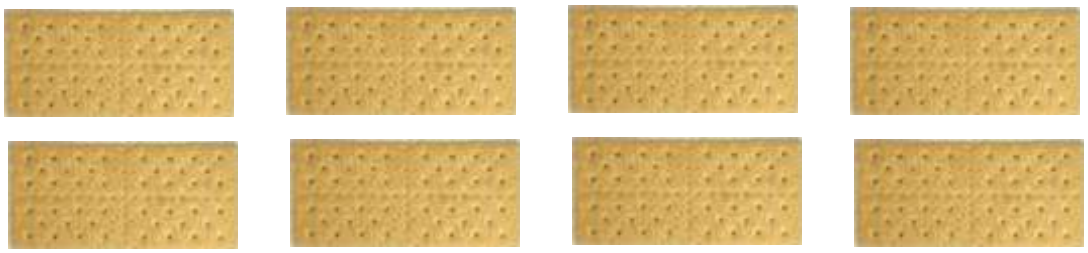


¿Qué parte fraccional del refrigerio comió Anna? _____

¿Qué parte fraccional del refrigerio comió Marty? _____

Al día siguiente, Marty y su hermanita Anna compartieron galletitas con crema de maní para el refrigerio. Había ocho galletas que ya tenían crema de maní. Anna se comió ¼ de ellas, y Marty se comió las demás.

Usa la siguiente imagen para mostrar la relación fraccional entre la porción de Anna y la de Marty.



Si Anna se comió ¼ de ellas, ¿cuántas galletas se comió? _____

¿Cuántos octavos se comió Anna? _____
Escribe la fracción usando ocho como el denominador que describe la porción de Anna del refrigerio ___.

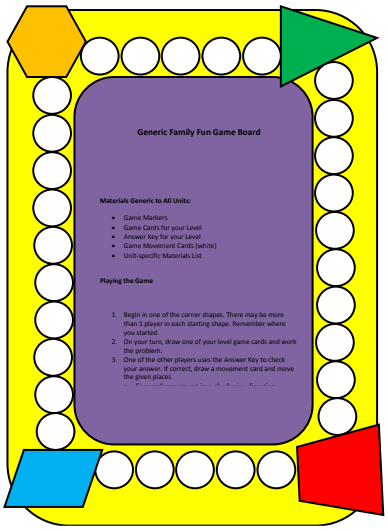
Usando ocho como el denominador, escribe una fracción que describa la parte fraccional del refrigerio que se comió Marty

Escribe una comparación acerca de $\frac{3}{4}$ y $\frac{6}{8}$ usando <, >, o = _____ _____

Usa <, >, = para comparar la parte sombreada de la barra a 6/8. _____ _____

Family Fun – 3rd -4th, Unit 4 Lesson 3

Family Fun Game!



It's our Family Fun Game time for this unit. We'll be practicing the skills we learned in this unit and in Units 1 and 2!

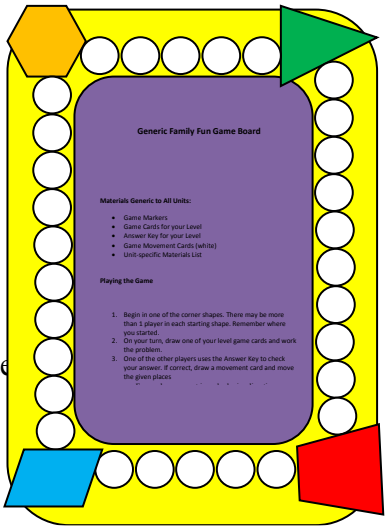
Here are some of the skills I especially want to practice.

Thank you for sharing fun and summer learning with all of us!

_____

Family Fun – 3rd -4th, Unit 4 Lesson 3

¡Juego de Diversión Familiar!



Es hora de nuestro juego de Diversión Familiar para esta unidad. ¡Estaremos practicando las habilidades que aprendimos en esta unidad y en las unidades 1 y 2!

Estas son algunas de las habilidades que quiero practicar especialmente

¡Gracias por compartir la diversión y el aprendizaje en este verano con todos nosotros!

_____

FAMILY FUN Involvement **3rd-4th**

Overview for Unit 4, ***Children of the Dragon***

This overview will provide a one-page view of the suggested Family Fun Activities for this unit, as well as other opportunities provided for Family Involvement.

Lesson 1

- Vocabulary Cards so students can practice language and math vocabulary at home
- Family Fun Unit 4 Lesson 1 Letter

Lesson 2

- Family Fun Unit 4 Lesson 2 Letter

Lesson 3

- Family Fun Unit 4, Lesson 3 attached to the Family Fun Game supplies
- Family Fun Game

Enrichment Suggestions

- Create a red envelope used in Vietnam for TET celebration.

This portion of the curriculum, although NOT required, should be used as needed to supplement and enrich the Unit's activities.

Family Fun Suggestions:
- Send home directions and materials to make Ang Pow envelopes.

Possible Center Suggestions:
- Art activity

ENRICHMENT Suggestions **3rd-4th**

Unit 4 ***Children of the Dragon***

MATH WALK

Comparison Walk – After researching Vietnam, walk around the campus and compare your physical surrounds, plant life, animal life, human habitats to those you found from your research in Vietnam.

Technology Connections

- **Math Practice**
  http://mrnussbaum.com/decimals_games/
  Decimal games
  http://www.amblesideprimary.com/ambleweb/mentalmaths/dividermachine.html
  Division games
  http://www.multiplication.com/games/play/jungle-jim-and-monkeys
  Multiplication games
- **Science Connection**
  http://amazing-funfacts.blogspot.com/2011/02/great-banyan-tree.html
  Facts about the banyan tree
  http://www.livescience.com/27409-buffalo.html
  Facts about water buffalo
  http://www.bbc.co.uk/nature/life/Water_Buffalo
  Water buffalo
  http://ngm.nationalgeographic.com/2011/01/largest-cave/peter-photography
  Interesting facts about the world's largest cave in Vietnam.
- **Social Studies Connection**
  http://www.timeforkids.com/destination/vietnam/day-in-life
  A day in the life of an 11-year-old boy.
  http://www.adoptvietnam.org/vietnamese/tet-lessonplan.htm Four Corners activity, and many more interesting activities
- **Art Connection**
  http://www.adoptvietnam.org/vietnamese/tet-puppet.htm
  Dragon puppet
  http://www.adoptvietnam.org/vietnamese/dragonboat.htm
  Dragon boat
  http://www.fengshuiweb.co.uk/advice/angpow.htm
  History of and directions for making Ang Pow red envelopes for TET.

Math Objectives

(TM1) Decimal Battle Game and Dragon Roll Game

(TV1) Direct Teach of Base Ten Array

- Use a variety of strategies that include arrays, partial products, related facts, traditional algorithm to solve 2-digit times 2-digit arithmetic problems.

(**TV2**) **Solving Using Arrays and other strategies**

- Use a variety of strategies that include arrays, partial products, related facts, traditional algorithm to solve 2-digit times 2-digit arithmetic problems.

Differentiate

TM 1 -The Decimal Battle offers your students more decimal recognition/comparison practice. The Dragon Roll practices number sentence multiplication and fact families. This unit focuses on multiplication including double digits, arrays, and division. ***Daily Routines Fraction Action and Measurement Lab are very important to assessment preparation in this unit.***

Snack Fraction Notice

All snack fractions are common throughout the grade bands. Lesson 2 has been suggested for its ease of delivery. The only difference in lessons 1, 2, 3 are the foods which are divided equally. Choose a snack, though, that has a possibility of differing pieces inside.

Materials

(TM1) Optional

BLM TM Lesson 1 Dragon Roll

- Dice – 1 pair per partners
- Base ten units – 40 per partners

BLM TM Lesson 1 Decimal Battle–

(**TV1**)

- base ten sets – 1 set per student
  - 3 flats, 15 longs, 15 units
- scratch paper, light colored crayon or marker
- **BLM** Array Model – teacher only
- **BLM** grid paper – 3 per student
- **BLM**– The Flying Dragon Lizard -1 per student and KEY for teacher

(TV2)

- base ten sets – 1 set per student
  - 3 flats, 15 longs, 15 units
- scratch paper, light colored crayon or marker
- **BLM** grid paper – 2 per student,
- **BLM**– Planting the Paddy #1-1 per student and KEY for teacher
- **BLM** Planting the Paddy #2 – 1 per student and KEY for teacher

Family Fun – all game BLM and supplies including 50 counters per student.

Snack Fractions – Follow-up lesson 2

Per Student

- **BLM** Snack Bag Fractions
- 1 individual servings bag of 100 calorie snack
- 8 lima beans

Per Partners:

- 2 Paper plates
- 2 paper towels
- Chart paper with question**: How do you know that 3/4 = 6/8?**

QUESTIONING

As a result of this lesson, your students should be able to respond to the following:

- Describe your math movie.
- What do you know from the data given in the problem?
- What are you asked to find?
- What solution strategy are you most comfortable in using? Why?

Math Vocabulary
Repeated Vocabulary: factors, products, fact family

CGI Problem (select one)
- Division, Measurement (3rd assessment Item 5)
- Multiplication

Journal Writing
Which strategy studied this unit is more comfortable for you and why?

Family Fun (A generic game board is being used in all grade levels, differentiated by game cards specific to the grade level.) There is only one type of game this year. All games will have problem cards and an answer key at all levels. Please be sure the 3rd-4th grade cards are printed on green cardstock.

Snack Fractions - TV Lesson 2 - Snack Bag Fraction – 100 Calorie Snack
You can select any of the three snacks that are appropriate for your homes – all three snacks in 3rd - 4th grade level will practice the same skills, although comparison and equivalent fractions will be for different fractional pieces depending on the lesson you choose.

Assessment – Students will be introduced to and practice skills for items:
3rd - 1, 2, 3, 4, 5, 6, 7, 8
4th - 1, 2, 3, 4, 5, 6, 7, 8 (DR – Fraction Action and Measurement Lab)

Overview

Unit 5 *My Mexico*

This is a quick snapshot of the three math lessons for this unit. For detailed instructions, balance literacy objectives/extended activities, enrichment ideas refer to the complete lesson plans for each lesson.

Lesson Segment	Math Objectives	Language Objectives	Activity	Materials	Blackline Masters
Daily Routine **Unit 5 Lesson 1** 30 – 45 minutes	ESSENTIAL • Find missing elements in an equation. • Solve multi-step word problems. • Use a variety of strategies to solve word problems. • Find equivalent forms of fractional parts. • Measure length in centimeters.	**ESSENTIAL** • Speak to partners, teacher, and class using vocabulary. • Discuss problem solving process and strategies. • Explain how they decided to rename the target number. • *Discuss scarcity of money, choices and cost benefit.*	**ESSENTIAL** • Fraction Action • Measurement Lab • CGI • What's Missing? • Solve It **OPTIONAL** • Target Number • Graphing - none Money Matters is now found on MAS Space	**ESSENTIAL** Unknown Quantity Cards – 1 set for classroom	**ESSENTIAL** **BLM** Solve It, Unit 5 **BLM** Fraction Action/Measurement Lab – 1 per student **BLM** Fraction Action / Measurement Lab KEY – teacher only **BLM** CGI Problems
Classroom ***Unit 5 Lesson 1*** 1 to 1.5 hour	Math Objectives Relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models. Compare and order fractional forms on a number line.	Describe the characteristics of various forms of poetry and how they create imagery. Make inferences and draw conclusions about the structure and elements of poetry and provide evidence from text to support their understanding. Write poems that convey sensory details using the conventions of poetry. Listen attentively to speakers, ask relevant questions, and make pertinent comments.	***Language*** ***My Mexico*** by Tony Johnston **Vocabulary Building**		• **BLM** Word Cards • **BLM** Poetry Vocabulary Chart • **BLM** Describing Corn • **BLM** Poem

		.	***TM Math*** **Building Background** Game to practice placing fractions and decimals on a number line. **Vocabulary** **Repeated vocabulary** Decimals Fractions Equivalent Greater than Less than	***TM Math*** • Class Number Line – 1 class. • A way to stick number cards to the number line. • Yellow marker or crayon – 1 for Fraction Team. • Orange marker or crayon – 1 for Decimal Team. • Stop watch or a way to time 5 minutes.	***TM Math*** • **BLM** Corn Cob Fractions Cards – 1 set per class, printed on cardstock. This is a game you will play all Unit, so laminating would keep the cards fresh. (*If you are using FUN Number Line, choose cards from that set rather than this BLM)* • **BLM** Corn Cob Fractions Score Sheet taped to the board for students to mark their score– 1 for class
TV ***Unit 5*** ***Lesson 1*** 30 minutes	Relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models. Compare and order fractional forms.	Use the math vocabulary during the activity. Discuss answers and possible strategies with classmates. Explain decimal relationships.	**Vocabulary Building** **Repeated vocabulary** Decimals Fractions Equivalent Greater than Less than **Comprehensible Input** TV teacher sets up the visuals using the web links. Students work through the problems. TV Teacher suggests strategies when they are finished.	• multiple web links noted as visuals during the lesson	• **BLM** Corn Problems – 1 per student
Follow-up and Snack ***Fraction*** ***Unit 5*** ***Lesson 1*** .5 to 1 hour	Relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models. Compare and order fractional forms.	Listen and speak with a partner during our math activity. Use the math vocabulary during the activity. Write math sentences.	**Practice and Application** Solve 2 word problems using arrays, and 1 other strategy.	No manipulatives are suggested for this lesson. <u>There is an optional activity to make corn tortillas – check that out.</u>	• **BLM** Growing Corn Tortillas – 1 per student • **BLM** Growing Corn Tortillas **KEY** – 1 per student

	SNACK FRACTIONS: Represent equivalent fractions using pictorial models. Compare two fractions having the same denominator. Determine if two given fractions are equivalent Recognize tenths and label in fraction and decimal form	**SNACK FRACTIONS:** Discuss fraction comparisons. Discuss fraction equivalencies Discuss fraction – decimal equivalencies.	**SNACK FRACTIONS** **Building Background** This one is a little different – parts of a set and problem embedded. **Vocabulary** Halves Fourths Sixteenths Equivalent Greater than, less than	**SNACK FRACTIONS:** **Per Partners:** • **3 laughing cow cheese wedges** • 2 Paper plates • 2 paper towels • 2 plastic knives • Chart paper with question**: Which share was larger, ½ or ¼? How do you know?** Put a copy of the record sheet at the top of the chart with the question.	**SNACK FRACTIONS:** **BLM** Laughing Cow Cheese Wedge Fractions - 1 per student

Lesson Segment	Math Objectives	Language Objectives	Activity	Materials	Blackline Masters
Daily Routine **Unit 5 Lesson 2** 30 – 45 minutes	• Find missing elements in an equation. • Solve multi-step word problems. • Use a variety of strategies to solve word problems. • Find equivalent forms of fractional parts. • Measure length in centimeters	• Speak to partners, teacher, and class using vocabulary. • Discuss problem solving process and strategies. • Explain how they decided to rename the target number. • *Discuss scarcity of money, choices and cost benefit.*	**ESSENTIAL** • Fraction Action • CGI • What's Missing? • Measurement Lab • Solve It **OPTIONAL** • Target Number • Graphing – Which Dinosaur would you rather meet? Money Matters is now found on MAS Space	**ESSENTIAL** Unknown Quantity Cards (add/subtract) **OPTIONAL** Class graph Sentence strips for graph labels	**ESSENTIAL** **BLM** Solve It, Unit 5 Lesson 2 **BLM** Fraction Action/Measurement Lab – 1 per student **BLM** Fraction Action / Measurement Lab KEY – teacher only **BLM** CGI Problems
Classroom ***Unit 5 Lesson 2*** 1 to 1.5 hour	**Math Objectives** Relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models. Compare and order fractional forms on a number line.	Describe the characteristics of various forms of poetry and how they create imagery. Make inferences and draw conclusions about the structure and elements of poetry and provide evidence from text to support their understanding. Write poems that convey sensory details using the conventions of poetry.	***Language*** ***My Mexico*** by Tony Johnston **Vocabulary Building**		• **BLM** Word Cards • **BLM** Multiple Meanings • **BLM** Wonderment Poem Putline

		Listen attentively to speakers, ask relevant questions, and make pertinent comments.			
		Math Language Objectives Discuss activity strategies with partner. Verbally verify comparative sizes of decimal representations.	***TM Math*** **Building Background** Game to practice placing fractions and decimals on a number line. **Vocabulary** **Repeated vocabulary** Decimals Fractions Equivalent Greater than Less than	***TM Math*** • Class Number Line – 1 class. • A way to stick number cards to the number line. • Yellow marker or crayon – 1 for Fraction Team. • Orange marker or crayon – 1 for Decimal Team. • Stop watch or way to time 5 minutes.	***TM Math*** • **BLM** Corn Cob Fractions Cards – 1 set per class, printed on cardstock. This is a game you will play all Unit, so laminating would keep the cards fresh. (*If you are using FUN Number Line, choose cards from that set rather than this BLM)* • **BLM** Corn Cob Fractions Score Sheet taped to the board for students to mark their score– 1 for class
TV ***Unit 5*** ***Lesson 2*** 30 minutes	Represent multiplication facts using a variety of approaches such as equal-sized groups, arrays and area models. Determine the number of objects in each group when a set of objects is partitioned into equal share or a set of objects is shared equally. Represent the product of 2 two-digit numbers.	Use the math vocabulary during the activity. Discuss solution strategies.	**Vocabulary Building** **Repeated vocabulary** Multiplication Division Factor Product Arrays Equal sized groups Fact families **Comprehensible Input** Solve division word problems using arrays, and 1 other strategy.	• Straight edge – 1 per student • Light colored marker such as yellow – 1 per student • Black marker – 1 per student	• **BLM** Aztec Common Dwellings 1 & 2 – 1 each per student • **BLM** Aztec Common Dwellings 1 & 2 **KEY** - Classroom Teachers should be familiar with this before the lesson to know what to watch for as you circulate the room.

Lesson Segment	Math Objectives	Language Objectives	Activity	Materials	Blackline Masters
Follow-up and Snack Fraction Unit 5 Lesson 2 .5 to 1 hour	Represent multiplication facts using a variety of approaches such as equal-sized groups, arrays and area models. Determine the number of objects in each group when a set of objects is partitioned into equal share or a set of objects is shared equally. Represent the product of 2 two-digit numbers.	Listen and speak with a partner during our math activity. Use the math vocabulary during the activity. Write math journal response.	**Practice and Application** Solve word problems using 1 strategy to solve and a different strategy to check solution. Multi-step problem included.	Web links are provided to give students visuals.	• **BLM** Floating Gardens or Chinampas – 1 per student • **BLM** Floating Gardens or Chinampa **KEY**s – teacher only
	SNACK FRACTIONS: Represent equivalent fractions using pictorial models. Compare two fractions having the same denominator. Determine if two given fractions are equivalent. Represent decimals, including tenths and hundredths, using concrete and visual models and money. Relate decimals to fractions that name tenths and hundredths.	**SNACK FRACTIONS:** Discuss fraction comparisons. Discuss fraction equivalencies. Discuss fraction – decimal equivalencies.	**SNACK FRACTIONS** **Building Background** Students work with partner to complete assignment. Teacher circulate the room. **Vocabulary** Halves Fourths Eighths Equivalent Greater than, less than	**SNACK FRACTIONS:** **Per Partners:** • **4 graham crackers** • **2 T Nutella** • 2 Paper plates • 2 paper towels • 2 plastic knives • Chart paper with question**: Which share was larger, ½ or 1/8? How do you know?** Put a copy of the record sheet at the top of the chart with the question.	**SNACK FRACTIONS:** **BLM** Cracker and Nutella Fractions - 1 per student

Lesson Segment	Math Objectives	Language Objectives	Activity	Materials	Blackline Masters
Daily Routine **Unit 5 Lesson 3** 30 – 45 minutes	**ESSENTIAL** • Find missing elements in an equation. • Solve multi-step word problems. • Use a variety of strategies to solve word problems. • Find equivalent forms of fractional parts. • Measure length in centimeters.	**ESSENTIAL** • Speak to partners, teacher, and class using vocabulary. • Discuss problem solving process and strategies. • Explain how they decided to rename the target number. • *Discuss scarcity of money, choices and cost benefit.*	**ESSENTIAL** • Fraction Action • CGI • What's Missing? • Measurement Lab • Solve It **OPTIONAL** • Target Number • Graphing – none • Money Matters is now found on MAS Space	**ESSENTIAL** Unknown Quantity Cards (add/subtract)	**ESSENTIAL** **BLM** Solve It, Unit 5 **BLM** Fraction Action/Measurement Lab – 1 per student **BLM** Fraction Action / Measurement Lab KEY – teacher only **BLM** CGI Problems
Classroom ***Unit 5*** ***Lesson 3*** 1 to 1.5 hour	Represent multiplication facts by using equal-sized groups. Represent the multiplication / division relationship by determining fact families and related number sentences.	Describe the characteristics of various forms of poetry and how they create imagery. Make inferences and draw conclusions about the structure and elements of poetry and provide evidence from text to support their understanding. Write poems that convey sensory details using the conventions of poetry. Listen attentively to speakers, ask relevant questions, and make pertinent comments.	***Language*** ***My Mexico, Mexico mío*** by Tony Johnston **Vocabulary Building**		• **BLM** Word Cards • **BLM** I Have Who Has • **BLM** Beehive Score Sheet (1 per student)

		Math Language Objectives Verbally compare various decimal representations. Discuss game cards with partner and group.	***TM Math*** **Building Background** Solve arithmetic problems, and then color in a honeycomb sheet. **Vocabulary** **Repeated vocabulary** All of the summer vocabulary	***TM Math*** Multiple web links provided to give students visuals. • Yellow marker -1 per student	***TM Math*** • **BLM** Beehive problems p 1-2 – 1 sheet of each per student • **BLM** Beehive Score Sheet – 1 per student
TV ***Unit 5*** ***Lesson 3*** 30 minutes	Compare and order fractional forms.	Use the math vocabulary during the activity. Discuss answers and possible strategies with classmates. Explain the relationship between meters and centimeters.	**Vocabulary Building** **Repeated vocabulary** Fractions Decimals Equivalent More than Less than **Comprehensible** Problems that practice 4th grade assessment #5	• teaspoons - 1 per pair • salt – 1 teaspoon per pair • wax paper – 1 6 x 6 sheet per pair • plastic knives – 1 per pair • 16 oz jar of honey – 1 for the room	• **BLM**– Honey Sweet Problems - 1 each per student • **BLM**– Honey Sweet Problems KEY – teachers only
Lesson Segment	**Math Objectives**	**Language Objectives**	**Activity**	**Manipulatives**	**Supplies**
Follow-up and Snack Fraction ***Unit 5*** ***Lesson 3*** .5 to 1 hour	• Practice all of the skills from the summer session.	• Listen and speak with a partner during our math activity. • Use the math vocabulary during the activity. • Write math journal response.	Complete TV problem. Play Family Fun Game Complete TM honeycomb problems. **Vocabulary** **Repeated vocabulary** Factors Products Fact family Fractions Decimals Equivalent More than Less than	• Game pieces • Game markers • Light color marker or crayon • Set of all game materials to take home – per student	• **BLM** Family Fun Game Problem Cards • **BLM** Family Fun Board • **BLM** Family Fun Motion Cards • **BLM** Family Fun Special 3-4 Instructions • **BLM** All-Level Answer Key **Per Student** • **BLM** grid sheets • http://www.ycbk.org/Honeybee%20Facts%20and%20Trivia.htm Honeybee facts – teacher resource, student handout for follow up lesson.

	SNACK FRACTIONS Represent equivalent fractions using pictorial models. Compare two fractions having the same denominator. Determine if two given fractions are equivalent. Represent tenths in decimal and fractional forms.	**SNACK FRACTIONS** Discuss fraction and decimal equivalencies. Discuss fraction comparisons. Discuss fractions/ decimal equivalencies	**SNACK FRACTIONS** **Building Background** Students should be able to work with their partners today while teacher circulates the room. **Vocabulary** Halves Fourths Eighths Equivalent Greater than, less than	**SNACK FRACTIONS** **Per Partners:** • **1 bagel** • **4T cream cheese** • 2 Paper plates • 2 paper towels • 2 plastic knives Chart paper with question**:** **Which share was larger, ½ or 1/4? How do you know?** Put a copy of the record sheet at the top of the chart with the question	**SNACK FRACITONS** 1 per student **BLM** Bagels and Cream Cheese Fractions - 1 per student

Unit 5	**Lesson 1**		**Lesson 2**		**Lesson 3**	
	TV and Follow Up	**Snack Fractions**	**TV and Follow Up**	**Snack Fractions**	**TV and Follow Up**	**Snack Fractions**
3rd Grade Assessment Items • Lesson 1:1, 2, 3, 4, 7 • Lesson 2: 1, 2, 3, 4, 7 • Lesson 3: 1, 2, 3, 4, 7 Daily Routines • Measurement (1) • What's Missing (2) • CGI (5) • CGI (4) • Fraction Action (6) Snack Fractions (6, 8) **4th Grade** Assessment Items • Lesson 1: 3 • Lesson 2: 3 • Lesson 3: 3 Daily Routines • Measurement (3, • Fraction Action (1, 2, 4, 5, 6, 7) Snack Fractions (8)	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines 3.4H Determine the number of objects in each group when a set of objects I partitioned into equal shares or a set of objects is shared equally. 4.2A interpret the value of each place-value position as 10 times the position to the right and as one-tenth of the value of the place to its left. 4.2E represent decimals, including tenths and hundredths, using concrete and visual models and money 4.2F compare and order decimals using concrete and visual models to the	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods; 4.2 (E) represent decimals, including tenths and hundredths, using concrete and visual models and money. 4.2(G) relate decimals to fractions	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines 3.4H Determine the number of objects in each group when a set of objects I partitioned into equal shares or a set of objects is shared equally. **3.4E** represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on the number line, and skip counting 3.4H Determine the number of objects in each group when a set of objects I partitioned into equal shares or a set of objects is shared	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods; 4.2 (E) represent decimals, including tenths and hundredths, using concrete and visual models and money. 4.2(G) relate decimals to fractions that name tenths and hundredths	**All assessed objectives**	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods; 4.2 (E) represent decimals, including tenths and hundredths, using concrete and visual models and money. 4.2(G) relate decimals to fractions that name tenths and hundredths

	hundredths. 4.2G relate decimals to fractions that name tenths and hundredths **4.3(C)** determine if two given fractions are equivalent using a variety of methods	that name tenths and hundredths	equally.			

Project SMART/Math MATTERS 2014

Grade Level: 3-4	Unit 5 / Lessons 1 – 2 - 3

Daily Routine Math Objectives:
Solve word problems using a variety of strategies and defend their strategies.
Model and solve 2-step word problems.
Determine a missing number in an equation.
Use arrays and other strategies to solve 2-digit multiplication problems.
Construct concrete models of fractions.
Compare fractional parts of whole in a problem situation using concrete models, fraction names and number representations

Daily Routine Language Objectives:
Speak to partners, teacher, and class using vocabulary introduced in the Daily Routines.
Listen to, read, speak and write the labels of the graph.
Discuss problem solving strategies in partners, small groups and whole groups.
Listen to, read, speak and write to understand action in word problems.

Unit Math Objectives (Integrated Lesson including snack fractions):
Represent multiplication facts by using a variety of approaches.
Determine a quotient using the relationship between multiplication and division.
Determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally.
Determine the corresponding decimal to the tenths or hundredths place of a specified point on a number line.
Represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models
Compare two fractions having the same numerator or denominator in problems by reasoning about the sizes and justifying the conclusion using symbols, words, objects, and pictorial models.
Determine if two given fractions are equivalent using a variety of methods.

Unit Language Objectives:
Think, pair, share questions throughout the unit.
Learn and use new vocabulary.
Listen to non-fiction writing for information and to develop an understanding of the vocabulary.
Listen to, speak, read and write unit vocabulary in a variety of group and individual settings.
Share-write math sentences.
Describe why a snack is or is not half.

Technology Objectives:
Use research skills and electronic communication, with appropriate supervision, to create new knowledge.
Technology suggested in this unit: iPad, SMART Board or other "smart" projection device, Internet

Key Vocabulary, MATH: Repeat Vocabulary: all vocabulary on Word Wall

Key Vocabulary, LANGUAGE: simile, metaphor, rhyme, rhythm, verse, repetition, alliteration, imagery, stanza, mood

Resources/Literacy Links
My Mexico – Mexico mio by Tony Johnston
Related links:
www.kidsgardening.org

Lesson Sequence

- Daily Routine: 30 to 45 minutes
- Classroom Lesson: 1 to 1.5 hour
- TV Lesson: 30 minutes
- Classroom Follow-up including Snack Fractions: .5 to 1 hour

MATH WALK
Corn Maze Walk – Do you have a corn maze near you? Take the students on a field trip through it! Want to make your own walking maze? Here is a link that can help your students, with possibly the help of older students and adults to make a walking maze: http://gwydir.demon.co.uk/jo/maze/design/
Technology Connections

- **Math Practice**
  http://mrnussbaum.com/decimals_games/
  Decimal games
  http://www.amblesideprimary.com/ambleweb/mentalmaths/dividermachine.html
  Division games
  http://www.multiplication.com/games/play/jungle-jim-and-monkeys
  Multiplication games
- **Science Connection**
  http://www.youtube.com/watch?v=DNphB0OdOBE
  Video of making a corn maze
  http://kids.nationalgeographic.com/kids/animals/creaturefeature/honeybees/
  More information about honey bees
  http://kids.discovery.com/tell-me/animals/bug-world/bee-world/why-are-honeybees-called-worker-bees
  More on honeybees
- **Social Studies Connection**
  http://www.unmuseum.org/maze.htm
  History of garden mazes.
  http://www.ducksters.com/history/aztec_maya_inca.php
  History of Aztecs for children
  http://clccharter.org/lilian1/aztecfarmingandagriculture.html
  Research project by a student. You need a plug in for the movie, but there is more on the page to use. Interesting tie in to the corn.
- **Art Connection**
  http://www.wikihow.com/Draw-a-Basic-Maze
  Draw a basic maze
  http://krazydad.com/mazes/
  Easy to hard mazes to solve
  http://crafting.squidoo.com/easy-crafting-for-kids
  Scroll down for Aztec Pottery
  http://www.ehow.com/way_5294594_aztec-art-craft-project-ideas.html
  Aztec Art Projects
  http://www.pinterest.com/czpeek/kid-s-bee-crafts/
  Samples of honeybee art projects

Materials
- Unknown Quantity Cards – 1 set for classroom
- **BLM** Solve It, Unit 5
- **BLM** CGI Problems
- **BLM** Fraction Action/Measurement Lab – 1 per student
- **BLM** Fraction Action / Measurement Lab KEY – teacher only

Math Objectives
- Find missing elements in an equation.
- Solve multi-step word problems.
- Use a variety of strategies to solve word problems.
- Find equivalent forms of fractional parts.
- Measure length in centimeters.

Balanced Literacy
Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.
- Explain how they decided to rename the target number.
- *Discuss scarcity of money, choices and cost benefit.*

TEKS in TV and FIU
Lesson 1
- **3rd** – 3.3FH
- **4th** - 4.2AEFGH. 4.3C

Lesson 2
- **3rd** – 3.3FH, 3.4EHJ
- **4th** - 4.4C

Lesson 3
- **3rd** – 3.3FH, 3.4EHJ
- **4th** 4.2AEFGH. 4.3C. 4.4C

Unit 5, Lesson 1 3-4
Daily Routine

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL
What's Missing? *(3rd assessment item 2)*
- **Lessons 1, 2, 3** *follow directions in the Daily Routine Explanations. Check the assessment items so that you are certain you include samples to practice the shape in the assessed location.*

Solve It! *(fundamental problem-solving skills for all items)*
- **Lesson 1 – partners working on unique problems**
- Lesson 2 - Partners working on unique problems
- Lesson 3 – Partners working on unique problems

Fraction Action and Measurement Lab *are written together this time. One sheet provides both activities. Students should work individually today so that you can see who, if anyone, needs additional practice before the Post-assessment***.**

(*3rd grade Assessment Items 1, 3; 4th Assessment items 3, 5, 7*)
Lesson 1 - Fraction Action and Measurement Lab 1
Lesson 2 - Fraction Action and Measurement Lab 2
Lesson 3 - Fraction Action and Measurement Lab 3

CGI
- **Lesson 1 – Multiplication**
- Lesson 2 – Division, Measurement (*3rd Assessment item 5*)
- Lesson 3 – Division, Partitive (*3rd Assessment item 4*)

ELPS (*English Language Proficiency Standard*)
2B, 2E, 3A, 3B, 3D, 3J, 4F

CCRS (*College and Career Readiness Standards)*
CROSS-CURRICULAR I.B.2., I.C.3., I.E.1., II.A.2., II.B.1.
ELA II.A.3., II.B.1., II.B.3., III.B.1., III.B.2., IV.B.1.
MATH I.B.1., II.C.2., IV.A.1.,IV.B.1., IV.B.2., VII.A.1.

Assessment Items
(As a result of experiencing this unit, students will be learning skills necessary to be successful on the following Assessment items.)

This is a review unit.
Lesson 1
- DR - Arrays, equivalent fractions, number lines, benchmarks
- TV - Fractions and Decimals

Lesson 2 –
- DR- DR - Arrays, equivalent fractions, number lines, benchmarks
- TV - Multiplication and Division

Lesson 3 –
- DR DR - Arrays, equivalent fractions, number lines, benchmarks
- TV – Blend

3rd - 1, 2, 3, 4, 5, 6, 7, 8
4th - 1, 2, 3, 4, 5, 6, 7, 8

Arthimus Portio's Corner
Unit 5 Lesson 1-
2-digit Multiplication
Which strategy do you feel most comfortable with when multiplying 2-digits x 2-digits such as 12 x 25? Explain why.

Unit 5, Lesson 1 3-4
Daily Routine - continued

OPTIONAL: *These activities, although not assessed, are fundamental skills that should be included in those sites providing five to six weeks of instruction.*

Target Number *(fundamental number sense for all items)*
- **Lesson 1 – Target Number 10**
- Lesson 2 – Target Number 30
- Lesson 3 – Target Number 60

Graphing – none this unit

Graphing Questions:
Before asking any questions, have the students give you their observations about the data shown on the graph. Always ask students to explain how they know.
These are generic questions. Simple reword them to fit your graph topics.
- How many more ____ than ____?
- How do you know?
- How many fewer ____ than ____?
- How do you know?
- Which (item) was chosen by more students than any of the others choices?
- How do you know?
- Which (item) was chosen by the fewest students?
- How do you know?
- What job could use this type of information? Why?
- If we asked this same question to other age groups, how do you think their answers would compare to ours? Why?

(Assessment Item 8 will be reviewed daily in Snack Fractions.)

Unit 5: Poetry Project

Defined:
Students write their own poems and perform them in a "coffee house" venue.

Materials
Tables and chairs
Hot chocolate and pound cake
Decorative mugs and paper plates, napkins
Beret for reading poet
Interlude guitar music

Objectives

- Write poems.
- Each student selects one of their original poems to present.
- Present the reading of the poem to the large group.

Procedures:
Prior to Poetry Reading event, students should write their own poems, either individually or as a class. The poems should be read in class to the class as practice. Class poems should be read chorally so that all of the class members take part in the presentation.

Set up the event area as a coffee house or cafe, a raised stage area up front if possible. Serve hot chocolate or other drink in cups or mugs.

Assign an MC to introduce the poets and a sound person to play appropriate guitar music CD between performances.

Poets come up to the stage one at a time from the audience when introduced to read their original work. The beret is an interesting touch which takes the individual out of the reading almost as a mask would do. If the poem is a class poem, students should read responsively or as choral reading.

You might want to serve small sandwiches or pound cake with fruit after the reading. What a super parent event this would be!

Online resources:

- http://www.alexslemonade.org/files/down/coffee.pdf This might be a possible fund raiser for your students' giving in financial responsibility, making the event a poetry reading instead of a talent show or lemonade stand.
- http://www.ilovelibraries.org/articles/featuredstories/poeminyourpocket Coffeehouse-style reading format
- http://www.scholastic.com/teachers/top-teaching/2010/05/poetry-cafe another Coffeehouse-style reading format

Project Title: _____

Student Name: _____

Date: _____ Teacher: _____

Math MATTERS Project Rubric

	1 point	2 points	3 points	4 points	Score
Amount of Project Completed	Little effort made, most items are unaddressed or incomplete	Some parts of the project were addressed and complete	Most of the project parts were addressed and complete, a few may be missing	All parts of the project were addressed and complete	
Quality of Work	Could not read project, project poorly organized	Project was partially organized, many parts were confusing or unrelated	Project was mostly organized, a few parts may be confusing or unrelated	Project highly organized and all parts clearly related to the topic	
Use of Time and Effort	Did not use time effectively	Used some time effectively, but was often off task	Used most time effectively, occasionally off task	Student used all available time to the fullest	
Presentation	Student could not explain own project	Student needed to be prompted to explain own project	Student explained project with little prompting	Student easily explained the project and could answer questions	
				Total	

A total score of 12 or more points is needed to consider the project complete.

Notes:

Rubric is an adaptation of Rcampus Math Project Rubric: Fraction Word Problems
http://www.rcampus.com/rubricshowc.cfm?code=F945W8&sp=true&

Grades 3-4, Unit 5 CGI Problems for My Mexico, Mexico Mío

Join	*(Result Unknown)* There were __ spotted pigs on the truck. The farmer loaded __ more pigs on the truck. How many pigs are on the truck now? 59, 12 66, 38 122, 99	*(Change Unknown)* The children made __ adobe bricks. How many adobe bricks do they need to make in order to have __ bricks, enough for a flower box planter? 25, 50 37, 100 76, 150	*(Start Unknown)* The farmer loaded some pigs on his truck. His farm hand loaded __ more pigs on the truck. Now there are __ pigs on the truck. How many pigs were on the truck to start? 15, 72 88, 125 91, 150
Separate	*(Result Unknown)* There were __ little gourds drying on the vine. __ gourds were too dry and fell off. How many gourds are on the vine now? 32, 14 40, 18 53, 27	*(Change Unknown)* There were ___ pigs on the truck. The farmer unloaded some and now there are __ pigs on the truck. How many pigs did the farmer unload? 47, 39 50, 12 122, 95	*(Start Unknown)* There were some little gourds drying on the vine. Maria picked __ to make into bird houses. Now there are __ gourds on the vine. How many gourds were on the vine to start? 35, 20 17, 129 106, 44
Part-Part-Whole	*(Whole Unknown)* There were __ pounds of oranges and __ pounds of coffee on the cargo truck. How many pounds in all? 450, 350 609, 792	*(Part Unknown)* There were __ pounds of cargo on the truck. __ pounds were oranges and the rest were coffee beans. How many pounds were coffee beans? 400, 237 650, 390 1000, 475	
Compare	*(Difference Unknown)* There were __ pounds of oranges and __ pounds of vanilla on the truck. How many more pounds of oranges than vanilla? 123, 77 438, 99 821, 687	*(Quantity Unknown)* There were __ pounds of vanilla on the truck. There were __ more pounds of oranges than vanilla. How many pounds of oranges were there? 199, 27 55, 275 381, 49	*(Referent Unknown)* In the cargo truck there were __ pounds of coffee. That's __ more pounds of coffee than vanilla. How many pounds of vanilla are there? 75, 19 123, 66 620, 399

Grades 3-4, Unit 5 CGI Problems for My Mexico, Mexico Mío

	Multiplication	Measurement Division	Partitive Division
Grouping and Partitioning	There are __ corn stalks in a row of corn. There are __ ears of corn on one stalk. How many ears of corn in all? 25, 2 30, 3 42, 3	A truck carrying oranges from Veracruz hauls __ bags of oranges. If there are __ bags of oranges in each crate, how many crates are there? 100, 10 100, 5 45, 3	The children made __ adobe bricks. If they stack them in __ piles, how many bricks will be in each pile? 25, 5 30, 5 55, 5

Grades 3-4, Unit 5 CGI Problems for My Mexico, Mexico Mío

Unir	*(Resultado Desconocido)* Había __ cerdos con manchas en el camión. El granjero cargó __ cerdos más en el camión. ¿Cuántos cerdos hay ahora en el camión? 59, 12 66, 38 122, 99	*(Cambio Desconocido)* Los niños hicieron __ ladrillos de adobe. ¿Cuántos ladrillos de adobe tienen que hacer para tener __ ladrillos, suficientes para una jardinera para plantar flores? 25, 50 37, 100 76, 150	*(Inicio Desconocido)* El granjero cargó algunos cerdos en su camión. Su bracero cargó __ cerdos más en el camión. Ahora hay __ cerdos en el . ¿Cuántos cerdos había en el camión al principio? 15, 72 88, 125 91, 150
Separar	*(Resultado Desconocido)* Había __ pequeñas calabazas secándose en la mata. __ calabazas estaban demasiado secas y se cayeron. ¿Ahora cuántas calabazas hay en la mata? 32, 14 40, 18 53, 27	*(Cambio Desconocido)* Había __ cerdos en el camión. El granjero descargó algunos y ahora hay __ cerdos en el camión. ¿Cuántos cerdos descargó el granjero? 47, 39 50, 12 122, 95	*(Inicio Desconocido)* Había unas pequeñas calabazas secándose en la mata. María recogió __ para fabricar pajareras. Ahora hay __ calabazas en la mata. ¿Cuántas calabazas había en la mata al principio? 35, 20 17, 129 106, 44
Parte-Parte-Entero	*(Entero Desconocido)* Había __ libras de naranjas y __ libras de café en el camión de carga. ¿Cuánto libras serían en total? 450, 350 609, 792		*(Parte Desconocida)* Había __ libras de carga en el camión. __ libras eran naranjas y el resto eran granos de café. ¿Cuánto libras eran de granos de café? 400, 237 650, 390 1000, 475
Compara	*(Diferencia Desconocida)* Había __ libras de naranjas y __ libras de vainilla en el camión. ¿Cuántas libras de naranjas más había en comparación con las de vainilla? 123, 77 438, 99 821, 687	*(Cantidad Desconocida)* Había __ libras de vainilla en el camión. Había __ libras más de naranja que de vainilla. ¿Cuántas libras de naranjas había? 199, 27 55, 275 381, 49	*(Referente Desconocido)* En el camión de carga había __ libras de café. Eso es __ libras más de café que de vainilla. ¿Cuántas libras de vainilla hay? 75, 19 123, 66 620, 399
	Multiplicación	**División de medidas**	**División partitiva**

Formación de grupos y	Hay __ plantas de maíz en una hilera de maíz. Hay __ mazorcas en una planta. ¿Cuántas son las mazorcas en total? 25, 2 30, 3 42, 3	Un camión que transporta naranjas desde Veracruz transporta __ bolsas de naranjas. Si hay __ bolsas de naranja en cada cajón, ¿cuántos cajones hay? 100, 10 100, 5 45, 3	Los niños hicieron __ ladrillos de adobe. Si los ordenan en __ pilas, ¿cuántos ladrillos habrá en cada pila? 25, 5 30, 5 55, 5

BLM Unit 5, L1 Daily Routines **Fraction Action & Measurement Lab 1**

One sheet for unit per student. Work one problem each lesson.

Lesson 1 – Fraction Action

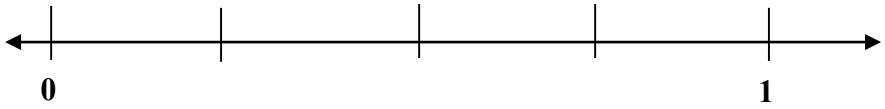
The model shows $\frac{1}{4}$. Use the second rectangle to model a fraction equivalent to $\frac{1}{4}$.

Write the name of your equivalent fraction.

_____

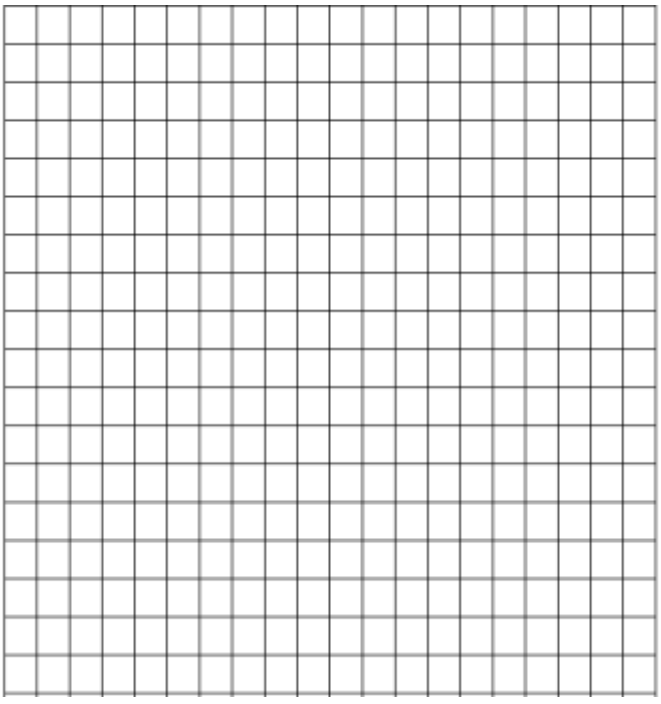
This is a benchmark fraction. What is the decimal equivalent form?

Place on the number line:



Lesson 1 – Measurement Lab

Use the area model and one other method to show the product of 12 and 14.

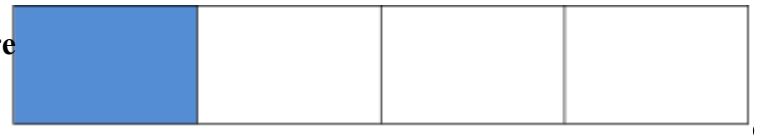


BLM Unidad 5, L1 Rutinas Diarias

Lección 1 – Acción con fracciones

El modelo muestra $\frac{1}{4}$. Usa el segundo rectángulo para modelar una fracción equivalente a $\frac{1}{4}$.

Escribe el nombre de tu fracción equivalente.



_____

Esta es una fracción que es punto de referencia. ¿Cuál es la forma decimal equivalente?

Coloca en la recta numérica:

0 **1**

Lección 1 - Laboratorio de medidas

Usa el modelo de área y un método más para mostrar el producto de 12 y 14.

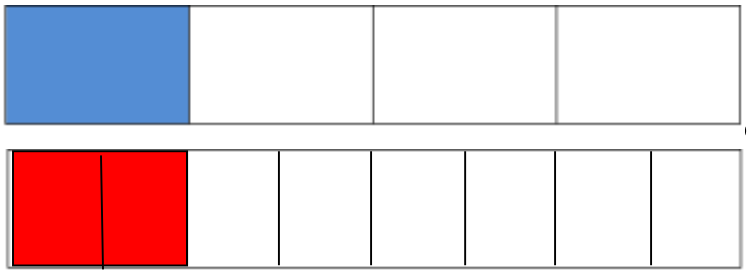
Lesson 1 – Fraction Action

Students can model any different equivalent fraction. Eighths are modeled, but 16th or smaller will work as well.

The model shows $\frac{1}{4}$. Use the second rectangle to model a fraction equivalent to $\frac{1}{4}$.

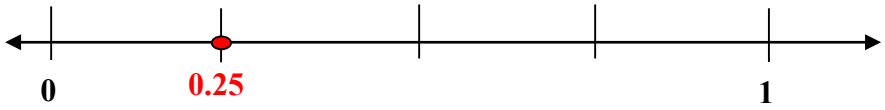
Write the name of your equivalent fraction.

___2/8_____



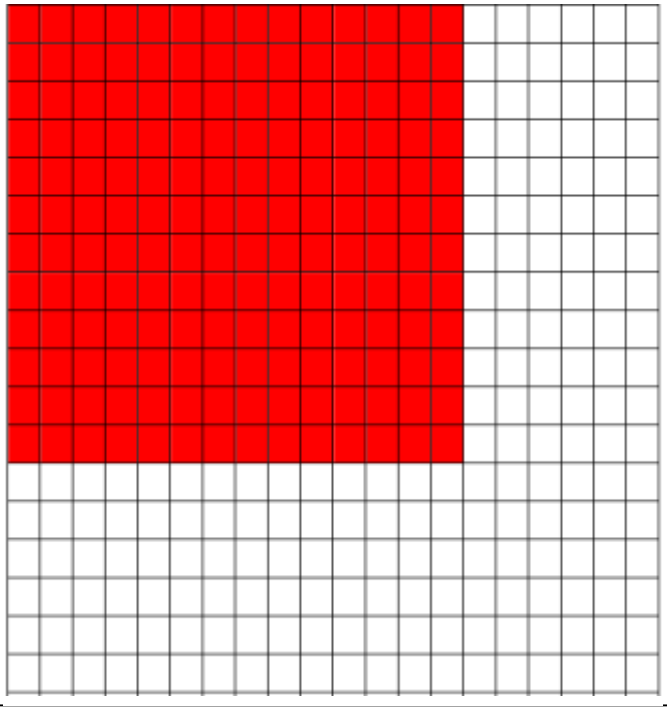
This is a benchmark fraction. What is the decimal equivalent form? 0.25

Place on the number line and label:



Lesson 1 – Measurement Lab

Use the area model and one other method to show the product of 12 and 14.



Partial Products

14
x12
8
20
40
+100
168

Traditional Algorithm

14
x12
28
140
168

Students could use other strategies as their second strategy, such as base ten arrays, lattice, and rainbow. Lattice and rainbow were not taught this summer, but students could use them if they understand the processes.

Solve It! Problems Unit 5, Lesson 1 **Pairs**

Solve your problem in steps. Verify your own work, then your partner's problem solution. Discuss discrepancies.

Partner 1 Problem **Name _____ Date _____**

Mr. Luan wants to have enough birdseed on hand to feed the wild birds through the 90 days of summer. He puts 12 ounces of seed out every morning and 8 ounces of seed out every evening. How many pounds of seed should he buy? (HINT: there are 16 ounces to a pound)

Problem Solution Name:	**Problem Verification** Name:

Solve It! Problems Unit 5, Lesson 1 **Partners**

Solve your problem in steps. Verify your own work, then your partner's problem solution. Discuss discrepancies.

Partner 2 Problem **Name _____ Date _____**

Missy wants to prepare a picnic for her family of 9 people. Her main course will be hot dogs, and she wants to have 3 a piece for everyone. Hot dogs come in packages of 10 while the buns come in packages of 8. How many packages of each should she buy if she wants the fewest leftovers possible?

Problem Solution Name:	**Problem Verification** Name:

Literature Selection
My Mexico – Mexico mio
by Tony Johnston,
"*Corn*" page 8

Materials

Language Materials
- **BLM** Word Cards
- **BLM** Poetry Vocabulary Chart
- **BLM** Describing Corn
- **BLM** Poem

Transition to Math Materials
- Class Number Line – 1 class
- A way to stick number cards to the number line
- Yellow marker or crayon – 1 for Fraction Team
- Orange marker or crayon – 1 for Decimal Team
- Stop watch or way to time 5 minutes
- **BLM** Corn Cob Fractions Cards – 1 set per class, printed on cardstock. This is a game you will play all Unit, so laminating would keep the cards fresh. (*If you are using FUN Number Line, choose cards from that set rather than this BLM)*
- **BLM** Corn Cob Fractions Score Sheet taped to the board for students to mark their score– 1 for class

Literature Vocabulary

simile
metaphor
rhyme
rhythm
verse
repetition
alliteration
imagery
stanza
mood

ELPS (*English Language Proficiency Standard*)
1F, 2B, 2E, 3C, 3D, 4F, 4J, 4K

Unit 5, Lesson 1 — 3-4

Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students should review to see if they have accomplished both math and language objectives.

Math Objectives:
- Relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models.
- Compare and order fractional forms on a number line

Language Objectives:
- Describe the characteristics of various forms of poetry and how they create imagery.
- Make inferences and draw conclusions about the structure and elements of poetry and provide evidence from text to support their understanding.
- Write poems that convey sensory details using the conventions of poetry.
- Listen attentively to speakers, ask relevant questions, and make pertinent comments.

BEFORE READING
Building Background: Vocabulary & Literature
Display literature vocabulary vertically on board or in chart.
Distribute BLM poetry vocabulary.
Say, "We will discover the words for this unit in a different method than the previous four units. The words on our list are not in our readings, but examples of these words are in our readings."

Say, "Look at the first word on the *BLM Poetry Vocabulary Chart*. This is an example of what our discovery of the words might look and sound like…"

Ask, "What's the word?" Students respond: The word is 'poetry.' Ask, "How many syllables are in the word poetry?" Students respond: There are three syllables in this word and it sounds like this *(point to the second column)* when I read the word poetry.

Ask, **"**Have you heard this word before? Give a thumb up or down. What does this word mean?" Allow for students to tell the meaning or give an example.

TEACHER NOTE: Guide the definition creation. If students give

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.A.1., I.F.3., II.A.3., II.A.4.
ELA I. B.1., II.A.2., II.A.3., II.A.6., II.A.7., II.B.1., III.A.2

Math Vocabulary
All Word Wall Vocabulary
Lesson 1 vocabulary focus:
decimals
fractions
equivalent
greater than
less than

Definitions:
similie (figure of speech) 3 syllables
Comparison of one object to another object using *like* or *as*. Used to make a description more vivid.

metaphor (figure of speech) 3 syllables
a connection of two objects not usually connected
i.e. *love is a rose*

rhyme 1 syllable
two or more words which match in the same last sound
i.e. *cat bat*

rhythm 2 syllables (schwa before the /m/)
the beat or cadence of poetry

repetition 4 syllables
using a key word several times throughout a poem

verse (iambic pentameter) 1 syllable
has no rhyme but has rhythm

alliteration 5 syllables
two words in the same line with the same starting sound
i.e. *the price of the previous one*

examples, respond: "that is a great example of poetry, so what I understand you to mean is…"

Unit 5, Lesson 1 3-4

Classroom Lesson - continue

The definitions provided in the margin of this lesson are meant to be a guide. The class determines a student friendly meaning of the definitions. Also note that definitions may be added later after examples are experienced in the poems read.

Say, "In the final column of our chart, we will add the title of the poem in which we find the examples of these. Let's begin with the next word on the list."

Guide the students through discovery of each word on the list in the same manner as above. Allowing students to discuss where they might have heard or read the term before today.
This BLM will be used again in another lesson.

Say, "This unit we will be reading poetry from the book titled, *My Mexico-Mexico mio.* The poems are by Tony Johnston. Tony Johnston grew up in San Marino, California where she stayed after graduating college to teach elementary school.
After writing stories for her fourth-grade students, and following a friend's suggestion, she decided to try to have them published. To date Johnston has published nearly seventy-five books.
Mrs. Johnston and her husband lived in Mexico for fifteen years. While in Mexico, Johnston wrote in Spanish. In their free time the Johnston's traveled around the country, collecting hundreds of hand-woven Indian belts, which she believes is the "largest collection in the world." Tony made careful notes about the history and construction of each belt when they were purchased. She gathered more than sixty pages of notes and stories, which became the inspiration for her book of poems, *My Mexico – Mexico mío*. The poems we will be reading this unit were from her travels in Mexico."
Show BLM corn describing/poem illustration of a stalk of corn and husk of corn *(actual corn would be great)*. Show illustration(s) where all students may see or use other image of corn.

Ask, "What is this? How many of you have family that farm corn or harvest corn?" Allow students to answer.

Distribute BLM corn describing/poem illustration.

Say, "Let's name the parts of this corn."
Point to parts of corn stalks, corn husk and label as students name and write the parts.

tassel, leaf, ear, stalk
silk, ear, husk, kernel

imagery 4 syllables
pictures drawn in the reader's mind by the words of the poet

stanza 2 syllables
a paragraph in poetry, surrounded above and below by skipped lines **mood** 1 syllable
the feeling of the reader of a poem.

visit:
www.kidsgardening.org for more uses information on corn.

Unit 5, Lesson 1 — 3-4

Classroom Lesson - continue

Ask, "How could we categorize this corn? What type of group would we put it in?" Possible responses: *vegetables, plants*

Say, "Let's think about the function of corn. What does it do?"
Allow students to respond.
Possible responses: *it grows, it flowers, it produces food*

Ask, "Who uses it?" Allow students to respond.

Ask, "How is it used?"
Possible responses: *used as food source, syrup, flour, oils*

Say, "Now let's think of the attributes of corn. Think of this image of corn *(point to the picture of the husk of corn)*. Attributes are like characteristics. What is its color?" Allow for response.

Ask, "What is its size?" Allow for response.

Ask, "What is its shape?" Allow for students to describe.

Ask, "What does it feel like?" If actual husk of corn is used, allow students to pass it around class. If a picture, allow students to think, tell partner, then share with class.

Say, "Let's create a comparison. Compare the color, shape, size or feel of this corn to something else." Possible response: *The corn is as yellow as the afternoon sun.*

Say, "Let's read the poem and find out how Tony Johnston describes corn."

DURING READING
Comprehensible Input: Vocabulary & Literature
Direct the students to read the poem silently first.
Then allow for volunteers to read the poem aloud twice.

Say, "In poetry, we refer to paragraphs as stanzas. A stanza is separated by spaces above and below. How many stanzas do you see in this poem?" Assist students in determining there is one stanza in the poem *Corn*.

Say, "Listen as I read the poem slowly. Listen for words that rhyme. How will I know if the words rhyme?"

Unit 5, Lesson 1 3-4

Classroom Lesson - continue

Allow students to respond or provide examples.

Reread the poem. Guide students in discovering that this poem does not contain rhyming words.

Say, "We have determined the poem, *Corn,* does not contain rhyme. Reread the poem to yourself and give thumbs up or down if you think the poem contains repetition." Allow students to reread the poem. Guide students in discovering that this poem does contain repetition. The word corn is repeated throughout the poem.

Ask, "What does the author describe seeing instead of corn?" Allow to think, and then tell a partner, share with class.

Say, "The author describes several attributes and actions of corn, but at the end of the poem connected the corn to something not usually thought of when looking at corn - tortillas. This is the author using a figure of speech known as a metaphor."

Ask, "What is a metaphor?" Allow students to respond.

Say, "Let's fill out the comparison object portion of the BLM describing corn with information about tortillas."

Guide students through the BLM describing tortillas. Use the same line of questioning as used with describing corn.

Say, "When Tony Johnston wrote this poem she might have seen corn being made into tortillas, then thought of this poem. I wonder if she didn't know before then that corn was used to make tortillas."

Say, "Listen to this part of the poem again: '…shaking in the **w**arm **w**ind, **w**hen I **w**atch **w**aves of corn…'"

Ask, "What initial sound do you hear repeated in this part?" Direct students to think, and then tell a partner, and share with class.

Say, "This is Tony Johnston including alliteration in her poem. She is using two or more words in a line that begin with the same sound to create a melodic sound when you read the poem. This is another tool authors will use when writing poetry."

Unit 5, Lesson 1 3-4

Classroom Lesson - continue

Say, "We determined this poem does not contain rhyming, but would you agree or disagree that this poem contains rhythm? When you read this poem, do you read it with a beat?" Reread the poem aloud to the students again if needed. Allow student to comment on the rhythm.

Say, "Let's take this poem apart and reassemble it." Distribute BLM poem.

TEACHER NOTE: depending on the proficiency of your students this next activity can be done as a group or partner.

Allow students time to cut apart the words.

Say, "Locate all of the verbs *(do not worry about be verbs, however if students include, allow them)*. Remember verbs show action.
verbs: *see, growing, hear, shaking, watch, stretching, planted.*

Say, "Let's read just the verbs." Do so.

Ask, "Can you see the corn doing these actions in your mind when you read these verbs?" Allow students to respond.

Say, "These choices of verbs allow the reader to create an image of the action corn does in their minds. This is an example of imagery."

Say, "Close your book. With a partner, reconstruct the poem from memory, and then check your accuracy with the book." Allow students time to reconstruct the poem.

AFTER READING
Practice and Application: Vocabulary & Literature
Guide students in recording their responses for examples of vocabulary on BLM poetry vocabulary now known from this poem.

Choice of activity depending on time:

1. Allow student to reconstruct the poem again individually with partners for time. The student reconstructing the poem will read their poem aloud, as the other partner reads from the book for accuracy.

2. Students create their own poem using the BLM describing corn. Guide students into selecting two objects not normally connected. The category can be open to any suggestions. Students utilize the BLM describing corn as a guide. The poem is written in one to two simple sentences, just as the poem, *Corn*. Allow students to revise and edit with peers.

Math Objectives

- Relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models.
- Compare and order fractional forms on a number line

Math Vocabulary
All Word Wall Vocabulary
Lesson 1 vocabulary focus:
decimals
fractions
equivalent
greater than
less than

Transition to Math Materials

- Class Number Line – 1 class
- A way to stick number cards to the number line
- Yellow marker or crayon – 1 for Fraction Team
- Orange marker or crayon – 1 for Decimal Team
- Stop watch or way to time 5 minutes
- **BLM** Corn Cob Fractions Cards – 1 set per class, printed on cardstock. This is a game you will play all Units, so laminating would keep the cards fresh. (*If you are using FUN Number Line, choose cards from that set rather than this BLM.)*
- **BLM** Corn Cob Fractions Score Sheet taped to the board for students to mark their score– 1 for class

ELPS (*English Language Proficiency Standard*)
1C, 2E, 3D, 3E, 3H, 4G

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.B.3., I.E.1., II.D.2.
MATH I.B.1., II.A.1., IV.A.1., IV.A.2., VIII.C.1.

Technology:
www.mathnook.com/math/skill/decimalgames.php

Classroom Lesson - continued

TRANSITION to Math
Building Background, Math

We are going to divide into two teams today and play a number line game with fractions and decimals.

(*Divide the team into halves. If you have an odd number of students, let the one whom you know understands fractions/decimals be the score keeper.)* You will need to sit so that everyone on the team can see and contribute. (*If you have a large class, you will probably need to have the teams sit on the floor in a circle so that everyone can see the cards.)*

I have a set of cards for each team. One team will be the Fraction Team. The other team will be the Decimal Team.

Your first task as a team will be to arrange your cards in order from the least to the greatest. Place them in your team area so that everyone can see them. Remember to keep your voices low. If you disagree with a placement, explain why you disagree. The team must agree on the order. Are there questions about this first task? (*answer any questions*)

You will have five minutes to do this part of the task. Ready….. Begin.

(*Time five minutes. If both teams are finished earlier, call time. Do not go beyond the five minutes, though. At the end of this task, explain the contest.)*

Your cards should all now be in order. The team members will take turns taking one of the cards. If there are cards left over, continue taking turns until all cards are in someone's possession.

Everyone should have at least one card. (*Make sure they do.*) I will call out a fraction. Anyone having a fraction, including a decimal, that is equivalent to the one I have called should come up to the board and place the card on the number line in its proper place.

If you are correct, your team gets one point; and the person placing the card takes the color marker for his/her team and colors in one kernel of corn on the score sheet.

Let's start with an easy one. ONE-HALF. If you are holding a card that is equivalent to ONE-HALF, please come up to the number line and place it on the board. (*Make sure you show students how you expect them to affix the number to the board.*)

	Unit 5, Lesson 1 **3-4** **Classroom Lesson** - continued 
Use these questions after each turn. • Do the Teams agree that these two representations are placed in about the right place on the number line? (response) • How do you know? (*volunteer – they are halfway between 0 and 1*) • (*If one is misplaced*) Where would you place this card? Explain your thinking.	**TRANSITION to Math** **Building Background, Math** • Do the Teams agree that these two representations are placed in about the right place on the number line? *(response)* • How do you know? (*volunteer – they are halfway between 0 and 1*) (*If there is an error, have someone from the team that erred correct the position, and explain how they know this is the correct position. This team would not earn a point, though. Team members placing their numbers correctly without err earn one point for their team and color in one kernel on the Corn Cob Fractions Score Sheet.)* (*Continue by calling the benchmark fractions first: one-fourth, three-fourths, one-third, two-thirds. Note when they post 0.33 that this is an approximation – the decimal form is not exactly one a whole third.)* *(Continue through the cards; HOWEVER leave one-eighth till last. You have not discussed thousandths.)* Visualizing where these fractions and decimals are on the number line can help you solve problems. Now, let's get ready for our TV Lesson. **Objectives:** Review the math and language objectives to see how they were accomplished. **Distribute TV Lesson Materials** • **BLM** Corn Problems – 1 per student

BLM Unit 5, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

simile

metaphor

rhyme

rhythm

BLM Unit 5, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

verse

repetition

BLM Unit 5, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

alliteration

imagery

stanza

mood

BLM Unit 5, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

símil

metáfora

rima

ritmo

BLM Unit 5, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

verso

repetición

aliteración

imágenes

BLM Unit 5, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

estrofa

humor

BLM Unit 5, Classroom Lesson 1 **Poetry Vocabulary**

word	read	meaning	example	located in…
poetry	*po-et-ry*	*rhythmic literature written or spoken with expression of feelings*	*There was young woman from Boise, Whose sneakers were squeaky and noisy.*	*A Foot in the Mouth* by Paul Janeczko
similie				
metaphor				
rhyme				
rhythm				
verse				
repetition				
alliteration				
imagery				
stanza				
mood				

BLM Unit 5, Classroom Lesson 1 **Describing Corn**

	Object	Comparison Object
1. name object 2. parts of object		
What category or group does it belong to?		
1. What does it do? 2. Who uses it? 3. How is it used?		
1. What are its colors? 2. What is the size? 3. What is the shape? 4. What does it feel and smell like? 5. Compare it to something. 6. Create a metaphor		

When	I	see
growing	in	fields
“shhhhh”	of	corn
wind,	when	I
corn	stretching	for
not	corn	planted,
corn	of	green
hear	I	when
warm	in	shaking
of	waves	watch
is	it	miles,
tortillas.	is	it

BLM TM Unit 5, Classroom Lesson 1 Corn Cob Fractions Score Sheet

Fractions Team – Yellow Marker **Decimals Team – Orange Marker**

Total _____ **Total _____**

Teacher's Set | Fractions Team's Set | Decimal's Team Set

one half	**one fourth**	$\frac{2}{8}$	$\frac{4}{8}$	**0.25**	**0.5**
one third	**two thirds**	$\frac{2}{6}$	$\frac{4}{6}$	**0.33** approximate	**0.66** approximate
three fourths	**four fourths**	$\frac{6}{8}$	$\frac{4}{4}$	**0.75**	**1.0**
one fifth	**two fifths**	$\frac{2}{10}$	$\frac{4}{10}$	**0.2**	**0.4**

Teacher's Set		Fractions Team's Set		Decimal's Team Set	
three fifths	**four fifths**	$\frac{6}{10}$	$\frac{8}{10}$	**0.6**	**0.8**
three tenths	**two tenths**	$\frac{30}{100}$	$\frac{20}{100}$	**0.3**	**0.20**
one eighth	**one tenth**	$\frac{2}{16}$	$\frac{2}{20}$	**0.125**	**0.1**
seven tenths	**nine tenths**	$\frac{7}{10}$	$\frac{90}{100}$	**0.70**	**0.90**

Literature Vocabulary
simile
metaphor
rhyme
rhythm
verse
repetition
alliteration
imagery
stanza
mood
Math Vocabulary
All Word Wall Vocabulary
Lesson 1 vocabulary focus:
decimals
fractions
equivalent
greater than
less than

Materials
- http://footage.shutterstock.com/clip-4366361-stock-footage-rows-of-young-green-corn-plants-waving-in-the-wind.html corn waving in the wind video
- https://www.google.com/search?q=ariel+pics+of+corn+mazes&client=firefox-a&hs=IVU&rls=org.mozilla:en-US:official&channel=sb&tbm=isch&tbo=u&source=univ&sa=X&ei=nbD-Uq_uKMnR2QWd7oCoCQ&ved=0CDQQsAQ&biw=1280&bih=669#facrc=_&imgdii=_&imgrc=iq0puSKDbynvvM%253A%3BqvlWFhQZciqb3M%3Bhttp%253A%252F%252Fwww.lovethesepics.com%252Fwp-content%252Fuploads%252F2012%252F09%252FAerial-Corn-Maze-Black-Beards-Revenge.jpg%3Bhttp%253A%252F%252Fwww.lovethesepics.com%252F2012%252F10%252Fcorn-maze-craze-get-lost-in-halloween-horror-fields-before-harvest-pics%252F%3B990%3B660 Aerial view of a complex corn maze
- **BLM** Corn Problems – 1 per student

Unit 5, Lesson 1 3-4
TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models.
- Compare and order fractional forms.

Language Objectives:
- Use the math vocabulary during the activity.
- Discuss answers and possible strategies with classmates.
- Explain decimal relationships.

Building Background
I enjoyed reading the poem titled, "Corn." Have you ever seen corn "shaking in the warm wind?" It really does look like the plants are waving (*show the short video clip*).

Our problems today are about corn. Before we start, though, how many of you boys and girls have walked through a corn maze? These are cropping up all over the world, and the United States has plenty of them growing. Here is an example of a complex maze (*show any complex maze – one link has been provided*).

I think these would be a lot of fun to wander through! Let's see what our problems have for us to solve, but also to learn about corn mazes.

Comprehensible Input
First of all, the picture of the corn maze is from Kingston, Washington, made several years ago. That's a really cool maze!

I researched mazes to find out some of this information. This time, I want YOU to read the problem on your own without help from us or from your Classroom teacher.

What do you think, boys and girls? Circle your answers on your own, then talk about the answers quickly in your classroom. We will give you a little time to do so *(pause)*.

(*Read the problem, reading the decimal correctly as 10 and 82 hundredths.)* Alright, which answer is it? A, B, C, D*? (momentary pause)* Of course, the answer is B ten and eighty-two hundredths miles. Great job!
You know, girls and boys, when you read decimals in this way, it helps you to remember that decimals are just fancy fractions based on tens.

ELPS (*English Language Proficiency Standard*) 1C, 2B, 2C, 2E, 3B, 3C, 4I **CCRS** *(College and Career **Readiness Standards)*** CROSS-CURRICULAR I.A.1., I.B.4., I.C.2., I.C.3., II.C.1 ELA I.A.1., II.A.3., III.A.1., IV.A.2. MATH I.A.1., I.B.1., II.A.1., II.B.1.,IV.A.1., IV.A.2., IV.B.1. **CLASSROOM TEACHERS** TV Teacher will give you time to discuss – please have students do so. **CLASSROOM TEACHERS** Students must build their own arrays.	**Unit 5, Lesson 1** **3-4** **TV Lesson** - continued Alright, let's try our second problem. This time, we can read it with you. Please read along with me *(do so)*. First, you write down what you think the order is. Then we will talk about how we thought about the ordering here. *(pause)* I lined up my numbers on the side like this: 8.5 8.9 8.75 8.91 Notice that my place values are all lined up in a straight column, and my decimal points are lined up, too! This helps me to really compare. The first thing I notice is that all of the whole miles are eight. Well, that won't help me order them – they are all the same number of miles. Let's look at the tenths place. Which tenth is the smallest? *(slight pause)* Sure, five. So eight and five-tenths is our smallest decimal. *(Write on first line.)* Now, I can see that seven-tenths is next in order. This decimal is hundredths, but the seven is in the tenths place, and I can use it to compare. Eight and 75-hundredths is the next in the order line *(write it)*. Oh boy, I see that next we have two nines in the tenths place. Well, they are equal tenths, so I need more information. I have eight and nine-tenths, and I have eight and nine-tenths plus a little bit more, or eight and 91-hundredths. Which one is LARGER? *(pause)* Sure, the one with a little bit more – that one-hundredth made all the difference, didn't it! Write that as the largest number *(do so)*. And, the missing number in our order is eight and nine-tenths. (*Read all of the decimals again from shortest to longest*.) Well, is that what you have, boys and girls? If so, did you think of it in a similar way? If not, do you see why you made an error? You know, mistakes are just ways for us to see what we still need a little more practice in doing! Now, we have another type of comparison problem. Look at the numbers in this problem. What do you notice? *(Two are mixed fractions, one is a mixed decimal.)* If you know your benchmark decimals and fractions, that shouldn't be a problem for you. Go ahead and work this one by yourself. We'll check it in a bit (*generous pause*).

Unit 5, Lesson 1 3-4

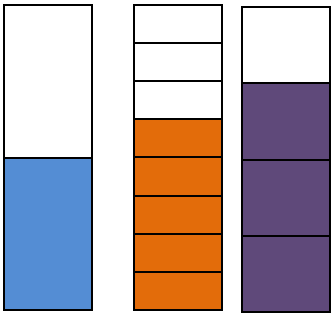
TV Lesson - continued

OK, take time now to talk in class about which recipe you think the baker should use, and explain why. *(pause)*

Here is one way to think about it.

The bake has 12 and 5/8 cups of cornmeal. I see that all of the whole cups are the same 12, so I'm just going to think about the fractional parts of a cup.

SMARTBOARD – Model the fractions.



Right away, I know that 5/8 is a little more than ½ because 4/8 is one-half. I can picture that in my mind easily. Remember, fractions are equal parts of something. – see those fractions in your mind, and you can always solve problems.

So the baker had MORE than 12 ½ cups of cornmeal.

Now, I just need to look at those recipes.
The first one calls for 12 ½ cups. Yes, the baker does have enough cornmeal to prepare this recipe.

What about the second recipe? That one calls for 12 and 75-hundredths.

Hmm, 75-hundredths is a benchmark decimal – what fraction does it represent? *(pause)* Sure, ¾. So that second recipe calls for 12 and 3/4 cups of cornmeal.

Well, does she have enough for that recipe? No, she doesn't. She has enough for the corn muffin recipe but NOT for the hush puppy recipe.

Arthimus Portio's Corner
Unit 5 Lesson 1-
2-digit Multiplication
Which strategy do you feel most comfortable with when multiplying 2-digits x 2-digits such as 12 x 25? Explain why.

This problem asked you to justify your answer. You could have just written an explanation, or you could have drawn the fraction like I did, then explained that 12 1/2 cups is LESS that 12 5/8 cups. 12 and 75-hundredths cups is MORE than 12 5/8 cups. The baker had enough to make corn muffins, but not hush puppies.

Pirate: During your Daily Routines, I know that you were using an area model array to solve multiplication problems, and then you were to use another strategy. I'm just curious which strategy you feel most comfortable in using to multiply 2-digts by 2-digits. Share your strategies and why you used them.

Teacher: Well, that would be interesting to see, Arthimus! Perhaps you can take a poll in class and let us know how many like each type, and if you have any other strategies you are using!

Objectives: And now before we go, let's review what we have learned today! (*do so*)

BLM Unit 5, TV Lesson 1 **Corn Problems 1**

One sheet per student

This is a photograph of the Kingston Corn Maze in Kingston, Washington.

There is a great deal of planning and work that goes in to making one of the wonderful growing mazes.

Paths on a corn maze can be really long. Most are about a mile long. The longest recorded path, however, was a corn maze path in Belgium, which measured 10.82 miles long.

Which of the following answers shows how this number is read?

A. ten hundred and eighty-two miles
B. ten and eighty-two hundredths miles
C. ten and eighty-hundredths miles
D. ten and eighty-two tenths miles

A corn maze in Missouri boasts that it has 8.5 miles of trails. Another in Montana has 8.9 miles of trails and yet another in Texas 8.75 miles of trails. Still another in Michigan states that it has a single maze trail that is 8.91 miles long. Place these trails in order from shortest to longest.

_____ _____ _____ _____

Many commercial Corn Mazes have all kinds of events, features, and actually sell food within them. One corn maze in southern Wisconsin has a bakery where you can buy breads and desserts made from corn. One morning, the baker had 12 $\frac{5}{8}$ cups of cornmeal left. Her corn muffin recipe called for 12 $\frac{1}{2}$ cups of cornmeal. Her hush puppy recipe called for 12.75 cups of cornmeal. Which recipe should the baker use? Justify your answer.

BLM Unit 5, TV Lesson 1 **Corn Problems 1**
One sheet per student

Esta es una fotografía del Laberinto de Maíz de Kingston, en Kingston, Washington.

Se necesita mucha planificación y trabajo para hacer uno de los maravillosos laberintos crecientes.

Las rutas en un laberinto de maíz pueden ser realmente largas. La mayoría miden alrededor de una milla. La ruta más larga registrada, sin embargo, fue una ruta en un laberinto de maíz en Bélgica que midió 10.82 millas de largo.

¿Cuál de las siguientes respuestas nos muestra cómo se lee este número?

A. diez cientos y ochenta y dos millas
B. diez y ochenta y dos centésimos de milla
C. diez y ochenta centésimos de milla
D. diez y ochenta y dos décimos de milla

Un laberinto de maíz en Missouri presume de contar con 8.5 millas de caminos. Otro en Montana tiene 8.9 millas de caminos, y otro en Texas tiene 8.75 millas de caminos. Uno más en Michigan afirma que tiene una ruta en el maíz que mide 8.91 millas de largo. Ordena estos caminos del más corto al más largo.

_____ _____ _____ _____

Muchos laberintos de maíz comerciales tienen todo tipo de eventos, atracciones, y venden comida en el interior. Un laberinto de maíz en el sur de Wisconsin tiene una panadería donde puedes comprar panes y postres hechos de maíz. Una mañana, a la panadera le quedaban $12\frac{5}{8}$ tazas de harina de maíz. Su receta de pastelitos de maíz requería $12\frac{1}{2}$ tazas de harina de maíz. Su receta de "hush puppy" requería 12.75 tazas de harina de maíz. ¿Qué receta debe usar la panadera? Justifica tu respuesta.

Literature Vocabulary
simile
metaphor
rhyme
rhythm
verse
repetition
alliteration
imagery
stanza
mood

Math Vocabulary
All Word Wall Vocabulary
Lesson 1 vocabulary focus:
decimals
fractions
equivalent
greater than
less than

Materials
- **BLM** Growing Corn Tortillas – 1 per student
- **BLM** Growing Corn Tortillas **KEY** – 1 per student

ELPS (*English Language Proficiency Standard*)
2C, 2E, 3E, 3G, 4G, 5B, 5C

CCRS *(College and Career **Readiness Standards**)*
CROSS-CURRICULAR I.A.1., I.C.2., I.E.2., II.C.1.
ELA I.A.1., I.A.2., I.A.3., II.A.2., II.A.3., III.B.1.
MATH II.A.1., II.A.2., IV.B.2., VIII.A.3., VIII.A.4.

Unit 5, Lesson 1 — 3-4
Follow-up

Math Objectives:
- Relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models.
- Compare and order fractional forms on a number line.

Language Objectives:
- Listen and speak with a partner during our math activity.
- Use the math vocabulary during the activity.
- Write math journal response.

Building Background, Math
At the end of the poem, "Corn," the poet says that "it is not corn planted, it is tortillas." What could the poet mean? (*Discuss the image – Mama makes corn tortilla from their corn field, and that must be a favorite of the poet!)*

Practice and Application, Math
Today's problem is a little different. Let's read the problem (*volunteer reads to the class*). Now you read the problem on your own.

There are three parts to this problem – finding the solution, explaining the solution, and drawing what you think the tortilla plant would look like. I will be walking around the room, but this time, I will not be asking you questions. I'm just ready to be amazed by your work.

Circulate the room, but today instead of asking questions, note any students that are having difficulty with this problem. Do not interfere today – simply make a mental note of students who need a little extra help before the Post-assessment.

When all students have completed the first two parts, call them back together again.

I know we haven't all finished the drawing, but I'd like to talk about the first two parts of this problem.

In part number one, which answer do you think is closest to the 15 centimeters? On the count of three, everyone tell me A, B, C, or D – which answer did you chose? 1-2-3 Tell.

Technology
http://www.simplyrecipes.com/recipes/how_to_make_corn_tortillas/
Recipe and step by step directions for making corn tortillas.

You could make these tortillas at the end of the Follow-up, then eat them along with the cheese in the Snack Fractions activity.
You will need :

- masa harina
- tortilla press
- griddle
- wax paper or plastic wrap
- spatula
- mixing bowl and measuring cup
- paper plates

Follow-up - continued

Someone please read the decimal answer. (*Select a volunteer – it should be read as 14 and 99-hundredths.*)

Now, I'd like to hear your thinking about why this is the closest to 15 centimeters. (*Allow all volunteers to explain their thinking. When everyone has finished, be sure that it is mentioned that 14 and 99-hundredths is only one-hundredth away from 15. The other choices were farther away.)*

The problem didn't ask this, but which answer is the farthest from 15 centimeters? (*Give time to reflect, and then ask a volunteer to answer and explain.*)

(*Draw the number line on the board.)* Where did you place these decimals on the number line? (*Have a volunteer come up for each decimal. Student must explain why s/he placed the point where s/he did*.)

Let the students continue to work on their drawings. If you are going to make the corn tortillas, now is the time before the Snack Fraction activity. You could even let the students press and griddle their own tortilla.

Math Journal Writing
Students should have a spiral notebook into which they journal their thoughts daily about math. Today's journal prompt is:

We have studied the fraction-decimal relationships, identifying decimals, reading decimals and comparing and ordering decimals, particularly on a number line. What do you still have questions about?

Objectives: Review the objectives with the class, making sure they understand how they achieved each.

BLM Unit 5, TV & Follow-up Lesson 1 **Growing Corn Tortillas**
One per student

Instead of ears of corn, the poet saw tortillas growing, stretching for miles in their rows. Let's pretend that Tony could control the size of the tortillas on the corn stalks. If Tony wanted tortillas that grew as close to 15 centimeters in diameter as possible, which of the following tortillas should he teach his corn plant to grow? Circle your answer.

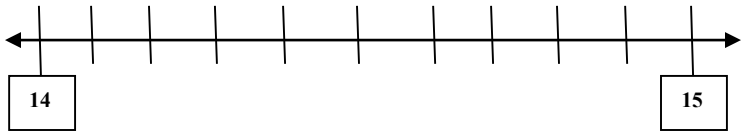
A. 14.7 centimeters

B. 14.90 centimeters

C. 14.09 centimeters

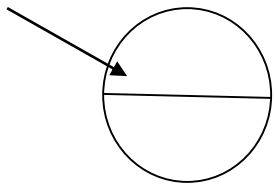
D. 14.99 centimeters

Place the decimals on the number line below.



Explain your thinking in choosing your answer.

Draw a picture of your tortilla plant. The diameter is the measure straight across the center of a circle from one side of the circle to the other.



BLM Unidad 5, Lección TV y Seguimiento 1 **Cultivando tortillas de maíz**

En vez de elotes, el poeta imaginó tortillas creciendo, abarcando millas de surcos. Imaginemos que Tony podría controlar el tamaño de las tortillas en los tallos de maíz. Si Tony quería tortillas que crecieran lo más cerca posible a 15 centímetros de diámetro, ¿cuál de las siguientes tortillas debería enseñar a cultivar a su planta de maíz?
Circula tu respuesta.

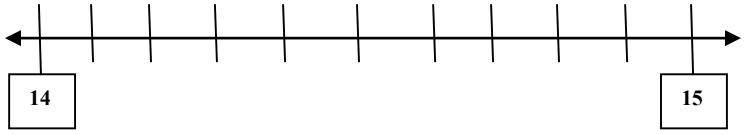
A. 14.7 centímetros

B. 14.90 centímetros

C. 14.09 centímetros

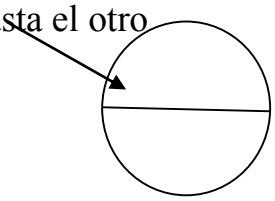
D. 14.99 centímetros

Coloca los decimales en la recta numérica siguiente.



Explica tu razonamiento al elegir tu respuesta.

Haz un dibujo de tu planta de tortillas. El diámetro es la medida de una recta que pasa por el centro de un círculo desde un lado del círculo hasta el otro.



BLM Unit 5, TV & Follow-up Lesson 1 **Growing Corn Tortillas KEY**
One per student

Instead of ears of corn, the poet saw tortillas growing, stretching for miles in their rows. Let's pretend that Tony could control the size of the tortillas on the corn stalks. If Tony wanted tortillas that grew as close to 15 centimeters in diameter as possible, which of the following tortillas should he teach his corn plant to grow? Circle your answer.

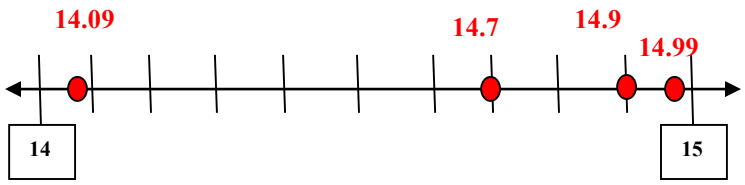
A. 14.7 centimeters

B. 14.90 centimeters

C. 14.09 centimeters

D. 14.99 centimeters

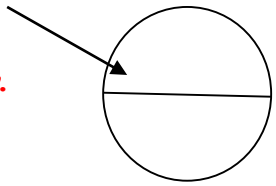
Place the decimals on the number line below.



Explain your thinking in choosing your answer.

As long as students understand that 14.99 is very close to 15, in fact that it is only 1-hundredth away from 15, their explanations may be phrased in any way that expresses that thought.

Draw a picture of your tortilla plant. The diameter is the measure straight across the center of a circle from one side of the circle to the other.



This is really just a free activity, and not part of the assessed activity. It would be fun, though, to see what their images are. You could also post these on MAS Space to share with the rest of the Consortium!

Math Objectives
- Represent equivalent fractions using pictorial models.
- Compare two fractions having the same denominator.
- Determine if two given fractions are equivalent.
- Recognize tenths and label in fraction and decimal form.

Language Objectives
- Discuss fraction comparisons.
- Discuss fraction equivalencies.
- Discuss fraction/decimal equivalencies.

Vocabulary
halves
fourths
sixteenths

Materials:
Per Partners:
- **BLM** Laughing Cow Cheese Wedge Fractions - 1 per student
- 3 Laughing Cow Cheese wedges
- 2 paper plates
- 2 paper towels
- 2 plastic knives
- Chart paper with question**: Which share was larger, ½ or ¼? How do you know?** Put a copy of the record sheet at the top of the chart with the question.

Unit 5, Lesson 1 3-4

Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

First, look at the snack cheese wedges. Talk to your partner about how you will divide the snack fairly between you. (*Give students time to discuss. Listen to their discussions, but do not interfere.)*

Share your plans with the class (E*ach group should share. After each sharing, have the class decide if the planned strategy would give each partner a fair share by drawing the three wedges on the board and dividing them as per the partners' descriptions. Leave each drawing on the board to be compared to others. Decide that the fair shares are half of the snack)* Let students then divide their snacks between the partners and direct them to the BLM Laughing Cow Cheese Wedge Fractions. Help them understand that the rectangles are going to represent the wedges for this lesson.

(*Circulate the room. Share when all are finished)*

Snack Fraction Journal Writing: Laughing Cow Cheese Wedges Chart Paper
Which share was larger, ½ or ¼? How do you know?

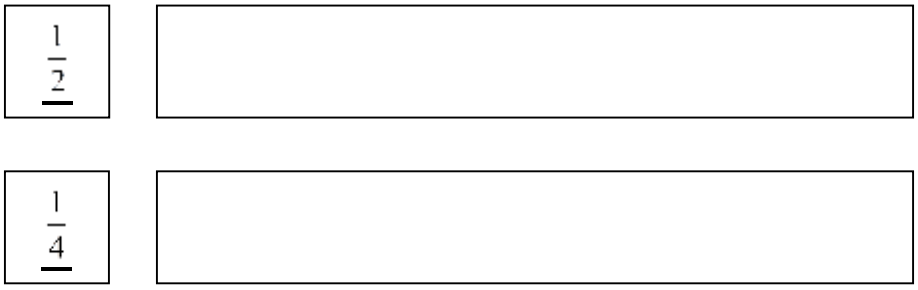
Objectives: Review the objectives with the class, making sure they understand how they achieved each.

BLM Unit 5, Snack Fraction 1 **Laughing Cow Cheese Wedge Fractions**
(One sheet per student)

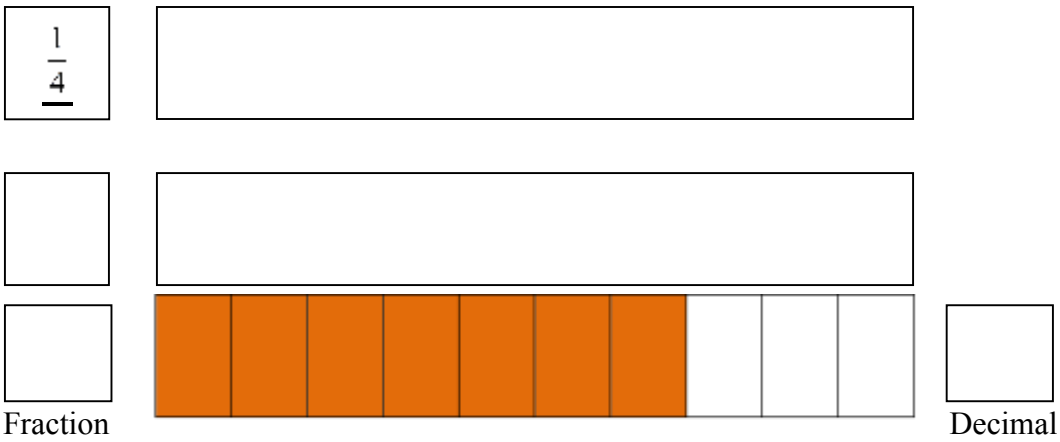
Name _____

These rectangles represent one of the Laughing Cow Cheese Wedges. Follow the directions to divide the rectangle and compare the pieces.

- Which fractional piece of the Laughing Cow Cheese Wedge (rectangle) is larger?
- Circle your answer.
- Use pictures to verify your answer.



Use the picture below to find a different equivalent fraction to one-fourth.



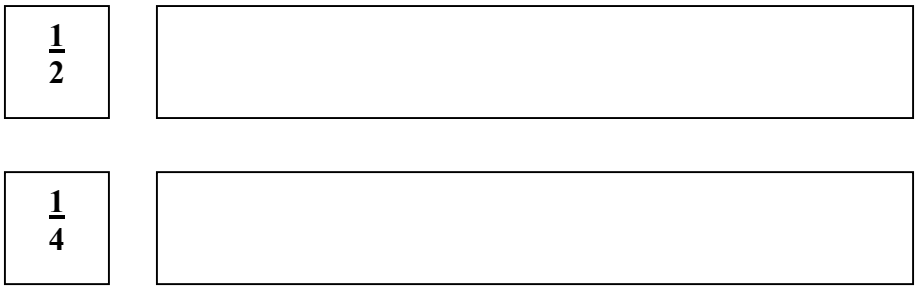
Write the fraction representation and the decimal representation for the shaded portion of the bar above. Is this amount larger than or smaller than?

$\frac{1}{4}$ **? Write a comparison sentence here _____ > _____.**

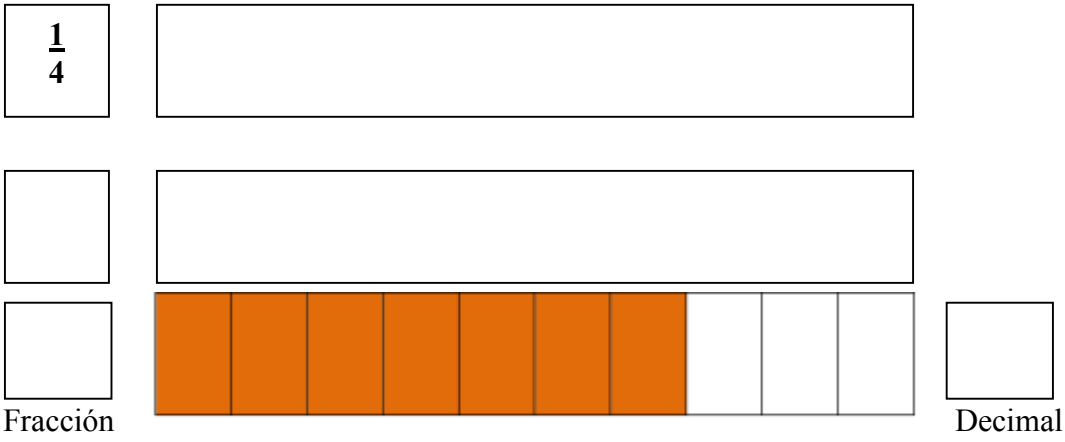
BLM Unidad 5, Fracción de refrigerio 1

Estos rectángulos representan una de las rebanadas de queso de La Vaca que Ríe. Sigue las instrucciones para dividir el rectángulo y comparar las piezas.

- ¿Qué parte fraccional de una de las rebanadas de queso de La Vaca que Ríe (rectángulo) es mayor?
- Circula tu respuesta.
- Usa dibujos para verificar tu respuesta.



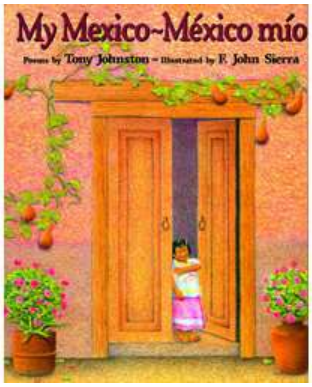
Usa la siguiente imagen para encontrar una fracción equivalente distinta a un cuarto.



Escribe la representación fraccional y la representación decimal de la porción sombreada de la barra anterior. ¿Es esta cantidad más grande o más pequeña que

$\frac{1}{4}$ **? Escribe una comparación aquí _____ > _____.**

Family Fun – 3-4, Unit 5 Lesson 1



Our book for Unit 5 is a collection of poems about Mexico, *My Mexico – Mexico mio* by Tony Johnston.

My favorite part of the poem today was …

_____

_____

_____

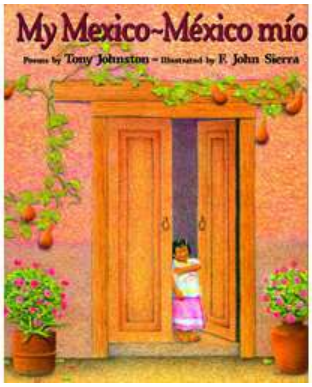
We worked with fractions and decimals to review today. These are important because…

_____

Thank you for helping me with my summer program!

_____
Your Child

Diversión familiar – 3-4, Unidad 5 Lección 1



Nuestro libro para la unidad 5 es una colección de poemas acerca de México.
My Mexico – Mexico mio por Tony Johnston

Mi parte favorita del poema de hoy fue ….

_____

_____

_____

Trabajamos con fracciones y decimales para revisar hoy. Estos son importantes porque....

_____

¡Gracias por ayudarme con mi programa de verano!

_____
Tu hijo

Materials
- Unknown Quantity Cards – 1 set for classroom
- **BLM** Solve It, Unit 5
- **BLM** CGI Problems
- **BLM** Fraction Action/Measurement Lab – 1 per student
- **BLM** Fraction Action / Measurement Lab KEY – teacher only

Math Objectives
- Find missing elements in an equation.
- Solve multi-step word problems.
- Use a variety of strategies to solve word problems.
- Find equivalent forms of fractional parts.
- Measure length in centimeters.

Balanced Literacy
Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.
- Explain how they decided to rename the target number.
- *Discuss scarcity of money, choices and cost benefit.*

TEKS in TV and FlU
Lesson 1
- **3rd** - 3.3FH
- **4th** - 4.2AEFGH. 4.3C

Lesson 2
- **3rd** - 3.3FH, 3.4EHJ
- **4th** - 4.4C

Lesson 3
- **3rd** – 3.3FH, 3.4EHJ
- **4th** - 4.2AEFGH. 4.3C. 4.4C

Unit 5, Lesson 2 3-4
Daily Routine

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL
What's Missing? *(3rd assessment item 2)*
- **Lessons 1, 2, 3** *follow directions in the Daily Routine Explanations. Check the assessment items so that you are certain you include samples to practice the shape in the assessed location.*

Solve It! *(fundamental problem-solving skills for all items)*
- Lesson 1 – partners working on unique problems
- **Lesson 2 - Partners working on unique problems**
- Lesson 3 – Partners working on unique problems

Fraction Action and Measurement Lab *are written together this time. One sheet provides both activities. Students should work individually today so that you can see who, if anyone, needs additional practice before the Post-assessment***.**

(*3rd grade assessment items 1, 3; 4th assessment items 3, 5, 7*)
Lesson 1 – Fraction Action and Measurement Lab 1
Lesson 2 - Fraction Action and Measurement Lab 2
Lesson 3 - Fraction Action and Measurement Lab 3

CGI
- Lesson 1 – Multiplication
- **Lesson 2 – Division, Measurement** (*3rd assessment item 5*)
- Lesson 3 – Division, Partitive (*3rd assessment item 4*)

ELPS (*English Language Proficiency Standard*)
2B, 2E, 3A, 3B, 3D, 3J, 4F

CCRS (*College and Career Readiness Standards)*
CROSS-CURRICULAR I.B.2., I.C.3., I.E.1., II.A.2., II.B.1.
ELA II.A.3., II.B.1., II.B.3., III.B.1., III.B.2., IV.B.1.
MATH I.B.1., II.C.2.,IV.A.1., IV.B.1., VII.A.1., VIII.A.2.

Assessment Items
(As a result of experiencing this unit, students will be learning skills necessary to be successful on the following Assessment items.)

This is a review unit.
Lesson 1
- DR – Arrays, equivalent fractions, number lines, benchmarks
- TV - Fractions and Decimals

Lesson 2 –
- DR- DR – Arrays, equivalent fractions, number lines, benchmarks
- TV - Multiplication and Division

Lesson 3 –
- DR DR – Arrays, equivalent fractions, number lines, benchmarks
- TV – Blend

3rd - 1, 2, 3, 4, 5, 6, 7, 8
4th - 1, 2, 3, 4, 5, 6, 7, 8

Arthimus Portio's Corner
Unit 5 Lesson 2-
Fraction Action
Tell us why you think benchmarks can be helpful.

Unit 5, Lesson 2 3-4
Daily Routine - continued

OPTIONAL: *These activities, although not assessed, are fundamental skills that should be included in those sites providing five to six weeks of instruction.*

Target Number *(fundamental number sense for all items)*
- Lesson 1 – Target Number 10
- Lesson 2 – Target Number 30
- Lesson 3 – Target Number 60

Graphing – none this unit

Graphing Questions:
Before asking any questions, have the students give you their observations about the data shown on the graph. Always ask students to explain how they know.
These are generic questions. Simple reword them to fit your graph topics.
- How many more ____ than ____?
- How do you know?
- How many fewer ____ than ____?
- How do you know?
- Which (item) was chosen by more students than any of the others choices?
- How do you know?
- Which (item) was chosen by the fewest students?
- How do you know?
- What job could use this type of information? Why?
- If we asked this same question to other age groups, how do you think their answers would compare to ours? Why?

(Assessment Item 8 will be reviewed daily in Snack Fractions.)

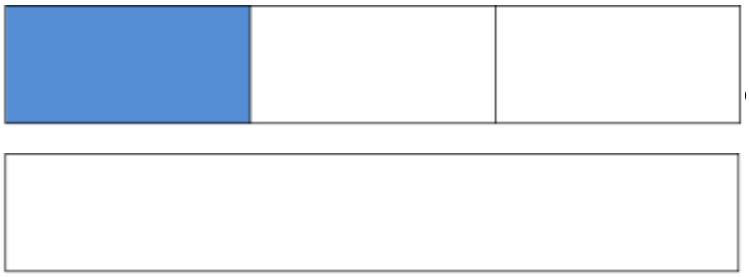
BLM Unit 5, L2 Daily Routines, Fraction Action & Measurement Lab 2
One sheet for unit per student - Work one problem each lesson.

Lesson 2 – Fraction Action

The model shows $\frac{1}{3}$. Use the second rectangle to model a fraction equivalent to $\frac{1}{3}$.

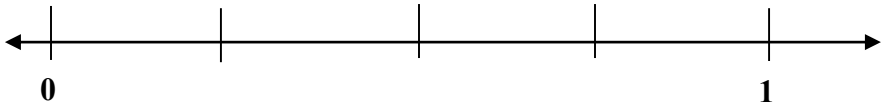
Write the name of your equivalent fraction.

_____



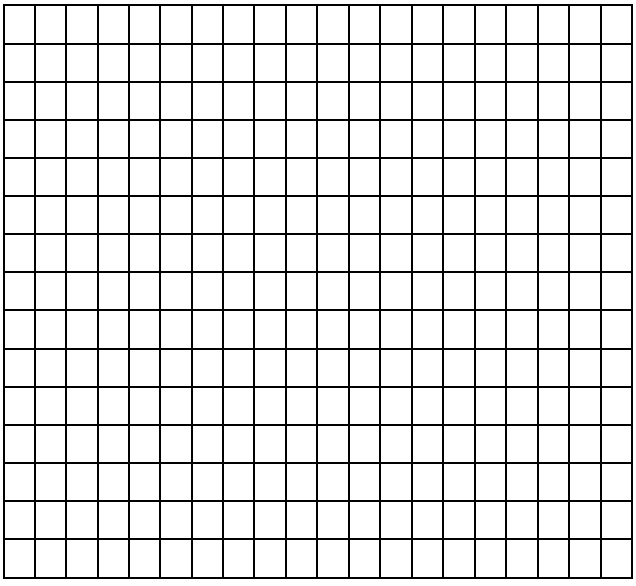
This is a benchmark fraction. What is the decimal equivalent form?

Place on the number line and label:



Lesson 2 – Measurement Lab

Use the area model and one other method to show the product of 13 and 15.



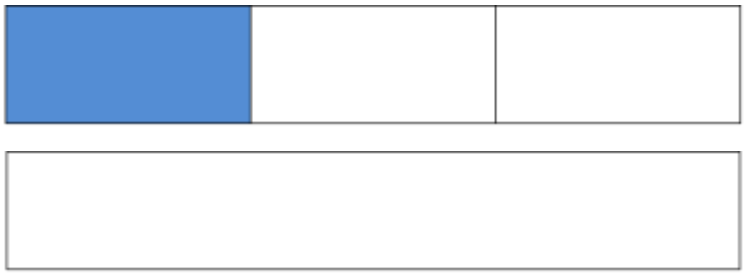
BLM Unit 5, L2 Daily Routines, Fraction Action & Measurement Lab 2
One sheet for unit per student - Work one problem each lesson.

Lesson 2 – Fraction Action

El modelo muestra $\frac{1}{3}$. Usa el segundo rectángulo para modelar una fracción equivalente a $\frac{1}{3}$.

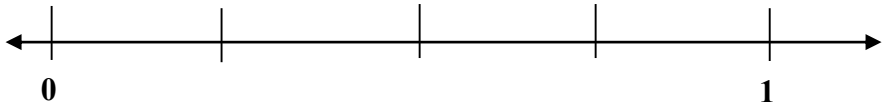
Escribe el nombre de tu fracción equivalente.

_____



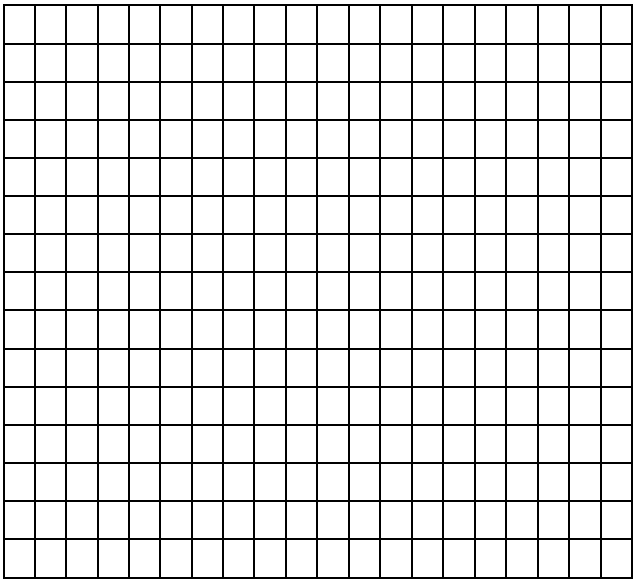
This is a benchmark fraction. What is the decimal equivalent form?

Coloca en la recta numérica:



Lesson 2 – Measurement Lab

Usa el modelo de área y un método más para mostrar el producto de 13 y 14.



BLM Unit 5, L2 Daily Routines, Fraction Action & Measurement Lab 2 KEY
One sheet for unit per student - Work one problem each lesson.

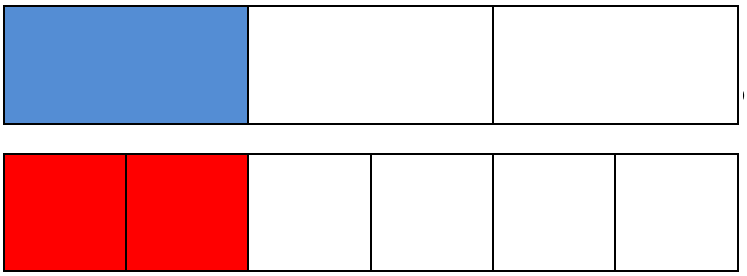
Lesson 2 – Fraction Action

Students may use any different equivalent fractions. Most will probably use sixths; but any equivalent fraction is acceptable as long as it is modeled correctly.

The model shows $\frac{1}{3}$. Use the second rectangle to model a fraction equivalent to $\frac{1}{3}$.

Write the name of your equivalent fraction.

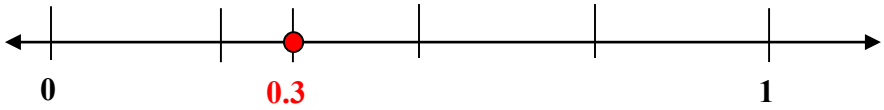
2/6



This is a benchmark fraction. What is the decimal equivalent form?

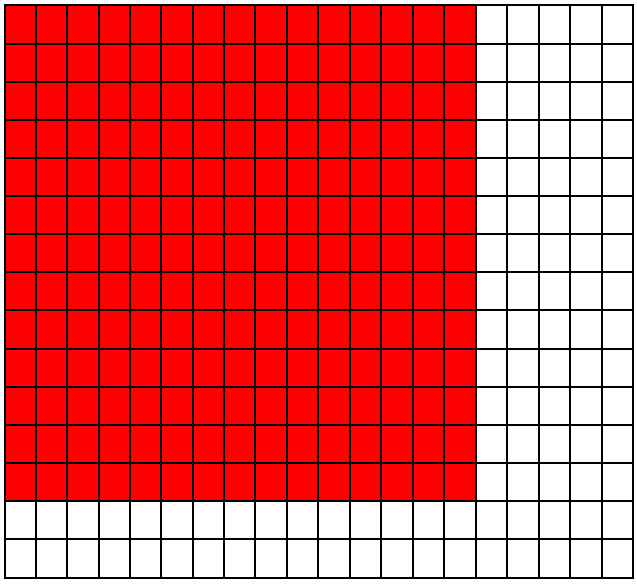
0.33

Place on the number line and label:



Lesson 2 – Measurement Lab

Use the area model and one other method to show the product of 13 and 15.



Partial Products

13
x15
15
50
30
+100
195

Traditional Algorithm

13
x15
65
+130
195

Students could use other strategies as their second strategy, such as base ten arrays, lattice, and rainbow. Lattice and rainbow were not taught this summer, but students could use them if they understand the processes.

Solve It! Problems Unit 5, Lesson 2 **Partners**

Solve your problem in steps. Verify your own work, then your partner's problem solution. Discuss discrepancies.

Partner 1 Problem **Name _____ Date _____**

Rusty worked at the corner grocery store for 4 weeks while his Uncle was gone. He worked a total of 92 hours in those 4 weeks, and that was working just 5 days a week. If he worked the same number of hours each day, how many hours a day did he work?

Problem Solution Name:	**Problem Verification** Name:

Solve It! Problems Unit 5, Lesson 2 **Partners**

Solve your problem in steps. Verify your own work, then your partner's problem solution. Discuss discrepancies.

Partner 2 Problem **Name _____ Date _____**

For the Summer Fest, the Ruiz family was going to have a big gathering of family and friends. Mrs. Ruiz wanted to make sure the chairs each had a balloon tied to it. There were 6 tables with 6 chairs and 5 tables with 8 chairs. Mrs. Ruiz bought 100 balloons. How many extra balloons did she buy?

Problem Solution Name:	**Problem Verification** Name:

Literature Selection
My Mexico – Mexico mio
by Tony Johnston, "*Where are they Now?"* Page 20

Materials
Language Materials
- **BLM** Word Cards
- **BLM multiple meanings**
- **BLM** Wonderment Poem Putline

Transition to Math Materials
- Class Number Line – 1 class
- A way to stick number cards to the number line
- Yellow marker or crayon – 1 for Fraction Team
- Orange marker or crayon – 1 for Decimal Team
- Stop watch or way to time 5 minutes
- **BLM** Corn Cob Fractions Cards – set you used in Lesson 1
- **BLM** Corn Cob Fractions Score Sheet taped to the board for students to mark their score– 1 for class
- http://www.livescience.com/2427-amazing-aztecs-math-whizzes.html picture of an Aztec map

Literature Vocabulary
simile
metaphor
rhyme
rhythm
verse
repetition
alliteration
imagery
stanza
mood
Math Vocabulary
All Word Wall Vocabulary
Lesson 2 vocabulary focus:
multiplication
division
factor
product
arrays
equal sized groups

Unit 5, Lesson 2 3-4
Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students should review to see if they have accomplished both math and language objectives.

Math Objectives:
- Relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models.
- Compare and order fractional forms on a number line.

Language Objectives:
- Describe the characteristics of various forms of poetry and how they create imagery.
- Make inferences and draw conclusions about the structure and elements of poetry and provide evidence from text to support their understanding.
- Write poems that convey sensory details using the conventions of poetry.
- Listen attentively to speakers, ask relevant questions, and make pertinent comments.

BEFORE READING
Building Background: Vocabulary & Literature
Display literature vocabulary vertically on board or in chart. Reread the words aloud with the students.
Direct students to take out the BLM poetry vocabulary from lesson 1. Allow students to use the BLM for assistance in the following activity. Partner up students.

Say, "Listen and discuss with your partner to determine the vocabulary word I am thinking of."

Say, "Sly as a fox. Brave as a lion." Allow students to think and then tell their partner, then share with class.

Say, "*cat, hat. stop, crop. green, mean."*
Allow students to think and then tell their partner, then share with class

Say, "Sally sells seashells by the seashore." Allow students to think and then tell their partner, then share with class.

fact families

ELPS (*English Language Proficiency Standard*)
1F, 2B, 2E, 3C, 3D, 4F, 4J, 4K

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.A.1., I.F.3., II.A.3., II.A.4.
ELA I. B.1., II.A.2., II.A.3., II.A.6., II.A.7., II.B.1., III.A.2

Definitions:
simile (figure of speech) 3 syllables
Comparison of one object to another object using *like* or *as*. used to make a description more vivid.

metaphor (figure of speech) 3 syllables
a connection of two objects not usually connected
i.e. *love is a rose*

rhyme 1 syllable
two or more words which match in the same last sound
i.e. *cat bat*

rhythm 2 syllables (schwa before the /m/)
the beat or cadence of poetry

repetition 4 syllables
using a key word several times throughout a poem

verse (iambic pentameter) 1 syllable
has no rhyme but has rhythm

alliteration 5 syllables
two words in the same line with the same starting sound
i.e. *the price of the previous one*

imagery 4 syllables
pictures drawn in the reader's mind by the words of the poet

stanza 2 syllables
a paragraph in poetry, surrounded above and below by

Classroom Lesson - continued

Say, "Life is a journey. I am a night owl." Allow students to think and then tell their partner, then share with class.

Say, "What do we refer to as the paragraphs in poetry?" Allow students to think and then tell their partner, then share with class.

Say, "The beat of a poem, such as 'I'm a little teapot, short and stout. Here is my handle, here is my spout. When I get all steamed up hear me shout. Tip me over, pour me out.'" *(Tap your foot or hand as you read the poem.)* Allow students to think and then tell their partner, then share with class.

Say, "I'm reading a poem that contains a key word used several times throughout." Allow students to think and then tell their partner, then share with class.

Say, "A mind movie or mental picture that is created in the reader's mind by the author's word choice." Allow students to think and then tell their partner, then share with class. Direct students to take out BLM multiple meanings.

Say, "Today's poem, "*Where Are They Now?"* introduces us to author's ability to emotionally connect readers to the message of a poem."

Ask, "What do you think of when you hear the word mood?" Allow students to share with partners and then with class.

Guide students in the most common meaning of 'mood' as conscious state of mind or feeling. Possible wording: feeling at a time *(example: angry, sad, happy, upset, excited)*. Write meaning in top left oval.

Say, "There are two other meanings for mood. Mood is the word naming general attitude." *(example: saying that someone is in a mood.)*

Write in the second oval.

Say, "The meaning we will be referring to relates to literary works, especially poetry. Mood in poetry is the name of the emotional quality or emotional character the author wants you, the reader, to connect with."

Write this meaning in the third oval.

Say, "Authors develop the mood of a poem through four methods: setting, theme, tone, diction."

Write one of these in each of the ovals at the bottom of the BLM multiple meaning.

skipped lines

mood 1 syllable
the feeling of the reader of a poem.

Internet reference:
http://www.history.com/topics/aztecs#
View for content and streaming ability. Still photos are available on this site.

Classroom Lesson - continued

Ask, "What is setting?" Allow students to think and share.

Write in oval: Setting is the physical location

Ask, "What is the theme?" Allow students to think and share.

Write in oval: The central theme of the poem will be one emotion.

Say, "The third method is called tone. When an author uses tone to set the mood of a poem, the reader will hear all of the accounts of the poem through the author's point of view. What the author sees and feels is what is communicated to the reader."

Write in oval: Point of view of author

Say, "The fourth method author's utilize for developing the mood is through diction. Diction is the use of words in the poem. Certain word choices will connect to a mood for the reader. The length of words and rhythm of words help to create the mood."

Write: choice of words: length, rhythm of words

Say, "As we read, '*Where Are They Now*?,' we will discover which method Tony Johnston uses for developing the mood.

Ask, "Who were the Aztecs?" *(Show picture available online.)* Connect to students' previous knowledge.

Possible discussions:
In 1200 A.D., a group of nomadic hunters called the Aztecs migrated into Mesoamerica. By 1325 A.D., the Aztecs had settled in present day Mexico City, and had built a large powerful city on a small island which they called Tenochtitlan.

Say, "The Aztec city fell to the Spanish Conquistador Cortez in the 1500s. Today, in Mexico, there are about one million descendants of the ancient Aztecs, living and working. The poem we are reading today questions where this civilization has gone."

DURING READING
Comprehensible Input: Vocabulary & Literature
Direct the students to read the poem silently first.
Then allow for volunteers to read the poem aloud twice.

Say, "A stanza is separated by spaces above and below. How many stanzas do you see in this poem?" Assist students in determining there are four stanzas in the poem.

Unit 5, Lesson 2 3-4

Classroom Lesson - continued

Say, "Listen as I read the poem slowly. Listen for words that rhyme. How will I know if the words rhyme?" Allow students to respond or provide examples.

Reread the poem. Guide students in discovering that this poem contains only one set of rhyming words: bone, stone

Say, "We have determined the poem, '*Where Are They Now?'* contains one set of rhyming words. Reread the poem to yourself and give thumbs up or down if you think the poem contains repetition." Allow students to reread the poem.

Guide students in discovering that this poem does contain repetition. The first and last stanzas are repeating.

Ask, "Does the author use similes or metaphors for comparisons in this poem?" Allow think, share with partners, and then to respond.

Guide students in understanding that this poem uses neither of these figurative language styles for comparison. Revisit the examples of similes and metaphors from lesson 1 BLM Poetry Vocabulary if needed for further clarification.

Say, "Listen to this part of the poem again: "*Where are they singing their song?"*

Ask, "What initial sound do you hear repeated in this part?" Direct students to think, and then tell a partner, and share with class.

Say, "This is Tony Johnston including alliteration in her poem.
She is using two or more words in a line that begin with the same sound to create a melodic sound when you read the poem. We determined this poem contains one instance of rhyming, but would you agree or disagree that this poem contains rhythm? When you read this poem, do you read it with a beat or cadence?"

Reread the poem aloud to the students again if needed.
Allow student to comment on the rhythm. To aid in hearing rhythm, ask the students to read along with you.

Ask, "What punctuation do you notice that is repeated throughout the poem?" Guide students in determining the poem repeats question marks. Only one stanza contains statements with periods.

Say, "The repetition of questions aids in the melodic flow of the lines."

Reread the poem with volunteers.

Say, "Let's discover the mood of the poem."

Ask, "What is the setting of the poem?" If students respond Mexico, ask them to provide support, i.e., by asking them how do you know?

Ask, "What is the theme of *'Where Are They Now?'* What is the poem centering on?" Guide students in discovering that the poem is centered upon questioning the disappearance or fall of the Aztec civilization.

Ask, "What do you think gave Tony Johnston the idea for this poem?" Allow students to respond. If needed remind students of her travels through Mexico while living there for fifteen years.

Ask, "What can you determine about the mood of the poem from her point of view?" Direct students to discuss with their partner or small table group. Then share thoughts with the class.

Say, "Often if we examine how the author constructed the poem, we can determine her point of view. Is she angry she cannot locate the Aztecs? How can you tell? Is she happy she cannot locate the Aztecs? How can you tell? How would you describe the author's mood?"

Guide the students in listing the author's possible mood when writing this poem *(inquisitive, wondering, little sad, maybe **Unit** disappointed, curious)*.

Say, "Earlier we stated the poem is written using certain sentence structure - what structure did we determine? *(questions)* When we ask questions in life, what does that mean? Think, share with your partner."

Say, "I know that when I ask a lot of questions about one topic, that means I want to know more. I want to learn more or clarify my understanding. I'm wondering or curious."

Ask, "What do you think the mood of this poem is?" Allow students to respond. Then ask, "How do you know?"
Guide students in referring to the methods in which the author used to create the mood *(tone, diction being the primary)*.

Say, "Now that we understand the mood of the poem, we can better comprehend the message of the poem."

Ask, "What is the message the author is trying to convey?" Allow students to think, share with partner, then share with class.

Unit 5, Lesson 2 — 3-4
Classroom Lesson - continued

AFTER READING
Practice and Application: Vocabulary & Literature
Ask, "What is something you have wondered?" Direct students to think of things they have wondered, and then share those ideas with a partner. Once the partners have shared with one another, ask the students to share their topics with the class. List the topics students have wondered about on the board.

Say, "Today you will write a poem similar to the one we read today. The mood will be wonderment. Each of you will choose the topic you wonder about."

Distribute BLM wonderment poem outline.

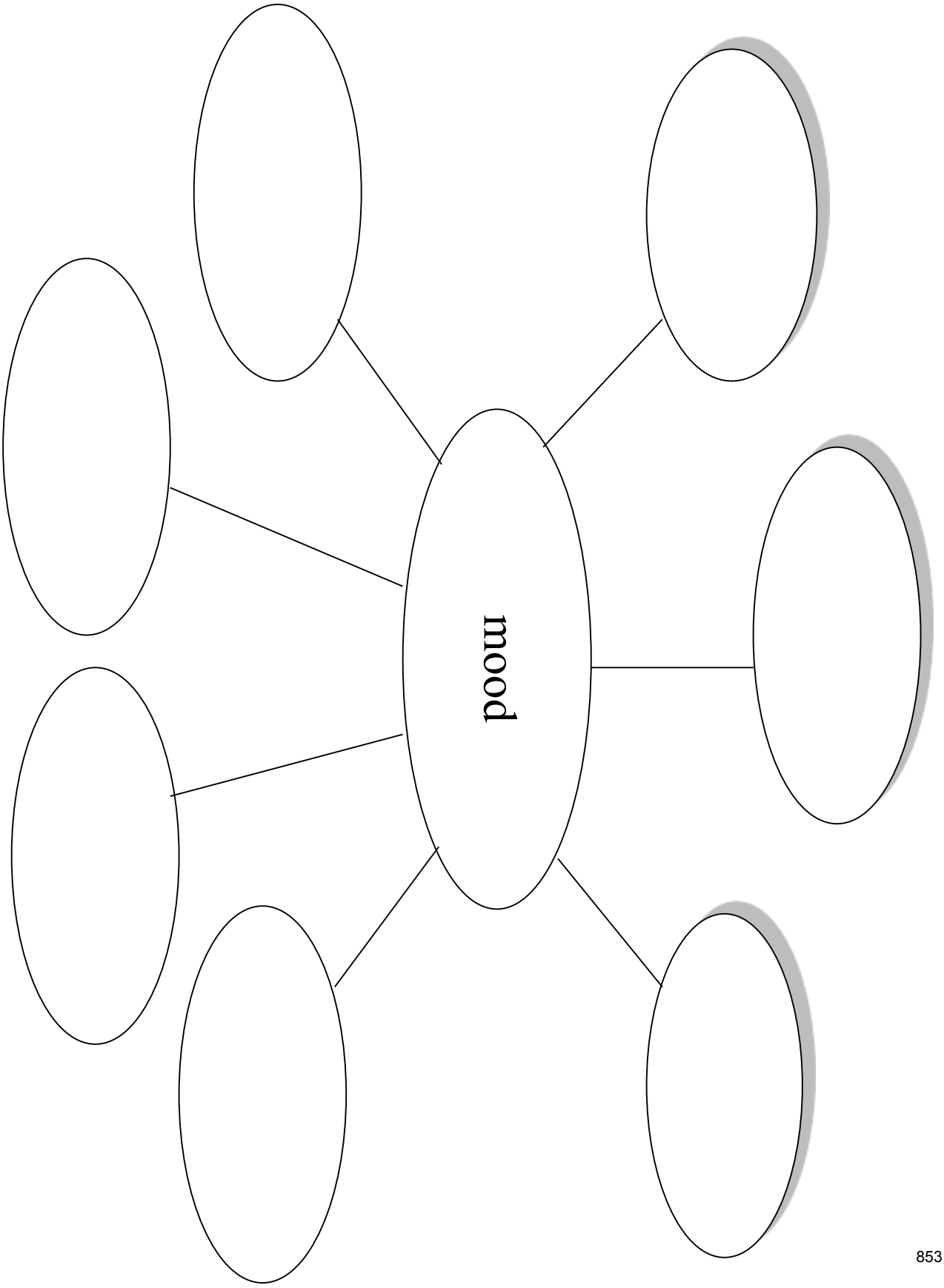
Say, "Using this outline, you will write a short poem similar to the construction of the one we read today. The poem will be four stanzas. The first and last stanzas are repeating. The second stanza will include two short statements. Rhyming and alliteration are options for your poem, but not necessary. Focus on the one topic and one repeated question word.

Example:
What is beyond the Earth's sky?

What is in space?
*"What" will be the focus question word for this example poem.

Allow students time to edit and revise their poems with their partner. While editing, the students should check that the poem has a rhythm. To modify for proficiency or time constraints - students can write one poem with a partner.

Share poems with the class or post on the wall for gallery walks at break.


mood

BLM TM Unit 5, Classroom Lesson 2 **Wonderment Poem Outline**

_____
Title of poem

_____

_____?

_____?

_____

_____.

_____, _____.

_____?

_____

_____?

_____

_____?

_____?

Math Objectives
- Relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models.
- Compare and order fractional forms on a number line.

Math Vocabulary
All Word Wall Vocabulary
Lesson 2 vocabulary focus:
multiplication
division
factor
product
arrays
equal sized groups
fact families

Transition to Math Materials
- Class Number Line – 1 class
- A way to stick number cards to the number line
- Yellow marker or crayon – 1 for Fraction Team
- Orange marker or crayon – 1 for Decimal Team
- Stop watch or way to time 5 minutes
- **BLM** Corn Cob Fractions Cards – set you used in Lesson 1
- **BLM** Corn Cob Fractions Score Sheet taped to the board for students to mark their score– 1 for class
- http://www.livescience.com/2427-amazing-aztecs-math-whizzes.html picture of an Aztec map

ELPS (*English Language Proficiency Standard*)
1C, 2E, 3D, 3E, 3H, 4G

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.B.3., I.E.1., II.D.2.
MATH I.B.1., II.A.1., IV.A.1., IV.A.2., VIII.C.1.

Technology: ***www.mathnook.com/math/skill/decimalgames.php***

Unit 5, Lesson 2 3-4

Classroom Lesson - continued

TRANSITION to Math
Building Background, Math
The Aztecs ruled Central Mexico for several hundred years. They were a highly advanced people who used arithmetic and mathematics every day. Although their numbering system *(based on 20 instead of 10)* and symbols were different from ours, they definitely used fractional relationships in their measurements which would have been critical for measuring the surface of their fields for farming. Scientists and mathematicians have found that hand, heart, and arrow symbols represent fractional distances when calculating areas of land.

Let's practice our fractional relationships one more time today.

Play the game again today, having students arrange themselves in the same groups. However, this time, give each group a different set of Corn Cob Fractions cards. So the team that had fractions in Lesson 1 will have decimals in Lesson 2.

Play the game exactly as you did in Lesson 1. Be sure after each turn, you ask the questions:
- Do the Teams agree that these two representations are placed in about the right place on the number line? *(response)*
- How do you know? (*volunteer – they are halfway between 0 and 1*)
- (*If one is misplaced*) Where would you place this card? Explain your thinking

After all of the cards have been placed on the number line, ask:
- Are there any BENCHMARK fractions or decimals on the number line?
  (*0.25, 1/4; 0.5, 1/2; 0.33, 1/3; 0.66, 2/3; 0.75, ¾)*
- How can keeping a picture of these fractions in your mind help you to solve problems? *(Accept all reasonable answers, but they are important because we can compare other fractions to these, using number sense.)*

Our TV Lesson is going to work with multiplication and division. Just as there are fraction and decimal relationships like benchmarks that help us with fraction/decimal problems, there are multiplication/division relationships that help us solve multiplication and division problems. Watch for them as we work through the TV Lesson.

Objectives: Review the math and language objectives to see how they were accomplished.

Distribute TV Lesson Materials

BLM TM Unit 5, Classroom Lesson 2 Corn Cob Fractions Score Sheet

Fractions Team – Yellow Marker **Decimals Team – Orange Marker**

Total _____ **Total _____**

Literature Vocabulary
simile
metaphor
rhyme
rhythm
verse
repetition
alliteration
imagery
stanza
mood

Math Vocabulary
All Word Wall Vocabulary
Lesson 2 vocabulary focus:
multiplication
division
factor
product
arrays
equal sized groups
fact families

Materials
- http://www.aztec-history.com/aztec-homes.html Aztec homes – research for Teachers.
- http://www.mexicolore.co.uk/aztecs/aztec-life/home-smoky-home more info about Aztec homes – BLM image taken from here
- Straight edge – 1 per student
- Light colored marker such as yellow – 1 per student
- Black marker – 1 per student
- **BLM** Aztec Common Dwellings 1 & 2 – 1 each per student
- **BLM** Aztec Common Dwellings **KEYS** 1 & 2 – teacher only

Unit 5, Lesson 2 3-4

TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Represent multiplication facts using a variety of approaches such as equal-sized groups, arrays and area models.
- Determine the number of objects in each group when a set of objects is partitioned into equal share or a set of objects is shared equally.
- Represent the product of 2 two-digit numbers.

Language Objectives:
- Use the math vocabulary during the activity.
- Discuss answers and possible strategies with classmates.
- Explain decimal relationships.

Building Background
Reading the poem, 'Where are They Now?,' made me want to find out more about the Aztecs. Their temples and palaces are certainly well known *(see link for examples)*; but what interested me were the houses for the common people. That's where I would be living.

The common Aztec homes were made of adobe, which is a sun dried brick made from adobe clay. There are adobe buildings built today because it is an inexpensive building material, and it stays fairly cool in the summer. But what was intriguing is the fact that the houses were built as a rectangle, and although it was one room, it was divided into four equal areas: one area for the family to sleep in; one area for their shrine; one area for the meals to be prepared and one area for the family to eat.

That reminded me of our array model, and of multiplication and division. And that is what we will work on today.

Comprehensible Input
Take a look at your blackline masters. There are two of them.

Read the sentences to the right of the top drawing *(pause)*. So the sketch is what scientists believe the common Aztec dwelling might have looked like. One room home, divided into four equal sections, each having a specific purpose.

Looking at the picture of the model, what area do you think this is? Take a little bit to discuss what area this is, and why you think as you do *(little pause)*. From the pots and the comal, did you think this was the cooking area? I did. There's no right or wrong answer – we are just using our observation skills much like an archeologist would.

ELPS (*English Language Proficiency Standard*) 1C, 2B, 2C, 2E, 3B, 3C, 4I **CCRS** *(College and Career* ***Readiness Standards)*** CROSS-CURRICULAR I.A.1., I.B.4., I.C.2., I.C.3., II.C.1 ELA I.A.1., II.A.3., III.A.1., IV.A.2. MATH I.A.1., I.B.1., II.A.1., II.B.1.,IV.A.1., IV.A.2., IV.B.1.	**Unit 5, Lesson 2** **3-4** **TV Lesson** - continued Let's move on to the problem. That next picture is the sketch of the foundation of a common dwelling. This is an actual sketch from an Aztec document. Remember that the Aztecs ruled from the 1300 to the 1500, so this is really old. The grid in the middle is not from the original drawing. I put that in the center where the floor would be to help you answer the question. I'm going to give you time now to read the problem on your own, and to solve using the grids, then check your answer using another strategy. We will solve our problem here, too, and talk about it when we are all finished. (*generous pause*)
CLASSROOM TEACHERS TV Teacher will give you time to discuss – please have students do so.	I used the grid and I counted by tens (*count each column by 10, showing that you have two additional ones at the end of each column*). I had 140 in that counting. Then I counted the extra ones at the bottom – (*do so by 2s from 140 to 168).* I like partial products, so I have checked my answer using partial products *(demonstrate)*.
CLASSROOM TEACHERS Students must build their own arrays.	I could have also used the traditional algorithm (*demonstrate*). I think it's cool that mathematicians are always looking for the most efficient way of solving problems. This traditional algorithm saves time, as long as you remember your place value. As long as you remember that when you multiply by the ONE in 12, you are multiplying by TEN, you will always line up your products correctly. The last question on this page is really a "critical thinking" activity. Read the last portion of the page, and solve it. You may discuss this with another student; but you won't have a lot of time to solve. Please start and we will wait for you. *(pause)* Well, do you know the dimensions of those four equal areas of the room? Here's how I found it. I remember from snack fractions that there are many ways to divide equally. I thought of this as a sandwich. One way is to find the halfway point of the width and draw a line across *(do so)*. Then find the halfway point of the length and draw a line down *(do so)*. Now, what are the dimensions? *(6 x 7)* How did you solve the problem?

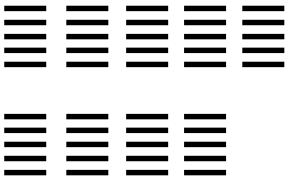
Partial Products

14
x12
8
20
40
+100
168

Traditional Algorithm

14
x12
28
+140
168

SMARTBOARD – Model the problem.



Classroom Teachers:
If TV Teacher cannot model the last division problem, please do so before beginning the Follow-up Lesson.

Arthimus Portio's Corner
Unit 5 Lesson 2-
Fraction Action
Tell us why you think benchmarks can be helpful.

Unit 5, Lesson 2 3-4

TV Lesson - continued

Let's look at the second page of information problems about the Aztecs. These problems use facts about the Aztecs to create problems that they might have had to solve.

Read the first problem on your own. By the way, pine knots are the hard knots of wood that you sometimes see in boards – they are very dense and would burn slowly. I will bet the pine also gave a pleasant aroma to the room. Ok, read and solve. Be sure to write the fact family number sentences when you find the answer. *(generous pause)*

Alright, I solved the problem two ways. First, I drew my math movie. I took the 45 knots, which I represented with dark lines, and I stacked them up in stacks of five until I had counted out all of the 45 knots (*demo).*

Then I could see that I had nine stacks. There are lots of ways to picture this – that is just the math movie that I saw.

This is a basic fact. Because I know my basic facts, I know that 45 ÷ 5 = 9. The 45 are the pine knots, the five are the number in each stack, and the answer nine is the number of stacks.

Fact Families helped me remember my division facts for 45, 9, 5.

9 x 5 = 45 5 x 9 = 45 45 ÷ 9 = 5 45 ÷ 5 = 9

When I know one of the facts, I know them all!

(*It you have time, have students work through the second problem. This one is a divvy out or partitive, so please be sure you divvy out the 24 mats like you were dealing cards. That's what makes this problem a different model from the Measurement Division – you can only see the difference as someone is actually modeling; when the drawing or model is complete, it looks like any multiplication or division problem*. Fact Family (6 x 4 = 24; 4 x 6 = 24; 24÷ 6 = 4; 24 ÷4 = 6)

Pirate: There is sure a lot of information about the Aztecs! I keep thinking about how they used symbols to represent fractions – the hand, the heart, and the arrow must have been their benchmarks! They used benchmarks over 700 years ago! I'd like to know what you think about fraction benchmarks now, and how they have helped you.

Teacher: Interesting question, Arthimus! Maybe the class could make a list of uses – we could all use that!

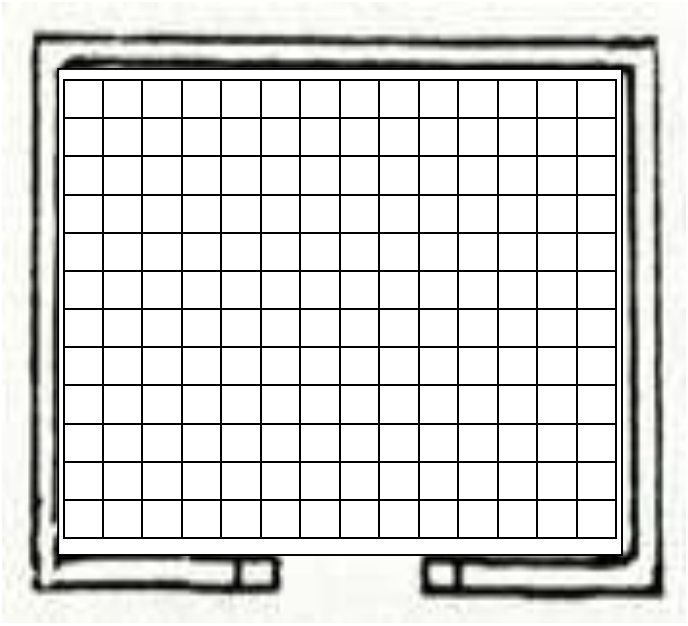
Objectives: And now before we go, let's review what we have learned today! (*do so*)

BLM Unit 5, TV Lesson 2
One sheet per student

Aztec Common Dwellings 1

This is a drawing and a model of what scientists believe a common Aztec dwelling would have looked like.

Which area of the house do you think is pictured in the model?



This is an outline of an Aztec house foundation found in an actual document from the Aztecs. (*The grid has been added for your ease of computation*.)

Suppose the inside of the house measured 12 feet by 14 feet. What would the area of the floor be? Use the grid as one strategy, then solve it another way to verify your product.

If this family divided the room into four equal parts, what would the dimension be of each part?

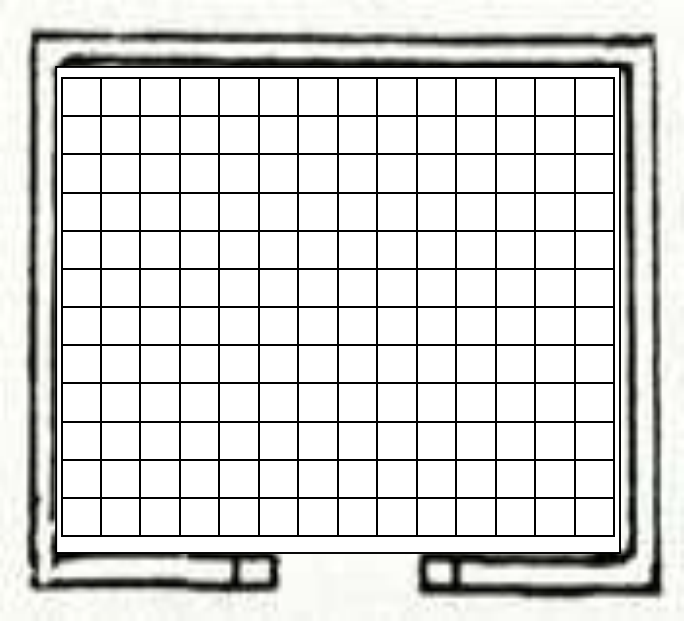
Each part would measure _____ feet x _____ feet. Explain how you determined the dimensions.

BLM Unit 5, TV Lesson 2
One sheet per student

Aztec Common Dwellings 1

Este es un dibujo y un modelo del aspecto que los científicos creen que habría tenido una vivienda común de los aztecas.

¿Qué área de la casa crees que se representa en el modelo?



Este es un boceto de los cimientos de una casa azteca encontrados en un documento real de los aztecas. *(La cuadrícula se ha agregado para facilitar los cálculos).*

Imagina que el interior de la casa medía 12 pies por 14 pies. ¿Cuál sería el área del piso? Usa la cuadrícula como una estrategia, y luego resuelve de otra manera para verificar tu producto.

Si esta familia dividió la habitación en 4 partes iguales, ¿cuál sería la dimensión de cada parte?

Cada parte mediría _____ pies x _____ pies. Explica cómo determinaste las dimensiones.

BLM Unit 5, TV Lesson 2 **Aztec Common Dwellings 2**
One sheet per student

The inside of the Aztec house would not have had much light. Pine knots were burned to provide the light. Suppose the mother had 45 pine nuts. She wanted to store them in stacks so she would have 5 pine knots per stack, the number she would need to burn in 1 day. How many stacks would she have?

Show your work. **Write the Fact Family**

Reed mats provided the beds and seats for the family. If the family had woven the 24 mats, and there were 6 family members, how many mats would each person receive?

Show your work. **Write the Fact Family**

BLM Unit 5, TV Lesson 2 **Aztec Common Dwellings 2**
One sheet per student

El interior de una casa azteca no habría tenido mucha luz. Se quemaban piñones para proporcionar luz. Imagina que la madre tenía 45 piñones. Ella quería almacenarlos en pilas para tener 5 piñones por pila, la cantidad que necesitaba quemar en un día. ¿Cuántas pilas tendría?

Muestra tu trabajo **Escribe la familia de hechos**

Las camas y asientos para la familia eran esteras de juncos. Si la familia hubiera tejido las 24 esteras, y si hubiera 6 miembros en la familia, ¿cuántas esteras recibiría cada persona?

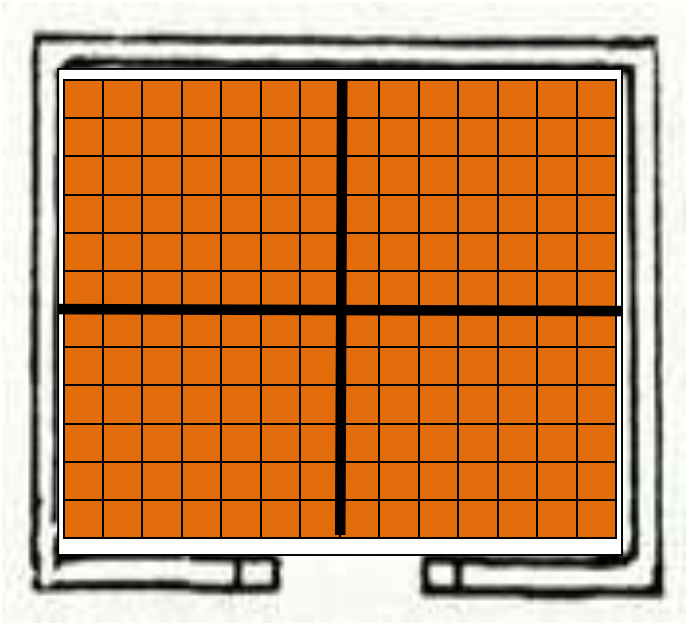
Muestra tu trabajo. **Escribe la familia de hechos**

BLM Unit 5, TV Lesson 2
One sheet per student

Aztec Common Dwellings 1 KEY

This is a drawing and a model of what scientists believe a common Aztec dwelling would have looked like.

Which area of the house do you think is pictured in the model?



This is an outline of an Aztec house foundation found in an actual document from the Aztecs. (*The grid has been added for your ease of computation*.)

Suppose the inside of the house measured 12 feet by 14 feet. What would the area of the floor be? Use the grid as one strategy, then solve it another way to verify your product.

Partial Products
14
x12
8
20
40
+100
168

Traditional Algorithm
14
x12
28
+140
168

If this family divided the room into 4 equal parts, what would the dimension be of each part?

Each part would measure **6** feet x **7** feet. Explain how you determined the dimensions.

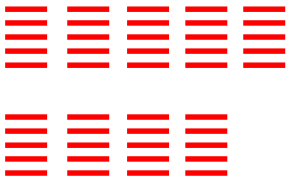
These are not the only strategy, but they are viable strategies. Students could physically divide the grid into fourths as pictured about, and count the width and length. OR students could divide the width in half, 12 ÷2 = 6; and the length in half 14 ÷ 2 = 7 to find the dimensions of the four divisions of the room.

BLM Unit 5, TV Lesson 2 **Aztec Common Dwellings 2 KEY**

One sheet per student

The inside of the Aztec house would not have had much light. Pine knots were burned to provide the light. Suppose the mother had 45 pine nuts. She wanted to store them in stacks so she would have 5 pine knots per stack, the number she would need to burn in 1 day. How many stacks would she have?

Show your work.



There are 9 stacks.

OR 45 ÷ 5 = 9 There are 9 stacks.

Write the Fact Family

5 x 9 = 45

9 x 5 = 45

45 ÷ 5 = 9

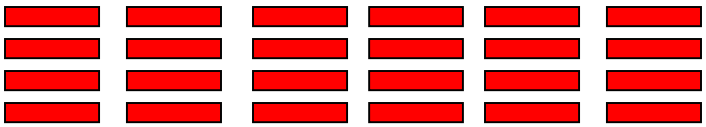
45 ÷ 9 = 5

Teachers should circulate the room while students are solving to see if they understand the process. This drawing looks like any multiplication or division drawing/model unless you see how it is drawn. This is a MEASUREMENT Division, which means that the groups of 5 are drawn at one time, not divvied out, until all 45 lines have been distributed.

Any shape and any grouping arrangement works – their drawings do not have to duplicate this drawing except that there must be 9 groups of 5 objects.

Reed mats provided the beds and seats for the family. If the family had woven the 24 mats, and there were 6 family members, how many mats would each person receive?

Show your work.



OR 24 ÷6 = 4 There are 4 mats per person

Write the Fact Family

6 x 4 = 24

4 x 6 = 24

24 ÷ 6 = 4

24 ÷ 4 = 6

Teachers should circulate the room while students are solving to see if they understand the process. This drawing looks like any multiplication or division drawing/model unless you see how it is drawn. This is a PARTITIVE or Divvy Division, which means that you know the groups (6 people), but don't know how many will be in each group. The 24 would be dealt out like cards, 1 per group, until all 24 are distributed.

Any shape and any grouping arrangement works – their drawings do not have to duplicate this drawing except that there must be 6 groups of 4 objects.

Literature Vocabulary
simile
metaphor
rhyme
rhythm
verse
repetition
alliteration
imagery
stanza
mood

Math Vocabulary
Repeated vocabulary
factors
products
fact family

Materials
- **BLM** Floating Gardens or Chinampas – 1 per student
- **BLM** Floating Gardens or Chinampas **KEYs** – teacher only

ELPS (*English Language Proficiency Standard*)
2C, 2E, 3E, 3G, 4G, 5B, 5C

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.A.1., I.C.2., I.E.2., II.C.1.
ELA I.A.1., I.A.2., I.A.3., II.A.2., II.A.3., III.B.1.
MATH II.A.1., II.A.2., IV.B.2., VIII.A.3., VIII.A.4.

Technology
http://www.pondplantgirl.com/aztec.htm / The first segment of this video has "The Pond Girl" showing her Aztec Floating Garden. The picture on the BLM came from this site.

http://www.aztec-history.com/aztec-farming.html
Teacher reference regarding Aztec farming and picture of chinampas being used today in an area of Mexico City.

Unit 5, Lesson 2 — 3-4

Follow-up

Math Objectives:
- Represent multiplication facts using a variety of approaches such as equal-sized groups, arrays and area models.
- Determine the number of objects in each group when a set of objects is partitioned into equal share or a set of objects is shared equally.
- Represent the product of 2 two-digit numbers.

Language Objectives:
- Listen and speak with a partner during our math activity.
- Use the math vocabulary during the activity.
- Write math journal response.

Building Background, Math
(*Finish any problems left from the TV Lesson. Be sure to use the key and the TV script to guide you in discussing the strategies*.)

The Aztecs were great farmers. In some areas they grew their food in floating gardens, or chinampas. These were a series of rectangular beds that were built around the lake bed so that the lake could supply plenty of water – so much water, in fact, that canoes were used to navigate between the floating beds to tend the garden and harvest the crops.

There are a few chinampas still in use today in Xochimilco in Mexico City.

Let's see what we can learn today about floating gardens from our word problem.

Practice and Application
Today, I would like for you to read the problems by yourself and solve them on your own. I will be circulating the room to be amazed by your strategies; but I will not interrupt your thinking.

When you are finished, we will talk about how you solved the problems.

(*Do have the students work on their own today. Circulate the room to see if there are students who still need help with any of the concepts before the Post-assessment. Have student present their strategies once everyone has completed the two problems. Always ask, "Did someone solve this problem another way?" And do not complete the sharing until all volunteers have had their turn.)*

	Unit 5, Lesson 2 **3-4** **Follow-up** - continued  **Math Journal Writing** Students should have a spiral notebook into which they journal their thoughts daily about math. Today's journal prompt is: ✎🕮 **We have studied the multiplication and division. What do you still have questions about?** **Objectives:** Review the math and language objectives to see how they were accomplished.

BLM Unit 5, TV & Follow-up Lesson 2
One per student

Floating Gardens or Chinampas

This is an artist's view of what an Aztec chinampas, or Floating Garden, would look like.

Special rectangular beds were built and planted near a lake bed. Then through special canals, the areas around the beds were flooded.

Tending the beds and harvesting the crops was done in canoes while floating in the canals.

Each chinampas was a plot of ground that measured about 30 meters by 3 meters. What was the area of one plot? **Show your work**.

The area of one plot was approximately _____ square meters (m^2)

What as the approximate total area of 12 plots of the chinampas? **Show your work.**

The area of 12 plots was approximately _____ square meters (m^2)

Suppose one chinampas plot was planted with 42 corn plants planted in equal rows. If there were 6 plants in each row, how many rows were there? **Show your work.**

There were _____ rows of corn.

Fact Family

BLM Unit 5, TV & Follow-up Lesson 2 **Floating Gardens or Chinampas**
One per student

Esta es la visión de un artista del aspecto que tenían las chinampas o jardines flotantes aztecas.

Lechos rectangulares especiales se construían y se plantaban cerca de un lago. Luego, usando canales especiales, se inundaban las áreas alrededor de los lechos.

Para cuidar los lechos y cosechar los cultivos usaban canoas mientras flotaban en los canales.

Cada chinampa era una parcela de tierra que medía unos 30 metros por 3 metros. ¿Cuál era el área de una parcela? **Muestra tu procedimiento.**

El área de una parcela era de aproximadamente _____ metros cuadrados (m^2)

¿Cuál es el área total aproximada de 12 parcelas de chinampas? **Muestra tu procedimiento.**

El área de 12 parcelas era de aproximadamente _____ metros cuadrados (m^2)

Suppose one chinampas plot was planted with 42 corn plants planted in equal rows. If there were 6 plants in each row, how many rows were there? **Show your work.**

Había _____ surcos de maíz.

Familia de hechos

BLM Unit 5, TV & Follow-up Lesson 2 **Floating Gardens or Chinampas KEY**

One per student

This is an artist's view of what an Aztec chinampas, or Floating Garden, would look like.

Special rectangular beds were built and planted near a lake bed. Then through special canals, the areas around the beds were flooded.

Tending the beds and harvesting the crops was done in canoes while floating in the canals.

Each chinampas was a plot of ground that measured about 30 meters by 3 meters. What was the area of one plot? **Show your work**.

The area of one plot was approximately **90** square meters (m^2)

Students will probably use the tradition algorithm. Since you are multiplying by a multiple of 10, help students see the patterns so that they do NOT use partial products in this one. Using the base ten or grid array is acceptable. When students explain their strategies, hopefully the traditional algorithm will prove to be more efficient for this particular problem.

30
x3
90

What as the approximate total area of 12 plots of the chinampas? **Show your work.**

The area of 12 plots was approximately **1080** square meters (m^2)

This is certainly a candidate for partial products, only because it shows the zero product so well. Partial product is NOT very efficient, however, in this case. It is very easy to see how the 4 products become 2.

90
x12
0
180
0
900
1080

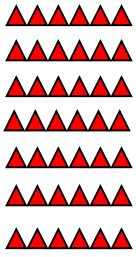
90
x12
180
900
1080

Suppose one chinampas plot was planted with 42 corn plants planted in equal rows. If there were 6 plants in each row, how many rows were there? **Show your work.**

There were **7** rows of corn.

Students might draw this one, or use the basic facts. 42 ÷6 = 7

Any shape will be acceptable as Long as there are 7 rows of 6 objects.



Fact Family

6 x 7 = 42
7 x 6 = 42
42÷ 7 = 6
42 ÷6 = 7

Math Objectives
- Represent equivalent fractions using pictorial models.
- Compare two fractions having the same denominator.
- Determine if two given fractions are equivalent.
- Recognize tenths and label in fraction and decimal form.

Language Objectives
- Discuss fraction comparisons.
- Discuss fraction equivalencies.
- Discuss fraction/decimal equivalencies.

Vocabulary
halves
fourths
sixteenths

Materials:
- **BLM** Cracker and Nutella Fractions - 1 per student

Per Partners:
- 4 graham crackers
- 2 T. Nutella
- 2 paper plates
- 2 paper towels
- 2 plastic knives
- Chart paper with question**: Which share was larger, ½ or 1/8? How do you know?** Put a copy of the record sheet at the top of the chart with the question.

Unit 5, Lesson 2 3-4

Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

First, look at the crackers and the Nutella. Talk to your partner about how you will divide the snack fairly between you. (*Give students time to discuss. Listen to their discussions, but do not interfere.)*

Share your plans with the class (E*ach group should share. After each sharing, have the class decide if the planned strategy would give each partner a fair share by drawing the four crackers and two T. Nutella on the board and dividing them as per the partners' descriptions. Leave each drawing on the board to be compared to others. Decide that the fair shares are half of the snack)* Let students then divide their snacks between the partners and direct them to the BLM Crackers and Nutella Fractions. Help them understand that the rectangles are going to represent one graham cracker for this lesson.

(*Circulate the room. Share when all are finished. NOTE: The fraction for the shaded portion of the bar may be written either as 1/2 OR as 5/10. Both are acceptable representations of this model.)*

Snack Fraction Journal Writing: Crackers and Nutella Chart Paper

Which share was larger, ½ or 1/8? How do you know?

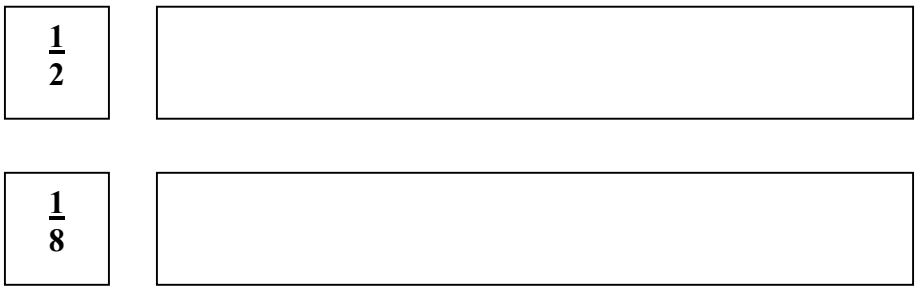
Objectives: Review the objectives with the class, making sure they understand how they achieved each.

BLM Unit 5, Snack Fraction **Crackers and Nutella Fractions**
(One sheet per student)

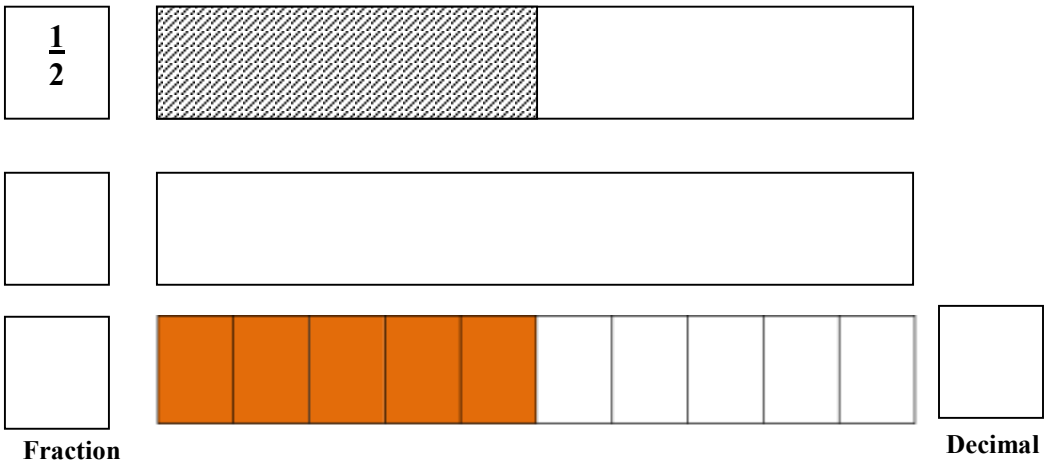
Name _____

These rectangles represent one of the Graham Crackers. Follow the directions to divide the rectangle and compare the pieces.

Which fractional piece of the Graham Cracker (rectangle) is larger?
Circle your answer.
Use pictures to verify your answer.



Use the picture below to find an equivalent fraction to one-half.



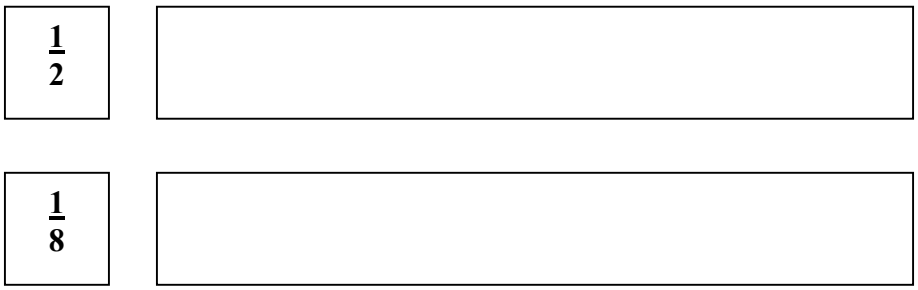
Write a comparison statement comparing your equivalent fraction to the shaded portion of the bar. (<, >, or =) _____ ◯ _____

BLM Unit 5, Snack Fraction **Crackers and Nutella Fractions**
(One sheet per student)

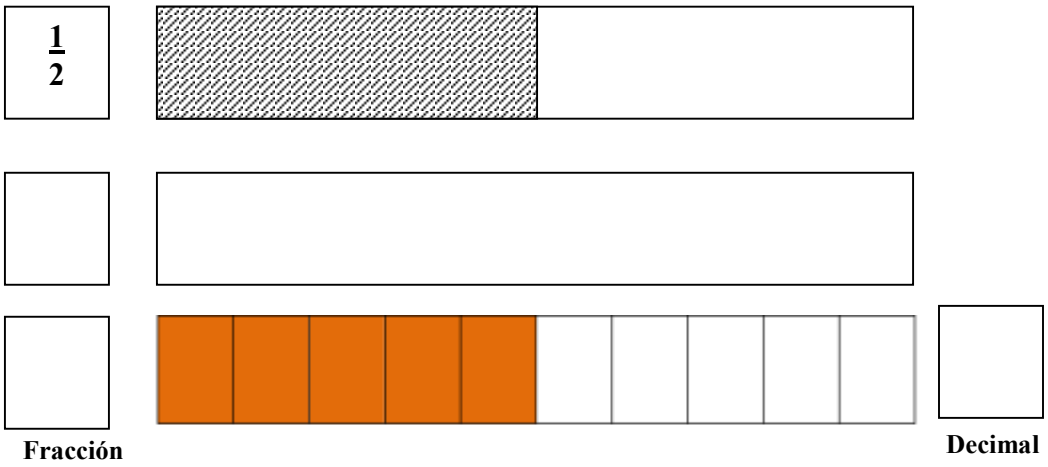
Name _____

Estos rectángulos representan una de las galletas. Sigue las instrucciones para dividir el rectángulo y comparar las piezas.

¿Qué parte fraccional de la galleta (rectángulo) es mayor?
Circula tu respuesta.
Usa dibujos para verificar tu respuesta.

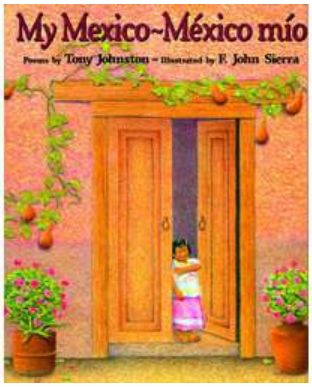


Usa la siguiente imagen para encontrar una fracción equivalente distinta a un medio.



Escribe una oración para comparar tu fracción equivalente con la porción sombreada de la barra. (<, >, o =) _____ ◯ _____

Family Fun – 3-4, Unit 5 Lesson 2



Our book for Unit 5 is a collection of poems about Mexico, *My Mexico – Mexico mio* by Tony Johnston.

My favorite part of the poem today was ….

_____

_____

_____

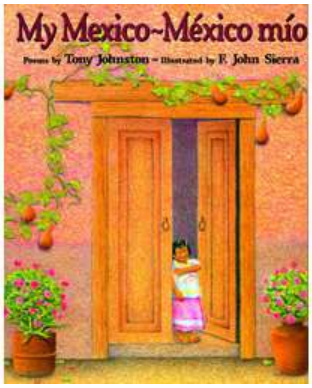
Our review today was multiplication and division. I can show you many ways to multiply 12 x 15. May I show you?

_____

Thank you for helping me with my summer program!

_____
Your Child

Family Fun – 3-4, Unit 5 Lesson 2



El libro para esta unidad es una collection de poemas, *My Mexico – Mexico mío* por Tony Johnston.

Mi parte favorita del poema que leímos hoy es ….

_____

_____

_____

El repaso hoy se trataba de multiplicación y división. Te puedo mostrar maneras diferentes de multiplicar 12 x 13. ¿Puedo mostrarte?

_____

¡Gracias por ayudarme con el programa de verano!

_____
Tu hijo

Materials
- Unknown Quantity Cards – 1 set for classroom
- **BLM** Solve It, Unit 5
- **BLM** CGI Problems
- **BLM** Fraction Action/Measurement Lab – 1 per student
- **BLM** Fraction Action / Measurement Lab KEY – teacher only

Math Objectives
- Find missing elements in an equation.
- Solve multi-step word problems.
- Use a variety of strategies to solve word problems.
- Find equivalent forms of fractional parts.
- Measure length in centimeters.

Balanced Literacy Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.
- Explain how they decided to rename the target number.
- *Discuss scarcity of money, choices and cost benefit.*

TEKS in TV and FIU
Lesson 1
- **3rd** - 3.3FH
- **4th** - 4.2AEFGH. 4.3C

Lesson 2
- **3rd** - 3.3FH, 3.4EHJ
- **4th** - 4.4C

Lesson 3
- **3rd** - 3.3FH, 3.4EHJ
- **4th** 4.2AEFGH. 4.3C. 4.4C

Unit 5, Lesson 3 3-4
Daily Routine

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL
What's Missing? *(3rd assessment item 2)*
- **Lessons 1, 2, 3** *follow directions in the Daily Routine Explanations. Check the assessment items so that you are certain you include samples to practice the shape in the assessed location.*

Solve It! *(fundamental problem-solving skills for all items)*
- Lesson 1 – partners working on unique problems
- Lesson 2 - Partners working on unique problems
- **Lesson 3 – Partners working on unique problems**

Fraction Action and Measurement Lab *are written together this time. One sheet provides both activities. Students should work individually today so that you can see who, if anyone needs additional practice before the Post-assessment***.**

(*3rd grade assessment Items 1, 3; 4th assessment items 3, 5, 7*)
Lesson 1 – Fraction Action and Measurement Lab 1
Lesson 2 - Fraction Action and Measurement Lab 2
Lesson 3 - Fraction Action and Measurement Lab 3

CGI
- Lesson 1 – Multiplication
- Lesson 2 – Division, Measurement (*3rd assessment item 5*)
- **Lesson 3 – Division, Partitive** (*3rd assessment item 4*)

ELPS (*English Language Proficiency Standard*)
2B, 2E, 3A, 3B, 3D, 3J, 4F

CCRS (*College and Career Readiness Standards)*
CROSS-CURRICULAR I.B.2., I.C.3., I.E.1., II.A.2., II.B.1.
ELA II.A.3., II.B.1., II.B.3., III.B.1., III.B.2., IV.B.1.
MATH I.B.1., II.C.2., IV.A.1., IV.B.1., VII.A.1., VIII.A.2.

Assessment Items
(As a result of experiencing this unit, students will be learning skills necessary to be successful on the following Assessment items.)

This is a review unit.
Lesson 1
- DR – Arrays, equivalent fractions, number lines, benchmarks
- TV - Fractions and Decimals

Lesson 2 –
- DR- DR – Arrays, equivalent fractions, number lines, benchmarks
- TV - Multiplication and Division

Lesson 3 –
- DR DR – Arrays, equivalent fractions, number lines, benchmarks
- TV – Blend

3rd - 1, 2, 3, 4, 5, 6, 7, 8
4th - 1, 2, 3, 4, 5, 6, 7, 8

Arthimus Portio's Corner
Unit 5 Lesson 3-
Word Problem
Write a class story problem today for me to solve. Remember, you have to be able to solve it, too!

Unit 5, Lesson 3 3-4
Daily Routine - continued

OPTIONAL: *These activities, although not assessed, are fundamental skills that should be included in those sites providing five to six weeks of instruction.*

Target Number *(fundamental number sense for all items)*
- Lesson 1 – Target Number 10
- Lesson 2 – Target Number 30
- **Lesson 3 – Target Number 60**

Graphing – none this unit

Graphing Questions:
Before asking any questions, have the students give you their observations about the data shown on the graph. Always ask students to explain how they know.
These are generic questions. Simple reword them to fit your graph topics.
- How many more ____ than ____?
- How do you know?
- How many fewer ____ than ____?
- How do you know?
- Which (item) was chosen by more students than any of the others choices?
- How do you know?
- Which (item) was chosen by the fewest students?
- How do you know?
- What job could use this type of information? Why?
- If we asked this same question to other age groups, how do you think their answers would compare to ours? Why?

(Assessment Item 8 will be reviewed daily in Snack Fractions.)

BLM Unit 5, L3 Daily Routines **Fraction Action & Measurement Lab 3**

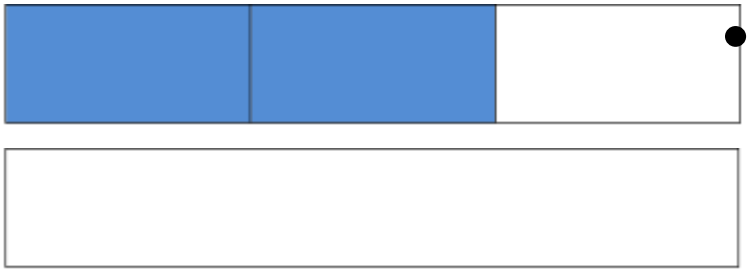
One sheet for unit per student. Work one problem each lesson.

Lesson 3 – Fraction Action

The model shows $\frac{2}{3}$. Use the second rectangle to model a fraction equivalent to $\frac{2}{3}$.

Write the name of your equivalent fraction.

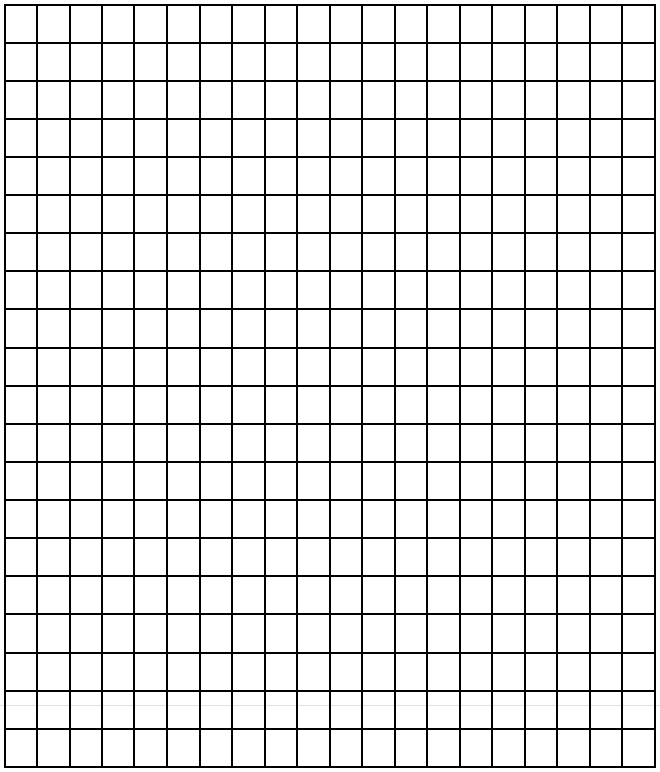
_____



This is a benchmark fraction. What is the decimal equivalent form?

Lesson 3 – Measurement Lab

Use the area model and one other method to show the product of 13 and 13.



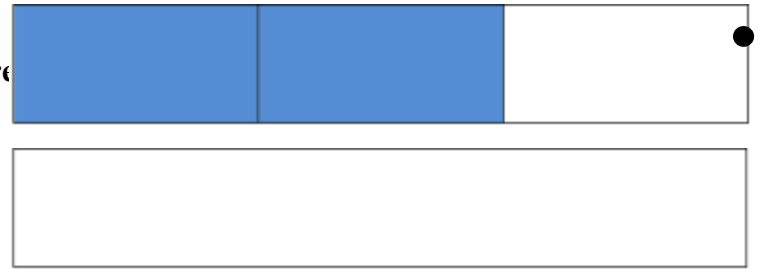
BLM Unit 5, L3 Daily Routines **Fraction Action & Measurement Lab 3**

One sheet for unit per student. Work one problem each lesson.

Lesson 3 – Fraction Action

El modelo muestra $\frac{2}{3}$. Usa el segundo rectángulo para modelar una fracción equivalente a $\frac{2}{3}$.

Escribe el nombre de tu fracción equivalente.

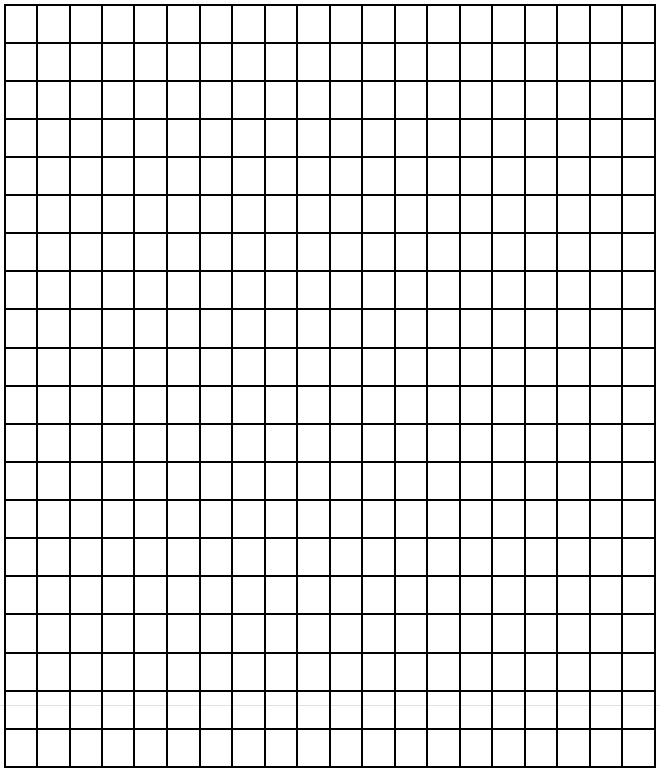


Esta es una fracción de referencia. ¿Qué es la forma decimal equivalente?

_____

Lesson 3 – Measurement Lab

Usa el modelo de área y un método más para mostrar el producto de 13 y 13.



BLM Unit 5, L3 Daily Routines **Fraction Action & Measurement Lab 3**

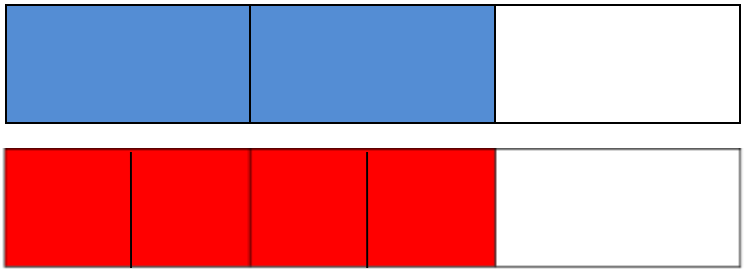
One sheet for unit per student. Work one problem each lesson.

Lesson 3 – Fraction Action

The model shows $\frac{2}{3}$. Use the second rectangle to model a fraction equivalent to $\frac{2}{3}$.

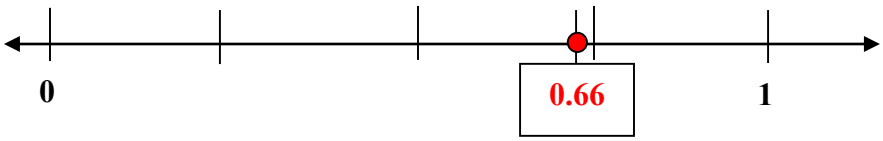
Write the name of your equivalent fraction.

___4/6_____



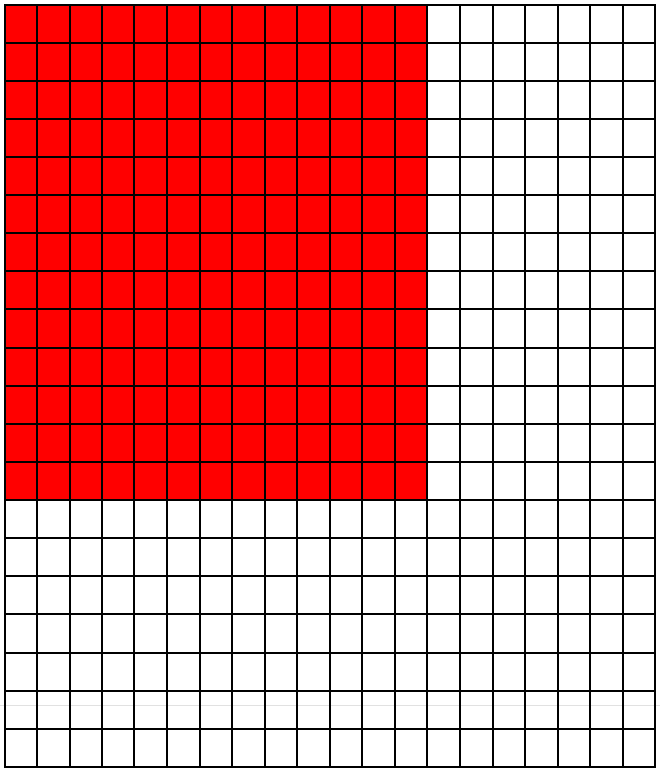
This is a benchmark fraction. What is the decimal equivalent form?
0.66

Place on the number line and label:



Lesson 3 – Measurement Lab

Use the area model and one other method to show the product of 13 and 13.



Partial Products

13
x13
19
30
30
+100
179

Traditional Algorithm

13
x13
49
+130
179

Students could use other strategies as their second strategy, such as base ten arrays, lattice, and rainbow. Lattice and rainbow were not taught this summer, but students could use them if they understand the processes.

Solve It! Problems Unit 5, Lesson 3 **Individual**

This is your problem to solve. You will not be asked to solve another student's problem.

Name _____ Date _____

Cindy picked 80 wild flowers in the field. She gave 20 of them to her sister and gave the rest to her mother and aunt. If her mother and aunt each received an equal number of flowers, how many flowers did each get?

Problem Solution You Solve It!	**Problem Verification** You Verify It!

Solve It! Problems Unit 5, Lesson 3 **Individual**

This is your problem to solve. You will not be asked to solve another student's problem.

Name _____ Date _____

Cindy picked 80 wild flowers in the field. She gave 20 of them to her sister and gave the rest to her mother and aunt. If her mother and aunt each received an equal number of flowers, how many flowers did each get?

Problem Solution You Solve It!	**Problem Verification** You Verify It!

Literature Selection
My Mexico – Mexico mio
by Tony Johnston, '*Beehives*' page 30

Materials
Language Materials
- **BLM** Word Cards
- **BLM** I Have Who Has
- **BLM** Beehive

Transition to Math Materials
- **BLM** Beehive problems p 1-2 – 1 sheet of each per student
- **BLM** Beehive Score Sheet – 1 per student
- Yellow marker -1 per student
- http://kids.sandiegozoo.org/animals/insects/bee information and pictures of honeybees
- http://www.youtube.com/watch?v=lE-8QuBDkkw PBS video of beehive activity

Literature Vocabulary
simile
metaphor
rhyme
rhythm
verse
repetition
alliteration
imagery
stanza
mood

Math Vocabulary
All Word Wall Vocabulary
Lesson 3 vocabulary focus:
- All of the summer words are practiced at some point.

Definitions:
simile (figure of speech) 3 syllables
Comparison of one object to another object using *like* or *as*. used to make a description more vivid.

metaphor (figure of speech) 3 syllables
a connection of two objects not usually connected

Unit 5, Lesson 3 3-4
Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students should review to see if they have accomplished both math and language objectives.

Math Objectives:
- Relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models.
- Compare and order fractional forms on a number line.

Language Objectives:
- Describe the characteristics of various forms of poetry and how they create imagery.
- Make inferences and draw conclusions about the structure and elements of poetry and provide evidence from text to support their understanding.
- Write poems that convey sensory details using the conventions of poetry.
- Listen attentively to speakers, ask relevant questions, and make pertinent comments.

BEFORE READING
Building Background: Vocabulary & Literature
Review examples of the vocabulary words utilizing the BLM Poetry Vocabulary.

Then distribute precut cards from BLM I Have Who Has to students. All students stand with their card(s) in hand. Begin with you *(Teacher)* reading the *(teacher)* card. Students respond with the word that rhymes on their card. Stop play when all cards are read and the teacher is again the last card read - only then read the *I have…* statement.

Example:
Student 1:
"I have…
frog.
Who has…
slat?"

Student 2:
"I have…
cat.
Who has…
moon?"

i.e. *love is a rose*

rhyme 1 syllable
two or more words which match in the same last sound
i.e. *cat bat*

rhythm 2 syllables (schwa before the /m/)
the beat or cadence of poetry

repetition 4 syllables
using a key word several times throughout a poem

verse (iambic pentameter) 1 syllable
has no rhyme but has rhythm

alliteration 5 syllables
two words in the same line with the same starting sound
i.e. *the price of the previous one*

imagery 4 syllables
pictures drawn in the reader's mind by the words of the poet

stanza 2 syllables
a paragraph in poetry, surrounded above and below by skipped lines

mood 1 syllable
the feeling of the reader of a poem.

ELPS (*English Language Proficiency Standard*)
1F, 2B, 2E, 3C, 3D, 4F, 4J, 4K

CCRS *(College and Career Readiness Standards)*
CROSS-CURRICULAR I.A.1., I.F.3., II.A.3., II.A.4.
ELA I. B.1., II.A.2., II.A.3., II.A.6., II.A.7., II.B.1., III.A.2

Classroom Lesson - continued

Using BLM beehive, show the students a picture of a beehive on overhead or provide each student with a copy.
ASK: What is this?
Allow students to respond.
ASK: Who has seen one in person?
Allow students to share personal experiences of when they have seen a beehive, or share your own experience, if applicable.
SAY: Let's label the parts of the beehive.
Provide students with these terms written on the board:

outer cover
inner cover
shallow super for honey
queen excluder
upper deep super for food
lower deep super for brood
screened bottom board
cinder blocks

The diagram to on this site can be a guide:
http://www.beverlybees.com/parts-beehive-beginner-beekeeper/
This site also provides information about the purpose of each component.

http://www.bee-magic.com/beemagicchronicles.aspx
Facts about bees and beekeeping, including pictures of beehives.

SAY: Today's poem is about beehives the author, Tony Johnston views in Guerrero, Mexico. Let's read the poem and discover how she creates imagery for the reader through her word choice.

DURING READING

Comprehensible Input: Vocabulary & Literature

Direct the students to read the poem silently first.
Then allow for volunteers to read the poem aloud twice.

ASK: how many stanzas are in the poem *Beehives*?
Allow students time to think, share with a partner and then tell their partner why they think this.

ASK: What elements of poetry do you see or hear when you read this poem?

Classroom Lesson - **continued**

Allow students time to think. Refer them to their BLM poetry vocabulary from lesson 1. Allow students to share their thoughts with their partner. List the elements students determine are in the poem on the board. Prompt the students to provide examples of each of the elements.

Rhyming = sky, dry; trees, bees
rhythm = students can read aloud with cadence
Simile= red and yellow beehives like houses on the dry hills of Guerrero
Repetition= beehives
Imagery= use of senses i.e. sight, sound; use of adjectives
Mood= created through setting, tone, diction

SAY: In the poem, Tony Johnston compares the red and yellow beehives to the houses on the dry hills of Guerrero. Let's see if this is an accurate comparison.

Visit the website below. The photos include houses on hills. compare to the illustration in the book.
http://www.history.com/topics/mexico/guerrero
include video, pictures of Guerrero, Mexico that is referred to in the poem "*Beehives*".

SAY: Look at the bottom of BLM beehive. Let's circle all of the adjectives.
Allow students to read aloud and stop to circle as adjectives are read.

Adjectives: square, blue, red, yellow, dry, hot, thick, loud.

SAY: I'm going to mark out 'and' between red and yellow. I will also mark out 'and' between hot and thick. Now let's reread the poem and see if the image is still vivid in our mind.

Read the poem aloud with modifications completed. Discuss the change in imagery having less detail and clarity for the reader. The mind movie might not look exactly like the author intended.

AFTER READING
Practice and Application: Vocabulary & Literature

SAY: Today we will write a poem based on imagery. Think of

	Unit 5, Lesson 3 **3-4** **Classroom Lesson** - **continued**  your favorite object in the world. Tell your partner about that object. Use your five senses to tell all about the object- How does it smell, taste, feel? What does it sound like, look like? Allow student time to share with partner. Then, direct them to turn over their BLM beehives and write the name of their object at the top of the paper. SAY: The poem you write today will draw pictures in the reader's mind through your word choice. Your poem will contain rhyming and one simile. Remember that similes contain the word 'like' or 'as'. If you're having trouble thinking of a simile, ask your partner for assistance. The poem will have one stanza with three to four sentences. Circulate the room and provide assistance as necessary. Allow students time for editing and rewriting. Students can share their poem or post later for a gallery walk at the end of class.

Math Objectives
- Relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models.
- Compare and order fractional forms on a number line.

Math Vocabulary
All Word Wall Vocabulary
TM Lesson 3 vocabulary focus:
multiplication
division
factor
product
arrays
equal sized groups
fact families

***T*ransition to Math Materials**
- **BLM** Beehive problems pgs. 1-2 – 1 sheet of each per student
- **BLM** Beehive Score Sheet – 1 per student
- Yellow marker -1 per student
- http://kids.sandiegozoo.org/animals/insects/bee information and pictures of honeybees
- http://www.youtube.com/watch?v=lE-8QuBDkkw PBS video of beehive activity

ELPS (*English Language Proficiency Standard*)
1C, 2E, 3D, 3E, 3H, 4G

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.B.2., I.B.3., I.E.1., II.D.2.
MATH I.B.1., II.A.1., II.D.1., IV.A.2., VIII.C.1.

Technology:
www.mathnook.com/math/skill/decimalgames.php

Classroom Lesson - continued

TRANSITION to Math

Building Background, Math

Honeybees are pretty important creatures. Without them we would not have flowers, and without flowers we would not have most of our food source.

Did you know that the female honeybees actually run the hive? Oh yes! First the queen runs the whole colony. Then the worker bees are all females. These are the bees that we see flying around most often. They forage for food, build the honeycombs and they protect the hive. What do the males do? Their sole job is to look after the Queen.

Whether living in artificial homes like the beehives in our poem, or making their homes in hollowed trees, buildings, or anywhere they can hang their honeycomb from, honey bees build these wonderful honeycombs made of hexagons. The hive is the nursery. The honey is the food for the maturing larvae.

Now, let's look at your score sheet. I count 27 full or partial cells of this honeycomb. You are going to be given two sheets of problems. Solve the problem anyway you wish, and then have your partner check your answer. If you both agree that the answer is correct, color in one of your hexagonal cells on the honeycomb. We will work until time for our TV Lesson, and you will have time to work during the Follow-up Lesson.

Any questions (*respond to any*). Then you may begin.

Circulate the room to make sure that students are not only working the problems, but having their partners check their answers. Do not intervene, however, unless it is to referee. Your job is to circulate your presence, but also to watch to see if there are any students who need additional practice in certainly skills before the Post-assessment next unit. Call time when it is time for the TV Lesson. Check to see how many cells have been colored in to this point.

Objectives: Review the math and language objectives to see how they were accomplished.

Distribute TV Lesson Materials
- teaspoons - 1 per pair
- salt – 1 teaspoon per pair
- wax paper – 1 6 x 6 sheet per pair
- plastic knives – 1 per pair
- 16 oz. jar of honey – 1 for the room
- **BLM**– Honey Sweet Problems - 1 each per student
- **BLM**– Honey Sweet Problems KEY – teachers only
- http://www.ycbk.org/Honeybee%20Facts%20and%20Trivia.htm Honeybee facts – teacher resource, student handout for follow-up lesson.

BLM Unit 5, Classroom Lesson 3 **I Have Who Has**

(teacher) I have… DOG. Who has… SKY?	I have… DRY. Who has… TREES?	I have… BEES. Who has… RED?	I have… FED. Who has… FISH?
I have… WISH. Who has… SHOE?	I have… BLUE. Who has… STRING?	I have… FLING. Who has… BOX?	I have… SOCKS. Who has… THICK?
I have… STICK. Who has… HUM?	I have… CRUMB. Who has… MOOSE?	I have… LOOSE. Who has… CAR?	I have… STAR. Who has… PAPER?
I have… VAPOR. Who has… CHEESE?	I have… SNEEZE. Who has… LIGHT?	I have… SIGHT. Who has… FUR?	I have… STIR. Who has… HOUSE?
I have… MOUSE. Who has… BUNNY?	I have… SUNNY. Who has… WEATHER?	I have… FEATHER. Who has… FEEL?	I have… STEAL. Who has… FOG?

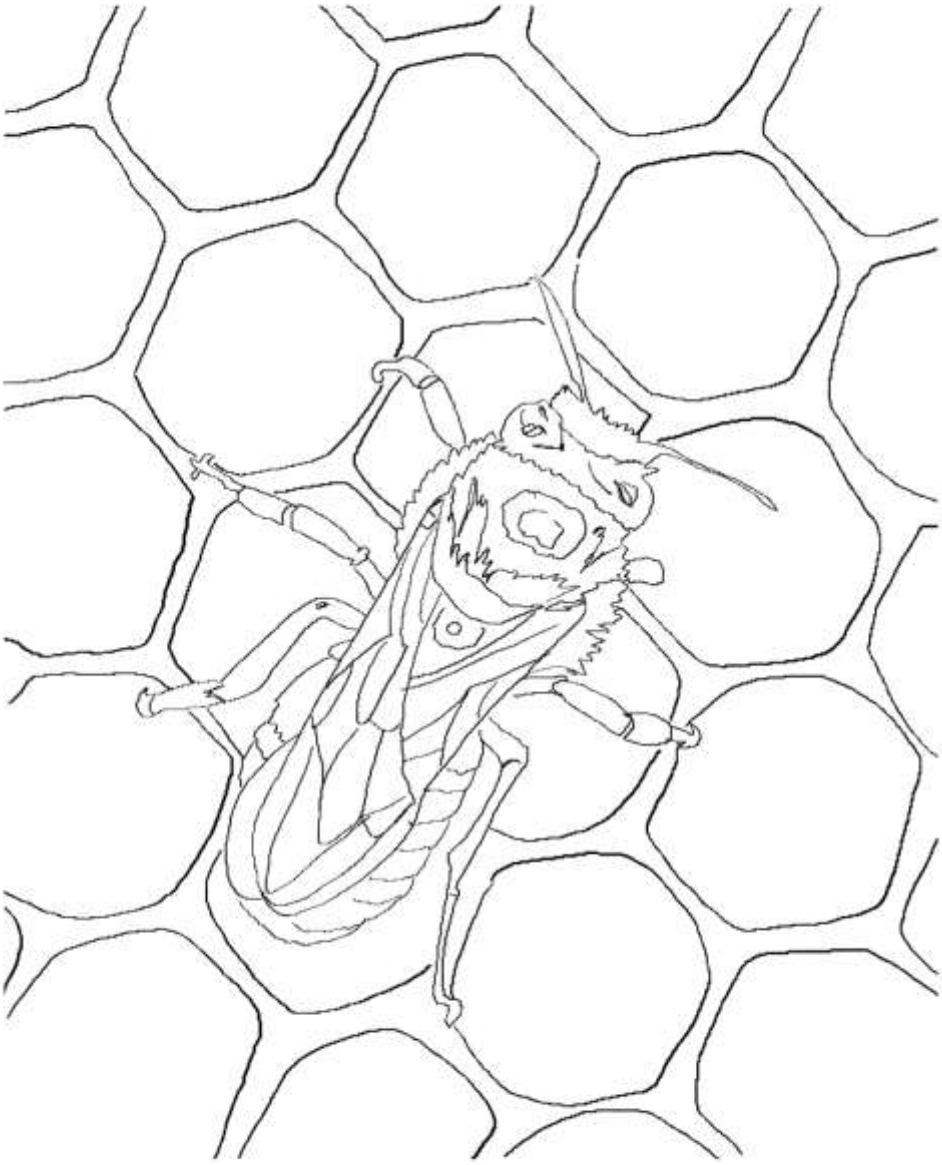
BLM Unit 5, Classroom Lesson 3 **Beehive**

outer cover
inner cover
shallow super for honey
queen excluder
upper deep super for food
lower deep super for brood
screened bottom board
cinder blocks

I like the look of beehives
square against blue sky.
Red and yellow beehives
like houses on the dry
hills of Guerrero,
hot and thick with trees.
I love the sound of beehives
humming loud with bees.

BLM TM Unit 5, Classroom Lesson 3 **Beehive Score Sheet**

One sheet per student

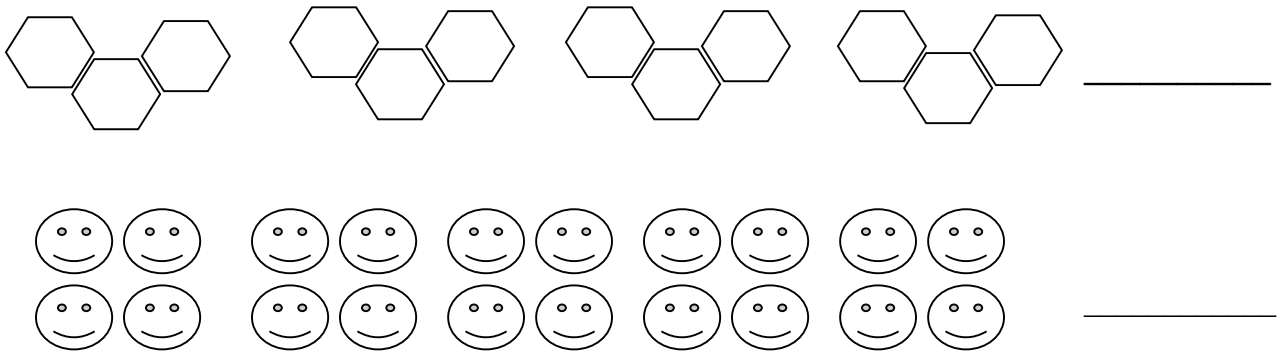


BLM TM Unit 5, Classroom Lesson 3 **Beehive Problems p 1**
One sheet per student

Find the missing number.

5 x ____ = 45 **____x 6 = 48** **4 x 3 = _____** **7 x ____ = 42**

Write the number sentence to represent these equal-sized group pictures.



_____

_____

Write the Fact Families

35, 5, 7	**8, 7, 56**	**3, 9, 27**	**48, 8, 6**

Find the Products (*You may use the back of this sheet to show your strategy.)*

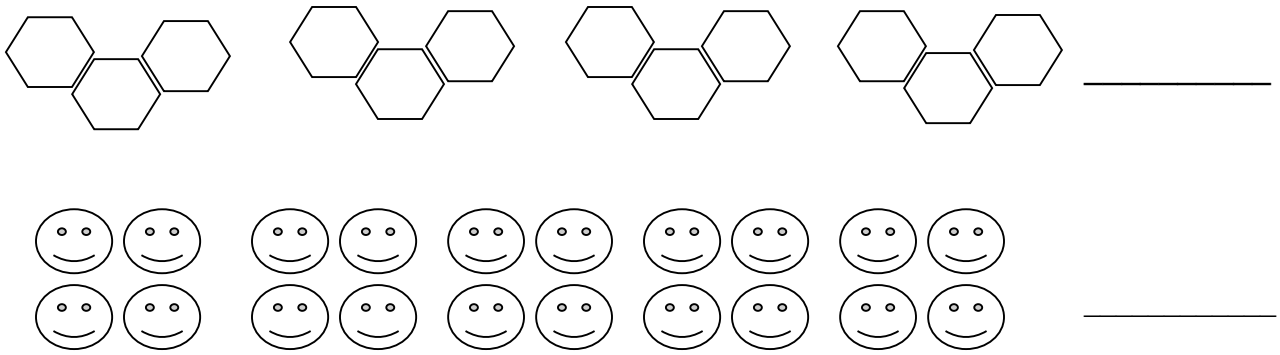
23 x 12 = **15 x 16 =** **14 x 21 =** **15 x 13 =**

BLM –TM Unidad 5, Lecciones en salón de clases 3 **Problemas con colmenas p 1**
1 hoja por estudiante

Encuentra los números que faltan.

5 x ____ = 45 **____x 6 = 48** **4 x 3 = _____** **7 x ____ = 42**

Escribe la oración numérica para representar estos grupos de dibujos del mismo tamaño.



_____

_____

Escribe las familias de hechos

35, 5, 7	**8, 7, 56**	**3, 9, 27**	**48, 8, 6**

Encuentra los productos (*Puedes usar el reverso de esta hoja para mostrar tu estrategia.)*

23 x 12 = **15 x 16 =** **14 x 21 =** **15 x 13 =**

BLM TM Unit 5, Classroom Lesson 3 **Beehive Problems p 2**
One sheet per student

Name the decimal.

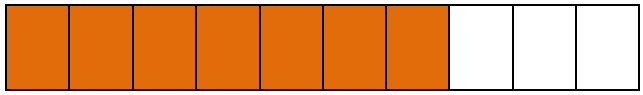
0.9 _____ **4.09** _____

3.5 _____ **6.21** _____

Write the fraction as a decimal.

$3\frac{5}{10} =$ $4\frac{7}{100} =$ $2\frac{21}{100} =$ $9\frac{99}{100}$

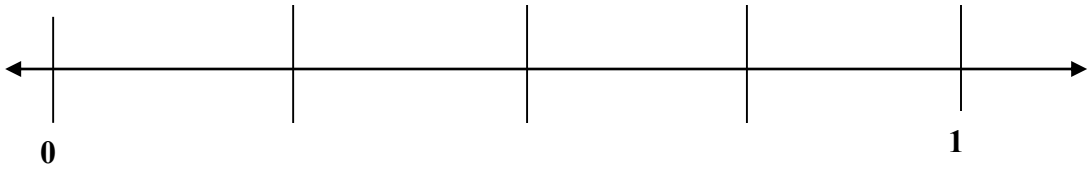
Name the decimal modeled by the shaded portion of each bar.



_____ _____

Place the decimals on the number line. Each decimal counts as 1 cell on the honeycomb.

0.75 0.25 0.33 0.5



BLM TM Unit 5, Classroom Lesson 3 **Beehive Problems p 2**
One sheet per student

Nombra el decimal.

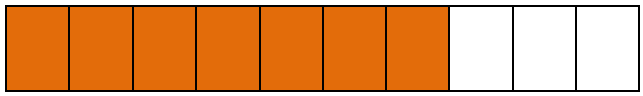
0.9 _____ **4.09** _____

3.5 _____ **6.21** _____

Escribe la fracción como decimal.

$3\frac{5}{10} =$ $4\frac{7}{100} =$ $2\frac{21}{100} =$ $9\frac{99}{100}$

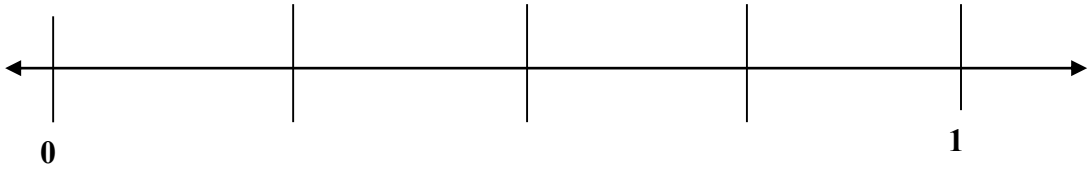
Nombra el decimal indicado por la parte sombreada de cada barra.



_____ _____

Coloca los decimals en la recta numérica. Cada decimal cuenta como 1 celda en el panal.

0.75 0.25 0.33 0.5



Literature Vocabulary

- simile
- metaphor
- rhyme
- rhythm
- verse
- repetition
- alliteration
- imagery
- stanza
- mood

Math Vocabulary
All Word Wall Vocabulary
TV Lesson 3 vocabulary focus:
fractions
equivalent
more than
less than

Materials

- teaspoons - 1 per pair
- salt – 1 teaspoon per pair
- wax paper – 1 6 x 6 sheet per pair
- plastic knives – 1 per pair
- 16 oz. jar of honey – 1 for the room
- **BLM**– Honey Sweet Problems - 1 each per student
- **BLM**– Honey Sweet Problems KEY – teachers only
- http://www.ycbk.org/Honeybee%20Facts%20and%20Trivia.htm Honeybee facts – teacher resource, student handout for follow up lesson.

ELPS (*English Language Proficiency Standard*)
1C, 2B, 2C, 2E, 3B, 3C, 4I

CCRS *(College and Career **Readiness Standards)***
CROSS-CURRICULAR I.A.1., I.B.4., I.C.2., I.C.3., II.C.1
ELA I.A.1., II.A.3., III.A.1., IV.A.2.
MATH I.A.1., I.B.1., II.A.1., II.B.1.,IV.A.1., IV.A.2., IV.B.1.

Unit 5, Lesson 3 3-4

TV Lesson

Read objectives while pointing to the words in the math objectives. After each math objective, show children what that means.

Math Objectives:

- Compare and order fractional forms.

Language Objectives:

- Use the math vocabulary during the activity.
- Discuss answers and possible strategies with classmates.
- Explain decimal relationships.

Building Background
Honeybees are really fascinating creatures! Did you know that a honey bee can fly up to 15 miles per hour? Olympic Champions have hit a top speed of 27 miles per hour, but that was for about 10 seconds. The average sustained speed, or a pace that a trained athlete could continue for long distance, is about 5 to 8 miles per hour.

Another fact that interested me is that a worker bee produces about $1/10^{th}$ of a teaspoon of honey in her lifetime. You have a teaspoon with you. Take a look at that measure. That's not a lot of honey, is it? Let's see how much $1/10^{th}$ would be.

You should have a teaspoon of salt on a piece of wax paper. You and your partner find a way to approximately divide that salt into tenths. We will give you a little time. *(pause)*

Now, tell your class what you did *(pause)*. Here is what we did. I made a furrow of the salt, then took the knife and divided it into half *(do so, pulling the halves apart)*. Then I took each half and divided them into fifths *(repeat the process)*. I have five parts here, and five parts here.

Now I have 10 equal parts of one teaspoon of salt. Not much there, is there! This is equivalent to the amount of honey a worker bee produces in her lifetime.

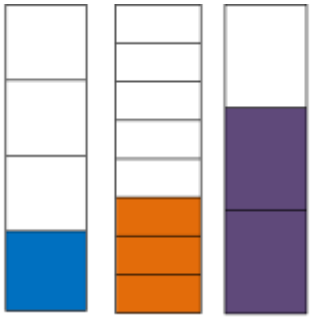
Take a look now at this jar of honey. This is one pound of honey. And at the stores there are hundreds of jars from beekeepers in our area.

And yet one honeybee takes a lifetime to produce the amount of honey modeled by this $1/10^{th}$ teaspoon of salt. I find that amazing!

CLASSROOM TEACHERS
The discussion will be very quick today during this part of the lesson.

CLASSROOM TEACHERS

SMARTBOARD – Model the problem.



Unit 5, Lesson 3 — 3-4
TV Lesson - continued

What is also amazing is that in the wild it takes 60 pounds, or 60 of these jars of honey, to feed a bee colony over a winter. That is why there could be 60,000 bees in one colony in the wild – it takes a lot of bees to make that much honey! AND, the colony can produce about 100 pounds EXTRA, which is what the beekeeper harvests to sell.

Think about how hard the worker bees worked to generate the honey in these problems.

Comprehensible Input
Read problem #1 by yourself. Remember that you must justify your answer – that means you need to show us in models and explain in words why you chose your answer. (*generous pause*)

In my math movie, I see three containers of honey. All of the whole cups are the same, so I'm only going to compare the fractions. I can do it visually with a drawing. Here is my 3/8 cup *(draw)*. Now I will use the same whole to divide into fourths *(do so)*. Well, Karen does have enough honey for this recipe. Let's check that second recipe. She needs 2/3 of a cup. I take the same size whole and divide it into three equal parts *(do so)* and show two of them. Nope, this one takes more honey than Karen has in her pantry!

But I could also have used number sense to solve this problem. If I can visualize these amounts and think about equivalencies, I can do this.

OK, let's think about the ¼. It takes 2/8 to equal ¼; so sure, 3/8 is more – she could definitely use that first recipe.

Now for the 2/3. I know that 2/3 is more than half – those are benchmark fractions. It takes 4/8 to equal ½, so Karen doesn't even have half in her fraction of honey. Half is still less than 2/3.

You can solve it either way – but remember, you do need to use some words – even if you just label the drawings with "Karen has" "Karen has a little more than this" "Karen doesn't have enough for this."

Be sure to answer the question – Karen can use the first recipe, OR Karen can use the recipe that calls for 1 3/8 cups of honey.

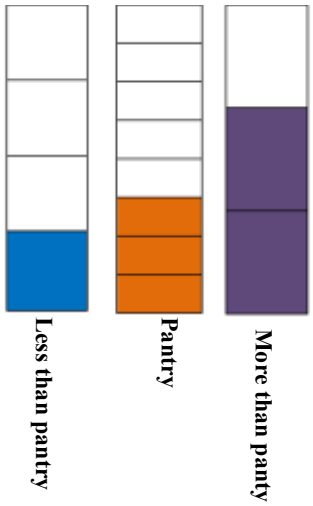
(*If you have time, please work the second problem. It will be important for students to understand that these are estimates. By the way, these really are the measurements of the cells containing the various types of larvae*.)

	Unit 5, Lesson 3 **3-4** **TV Lesson** - continued  **Problem 2** – actually this one is pretty simple. We can eliminate the Queen Bee right away – the area of her cell is $3in^2$ and then some. I can use the strip model to compare the fractional part of the worker bee and the drone bee cells (draw the three models – worker, drone, and incomplete cell). The drawing shows me that 1/16 is a lot smaller than ½. And, the unfinished cell is already much larger than the 1/16. By the drawings, I would say that this is a Drone bee cell. I could also use number sense. The incomplete cell is almost 2 ½ inches because 4/8 is equivalent to ½. The Drone bee cell is 2 ½ inches. The worker bee cell completed is much smaller than 2 ½. By reasoning, it is probably the Drone bee cell.
Classroom Teachers: If TV Teacher cannot model the last problem, please do so before beginning the Follow-up Lesson.	
Arthimus Portio's Corner **Unit 5 Lesson 3-** **Word Problem** Write a class story problem today for me to solve. Remember, you have to be able to solve it, too!	**Pirate:** That facts sheet that you have has a lot of information on it about honeybees. I wonder if the students could write a problem that I cannot solve. It would have to be challenging, but they also have to know the answer and be able to show strategies. **Teacher:** Hmm, you are pretty wise when it comes to math, Arthimus. You think they can stump you? Well, we will see. Send in your problems to MAS Space using some of the hints about bees. And everyone can solve everyone's problems, too! **Objectives:** And now before we go, let's review what we have learned today! (*do so*)

BLM Unit 5, TV Lesson 3 **Honey Sweet Problems KEY**

One sheet per student

Karen had $1\frac{3}{8}$ cups of honey in her pantry. She had 2 recipes for honey muffins she wanted to bake. One recipe called for $1\frac{1}{4}$ cup of honey. The second called for $1\frac{2}{3}$ cups of honey. Which recipe could she make with the honey she had in her pantry? **Justify your answer.**



Karen only has enough for the first recipe.

Number Sense:

- ***Karen has 1 3/8 cups – that's almost half***
- ***1 1/4 cups is less than half – so this is possible***
- ***1 2/3 cup is more than half – this is not possible***

Charlie is a beekeeper. He has measured the sizes of the cells in the honeycomb in inches and has found that the type of bee produced seems to determine the size of honeycomb cell it lives in. See the chart for his findings. **Justify your answer.**

Worker bee	$2\frac{1}{16}$
Drone bee	$2\frac{1}{2}$
Queen	$3\frac{3}{8}$

Charlie found a cell that was not quite finished. He measured and found that it was $2\frac{3}{8}$ inches. Using what you know about fractions, which bee would probably be produced in that cell?

You can eliminate the Queen because her cell is greater than 3 in^2. The incomplete cell is already larger than the Worker Bee, so it must be a Drone Bee cell.

BLM Unit 5, TV Lesson 3 **Honey Sweet Problems**

One sheet per student

Karen had $1\frac{3}{8}$ cups of honey in her pantry. She had 2 recipes for honey muffins she wanted to bake. One recipe called for $1\frac{1}{4}$ cup of honey. The second called for $1\frac{2}{3}$ cups of honey. Which recipe could she make with the honey she had in her pantry? **Justify your answer.**

Charlie is a beekeeper. He has measured the area of the cells in the honeycomb in square inches and has found that the type of bee produced seems to determine the size of honeycomb cell it lives in. See the chart for his findings. **Justify your answer.**

Worker bee	$2\frac{1}{16}$
Drone bee	$2\frac{1}{2}$
Queen	$3\frac{3}{8}$

Charlie found a cell that was not quite finished. He measured and found that it was $2\frac{3}{8}$ in^2. Which bee would probably be produced in that cell?

BLM Unit 5, TV Lesson 3 **Honey Sweet Problems**
One sheet per student

Karen tenía $1\frac{3}{8}$ tazas de miel en su alacena. Ella tenía 2 recetas para pastelitos de miel que quería hornear. Una receta requería $1\frac{1}{4}$ taza de miel. La segunda requería $1\frac{2}{3}$ cups of honey. ¿Qué receta podía hacer con la miel que tenía en su alacena? **Justifica tu respuesta.**

Charlie es un apicultor. Él ha medido el área de las celdas en el panal en pulgadas cuadradas, y ha encontrado que el tipo de abeja producida parece determinar el tamaño de la celda del panal en la que vive. Mira la tabla para ver sus hallazgos. **Justifica tu respuesta.**

Abeja obrera	$2\frac{1}{16}$
Zángano	$2\frac{1}{2}$
Reina	$3\frac{3}{8}$

Charlie encontró una celda que no estaba del todo terminada. La midió y descubrió que medía $2\frac{3}{8}$ pulgadas ^{2}. ¿Qué abeja produciría probablemente esa celda?

Literature Vocabulary

- simile
- metaphor
- rhyme
- rhythm
- verse
- repetition
- alliteration
- imagery
- stanza
- mood

Math Vocabulary
Repeated vocabulary
factors
products
fact family
fractions
decimals
equivalent
more than
less than

Materials
Per partners:

- **BLM** Family Fun Game Problem Cards
- **BLM** Family Fun Board
- **BLM** Family Fun Motion Cards
- **BLM** Family Fun Special 3-4 Instructions
- **BLM** All-Level Answer Key

Per Student

- Game markers
- Light color marker or crayon
- **BLM** grid sheets
- Set of all game materials to take home – per student
- http://www.ycbk.org/Honeybee%20Facts%20and%20Trivia.htm Honeybee facts – teacher resource, student handout for follow up lesson.

ELPS (*English Language Proficiency Standard*)
2C, 2E, 3E, 3G, 4G, 5B, 5C

CCRS *(College and Career **Readiness Standards**)*
CROSS-CURRICULAR I.A.1., I.C.2., I.E.2., II.C.1.
ELA I.A.1., I.A.2., I.A.3., II.A.2., II.A.3., III.B.1.
MATH II.A.1., II.A.2., IV.B.2., VIII.A.3., VIII.A.4

Unit 5, Lesson 3 3-4

Follow-up

Math Objectives:

- Practice all of the skills from the summer session.

Language Objectives:

- Listen and speak with a partner during our math activity.
- Use the math vocabulary during the activity.
- Write math journal response.

Building Background, Math
(Finish any problems left *from the TV Lesson. Be sure to use the key and the TV script to guide you in discussing the strategies*.)

Practice and Application
Family Fun Game – this is the last game that will go home this summer session. Simply let them play in partners. Be sure that you circulate the room to see if there are areas the students need more practice before you administer the Post-assessment at the beginning of the next Unit.

After the game, students may complete their honeycomb practice from the TM Lesson.

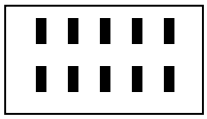
Math Journal Writing
Students should have a spiral notebook into which they journal their thoughts daily about math. Today's journal prompt is:

Read facts about bees from the fact link in the TV Lesson. Work as a class to create a story problem for Arthimus to solve. The problem must be a problem, and must be one that we can solve.

Objectives: Review the objectives with the class, making sure they understand how they achieved each.

BLM Unit 5, Follow-up Lesson 3 **Family Fun Game Cards**

Printed in ***Green*** –one set per partners for class; one set per student for home. (There are two pages of cards.)

A. $40 \div \square = 4$	**B**. $36 \div \square = 6$	**C**. $\square \div 8 = 6$
D. The honeycomb had 32 cells arranged in 4 diagonal columns of equal cells. How many cells were in each column?	**E**. The head worker bee signaled a huge flowering bush. 54 bees came from the hive in sets of 4. How many sets flew to the flowering bush?	**F**. There were 4 Aztec floating gardens planted like this. How many plants were there in all 4? 
G. Draw an array to model 5 x 4. You may use the array paper.	**H**. Draw an array to model 3 x 8. You may use the array paper	**I**. Draw an array to model 5 x 6. You may use the array paper

BLM Unit 5, Follow-up Lesson 3 **Family Fun Game Cards**

Printed in ***Green*** –one set per partners for class; one set per student for home. (There are two pages of cards.)

J.
Write the following fraction as a decimal.

$$5\ \frac{24}{100}$$

K.
Write the fact family for

5, 7, 35

L.
Draw a picture model of

2 x 6

M.
How do you read this number?

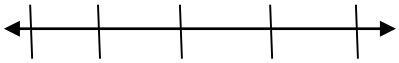
11.07

N.
This model show $\frac{1}{2}$

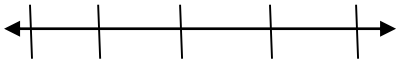
Model and name a different equivalent fraction.

O.
What part is UNshaded?
Write as a decimal.

P.
Show where you would place **0.25** on the number line.



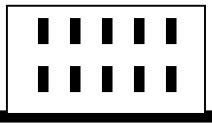
Q.
Show where you would place **0.5** on the number line.



R.
Show where you would place **0.66** on the number line.

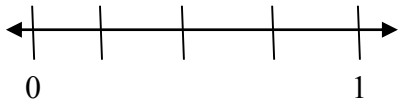
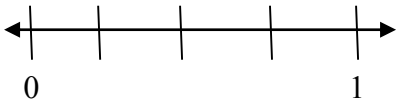
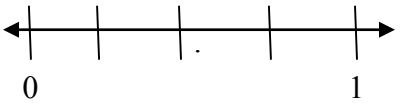
BLM Unit 5, Follow-up Lesson 3 **Family Fun Game Cards**

Printed in ***Green*** –one set per partners for class; one set per student for home. (There are two pages of cards.)

A. $40 \div \square = 4$	**B**. $36 \div \square = 6$	**C**. $\square \div 8 = 6$
D. El panal tenía 32 celdas organizadas en 4 columnas diagonales con el mismo número de celdas. ¿Cuántas celdas había en cada columna?	**E**. La abeja obrera principal señaló un gran arbusto con flores. 54 abejas vinieron de la colmena en grupos de 4. ¿Cuántos grupos volaron al arbusto con flores?	**F**. Había 4 jardines flotantes aztecas plantados de este modo. ¿Cuántas plantas había en total en los 4? 
G. Dibuja una matriz para modelar 5 x 4. Puedes usar el papel para matrices.	**H**. Dibuja una matriz para modelar 3 x 8. Puedes usar el papel para matrices.	**I**. Dibuja una matriz para modelar 5 x 6. Puedes usar el papel para matrices.

BLM Unit 5, Follow-up Lesson 3 **Family Fun Game Cards**

Printed in ***Green*** –one set per partners for class; one set per student for home. (There are two pages of cards.)

J. Escribe la siguiente fracción en forma decimal. $5\ \frac{24}{100}$	**K**. Escribe la familia de hechos para **5, 7, 35**	**L**. Dibuja una imagen modelo de **2 x 6**
M. ¿Cómo lees este número? **11.07**	**N**. Este modelo muestra $\frac{1}{2}$  Modela y nombra una fracción diferente equivalente	**O**. ¿Qué parte está SIN sombrear? Escribe en forma decimal.
P. Muestra dónde colocarías **0.25** en la recta numérica.  0 1	**Q.** Muestra dónde colocarías **0.5** en la recta numérica.  0 1	**R.** Muestra dónde colocarías **0.66** en la recta numérica.  0 1

BLM TM Unit 5, Lesson 3 **Family Fun Game Array Paper**

BLM TM Unit 5 Lesson 3 Special 3rd – 4th – Instructions

Materials:

- Paper and pencil
- Game marker
- **BLM** Unit 4 3-4 Family Fun Problem Cards (green)
- Family Fun Movement Cards (white)
- Family Fun Game Board
- **BLM** Special 3rd-4th Instructions
- **BLM** Unit 4 Family Fun Game Answer Key, all levels
- **BLM** Family Fun Game Array Paper

Solution Expectations

Problems A - C

- Students are expected to find the unknown. Using Fact Families would be most helpful.

Problems D-F

- Students use whatever strategy they wish to solve the word problems. Be careful with F – the farmer had 5 fields like the one drawn.

Problems G - I

- Students are expected to draw arrays. They may be base ten arrays, grid arrays (for which grids are provided), or hand-drawn arrays

Review Problems

- **J –** fraction to decimals
- **K** – fact family: all 4 number sentences
- **L** – any picture model, with group indicators or without.
- **M** – read appropriately (11 AND 7 tenths)
- **N** – any equivalent fraction other than ½
- **O** – identify the shaded portion as a decimal
- **P** – must use a benchmark decimal to estimate the location of .33.
- **Q** – benchmark decimal
- **R** – benchmark decimal

BLM Unidad 5, Lección 3 Instrucciones especiales 3º – 4º

Materiales:

- Papel y lápiz
- Piezas de juego
- **BLM** Unidad 4 3-4 cartas de problemas de Diversión Familiar (verdes)
- Cartas de movimiento de Diversión Familiar (blancas)
- Tablero de juego de Diversión Familiar
- Instrucciones especiales 3º-4º de **BLM**
- Guía de respuestas del juego de Diversión Familiar de la Unidad 4 de **BLM**, todos los niveles
- Papel para matrices del juego de Diversión Familiar **BLM**

Expectativas de solución

Problemas A – C

- Se espera que los estudiantes encuentren el valor desconocido. Usar familias de hechos sería lo más útil.

Problemas D-F

- Los estudiantes utilizan cualquier estrategia que deseen para resolver los problemas razonados. Cuidado con F - el granjero tenía 5 campos como el mostrado.

Problemas G – I

- Se espera que los estudiantes dibujen matrices. Pueden ser matrices base diez, matrices de cuadrícula (para las que se proporcionan cuadrículas), o matrices dibujadas a mano.

Problemas de repaso

- **J** - fracción a decimales
- **K** - familia de hechos: todas las 4 oraciones numéricas
- **L** - cualquier modelo de imagen, con o sin indicadores de grupo
- **M** - leer apropiadamente (11 Y 7 décimos)
- **N** – cualquier fracción equivalente diferente de ½
- **O** - identificar la porción sombreada en forma decimal
- **P** - debe usar un punto de referencia decimal para estimar la ubicación de 0.33.
- **Q** - punto de referencia decimal
- **R** - punto de referencia decimal

Tablero de juego

Materiales genéricos para todas las unidades:

- Fichas para jugar
- Tarjetas del juego para su nivel
- Clave de respuestas para su nivel
- Tarjetas de movimiento del juego (blancas)
- Lista de materiales específicos de la unidad

Cómo se juega

1. Empiece en una de las esquinas. Puede haber más de
1 jugador en cada figura de inicio.
2. Cuando sea su turno, saque una de las tarjetas de
juego de su nivel y resuelva el problema.
3. Uno de los otros jugadores usa la clave de respuestas
para ver si su respuesta es correcta. Si es correcta, saque una tarjeta de movimiento y mueva su ficha como lo indica la tarjeta.
   - Movimiento hacia adelante en el sentido de las manecillas del reloj.
   - Movimiento hacia atrás en el sentido contrario a las manecillas del reloj.

   Si es incorrecta, no se mueve.
4. El juego se acaba cuando la primera persona recorre
toda la pista y termina en la figura de inicio.

Generic Family Fun Game Board

Materials Generic to All Units:

- Game Markers
- Game Cards for your Level
- Answer Key for your Level
- Game Movement Cards (white)
- Unit-specific Materials List

Playing the Game

1. Begin in one of the corner shapes. There may be more than 1 player in each starting shape. Remember where you started.
2. On your turn, draw one of your level game cards and work the problem.
3. One of the other players uses the Answer Key to check your answer. If correct, draw a movement card and move the given places
   - Forward movement in a clockwise direction.
   - Backward movement in a counter clockwise direction.

   If incorrect, do not move.
4. Game is over when the first person runs the entire track, ending back on the starting shape.

BLM E Follow-up Lesson 3 Family Fun Game Movement Cards

Printed in White – 1 set for the TV Lesson Demo. 1 set per partners for class; 1 set per student for home.

Move forward 1 space	**Move forward 1 space**	**Move forward 1 space**
Move forward 1 space	**Move forward 1 space**	**Move forward 1 space**
Move forward 2 spaces	**Move forward 2 spaces**	**Move forward 2 spaces**
Move back 1 space	**Move back 1 space**	**Move back 1 space**
Move forward 3 spaces	**Move forward 2 spaces**	**Move forward 3 spaces**

FAMILY FUN

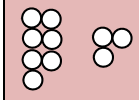
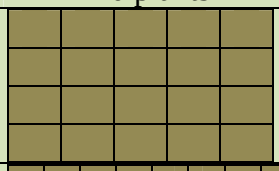
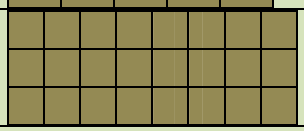
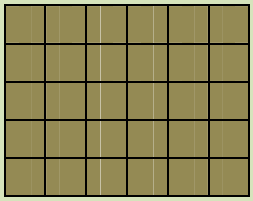
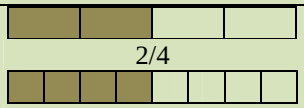
One per student for home
One per partner pair in class

*Print on **white** paper.*

Family Fun – Movement Cards

Avanza un espacio	**Avanza un espacio**	**Avanza un espacio**
Avanza un espacio	**Avanza un espacio**	**Avanza un espacio**
Avanza 2 espacios	**Avanza 2 espacios**	**Avanza 2 espacios**
Retrocede 1 espacio	**Retrocede 1 espacio**	**Retrocede 1 espacio**
Avanza 3 espacios	**Avanza 3 espacios**	**Avanza 3 espacios**

BLM All-School Unit 5, Lesson 3 **Family Fun Game Answer Key**

Problem Letter	Kinder	1-2	3-4	5-6	7-8
A	5 baby ducks	23	10	0.5	3 units
B	9 baby ducks	39	6	$8\frac{1}{8}$	1 unit
C	9 baby ducks	70	48	$0.01	2 units
D	3 kernels	37	8 cells	1,111,111,110	50%
E	8 kernels	6	6 bees	54.657 grams salt	50%
F	1 crumb	17	40 plants	11.92% chemical B	75%
G	 10	21		$27.45 tax	20
H		66		$350 tip	32.5
I	Half OR one of 2 equal pieces OR fair shares. (See Kinder Special Instructions for answer to second part.)	$\frac{1}{8}$		$90 interest	18
J	Dime	Cut the cake into 8 shares	5.21	$230 charged	$5.00 earned
K	Penny	Yes. There are 2 equal pieces	5 x 7 = 35 7 x 5 = 35 35 ÷ 7 = 5 35÷ 5 = 7	3 cups cashews	$6.00 earned
L	Nickel	8	xx xx xx xx xx xx	10% tip	$16.74 total bill with tip
M	Quarter	4 + 5 = 9	Eleven and seven hundredths	False. Scale factor not consistent	$3.00 tip
N	Top group	12 – 2 =10	 2/4  4/8	True. Scale factor = (÷4) or (x $\frac{1}{4}$)	$11.10 tip
O	Bottom group	12	0.3	120 cotton balls: 1 bag	$6.97
P	14	9	Line closest to 0	48 babies	$20.00 retail
Q	9	7, 3	Line in the middle	$\frac{12}{12}$ or 1 whole	$22.50 sales price
R	15 beans Card 15	9+ 5 – 14 5 + 9 = 14 14 – 9 = 5 14 – 5 = 9	Between 0.5 and 0.75, closer to 0.75	$2\frac{7}{15}$	$9.00 sales price

Math Objectives
- Represent equivalent fractions using pictorial models.
- Compare two fractions having the same denominator.
- Determine if two given fractions are equivalent.
- Recognize tenths and label in fraction and decimal form.

Language Objectives
- Discuss fraction comparisons.
- Discuss fraction equivalencies.
- Discuss fraction/decimal equivalencies.

Vocabulary
halves
fourths
sixteenths

Materials:
- **BLM** Bagels and Cream Cheese Fractions - 1 per student

Per Partners:
- 1 bagel
- 4T cream cheese
- 2 paper plates
- 2 paper towels
- 2 plastic knives
- Chart paper with question**: Which share was larger, 1/2 or 1/4? How do you know?** Put a copy of the record sheet at the top of the chart with the question

Unit 5, Lesson 3 3-4

Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

First, look at the bagel and cream cheese. Talk to your partner about how you will divide the snack fairly between you. (*Give students time to discuss. Listen to their discussions, but do not interfere.)*

Share your plans with the class (*Each group should share. After each sharing, have the class decide if the planned strategy would give each partner a fair share by drawing the bagel and four T cream cheese on the board and dividing them as per the partners' descriptions. Leave each drawing on the board to be compared to others. Decide that the fair shares are half of the snack.)* Let students then divide their snacks between the partners and direct them to the BLM Bagel and Cream Cheese Fractions. Help them understand that the rectangles are going to represent one bagel for this lesson.

(*Circulate the room. Share when all are finished)*

Snack Fraction Journal Writing: Bagels and Cream Cheese Chart Paper
Which share was larger, ½ or 1/4? How do you know?

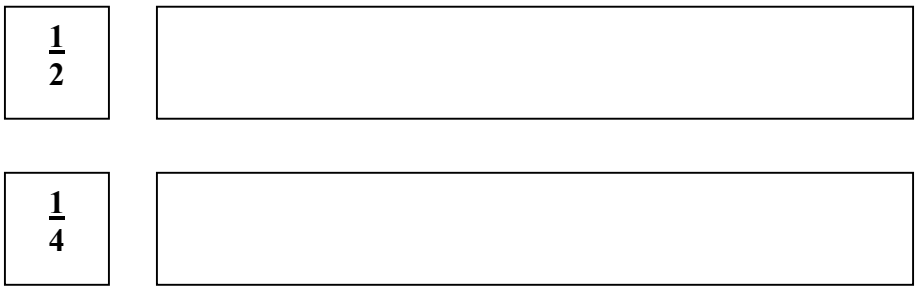
Objectives: Review the objectives with the class, making sure they understand how they achieved each.

BLM Unit 5, Snack Fraction **Bagels and Cream Cheese Fractions**
(One sheet per student)

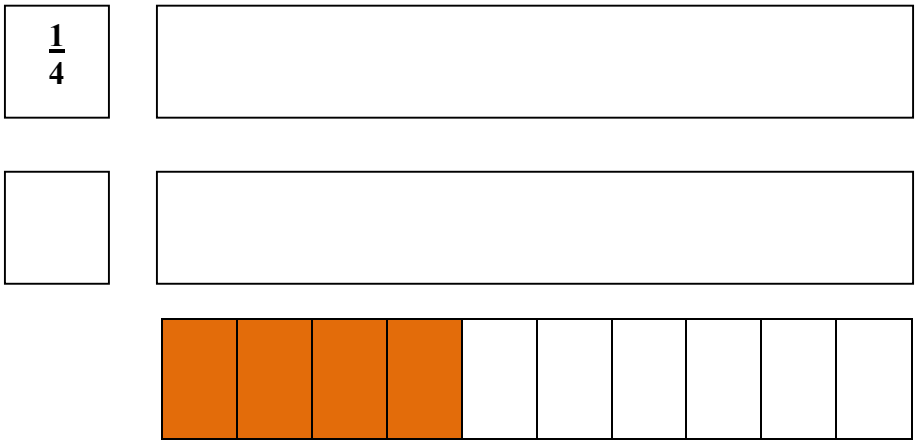
Name _____

These rectangles represent the Bagel. Follow the directions to divide the rectangle and compare the pieces.

Which fractional piece of the bagel (rectangle) is larger?
Circle your answer.
Use pictures to verify your answer.



Use the picture below to find an equivalent fraction to one-fourth.



Write a comparison statement comparing your equivalent fraction to the shaded portion of the bar. (<, >, or =) _____ ◯ _____

BLM Unidad 5, Fracción de refrigerio **Fracciones de roscas con queso crema**
(1 hoja por estudiante)

Nombre _____

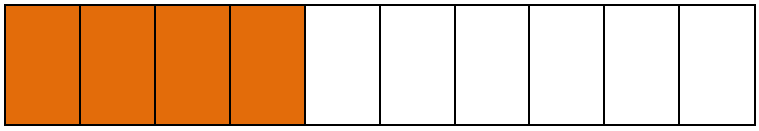
Estos rectángulos representan la rosca. Sigue las instrucciones para dividir el rectángulo y comparar las piezas.

¿Qué parte fraccional de la rosca (rectángulo) es mayor?
Circula tu respuesta.
Usa dibujos para verificar tu respuesta.

$\frac{1}{2}$	
$\frac{1}{4}$	

Usa la siguiente imagen para encontrar una fracción equivalente a un cuarto.

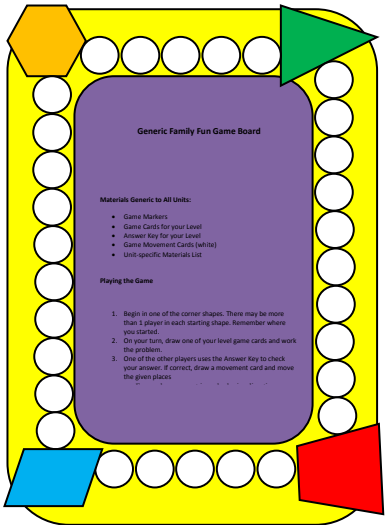
$\frac{1}{4}$	



Escribe una oración para comparar tu fracción equivalente con la porción sombreada de la barra. (<, >, o =) _____ ◯ _____

Family Fun – 3rd -4th, Unit 5 Lesson 3

Family Fun Game!



It's our Family Fun Game time for this unit. We'll be practicing the skills we learned in this summer! This is our last Family Fun Game to come home for this summer session.

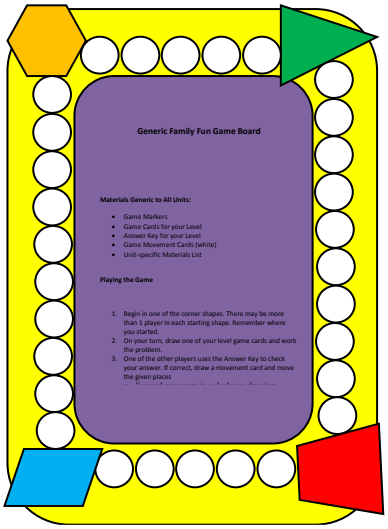
Here are some of the skills I especially want to practice.

Thank you for sharing fun and summer learning with all of us!

_____

Family Fun - 3rd -4th, Unit 5 Lesson 3

Juego de diversión familiar



Es hora de jugar el juego de diversión famliar. ¡Vamos a practicar las habilidades que aprendimos este verano!

Estas son algunas habilidades que quiero practicar…

¿Gracias por ayudarme este verano!

_____

FAMILY FUN Involvement **3rd-4th**
Overview for Unit 5, *My Mexico*

This overview will provide a one-page view of the suggested Family Fun Activities for this unit, as well as other opportunities provided for Family Involvement.

Lesson 1

- Students can review the word cards they already have at home.
- Family Fun Unit 5 Lesson 1 Letter with ideas for involving the family in money matter

Lesson 2

- Family Fun Unit 5 Lesson 2 Letter

Lesson 3

- Family Fun Unit 5, Lesson 3 attached to the Family Fun Game supplies.
- Family Fun Game

Enrichment Suggestions

This portion of the curriculum, although NOT required, should be used as needed to supplement and enrich the Unit's activities.

Family Fun Suggestions:
- Find bees at home
- Create a maze plan on paper

Possible Center Suggestions:
- Art activity

ENRICHMENT Suggestions 3rd-4th

Unit 5 *My Mexico*

MATH WALK

Corn Maze Walk – Do you have a corn maze near you? Take the students on a field trip through it! Want to make your own walking maze? Here is a link that can help your students, with possibly the help of older students and adults, make a walking maze. http://gwydir.demon.co.uk/jo/maze/design/

Technology Connections

- **Math Practice**
  - http://mrnussbaum.com/decimals_games/
    Decimal games
    http://www.amblesideprimary.com/ambleweb/mentalmaths/dividermachine.html
    Division games
    http://www.multiplication.com/games/play/jungle-jim-and-monkeys
    Multiplication games
- **Science Connection**
  - http://www.youtube.com/watch?v=DNphB0OdOBE
    Video of making a corn maze
    http://kids.nationalgeographic.com/kids/animals/creaturefeature/honeybees/
    More information about honey bees
    http://kids.discovery.com/tell-me/animals/bug-world/bee-world/why-are-honeybees-called-worker-bees
    More on honeybees
- **Social Studies Connection**
  - http://www.unmuseum.org/maze.htm
    History of garden mazes.
    http://www.ducksters.com/history/aztec_maya_inca.php
    History of Aztecs for children
    http://clccharter.org/lilian1/aztecfarmingandagriculture.html
    Research project by a student. You need a plug in for the movie, but there is more on the page to use. Interesting tie in to the corn.
- **Art Connection**
  - http://www.wikihow.com/Draw-a-Basic-Maze
    Draw a basic maze.
    http://krazydad.com/mazes/
    Easy to hard mazes to solve.
    http://crafting.squidoo.com/easy-crafting-for-kids
    Scroll down for Aztec Pottery.
    http://www.ehow.com/way_5294594_aztec-art-craft-project-ideas.html
    Aztec Art Projects
    http://www.pinterest.com/czpeek/kid-s-bee-crafts/
    Samples of honeybee art projects.

Math Objectives

(TM1) Corn Cob Fractions Game

(TV1) Focus on multiplication and division

- Relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models.
- Compare and order fractional forms.

(TV2) Focus on fractions, assessment 4, item 5

- Represent multiplication facts using a variety of approaches such as equal-sized groups, arrays and area models.
- Determine the number of objects in each group when a set of objects is partitioned into equal share or a set of objects is shared equally.
- Represent the product of 2 two-digit numbers.

Differentiate

TM 1 -The Decimal Battle offers your students more decimal recognition/comparison practice. The Dragon Roll practices number sentence multiplication and fact families. This unit focuses on multiplication including double digits, arrays, and division. ***Daily Routines Fraction Action and Measurement Lab are very important to assessment preparation in this unit.***

Snack Fraction Notice

All snack fractions are common throughout the grade bands. Lesson 2 has been suggested for its ease of delivery. The only difference in lessons 1, 2, 3 are the foods which are divided equally.

Materials

(TM1) Optional

- BLM TM Corn Cob Fractions Cards
- Dice – 1 pair per partners
- Base ten units – 40 per partners
- **BLM TM Corn Cob Fractions Score Sheet–**

(TV1)

- Multiple web links provided to give students visuals of problems.
- **BLM** Corn Problems – 1 per student

(TV2)

- Multiple web links provided to give students visuals of problems.
- Straight edge – 1 per student
- Light colored marker such as yellow – 1 per student
- Black marker – 1 per student
- **BLM** Aztec Common Dwellings 1 & 2 – 1 each per student

Family Fun – all game BLM and supplies including 50 counters per student.

Snack Fractions – Follow-up lesson 2

Per Student

- **BLM** Snack Bag Fractions
- **1 individual servings bag of 100 calorie snack**
- 8 lima beans

Per Partners:

- 2 Paper plates
- 2 paper towels
- Chart paper with question**: How do you know that 3/4 = 6/8?**

QUESTIONING

As a result of this lesson, your students should be able to respond to the following:

- Describe your math movie.
- What do you know from the data given in the problem?
- What are you asked to find?
- What solution strategy are you most comfortable in using? Why?

Math Objectives

(TM1) Corn Cob Fractions Game

(TV1) Focus on multiplication and division

- Relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models.
- Compare and order fractional forms.

(**TV2**) **Focus on fractions, assessment 4, item 5**

- Represent multiplication facts using a variety of approaches such as equal-sized groups, arrays and area models.
- Determine the number of objects in each group when a set of objects is partitioned into equal share or a set of objects is shared equally.
- Represent the product of 2 two-digit numbers.

Differentiate

TM 1 -The Decimal Battle offers your students more decimal recognition/comparison practice. The Dragon Roll practices number sentence multiplication and fact families. This unit focuses on multiplication including double digits, arrays, and division. ***Daily Routines Fraction Action and Measurement Lab are very important to assessment preparation in this unit.***

Materials

(TM1) Optional

- BLM TM Corn Cob Fractions Cards
- Class Number Line – 1 class
- A way to stick number cards to the number line
- Yellow marker or crayon – 1 for Fraction Team
- Orange marker or crayon – 1 for Decimal Team
- Stop watch or way to time 5 minutes

BLM TM Corn Cob Fractions Score Sheet

(TV1)

- Multiple web links provided to give students visuals of problems.
- **BLM** Corn Problems – 1 per student

(TV2)

- Multiple web links provided to give students visuals of problems.
- Straight edge – 1 per student
- Light colored marker such as yellow – 1 per student
- Black marker – 1 per student
- **BLM** Aztec Common Dwellings 1 & 2 – 1 each per student

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Snack Fractions – Follow-up lesson 2

Per Student

- **BLM** Snack Bag Fractions
- **1 individual servings bag of 100 calorie snack**
- 8 lima beans

Per Partners:

- 2 Paper plates
- 2 paper towels
- Chart paper with question**: How do you know that 3/4 = 6/8?**

Math Vocabulary
Repeated Vocabulary: (You will either practice all of the fraction/decimal vocabulary if you choose TV1, or all of the multiplication/division vocabulary if you choose TV2.)

CGI Problem (select one)

- Division, Measurement (3rd assessment Item 5)
- Multiplication

Journal Writing
Write a story problem that uses the skills you needed today.

Family Fun (A generic game board is being used in all grade levels, differentiated by game cards specific to the grade level.) There is only one type of game this year. All games will have problem cards and an answer key at all levels. Please be sure the 3rd-4th grade cards are printed on green cardstock.

Snack Fractions TV lesson 2 - snack Bag Fraction – 100 Calorie Snack
You can select any of the three snacks that are appropriate for your homes – all three snacks in 3rd - 4th grade level will practice the same skills, although comparison and equivalent fractions will be for different fractional pieces depending on the lesson you choose.

Assessment – Students will be introduced to and practice skills for items
3rd - 1, 2, 3, 4, 5, 6, 7, 8 (TV2)
4th - 1, 2, 3, 4, 5, 6, 7, 8 (DR – Fraction Action and Measurement Lab) (TV1)

Overview

Unit 6 13 Buildings Children Should Know

This is a quick snapshot of the three math lessons for this unit. For detailed instructions, balance literacy objectives/extended activities, enrichment ideas refer to the complete lesson plans for each lesson.

Lesson Segment	Math Objectives	Language Objectives	Activity	Materials	Blackline Masters
Daily Routine **Unit 6 Lesson 1** 30 – 45 minutes	**ESSENTIAL** **POST-ASSESSMENT**	**ESSENTIAL** **POST-ASSESSMENT**	**ESSENTIAL** **POST-ASSESSMENT**	**ESSENTIAL** **POST-ASSESSMENT**	**ESSENTIAL** **BLM** Post-assessment 3rd **BLM** Post-assessment 4th
Classroom Unit 6 Lesson 1 1 to 1.5 hour	**Math Objectives** Identify math in everyday situations. Explain and record observations using objects, words, pictures, numbers and technology. Make generalizations from patterns or sets of examples and non-examples. Justify why an answer is reasonable and explain the solution process.	***Reading Language Objectives*** Listen to classmates and to teacher discuss and read. Speak, read and write vocabulary words in context. Brainstorm and discuss the various problems given. Create a chart of sorted items and explain how you decided to sort them. Create a list of things to do before building a skyscraper can begin. Justify your conclusions based on the results of your investigations.	***Language*** ***13 Buildings Children Should Know*** by Annette Roeder **Vocabulary Building** technology engineers engineered cross-section mechanical crane lever load	***Language*** • http://www.mapsofworld.com/egypt/ Map of Egypt – 1 per student • World wall map – 1 per classroom • **Things to be sorted into Technology and Non-technology:** Boxes such as a 500-envelope box filled with technology from high-tech old cell phones, recorders, game boys, anything we usually think of as "technology" to simple tech such as pencils, tape, thumb tacks, rubber bands, plastic forks, straws, paper cups, wooden dowel (important) etc., to non-tech such as rock, leaf, stick, shells -things of nature NOT reformed by humans -1 box per group of 4 • large chart paper tablet and markers – 1 page chart paper + 1 marker per group of 4 • 2 large apples and a sharp knife – teacher only • **EiE Poster(s)** ordered from http://www.eiestore.com/posters.html	***Language*** • **BLM** Word Cards • **BLM** Technology, Non-technology – 1 set per group • **BLM** Akila's Letter – 1 per student and teacher

		Math Language Objectives Discuss activity strategies with partner. Verbally verify comparative sizes of decimal representations.	**TM Math Building Background** Introduce the project and begin to ask questions and imagine various solutions **Vocabulary** Word Wall in context	**TM Math** • camera to take pictures of the process – 1 for teacher • customary (inch) ruler – 1 per student • tape measures – 1 per group of 4	**TM Math** • **BLM TM** The 21st Century • **BLM TM** Asking Questions
TV Unit 6 Lesson1 30 minutes	Identify math in everyday situations. Explain and record observations using objects, words, pictures, numbers and technology. Make generalizations from patterns or sets of examples and non-examples. Justify why an answer is reasonable and explain the solution process.	Listen to classmates and to teacher discuss and read. Speak, read and write vocabulary words in context. Brainstorm and discuss the various problems given. Create a chart of sorted items and explain how you decided to sort them. Create a list of things to do before building a skyscraper can begin. Justify your conclusions based on the results of your investigations.	**Vocabulary Building** Word wall in context **Comprehensible Input** TV teacher shows how to make the crane	• multiple web links noted as visuals during the lesson **TV Teacher supplies** **Make 1 ahead of class for demo.** **Assemble 1 for students at end of lesson** • roll of tape • corrugated cardboard pieces – at least 3 strips measuring 1 x 8 inches • 1 large paper clip • 1 very large brad • 3 sharpened pencils • scissors with pointy tips • string such as fishing filament or kite string • assortment of washers for weights • a 12-Ruler **Other Materials** • EiE Engineering Design Process Poster(s) – 1 set for class	• **BLM –** Asking Questions TV – TV teacher only • **BLM –** Parts Common to all Mechanical Cranes – 1 per student and teachers • **BLM** Parts Common to all Mechanical Cranes **KEY – teacher only** • **BLM** Crane Base Hexagon Base - run on cardstock • **BLM** Crane Base Faces - run on cardstock • **BLM** Making a Simple Mechanical Crane – Teacher
Follow-up and Snack Fraction .5 to 1 hour	Identify math in everyday situations. Explain and record observations using objects, words, pictures, numbers and technology. Make generalizations from patterns or sets of examples and non-examples. Justify why an answer is reasonable and explain the solution process.	Listen and speak with a partner during our math activity. Use the math vocabulary during the activity. Write math sentences.	**Practice and Application** Make the crane	• Camera – 1 for teacher **Materials for 1 Team – boxed or bagged for easy distribution:** • roll of tape • corrugated cardboard pieces – at least 3 strips measuring 1 x 8 inches • 1 large paper clip • 1 very large brad • 3 sharpened pencils • scissors with pointy tips – 1 pair per student in team • string such as fishing filament or kite string	• **BLM** Crane Base Hexagon Base - run on cardstock – 1 hexagon per team • **BLM** Crane Base Faces - run on cardstock – 1 per team • **BLM** Making a Simple Mechanical Crane – 1 per student • **BLM** The Assembly – 1 per student

				• assortment of washers for weights • a 12-Ruler	
	SNACK FRACTIONS: Represent equivalent fractions using pictorial models. Compare two fractions having the same denominator. Determine if two given fractions are equivalent. Recognize tenths and label in fraction and decimal form.	**SNACK FRACTIONS:** Discuss fraction comparisons. Discuss fraction equivalencies. Discuss fraction – decimal equivalencies.	**SNACK FRACTIONS** **Building Background** This one is a little different – parts of a set and problem embedded. **Vocabulary** halves fourths sixteenths equivalent greater than, less than	**SNACK FRACTIONS:** • one 8.5 x 5.5 sheet of paper (whole duplicating sheet cut in half) per group of 4 • Energy Snack Mix (*you may have the students mix this, in which case you need all of the measuring cups, spoons, bowls and mixing spoons; or you may premix and give the groups of 4 the pre-mixed ingredients in a quart plastic bag.*) ○ 1 cup choc chips ○ ½ c oatmeal ○ ½ c crunchy peanut butter ○ ½ c nuts ○ 1 T honey ○ Wheat germ (optional) • quart Ziploc bags • 4 paper plates • 4 paper towels • 4 plastic knives	**SNACK FRACTIONS:** **none**

Lesson Segment	Math Objectives	Language Objectives	Activity	Materials	Blackline Masters
Daily Routine **Unit 6 Lesson 2** 30 – 45 minutes	**ESSENTIAL** Solve word problems using a variety of strategies and defend their strategies. Construct concrete models of fractions. Compare fractional parts of whole in a problem situation using concrete models.	**ESSENTIAL** Speak to partners, teacher, and class using vocabulary. Discuss problem solving process and strategies. Explain how they compared fractions.	**ESSENTIAL** • Fraction Action • CGI • What's Missing?	**ESSENTIAL** • Unknown Quantity Cards (add/subtract)	**ESSENTIAL** • **BLM** Fraction Action Lessons 2 & 3 on 1 sheet – 1 per student • **BLM** CGI Problems – teacher only
Classroom ***Unit 6 Lesson 2*** 1 to 1.5 hour	**Math Objectives** Identify math in everyday situations. Explain and record observations using objects, words, pictures, numbers and technology. Make generalizations from patterns or sets of examples and non-examples. Justify why an answer is reasonable and explain the solution process.	**Reading Language Objectives** Listen to classmates and to teacher discuss and read. Speak, read and write vocabulary words in context. Brainstorm and discuss the various problems given. Create a chart of sorted items and explain how you decided to sort them. Create a list of things to do before building a skyscraper can begin. Justify your conclusions based on the results of your investigations	**Language** ***13 Buildings Children Should Know*** by Annette Roeder **Vocabulary Building** technology engineers engineered cross-section mechanical crane lever load	**Language** • World wall map – 1 per classroom • Chart paper and large marker • **EiE Poster(s)** ordered from http://www.eiestore.com/posters.html	**Language** • **BLM** Fairytale Castles
		Math Language Objectives Discuss activity strategies with partner. Verbally verify comparative sizes of decimal representations.	**TM Math** **Building Background** Game to practice placing fractions and decimals on a number line.	**TM Math** Camera –teacher **Table of Assorted Load Items** A table of assorted items to be lifted such as, but not limited to the following. There should be enough that multiple teams can choose the same items	**TM Math** • **BLM TM** Asking Questions from Lesson 1 – 1 per student • **BLM TM** Mechanical Crane Data – 1 per student

			Vocabulary • Word Wall in context	• individual crayons • individual markers • inch cubes • small scissors • small candy bars such as Snickers • chalk or whiteboard erasers • DVD disks in case • Small paperback book • box of 8 crayons • box of markers • any manipulatives you have used this summer that can be balanced and lifted. • group's mechanical crane • measuring tape	
TV ***Unit 6 Lesson 2*** 30 minutes	Identify math in everyday situations. Explain and record observations using objects, words, pictures, numbers and technology. Make generalizations from patterns or sets of examples and non-examples. Justify why an answer is reasonable and explain the solution process.	Use the math vocabulary during the activity. Discuss solution strategies.	**Vocabulary Building** Word Wall in Context **Comprehensible Input** Make the homemade balance with the students. Demo the testing process	**Per Discovery Group** • tape measure • 200 base ten unit cubes • a 12" ruler with hole in center • 2 coffee can lids • 1 large marker • 4 pieces of duct tape each 4" long • 1 small paper clip **Other Materials – for TV** • 200 base ten unit cubes • measuring tape A table of assorted items to be lifted such as, but not limited to the following. There should be enough that multiple teams can choose the same items • individual crayons • individual markers • inch cubes • small scissors • small candy bars such as Snickers	• **BLM –** Mechanical Crane Data – Clean sheet 1 per student

				• chalk or whiteboard erasers • DVD disks in case • Small paperback book • box of 8 crayons • box of markers • any manipulatives you have used this summer that can be balanced and lifted. • EiE Engineering Design Process Poster(s) – 1 set for class	
Follow-up and Snack Fraction Unit 6 Lesson 2 .5 to 1 hour	Identify math in everyday situations. Explain and record observations using objects, words, pictures, numbers and technology. Make generalizations from patterns or sets of examples and non-examples. Justify why an answer is reasonable and explain the solution process.	Listen and speak with a partner during our math activity. Use the math vocabulary during the activity. Write math journal response.	**Practice and Application** Test and modify their mechanical crane	• camera – 1 for teacher **Each Team Needs:** • The 5 load items they had chosen and recorded in the TM Lesson • Their Mechanical Crane • Copies of the **BLM** Mechanical Crane Data from the TM Lesson – 1 per student • 200 base ten unit cubes • 1 measuring tape • homemade balance	• **BLM** – Our conclusions – 1 per student • **BLM** Family Cloze Letter
	SNACK FRACTIONS: Represent equivalent fractions using pictorial models. Compare two fractions having the same denominator. Determine if two given fractions are equivalent. Represent decimals, including tenths and hundredths, using concrete and visual models and money. Relate decimals to fractions that name tenths and hundredths.	**SNACK FRACTIONS:** Discuss fraction comparisons. Discuss fraction equivalencies Discuss fraction – decimal equivalencies.	**SNACK FRACTIONS** **Building Background** Students work with partner to complete assignment. Teacher will circulate the room. **Vocabulary** halves fair share equal pieces	**SNACK FRACTIONS:** **Per Partners:** • 1 oz. turkey • 1 piece Swiss cheese • 1 leaf lettuce • 1 T. cranberry relish • 1 burrito-size tortilla • 2 paper plates • 2 paper towels • 2 plastic knives	**SNACK FRACTIONS:** **none**

Lesson Segment	Math Objectives	Language Objectives	Activity	Materials	Blackline Masters
Daily Routine **Unit 6 Lesson 3** 30 – 45 minutes	**ESSENTIAL** Solve word problems using a variety of strategies and defend their strategies. Construct concrete models of fractions. Compare fractional parts of whole in a problem situation using concrete models.	**ESSENTIAL** Speak to partners, teacher, and class using vocabulary. Discuss problem solving process and strategies. Explain how they compared fractions.	**ESSENTIAL** • Fraction Action • CGI • What's Missing?	**ESSENTIAL** • Unknown Quantity Cards (add/subtract)	**ESSENTIAL** • **BLM** Fraction Action Lessons 2 & 3 on 1 sheet – 1 per student • **BLM** CGI Problems – teacher only
Classroom Unit 6Lesson3 1 to 1.5 hour	Identify math in everyday situations. Explain and record observations using objects, words, pictures, numbers and technology. Make generalizations from patterns or sets of examples and non-examples. Justify why an answer is reasonable and explain the solution process.	**Reading Language** Listen to classmates and to teacher discuss and read. Speak, read and write vocabulary words in context. Brainstorm and discuss the various problems given. Create a chart of sorted items and explain how you decided to sort them. Create a list of things to do before building a skyscraper can begin. Justify your conclusions based on the results of your investigations.	**Language** ***13 Buildings Children Should Know*** by Annette Roeder **Vocabulary Building** technology engineers engineered cross-section mechanical crane lever load	**Language** • World wall map – 1 per classroom • Chart paper and large marker – 1 for class • **EiE Poster(s)** ordered from http://www.eiestore.com/posters.html • **http://www.photographsofaustralia.com/photos_and_posters_of_australian_native_animals.html** photos of Australian wildlife to select and project • chart paper and large marker • oranges or tangerines – 1 per student • pieces of wax paper roll wide and about 10 inches long – 1 per student	**Language** • **BLM** Identify Australian Animals – 1 per student • **BLM** Australian Animals – set of 4 posters – 1 set per Team • **BLM** What do you see? – 1 per student

		Math Language Objectives Verbally compare various decimal representations. Discuss game cards with partner and group.	**TM Math** **Building Background Vocabulary** Word Wall in context. **Vocabulary** **Repeated vocabulary** All of the summer vocabulary	**TM Math** • Camera to take pictures of the process – 1 for teacher • Table of Assorted Load Items from lesson 2 – additional choices for additional tests **Per Discover Team** • Teams should have their load items from Lesson 2 for re-testing after improvements are made • 200 base ten units • Balance they made in lesson 2 • tape measure • team-created mechanical cranes	**TM Math** • **BLM TM** Improved Mechanical Crane Data – 1 per student from Lesson 2 Follow-up
TV ***Unit 6 Lesson 3*** 30 minutes	Identify math in everyday situations. Explain and record observations using objects, words, pictures, numbers and technology. Make generalizations from patterns or sets of examples and non-examples. Justify why an answer is reasonable and explain the solution process.	Use the math vocabulary during the activity. Discuss answers and possible strategies with classmates. Explain the relationship between meters and centimeters.	**Vocabulary Building** **Repeated vocabulary** rractions decimals equivalent more than less than **Comprehensible** Problems that practice 4th grade assessment #5	**TV Teacher Only** • 200 base ten unit cubes • measuring tape • homemade balance • load items from Lesson 2 • improved mechanical crane • EiE Engineering Design Process Poster(s) – 1 set for class	• **BLM** Mechanical Crane Data from Lesson 2 with all of the data filled in – TV Teacher only – to be displayed on SMARTBoard • **BLM –** Improved Mechanical Crane Data – Clean sheet 1 per student • **BLM** Final Report to Akila – 1 per student
Follow-up and Snack Fraction ***Unit 6 Lesson 3*** .5 to 1 hour	Identify math in everyday situations. Explain and record observations using objects, words, pictures, numbers and technology. Make generalizations from patterns or sets of examples and non-examples. Justify why an answer is reasonable and explain the solution process.	Listen to classmates and to teacher discuss and read. Speak, read and write vocabulary words in context. Brainstorm and discuss the various problems given. Create a chart of sorted items and explain how you decided to sort them. Create a list of things to do before building a skyscraper can begin.	Complete the final report to Akila **Vocabulary** **Math wall in context**	• Camera – 1 for teacher **Each Team Needs:** • The 5 load items they had chosen and recorded in the TM Lesson • Their Mechanical Crane • Copies of the **BLM** Mechanical Crane Data from the TM Lesson – 1 per student • 200 base ten unit cubes • 1 measuring tape	• **BLM** – Final Report to Akila - 1 per student

		Justify your conclusions based on the results of your investigations.			
	SNACK FRACTIONS Represent equivalent fractions using pictorial models. Compare two fractions having the same denominator. Determine if two given fractions are equivalent. Represent tenths in decimal and fractional forms.	**SNACK FRACTIONS** Discuss fraction and decimal equivalencies. Discuss fraction comparisons. Discuss fractions/decimal equivalencies.	**SNACK FRACTIONS** **Building Background** Students should be able to work with their partners today while teacher circulates the room. **Vocabulary** halves half fair shares equal pieces	**SNACK FRACTIONS** **Per Partners:** • 1 personal pan pizza • 2 individual servings fruit juice • 2 paper plates • 2 paper towels • 2 plastic knives • Chart paper with question**:** **How do you know you each have half of the snack?**	**SNACK FRACITONS** none

Unit 1	**Lesson 1**		**Lesson 2**		**Lesson 3**	
	TV and Follow-up	**Snack Fractions**	**TV and Follow-up**	**Snack Fractions**	**TV and Follow-up**	**Snack Fractions**
3rd Grade Assessment Items • Lesson 1: 1, 6, 8 • Lesson 2: 1, 6, 8 • Lesson 3: 1, 6, 8 Daily Routines • Measurement (1) • What's Missing (2) • CGI (4) • CGI (5) • Fraction Action (8) Snack Fractions (6, 8) 4th Grade Assessment Items • Lesson 1: 1, 2, 5, 6 • Lesson 2: 1, 2, 5, 6 • Lesson 3: 1, 2, 5, 6 Daily Routines • Measurement (4) Snack Fractions (8)	**4.2(G)** relate decimals to fractions that name tenths and hundredths. **4.2(E)** represent decimals, including tenths and hundredths, using concrete and visual models and money. **4.2(F)** compare and order decimals using concrete and visual models to the hundredths.	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines. **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods.	**4.2(G)** relate decimals to fractions that name tenths and hundredths. **4.2(E)** represent decimals, including tenths and hundredths, using concrete and visual models and money. **4.2(F)** compare and order decimals using concrete and visual models to the hundredths.	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines. **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods.	*(3rd graders will be developing an understanding of fractions through decimals.)* **4.2(G)** relate decimals to fractions that name tenths and hundredths. **4.2(E)** represent decimals, including tenths and hundredths, using concrete and visual models and money. **4.2(F)** compare and order decimals using concrete and visual models to the hundredths.	**3.3(F)** represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines. **3.3(H)** compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models. **4.3(C)** determine if two given fractions are equivalent using a variety of methods.

Project SMART/Math MATTERS 2014

Grade Level: 3-4	Unit 6 / Lessons 1 – 2 - 3

Daily Routine Math Objectives:
Solve word problems using a variety of strategies and defend their strategies.
Determine a missing number in an equation.
Construct concrete models of fractions.

Daily Routine Language Objectives:
Speak to partners, teacher, and class using vocabulary introduced in the Daily Routines.
Discuss problem solving strategies in partners, small groups and whole groups.
Listen to, read, speak and write to understand action in word problems.

Unit Math Objectives (Integrated Lesson including snack fractions):
Identify the mathematics in everyday situations.
Explain and record observations using objects, words, pictures, numbers, and technology.
Make generalizations from patterns or sets of examples and non-examples.
Justify why an answer is reasonable and explain the solution process.

Unit Language Objectives:
Listen to classmates and to teacher discuss and read.
Speak, read and write vocabulary words in context.
Read and interpret investigation directions and expectations.
Brainstorm and discuss the various investigations and conclusions based on results.
Create charts of various investigation results.
Justify conclusions based on the results of the investigations.

Technology Objectives:
Use research skills and electronic communication, with appropriate supervision, to create new knowledge.
Technology suggested in this unit: iPad, SMART Board or other "smart" projection device, Internet

Key Vocabulary, MATH: word wall used in context
Key Vocabulary, LANGUAGE: technology, engineers, engineered, cross-section, specialist, castle, architect

Resources/Literacy Links
13 Buildings Children Should Know by Annette Roeder
Related links:

Lesson Sequence
- Daily Routine: 30 to 45 minutes
- Classroom Lesson: 1 to 1.5 hour
- TV Lesson: 30 minutes
- Classroom Follow-up including Snack Fractions: .5 to 1 hour

MATH WALK
Walk your campus. What evidence do you see of engineers at work? Take a big notebook to gather all of the technology you see! Remember, "anything that has been designed or modified to be useful to some person or groups of people."

Technology Connections

- **Math Practice**
  http://www.infoplease.com/ipa/A0001338.html
  Chart of the world's tallest buildings as of 2010 – students could make up their own problems using this data.
  http://www.learningplanet.com/sam/ff/index.asp
  This is an excellent equivalent fraction review.
  http://www.iqflash.com/skyscraper-puzzle.shtml
  This is a very challenging visual perception game based on skyscrapers. Read the directions carefully to understand the numbering system.
- **Science Connection**
  http://www.coolmath-games.com/0-mini-scientist/index.html
  Once you understand that this is an observation game of what steps need to be taken and in what order, it's cool.
- **Social Studies Connection**
  http://www.discoveryeducation.com/teachers/free-lesson-plans/higher-and-higher-amazing-skyscrapers.cfm
  Lesson plan on quickly understanding skyscrapers and building techniques.
- **Art Connection**
  http://cp.c-ij.com/en/contents/2025/list_15_1.html
  Creative Park from Canon – detailed models that can be downloaded and folded into buildings. These are remarkable paper folding!
  - http://cp.c-ij.com/en/contents/3153/03352/index.html
    Great Pyramid of Khufu
  - http://cp.c-ij.com/en/contents/3153/03353/index.html
    Sphinx
  - http://cp.c-ij.com/en/contents/3152/03343/index.html
    Taj Mahal
  - http://cp.c-ij.com/en/contents/3154/03363/index.html
    Neuschwanstein Castle
  - http://cp.c-ij.com/en/contents/3152/03344/index.html
    Sydney Opera House

Unit 6, Teacher Introduction

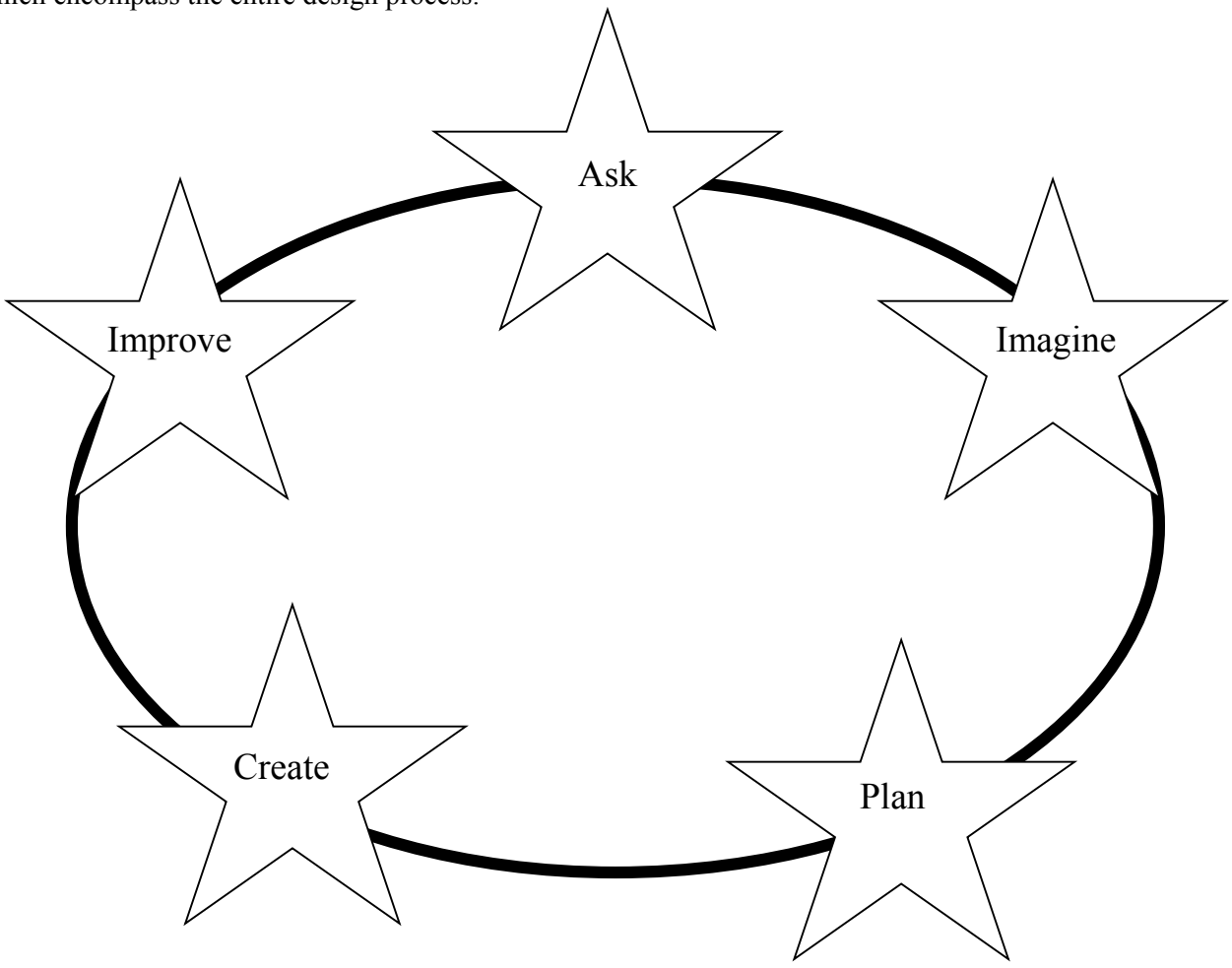
Although this is not technically a STEM (Science, Technology, Engineering, Math) or STEAM (Science, Technology, Engineering, Art, Math) or EiE (Engineering is Elemental) project, the unit has been written to incorporate the same philosophies as each of those projects.

Students begin to see the science and engineering all around them in their everyday lives, and as they plan and create their projects, they will be consciously using the Engineering Design Process. As teachers we are probably not as familiar with "technology" as we are the science around us. Technology is defined as *anything that has been designed by engineers to fulfill a human need*. So simple things like pencils, chairs, toothbrushes, as well as those complex things we usually think of as engineered such as cell phones, buildings, computers, space shuttles, are all representations of engineered projects in our world. These *technologies* are all *engineered* to solve a particular human need.

Engineers follow a process, much like the scientific process. There is a difference between the two processes because the objectives are different. The scientific process is used when you are investigating how something in nature works by making observations and doing experiments, while the engineering process is used when you are creating a solution to a problem.

Each grade band K-6 has a book of projects which will be read, discussed and enjoyed by the students using literary devices. The teacher will then pose a problem that needs to be solved, and the students will use the Engineering Design Process to create a solution to that problem.

Engineering Design Process. EiE (Engineering is Elementary) has simplified the process into five steps which encompass the entire design process.



Because of the nature of this unit, there will be major breaks in the formal pattern to which we are all so accustomed. Daily Routines are present; however several activities have been removed to accommodate more time for project design.

The literature reading will be less a focus in lessons 2 & 3 because the focus is directed toward the Engineering Design Process.

TV Lessons will be more of a demonstration so that students will understand their Follow-up design lessons. Students are still expected, however, to respond and maintain engagement.

Other changes are:

- **Family Fun Game**, which will not go home this unit. Families that wish may still, of course, play the old cards – there are five units worth of very good practice problems they can incorporate into their game time.
- **Snack Fractions** will not have a BLM this unit. Students will be asked verbally, but will for the most part, be allowed time to enjoy a snack shared with a friend.
- **In-Home lessons** are very different – Because lessons 1, 2, and 3, build upon one another, there really is no single lesson that could be chosen to teach. Instead, it is suggested that ALL grade bands use the Kinder book, ***Simple Machines,*** by Deborah Hodge; and that the Teacher select one project within the book that her families could accomplish together. Bring the supplies, read the activity and let the siblings work together to experience the learning of simple machines.

We hope you enjoy this final unit and that your Summer Session has been most successful.

Unit 6 Project
STEM or STEAM Projects

You are about to begin the final lesson of this unit. If you and your students are going to participate in the project suggested for this unit, now is the time to prepare.

Project for this unit is: Display of STEM projects completed during this unit.

Synopsis
Students share the projects they have worked on during this unit. This would be a wonderful venue for a family end-of-the-summer party.

Materials:
- Display tables in a large room
- Snacks and punch
- Photos or PowerPoint type presentation of students working through the unit

Objectives
- Students create their STEM project.
- Students prepare a final draft of their project prospectus to be displayed with their projects.

Procedures:
The event should be a museum-type display, with work displayed on tables set up so that people can walk around the displays, seeing them from all angles. "Please do not touch" signs should be placed on all displays to protect them, and all classes should be trained in the art of viewing displays. Provide appropriate snacks at the end of the displays, and engage students and adults in comments and questions. This would be a super opportunity to engage family and community members.

Online resources
- http://museumplanner.org/museum-exhibition-design-2/
- http://morrisoncountyhistory.org/?page_id=1449
- http://www.adlerdisplay.com/museum-displays/index.php
  Commercial site, but interesting photos of possible display venues.
- http://www.thehistoryworkshop.com/Portfolio/exhibits.html#!nav=1&gallery=1
  Another commercial site, but interesting ideas to glean.

Project Title: _____

Student Name: _____

Date: _____ Teacher: _____

Math MATTERS Project Rubric

	1 point	2 points	3 points	4 points	Score
Amount of Project Completed	Little effort made, most items are unaddressed or incomplete	Some parts of the project were addressed and complete	Most of the project parts were addressed and complete, a few may be missing	All parts of the project were addressed and complete	
Quality of Work	Could not read project, project poorly organized	Project was partially organized, many parts were confusing or unrelated	Project was mostly organized, a few parts may be confusing or unrelated	Project highly organized and all parts clearly related to the topic	
Use of Time and Effort	Did not use time effectively	Used some time effectively, but was often off task	Used most time effectively, occasionally off task	Student used all available time to the fullest	
Presentation	Student could not explain own project	Student needed to be prompted to explain own project	Student explained project with little prompting	Student easily explained the project and could answer questions	
				Total	

A total score of 12 or more points is needed to consider the project complete.

Notes:

Rubric is an adaptation of Rcampus Math Project Rubric: Fraction Word Problems
http://www.rcampus.com/rubricshowc.cfm?code=F945W8&sp=true&

Materials
- (all posters as before)
- **BLM** Unit 6, Fraction Action **BLM** CGI
- Unknown Quantity Cards x, ÷

Math Objectives
- Solve word problems using a variety of strategies and defend their strategies.
- Model and solve 3-step word problems.
- Construct concrete models of fractions.
- Compare fractional parts of whole in a problem situation using concrete models.

Balanced Literacy Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.

Assessment Items
Post-assessment

Arthimus Portio's Corner
Lesson 1
What were your favorites during this summer?
book:
language activity:
TV lesson:
home connection:
Take time to think about what you have done this summer, and talk about your favorites and why they are favorites.

Unit 6, Lesson 1 3-4

Daily Routine

Administer Post-assessment today – there are no scheduled Routines today to accommodate the administration.

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL
What's Missing? *(3rd assessment item 2)*
- **Lessons 2, 3** *follow directions in the Daily Routine Explanations. Check the assessment items so that you are certain you include samples to practice the shape in the assessed location.*

Fraction Action

(*3rd grade Assessment Items 1, 3; 4th Assessment items 3, 5, 7*)
Lesson 1 – post-assessment
Lesson 2 - Fraction Action and Measurement Lab 2
Lesson 3 - Fraction Action and Measurement Lab 3

CGI
- **Lesson 1 – post-assessment**
- Lesson 2 – Division, Measurement (*3rd Assessment item 5*)
- Lesson 3 – Division, Partitive (*3rd Assessment item 4*)

Unit 6 **CGI Problems for *13 Buildings Children Should Know***

	Multiplication	Measurement Division	Partitive Division
Grouping and Partitioning	The length of each side of the Great Pyramid of Giza is 755 feet. What is its perimeter? What is the area of its floor?	There were 1224 feet of pillars outside the Parthenon. If each pillar was approximately 34 feet long, how many pillars were there?	There are 210 columns on the Leaning Tower of Pisa. There are 7 floors. How many columns on each floor?
Rate	Visitors come to the Neuschwanstein Castle at a rate of 6000 per day. How many visitors are there in 365 days (1 year)?	There are 1,710 steps from the ground to the small platform at the top of the Eiffel Tower. If you climbed 30 steps per minute, how long would it take you to climb to the top?	There are 1,710 steps from the ground to the small platform at the top of the Eiffel Tower. If it takes 90 minutes to climb all of the steps, how many steps can be climbed each minute?
Price	One "sail" of the Sydney Opera House took 100,000 ceramic tiles. Each tile cost $0.35. How much did the tiles cost?	One shipment of tile from Sweden to Australia cost $1,625.00. Each tile cost $0.65. How many tiles were in the shipment?	One shipment of tile from Sweden to Australia cost $5,643.00. The shipment had 5,700 tiles. How much did each tile cost?
Compare	*Difference Unknown* The dome of St. Peter's Basilica is 426 feet tall. The dome of The Taj Mahal is 213 feet tall. How many times shorter is the Taj Mahal than St. Peter's Basilica?	*Quantity Unknown* The great Pyramid of Giza is 455 feet high. The Chrysler Building is about 2 times taller. How high is the Chrysler Building?	*Referent Unknown* 60,000 people can attend mass at St. Peter's Basilica at one time. That is 6 times as many people as fit into Notre Dame. How many people can attend mass at Notre Dame at one time?

Unit 6 **CGI Problems for *13 Buildings Children Should Know***

	Multiplicación	División de medición	División partitiva
Agrupamiendo y división	La longitud de cada lado de la gran pirámide de Giza es 755 pies. ¿Qué es el perímetro? ¿Qué es el area del piso?	Había 114 pies de columnas fuera del Pártenon.Si cada column mide aproximadamente 34 pies de largo, ¿cuántas columnas había?	Había 210 columnas en la torre inclinada de Pisa. Hay 7 pisos. ¿Cuántas columnas hay en cada piso?
Razón	Los turistas van al Castillo de Neuschwanstein a un razón de 6000 por día. ¿Cuantos turistas hay 365 días (1 año)?	Hay 1,710 escaleras del suelo hasta la pequeña plataforma en la cima de la Torre de Eiffel. Si subiste 30 escaleras por minuto, ¿cuánto tardarías en llegar hasta la cima?	Hay 1,710 escaleras del suelo hasta la pequeña plataforma en la cima de la Torre de Eiffel. Si uno tarda 90 minutos al subir todas las escaleras, ¿cuántas escaleras se puede subir cada minuto?
Precio	Una "vela" dl teatro de ópera de Sydney lleva 100,000 tejas cerámicas. Cada teja cuesta $0.35. ¿Cuánto cuestan las tejas?	Un envío de tejas de Suecia a Australia cuesta $1,625.00. Cada teja cuesta $0.65. ¿Cuántas tejas había en cada envío?	Un envío de tejas de Suecia a Australia cuesta $5,643.00. El envío tiene 5,700 tejas. ¿Cuánto costó cada teja?
Comparar	*Diferencia desconocida* La cúpula de la Basílica de San Pedro mide 426 pies de alto. La cúpula del Taj Mahal mide 213 pies de alto. ¿Cuántas veces más corto es el Taj Mahal que la Basílica de San Pedro?	*Cantidad desconocida* La Gran Pirámide de Giza mide 455 pies de alto. El edificio Chrysler es 2 veces más alto. ¿Qué tal alto es el edificio Chrysler?	*Referente desconocido* 60,000 personas pueden asistir a la misa de la Basílica de San Pedro a la vez. Esto es 6 veces más gente que caben en Nuestra Dama. ¿Cuántas personas pueden asistir a misa en Nuestra Dama a la vez?

BLM Unit 6, L1 Daily Routines, Fraction Action
One sheet per student. Work one problem each lesson.

Lesson 1 – Fraction Action

Post-assessment

Lesson 2 – Fraction Action

Use the rectangles provided to model $\frac{3}{4}$ and an equivalent fraction to $\frac{3}{4}$.

This fraction represents $\frac{3}{4}$ $\frac{3}{4}$

This fraction represents

Lesson 3 – Fraction Action

Use the rectangles provided to model $\frac{2}{3}$ and an equivalent fraction to $\frac{2}{3}$.

This fraction represents $\frac{2}{3}$

This is a benchmark fraction. What is the decimal equivalent form?

This fraction represents

Literature Selection

13 Buildings Children Should Know

By Annette Roeder

Materials

Language Materials

- http://www.mapsofworld.com/egypt/ Map of Egypt – 1 per student
- World wall map – 1 per classroom
- **Things to be sorted into Technology and Non-technology:** Boxes such as a 500-envelope box filled with technology from high-tech old cell phones, recorders, Gameboys, anything we usually think of as "technology" to simple tech such as pencils, tape, thumb tacks, rubber bands, plastic forks, straws, paper cups, wooden dowel (important) etc., to non-tech such as rock, leaf, stick, shells -things of nature NOT reformed by humans - 1 box per group of 4
- Large chart paper tablet and markers – 1 page chart paper + 1 marker per group of 4
- 2 large apples and a sharp knife – teacher only
- **EiE Poster(s)** ordered from http://www.eiestore.com/posters.html
- **BLM** Word Cards
- **BLM** Technology, Non-technology – 1 set per group
- **BLM** Akila's Letter – 1 per student and teacher

Transition to Math Materials

- Camera to take pictures of the process – 1 for teacher
- **BLM TM** The 21st Century

Literature Vocabulary

technology
engineers
engineered
cross-section
mechanical crane
lever
load

Unit 6, Lesson 1 3-4

Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students will review to see if they have accomplished both math and language objectives.

Math Objectives:

- Identify math in everyday situations.
- Explain and record observations using objects, words, pictures, numbers and technology.
- Make generalizations from patterns or sets of examples and non-examples.
- Justify why an answer is reasonable and explain the solution process.

Language Objectives:

- Listen to classmates and to teacher discuss and read.
- Speak, read and write vocabulary words in context.
- Brainstorm and discuss the various problems given.
- Create a chart of sorted items and explain how you decided to sort them.
- Create a list of things to do before building a skyscraper can begin.
- Justify your conclusions based on the results of your investigations.

Science Objectives:

- Demonstrate safe practices and the use of safety equipment as needed during investigations.
- Plan and implement descriptive investigations, including asking well-defined questions, making inferences, and selecting and using appropriate equipment or technology to answer the questions.
- Collect and record data by observing and measure, using descriptive words and numerals such as labeled drawing, writing, and concept maps
- Analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured.
- Communicate valid, oral and written results supported by data.
- Brainstorm and discuss the various problems given.
- Generate charts to describe the outcomes of investigations.

Math Vocabulary
Word Wall used in context

Teacher resource for more information on the Sphinx.
http://www.touregypt.net/featurestories/sphinx1.htm

Unit 6, Lesson 1 3-4

Classroom Lesson - continued

Building Background
I have boxes of stuff that I'm going to distribute to groups of four (*divide into groups if not already seated that way*). Each group is going to sort these items into things that are TECHNOLOGY *(word card)* and things that ARE NOT TECHNOLOGY *(word card)*. (*Give each group of four a box and the two word cards, Technology, Not Technology. Circulate the room to see how they are sorting, but make no comment, and do not ask questions. Simply observe*.)

When you are finished, I'd like for you to make a poster representing the two groups, and the items you have in each group. *(Provide the materials.)*

(*When the students finish and have posted their chart paper, ask each group to send a spokesperson to the poster to tell how they decided upon the items in each group. When all groups have presented, continue*.)

We will come back to your posters in a moment. We are beginning a very different type of unit today. We are going to be talking about *(word card)* ENGINEERS. Can someone tell me what an engineer does? (*Accept all responses – most probably know the train engineer.)*

(*Acknowledge all answers that are accurate by repeating them and saying, "those are all engineers.")*

The type of engineers we are going to think about during our lessons this unit are men and women who are trained to find solutions to problems that we humans have. They have titles such as Mechanical Engineers, Civil Engineers, Electrical Engineers, Structural Engineers, or Geotechnical Engineers.

The engineers research to find the best solution possible to the problem. They test and test and make improvements on those creations, and then they provide the solutions so we all have a happier and healthier life. The solutions are all called "t**echnology**." Engineers define technology as "anything that has been designed or modified to be useful to some person or groups of people."

Now, I would like for you to take another look at the items that you sorted. Would you like to make any changes? Once you have finished with any changes, be sure to indicate the same changes on your charts, and we will discuss them again.

(*Students re-sort, then change their charts. After a new spokesperson describes what they did and why, go back and take out the "natural"*

Classroom Lesson - continued

items. These are the only non-technological items in the box. Everything else has been designed or modified to be useful to some person or groups of people. Notice that the dowel IS technology – it is wooden, but it has been modified to use for specific needs.)

Practice and Application
Look around the room. What other examples of TECHNOLOGY do you see that has been ENGINEERED by an ENGINEER? (*just about everything in the room – anything manmade*)

Later today, you are going to become an ENGINEER. You are going to be given a problem to solve by ENGINEERING, or creating, some TECHNOLOGY as the problem's solution. We will talk more about that a little later. But for now, let's take a look at our literature books.

Building Background, Literature
We are going to use this book as one resource for research on our unit's project. You are all going to be Junior Engineers, working through the Engineering Design Process (*show the EiE poster(s)).*

Engineers solve problems, and to solve problems they work through these stages of their problem solving process. Where do you think we are right now in the process? (*asking questions*)

Yes, asking questions. We will ask questions and research to find the answers, but we will also research to help us form questions to research more. Let's find out a little bit more about skyscrapers before we talk about our project.

Take a look at the cover of your book. Tell me what you see.

Illustrators use the covers to give us hints at what we will find in the book. There are three buildings highlighted on the cover. Can you name any of them? (*Write down their guesses.)*

Now turn to the table of contents. (*Read through each picture and name.)*
What three buildings are highlighted on the front cover*? (4, 38, 20)*
What helped you identify the buildings? *(assorted answers)*
Read the little inset on the second page of the table of contents. *(do so)*
What building materials can you think of? (*Make a list on chart tablet for later reference.*)

Unit 6, Lesson 1 3-4

Classroom Lesson - continued

Instead of reading this book like a story book from cover to cover, we are going to use the book as a resource. As a resource book, we'll tackle the parts that are most important to our questioning process and our engineering projects.

Each lesson we will study one of the amazing buildings. That means, we will only be able to learn more about three of these 13 buildings. You are certainly free to read much more and bring your information back to us. And you are certainly free to find out more about the building for that lesson. The more we know, the better equipped we will be to tackle our engineering project.

Comprehensible Input, Literature

Today we are going to read about the amazing building beginning with page 4.

Before reading, what do you see on these two pages (4-5)? (*Timeline at the top; photograph – does anyone know the name of what you are seeing? – The sphinx and a pyramid; a sketch of a large pyramid and three smaller pyramids)*

This is the Great Pyramid of Giza in Egypt.

- Let's look at our wall map and find Egypt. (*Let student volunteers do so.*)
- Where do we live? (*Find the USA, then find your State, or an approximation of where your State is depending on the detail of your map.*)

We'll talk about the timeline during our Transition to Math lesson, but for now, let's look at the photograph showing on page 4. The structure in the foreground is called the Sphinx. It is difficult to see from this photo – let me show you a more recent photo in color *(show link)*.
This is not a sculpture of a real creature. It is a "mythical" creature, or one that is made up. The Sphinx has the head of a man, but the body of a lion. For Egypt, it symbolizes their country.

Behind the Sphinx is the Great Pyramid. What is a pyramid? (*a geometric solid that has a polygon base and triangular sides*) This pyramid has a square base with triangular sides.

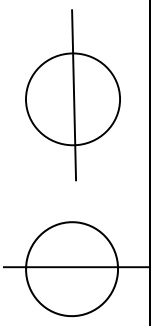
Let's read about this amazing building.

(*Read the large paragraph on page 5, asking at the end of the paragraph:*

- What are the seven wonders of the ancient world? (*show list from link)*
- When the author says, "largest" building in the world," what does she mean? *(volume – the amount of space an object takes up)*

Sphinx Photos
https://www.google.com/search?q=photo+of+Sphinx&client=firefox-a&hs=4kP&rls=org.mozilla:en-US:official&channel=sb&tbm=isch&tbo=u&source=univ&sa=X&ei=24AbU5PZG-Gx2QWWn4C4Aw&ved=0CCkQsAQ&biw=1280&bih=643
Select carefully, there are pictures you probably don't want to share with the students.

7 Ancient Wonders of the World
http://www.unmuseum.org/wonders.htm
Virtual tours of the artists' renditions – only the Great Pyramid remains of these 7 wonders. Also remind students that these were "wonders" because the early engineers had to solve many problems to build these wonders, all who saw them believed they were amazing, wonderful, awesome! There are quick videos which you should preview before showing to the students.



OPTIONAL
http://pbsamerica.co.uk/pyramid
A ***preview*** of a PBS movie, this offers students a quick look at how, where and why the pyramid was probably created.

There are also excellent facts on the PBS page.

ESSENTIAL
http://www.pbs.org/wgbh/nova/ancient/explore-ancient-egypt.html
Launch the interactive of the pyramid to take a "walk" around the Sphinx and the Great pyramid. **This is really cool! You are really inside the pyramid and can navigate through the various parts seen in the cross-section.**

Classroom Lesson - continued

Read the rest of the page – ask students to use the key to tell you what all of the structures are in the sketch.

Turn to page 6. Notice the sketch. This is a cross-section drawing.

Look at this apple (*show the apple you have brought*). What do you see? (*Accept all reasonable descriptions of the exterior of the apple*.) What do you think is inside, or in the interior of the apple? (*Accept all descriptions – you've asked what they think is inside.)*

Let's cut the apple from the top to the bottom (*do so*) and pull the two portions apart. We are looking at a cross-section of the apple. I did cut through the middle so we could see the core and seeds. I can see inside the apple.

What if we cut through the apple the other way – side to side? Would we have the same view of the inside? *(responses)* Why do you think as you do? *(responses)*

Let's find out (*cut across the apple in the middle – you should see a star pattern of seeds in the center of the cross section*). How are they alike? Different? (*You still have the white part of the apple showing and seeds are evident, but now the seeds form a pattern in the center of the apple around the core.)*

Now, look back at the sketch on page 6. Which way was this pyramid cut? *(top to bottom)* The archeologists used this cross-section drawing to show you what they found at the different levels of the pyramid.

(*Read the top paragraph together.)* Let's read the key to the left of the cross section drawing to see what parts are drawn *(do so)*. This is a very huge and complex building!

(*Read the rest of page 6 and all of page 7. Be sure to ask students to answer the question, "What do you think?" The link on the page is no longer available.*)

We have taken time today to really investigate this amazing structure because we have been requested by a friend of mine, Akila, to help in an exciting project. Let's read her letter and see if we would like to participate. ***(BLM** Akila's Letter)*

Well, what do you think? Shall we accept the challenge? *(Hopefully, yes.)*

Unit 6 Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

technology

engineer

engineered

BLM Unit 6, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

load

lever

cross-section

mechanical crane

Unit 6 Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

tecnología

ingeniero

maquinó

BLM Unit 6, Classroom Lesson 1 **Word Cards**

(Create on cardstock – one set for the room, and one set for each student to take home at end of Lesson 1 for practice)

carga

palanca

sección transversal

grúa mecánica

BLM Unit 6, Classroom Lesson 1 **Technology – Non-technology**

One set of two cards per group of four. There are five sets of this page. Duplicate on cardstock, cut apart and give to groups-of-four with the boxes of stuff.

technology	**non-technology**
technology	**non-technology**
technology	**non-technology**
technology	**non-technology**
technology	**non-technology**

BLM Unit 6 Classroom Lesson 1 **Akila's Letter**

Dear Class,

I have heard that you are a group of real problem solvers, so I am sending you a challenge. As you know from your current research about The Great Pyramid of Giza, it is believed that the huge limestone blocks were pulled up a ramp by men then were lifted into place using a mechanical crane.

You also know that there were no motors or complex machines to help move the blocks. They had to be moved and placed using human or animal strength and simple machines. I am part of a team that is trying to find a mechanical crane that might have been used to build the pyramids. We are asking Junior Engineers such as your class to design and build a mechanical crane, then test it to see how much weight you can lift with it.

The other design necessity is the lifting capability. Since the lower stones created a wall that is 5 feet tall, it means that the mechanical crane must lift the block at least 5 feet into the air.

We would like for your team to also test the mechanical crane you design and build to see how high you can lift your loads.

Well, it is quite a challenge. Are you up to it? Your teacher has told me that you are very intelligent and are problem solvers. Please keep a notebook of each step in your engineering design process so we can follow your notes to re-create the mechanical crane on a larger scale.

Hoping you will accept this challenge,
Sincerely,
Akila

Math Objectives
- Identify math in everyday situations.
- Explain and record observations using objects, words, pictures, numbers and technology.
- Make generalizations from patterns or sets of examples and non-examples.
- Justify why an answer is reasonable and explain the solution process.

Transition to Math Materials
- Camera to take pictures of the process – 1 for teacher
- Customary (inch) ruler – 1 per student
- Tape measures – 1 per group of 4
- **BLM TM** The 21st Century
- **BLM TM** Asking Questions

Math Vocabulary
Word wall used in context

Classroom Lesson - continued

TRANSITION to Math
Building Background, Math

Before we begin to research the possibilities for the mechanical crane, I'd like for us to think about time. You see our timeline around the room.

What year does the time line begin (*referring to the literature book, page 4*)? *(4000 BCE)* BCE means Before Common Era, or before the time that we believe Christ was born. Our current year is 2014. This is Common Era, or the time since we believe that Christ was born. There have been 2014 years since the beginning of Common Era.

I have a BLM for you titled, The 21st Century. That's our current century, or block of 100 years.

Let's break up our timeline so that we can plot our birth years on it. Look at your BLM TM 21st Century. If this line represents 100 years, how many ten years could we plot? *(10 total)*

This timeline is already divided into tenths.
- First, find the halfway mark – draw a dot on the line at the halfway mark (*students should do so*).
- What year would this be? *(2050)*
- On your BLM, label this halfway 2050.

Each of these lines represents the END of 10 years. The first line, represents 2010, the end of the first 10 years of the 21st century. Label 2010, now label the rest of the ten-year lines (*students do so as you circulate*).

(*For the year 2014*) You were all born before 2010. We can use a benchmark date to help us. We know that **half** is a benchmark. What year is halfway between 2000 and 2010? *(2005)* Mark 2005 on your timeline.

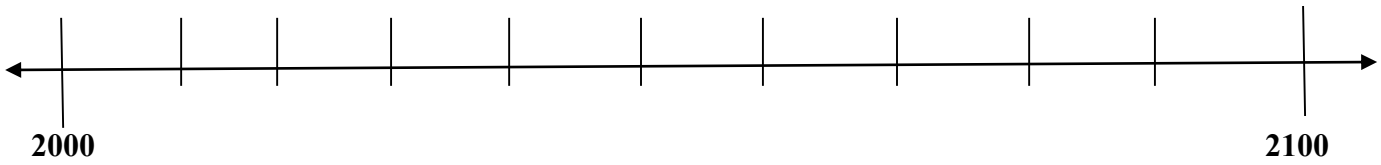
Now see if you can place your birth year on your BLM 21st Century. (*Again, circulate the room to see that students understand the concept - if they were born in 2005, they would be halfway between 2000 and 2010; 2004 would be a little to the left of 2005, and so forth.*)

	Unit 6, Lesson 1 **3-4**  **Classroom Lesson** - continued **TRANSITION to Math** **Building Background, Math** Now, let's turn in ***13 Buildings Children Should Know*** and see where your birth year would be noted on this timeline. • Pages 4-5 are 4000 BCE to 17—BCE *(no, still before common era*) • Pages 8-9 are 1200 BCE – 600 – *not yet, but look what happened, in the middle of this part of the timeline. There is a ZERO date, or the beginning of what we think of as the Common Era.* • Pages 12-13 are 1070 – 1345 (*Our year numbers are now getting larger.*) Flip through the pages to see where you can find the 21st Century (*All the way through to page 38, Sydney Opera House, to find the year 2000.)* The buildings we will study were built a long time ago. Some long before your mothers, grandmothers, great grandmothers, great-great grandmothers were born. It's important for you to remember that. Alright, it's time to begin our Engineering Design Process. (*Refer to the EiE Engineering Design Posters.*) Today, we are working in the Ask Questions stage of the process. Before we can ask questions, let's review what we know. (*Refer to Akila's letter.)* **What do we know about the project?** (*Use the chart tablet to brainstorm what they know already. Here are some essential data that need to be on the sheet among students' other observations.*) Need to design and build a mechanical crane. See how heavy a load the crane can lift, and how high it can lift it. Our mechanical cranes cannot use technology beyond what the Egyptians used during the building period. **What do we need to know?** *Use the chart tablet to brainstorm what they know already. Here are some essential questions that need to be on the sheet among students' other observations.*) How do you build a mechanical crane? How does a mechanical crane work? What materials will we need to build the crane? How will we test the crane to see if it fits what Akila needs?
Chart Tablet Divided into "What do we know? What do we want to know?"	

	Unit 6, Lesson 1 **3-4**  **Classroom Lesson** - continued **TRANSITION to Math** **Building Background, Math** Our TV Teacher and Arthimus will help us answer some of these questions! **Objectives**: Let's review our lesson objectives, making sure you tell me how we accomplished each. **DISTRIBUTE TV MATERIALS** • EiE Engineering Design Process Poster(s) – 1 set for class • **BLM –** Asking Questions from this lesson – each student has his/her own • **BLM –** Parts Common to all Mechanical Cranes – 1 per student and teachers

BLM-TM Unit 6, Lesson 1 **The 21st Century**

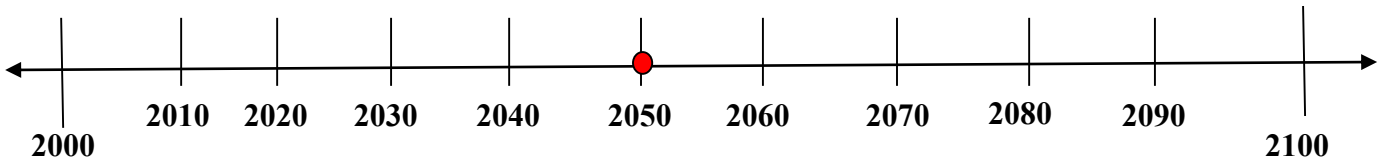
One per student



I am _____ years old. I was born in the year _____.

If I use 2005 as a benchmark, because it is halfway between 2000 and 2010, my birth year would be (before or after) _____ this benchmark.

BLM-TM Unit 6, Lesson 1 **The 21st Century KEY**
Teacher Only



Answers below depend on the individual student's age.

I am _____ years old. I was born in the year _____.

If I use 2005 as a benchmark, because it is halfway between 2000 and 2010, my birth year would be (before or after) _____ this benchmark.

BLM- Unit 6, TV Lesson 1 **Asking Questions**

One per student

What do we know?	What do we want to know?

Literature Vocabulary
technology
engineers
engineered
cross-section
mechanical crane
lever
load

Math Vocabulary
Math wall in context

Materials
TV Teacher supplies
Make 1 ahead of class for demo.
Assemble 1 for students at end of lesson
- Roll of Tape
- Corrugated cardboard pieces – at least 3 strips measuring 1 x 8 inches
- 1 large paper clip
- 1 very large brad
- 3 sharpened pencils
- Scissors with pointy tips
- String such as fishing filament or kite string
- Assortment of washers for weights
- a 12" Ruler
- **BLM** Crane Base Hexagon Base - run on cardstock
- **BLM** Crane Base Faces - run on cardstock
- **BLM** Making a Simple Mechanical Crane – Teacher

Other Materials
- EiE Engineering Design Process Poster(s) – 1 set for class
- **BLM –** Asking Questions TV – TV teacher only
- **BLM –** Parts Common to all Mechanical Cranes – 1 per student and teachers
- **BLM** Parts Common to all Mechanical Cranes **KEY – teacher only**

SMARTBOARD
- Pictures of mechanical Cranes (*link provided*)
- Common Parts of a simple mechanical crane (*link provided as well as the BLM KEY)*

Unit 6, Lesson 1 3-4

TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Identify math in everyday situations.
- Explain and record observations using objects, words, pictures, numbers and technology.
- Make generalizations from patterns or sets of examples and non-examples.
- Justify why an answer is reasonable and explain the solution process.

Language Objectives:
- Listen to classmates and to teacher discuss and read.
- Speak, read and write vocabulary words in context.
- Brainstorm and discuss the various problems given.
- Create a chart of sorted items and explain how you decided to sort them.
- Create a list of things to do before building a skyscraper can begin.
- Justify your conclusions based on the results of your investigations.

Science Objectives:
- Demonstrate safe practices and the use of safety equipment as needed during investigations.
- Plan and implement descriptive investigations, including asking well-defined questions, making inferences, and selecting and using appropriate equipment or technology to answer the questions.
- Collect and record data by observing and measuring, using descriptive words and numerals such as labeled drawing, writing, and concept maps.
- Analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured.
- Communicate valid, oral and written results supported by data.
- Brainstorm and discuss the various problems given.
- Generate charts to describe the outcomes of investigations.

Building Background, Math
You have a super challenge ahead of you! I hope that all of your classes accepted the challenge. I know that Akila can use your input in her team's project.

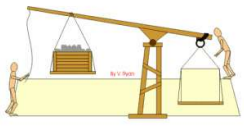
Arthimus and I will certainly help work through the Engineering Design Process with you!

Classroom Teachers
Please circulate the room to see that students are participating.

Pictures of Mechanical Cranes: - pick 5 or so that differ in use
https://www.google.com/search?q=pictures+of+mechanical+cranes&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official&client=firefox-a&channel=sb

Common parts of a simple mechanical crane
https://www.google.com/search?q=parts+of+a+simple+mechanical+crane&client=firefox-a&hs=rs7&rls=org.mozilla:en-US:official&channel=sb&tbm=isch&tbo=u&source=univ&sa=X&ei=zKobU6OuLKWF2QXL-IHICw&ved=0CCkQsAQ&biw=1280&bih=643#facrc=_&imgdii=_&imgrc=LRSqZe4fFsR-qM%253A%3BR4jJL6z4yR3qQM%3Bhttp%253A%252F%252Fupload.wikimedia.org%252Fwikipedia%252Fcommons%252Fc%252Fc4%252FSimple_Crane_diagram..png%3Bhttp%253A%252F%252Fen.wikipedia.org%252Fwiki%252FCounterweight%3B420%3B275

Possible resource:
http://www.technologystudent.com/culture1/egypt2.htm project - crane



Arthimus Portio's Corner Lesson 1
What were your favorites during

Unit 6, Lesson 1 3-4

TV Lesson - continued

We were listening to your class discussions, and we found that there were many similarities in what you know and what you needed to know.

Here is what we found that many of you also found (*show the BLM Asking Questions, TV*). If you have any of these questions from your class, you may use our answers to add to your "What do we know?" column on your charts.

Comprehensible Input
How do you build a mechanical crane? Well, to be able to answer this question, we need to know what a mechanical crane is. (*Show the pictures on SMARTBOARD of about five cranes.*) These are all pretty complicated cranes, and certainly the Egyptians would not have had anything this sophisticated. But they all have some common parts. You have a BLM Parts Common to All Mechanical Cranes.

Let's label the parts as we point them out. (*Do so according to the key.*)
- a pivot, or fulcrum
- a way to pick up and move the load
- an arm
- a counterweight
- and of course, a load

We are going to need to stay very simple with our mechanical cranes if we are going to replicate something that was used over four thousand years ago to help build the pyramids!

How does a mechanical crane work? Arthimus and I have built a simple crane (*show the crane you have built using the directions sheet and materials BLM Making a Simple Mechanical Crane*).

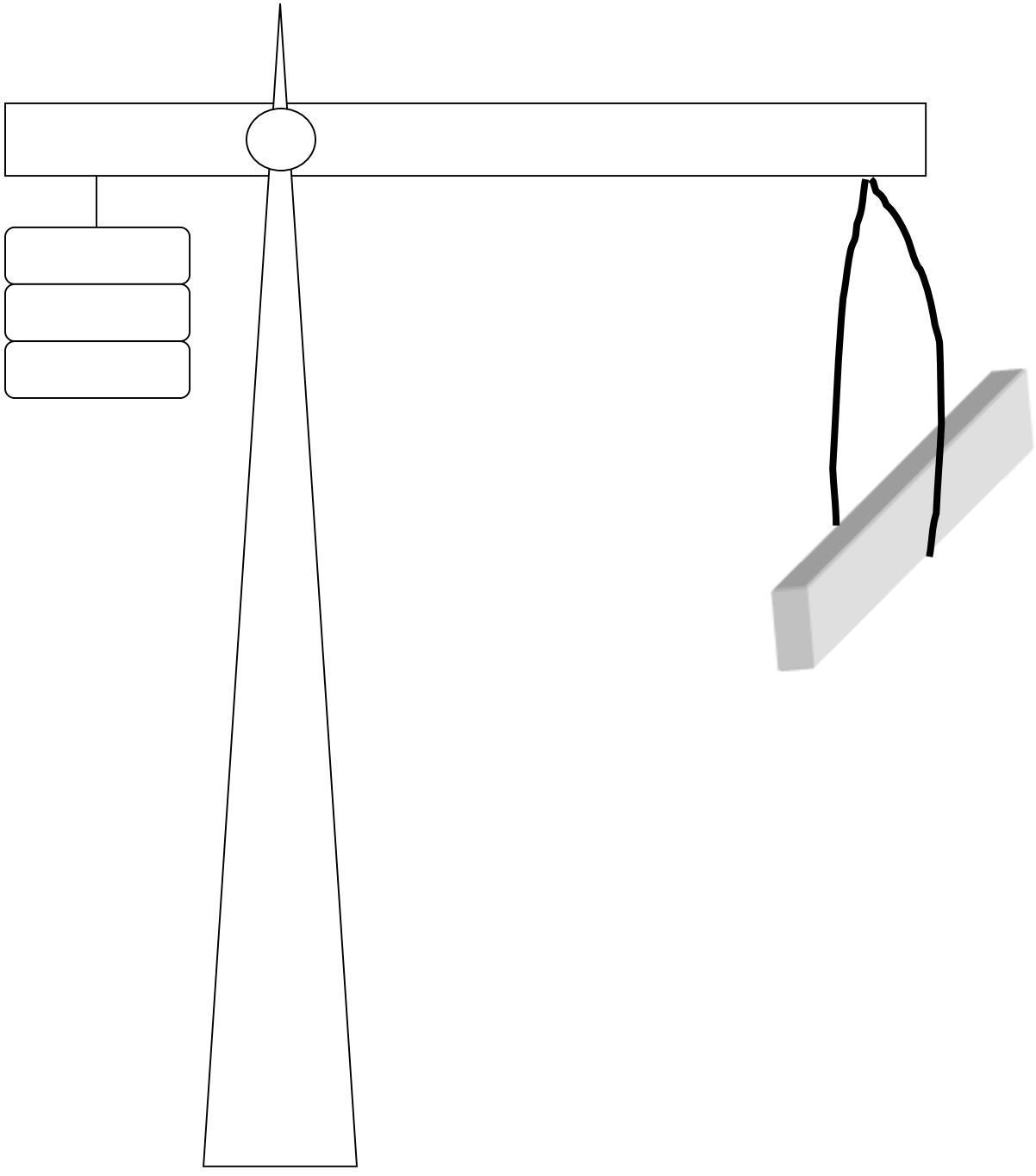
Let's talk about how the crane works. The crane is actually three simple machines. Even the mechanical crane used by the Egyptians would have contained these three simple machines:
- First, there is the lever. This is the ARM of the crane which moves on the pivot point (*demonstrate arm moving up and down*).
- Then there is the pulley. This is where the line runs up and down the ARM and attaches in some way to the load. The pulley helps distribute the weight of the load (*demonstrate*).
- Cranes now have a wheel and axle (*Show a picture of the reel on a modern crane.*) that reels in and lets out the string. Because we are building a simplified version that might have been used 4000 years ago, ours is a simple version of pulling instead of reeling, using the counterweights to aid in pulling heavier weights. We will work harder to move the load than we would have with a wheel and axle.

this summer? book: language activity: TV lesson: home connection: Take time to think about what you have done this summer, and talk about your favorites and why they are favorites.	**Unit 6, Lesson 1** **3-4** **TV Lesson** - continued **What materials will we need to build the crane?** (*Place all of the materials in front of you so that you can assemble for the students.)* These are the materials you will be using to assemble your crane (*show one at a time)*. This is how we assembled our crane. (*Start with the hexagonal base, making sure you mention placing the triangular faces with holes on opposite sides to one another.* *Be sure to show how you drilled the holes – sometimes with the sharpened pencil, sometimes with the scissor tip. Assemble the same way you assembled your crane, talking through the process as you go.)* This will be your follow-up activity today. You and a small team will use the same materials to create your own mechanical crane. **How will we test the crane?** Lesson 2 will be your testing time; however, here are some things that you will need to test for: • Akila wants to know how heavy a load you can carry, and how high you can lift the loads. You will be provided a data sheet to keep your records. Remember that the extra holes will help you vary the weight and height possible by your crane. If you need to, you can use tape to reinforce the sides of the triangles that stand up at the top and are not connected together. That will make the sides stronger. • You have extra arm pieces (*the two additional pieces of corrugated cardboard 1" x 8"*) if you need to reinforce the arm. You don't want the arm to bend. • If you need to, you can add an extra sling to the lifting end of the arm. As you begin to test your crane, you will see other adaptations you might need to make. Just remember that you are building for Egyptians 4,000 years ago. You cannot add anything that wasn't invented yet. Alright Arthimus, what do you think of our project? **Pirate**: Whoa! This is great! I can't wait to see the students upload pictures of their cranes!! This is one of my favorites! And speaking of favorites….. (*Discuss the Pirate's Corner task*.) **Objectives:** And now before we go, let's review what we have learned today! *(do so)*

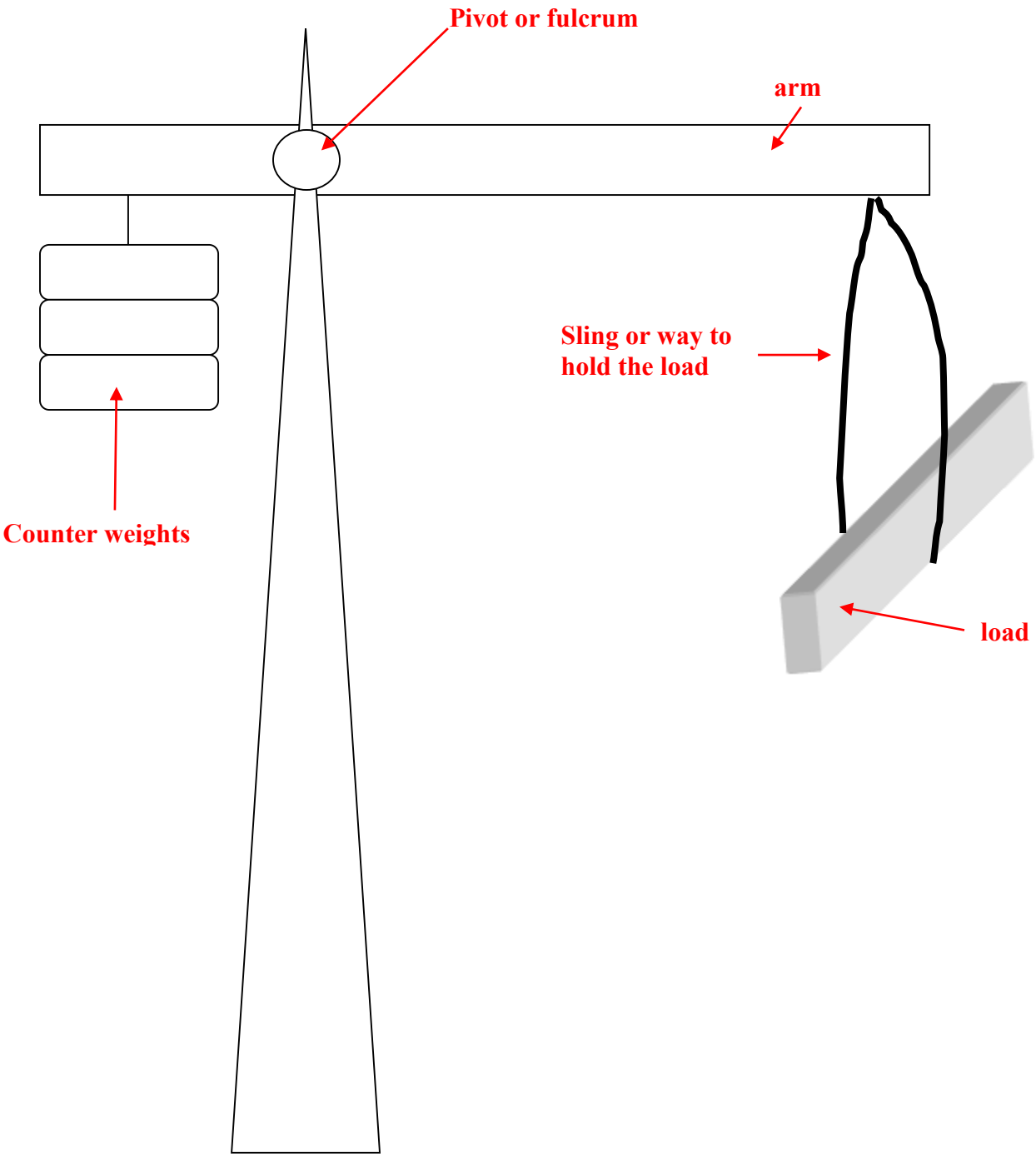
What do we know?	What do we want to know?
Need to design and build a mechanical crane. Test the mechanical crane to see how much weight it can lift. Test the mechanical crane to see how high it can lift various weights. Mechanical cranes cannot use any type of technology unavailable to the Egyptians who built the pyramids.	How do you build a mechanical crane? How does a mechanical crane work? What materials will we need to build the crane? How will we test the crane?

BLM Unit 6, TV Lesson 1 **Parts Common to All Mechanical Cranes**

One per student and all teachers (classroom and TV)



BLM Unit 6, TV Lesson 1 **Parts Common to All Mechanical Cranes KEY**
Teachers Only

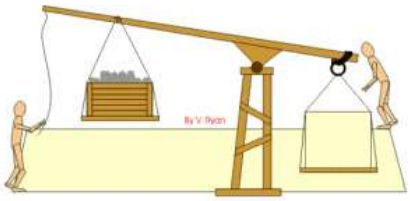


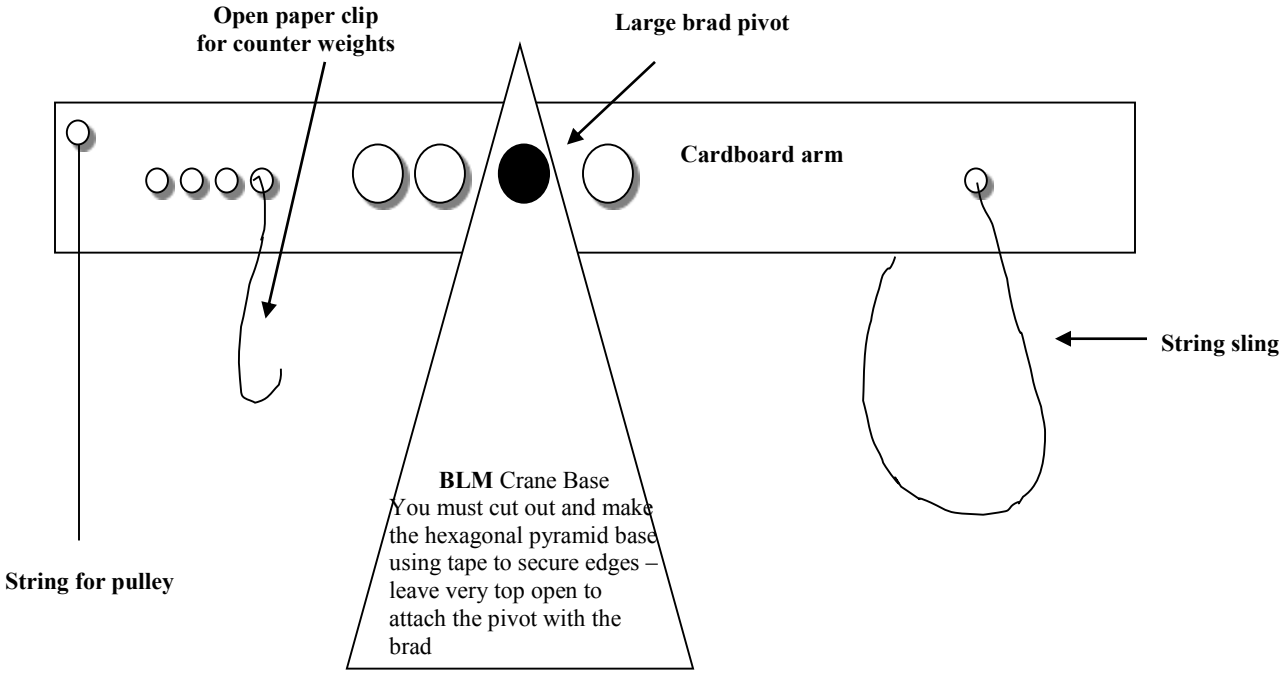
BLM- Unit 6, TV Lesson 1 **Making a Simple Mechanical Crane**

TV Teacher Only

Per Crane-building Team:

- Roll of Tape
- Corrugated cardboard pieces – at least 3 strips measuring 1 x 8 inches
- 1 large paper clip
- 1 very large brad
- 3 Sharpened pencils
- Scissors with pointy tips
- String such as fishing filament or kite string
- Assortment of washers for weights
- a 12" Ruler
- **BLM** Crane Base Hexagon Base - run on cardstock
- **BLM** Crane Base Faces - run on cardstock





Teachers – you will need one mechanical crane pre-made for the first part of the lesson. You will need everything cut out and ready to assemble as a demo during the last part of the lesson.

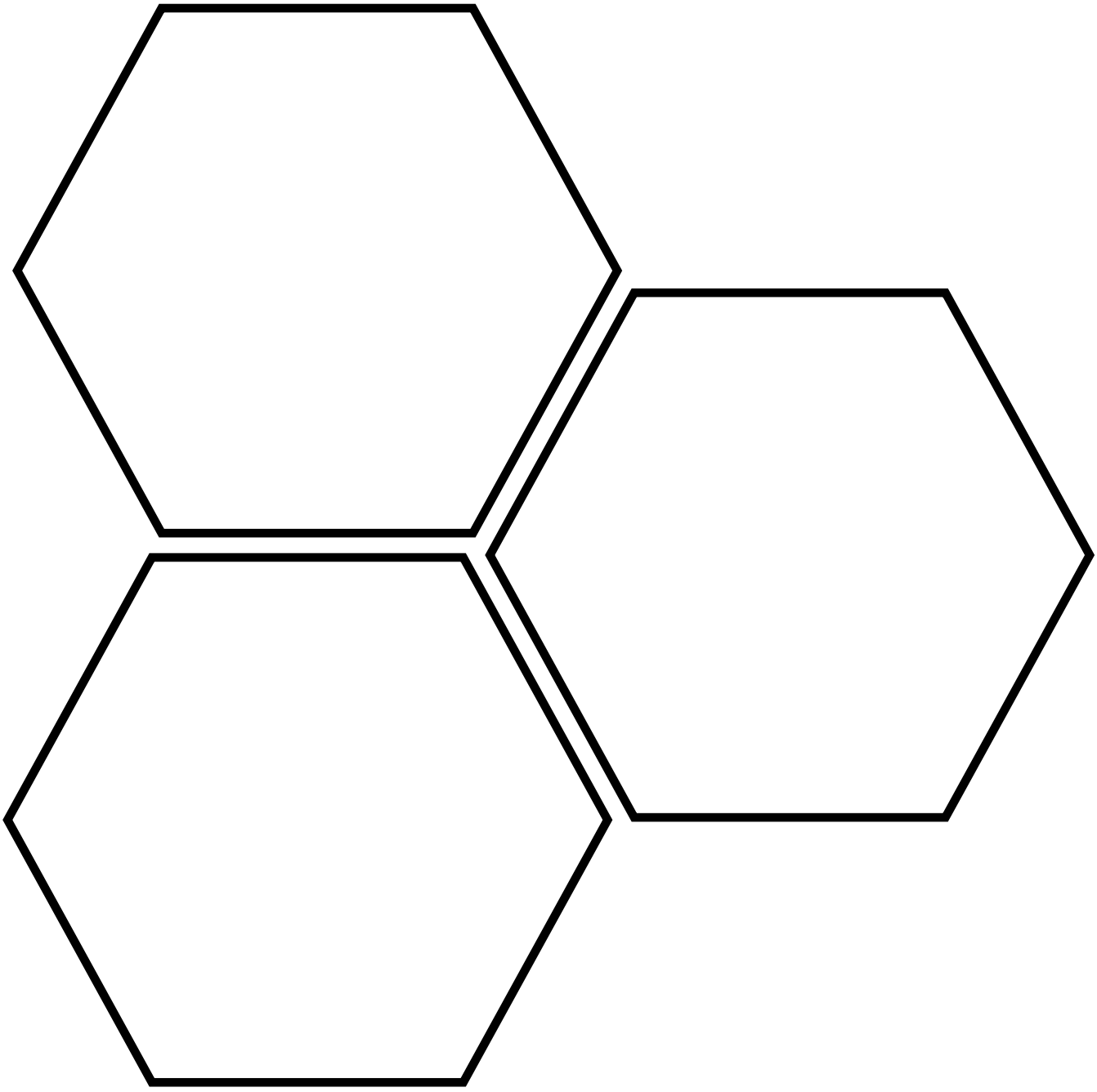
Helpful Hints:

- Holes are drilled with either the sharpened pencils OR the end of the scissors
- The arm should have multiple brad holes so that you can change the distance from the brad to the string sling – the shorter the distance, the heavier the weight can be lifted.
- Washers are used as the counter weights.
- The open paper clip also has additional holes to adjust the position of the counterweights on the arm.

BLM- Unit 6, TV Lesson 1 **Crane Base Hexagon Base**

Duplicate on heavy cardstock – three bases on each page, or enough for three teams

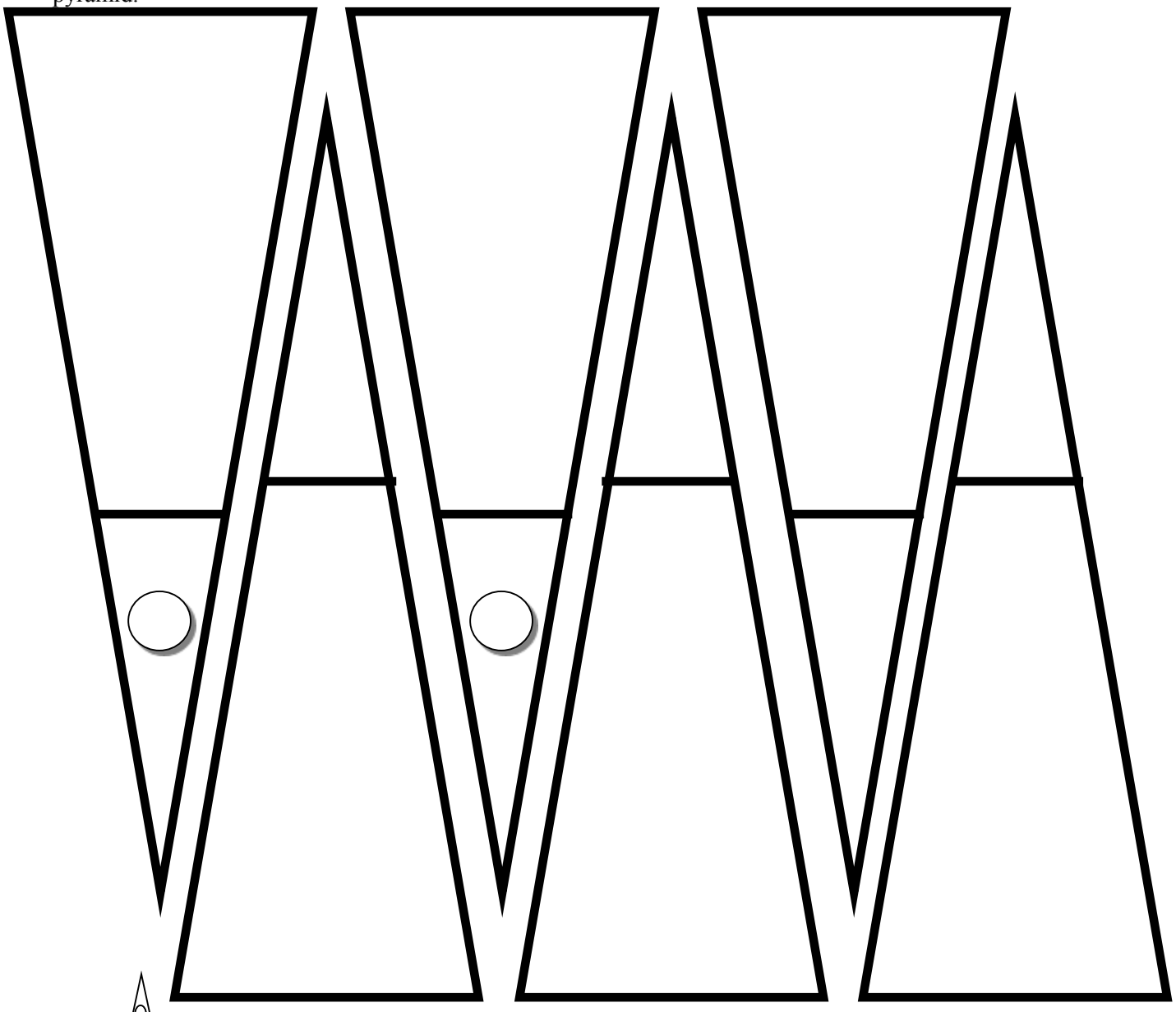
Students will be making a hexagonal pyramid – that is, a pyramid with a hexagon as the base. This is drawn to be a regular hexagon with 2" sides. This page has three bases, or enough for three teams.

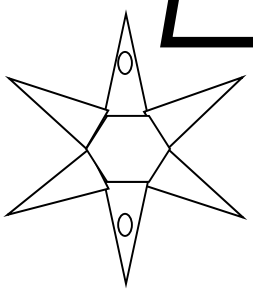


BLM- Unit 6, TV Lesson 1 **Crane Base Faces**

Duplicate on heavy cardstock – six faces, or enough for one team

These are the faces for the hexagonal pyramid. Cut out all six faces. Two triangles have holes marked. These triangles should be taped on opposite sides of the hexagonal base from each other. Tape the base of each triangle to the hexagonal base, using a full strip of tape to completely cover the joined edges. Fold up the triangles to form the faces of the pyramid. Use a full strip of tape to completely cover the joined edges of the faces UP TO THE DARK LINES. This leaves room for the arm to be slipped inside the pyramid.





Literature Vocabulary
technology
engineers
engineered
skyscrapers
foundation
impact

Math Vocabulary
Math wall in context

Materials
- Camera – 1 for teacher

Materials for One Team – boxed or bagged for easy distribution:
- Roll of Tape
- Corrugated cardboard pieces – at least 3 strips measuring 1 x 8 inches
- 1 large paper clip
- 1 very large brad
- 3 Sharpened pencils
- scissors with pointy tips – 1 pair per student in team
- String such as fishing filament or kite string
- Assortment of washers for weights
- a 12-Ruler
- **BLM** Crane Base Hexagon Base - run on cardstock – 1 hexagon per team
- **BLM** Crane Base Faces - run on cardstock – 1 per team
- **BLM** Making a Simple Mechanical Crane – 1 per student
- **BLM** The Assembly – 1 per student

TEACHERS:
Mechanical Cranes must be completed today. If you have time, you may let them experiment with loads.

Unit 6, Lesson 1 3-4

Follow-up

Math Objectives:
- Identify math in everyday situations.
- Explain and record observations using objects, words, pictures, numbers and technology.
- Make generalizations from patterns or sets of examples and non-examples.
- Justify why an answer is reasonable and explain the solution process.

Language Objectives:
- Listen to classmates and to teacher discuss and read.
- Speak, read and write vocabulary words in context.
- Brainstorm and discuss the various problems given.
- Create a chart of sorted items and explain how you decided to sort them.
- Create a list of things to do before building a skyscraper can begin.
- Justify your conclusions based on the results of your investigations.

Science Objectives:
- Demonstrate safe practices and the use of safety equipment as needed during investigations.
- Plan and implement descriptive investigations, including asking well-defined questions, making inferences, and selecting and using appropriate equipment or technology to answer the questions.
- Collect and record data by observing and measure, using descriptive words and numerals such as labeled drawing, writing, and concept maps.
- Analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured.
- Communicate valid, oral and written results supported by data.
- Brainstorm and discuss the various problems given.
- Generate charts to describe the outcomes of investigations.

Practice and Application
Your task today is to divide into groups of three or four to design and assemble your crane. Most of the design work has been done for you; however, if you see a better way to do something, feel free to adapt the blueprint given you as long as

1. You have the materials available to make the adaptation.
2. The adaptation is something that would have been available to the Egyptians who built the pyramids.

Skills CENTERS

Technology

Any previously introduced sites could be a self-checking center activity.

Unit 6, Lesson 1 3-4

Follow-up

Are there any questions? *(responses)*

Divide into teams of not more than four nor less than three. (*Give students to time get into working groups.*)

You are going to work in discovery groups today. You will each have a job:

- **Leader,** the person who makes sure that everyone is on task and is involved in the project.
- **Recorder**, the person who keeps official records for the group.
- **Reporter**, the person who will report back to the class at the close of the activity. If you are a team of three, the Recorder, Reporter can be the same person.
- **Materials Manager,** the person who is in charge of getting and returning materials for the group.

Decide now what role each of you will take. (*pause for decisions*) Materials Manager, please go to the materials area and pick up supplies for your team. You will need one (bag or box) plus the blackline masters. Be sure to note how many of each BLM your team needs.

I will walk around the room to see your progress and be available for questions.

(*Students work in teams to create their cranes. Listen to their discussions.*

Teachers, have "load" items available in a central place in the room in case students want to experiment in the time left after assembly. Small items such as:

- *Single hole punches*
- *Boxes of crayons*
- *Markers*
- *Chalk or whiteboard erasers*
- *Any other small items you have in the room.)*

Math Writing

Students complete the cloze parent letters.

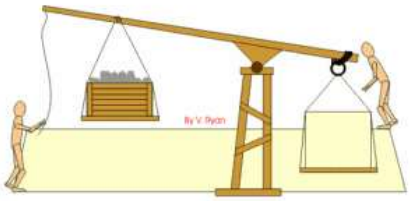
Objectives: Read through the language and math objectives for this portion of the lesson, and have students tell you how they accomplished each.

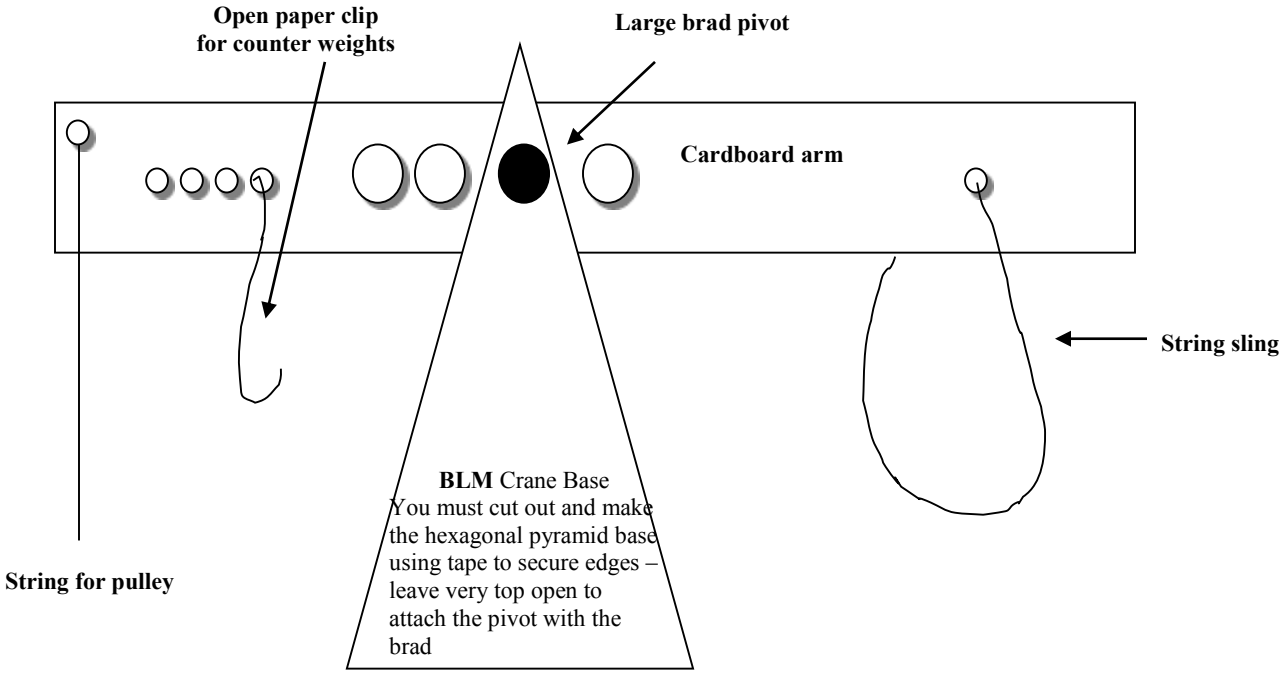
BLM- Unit 6, TV Lesson 1 **Making a Simple Mechanical Crane**

One per team

Per Crane-building Team:

- Roll of Tape
- Corrugated cardboard pieces – at least 3 strips measuring 1 x 8 inches
- 1 large paper clip
- 1 very large brad
- 3 Sharpened pencils
- Scissors with pointy tips – 1 per student in team
- String such as fishing filament or kite string
- Assortment of washers for weights
- a 12" Ruler
- **BLM** Crane Base Hexagon Base - run on cardstock
- **BLM** Crane Base Faces - run on cardstock





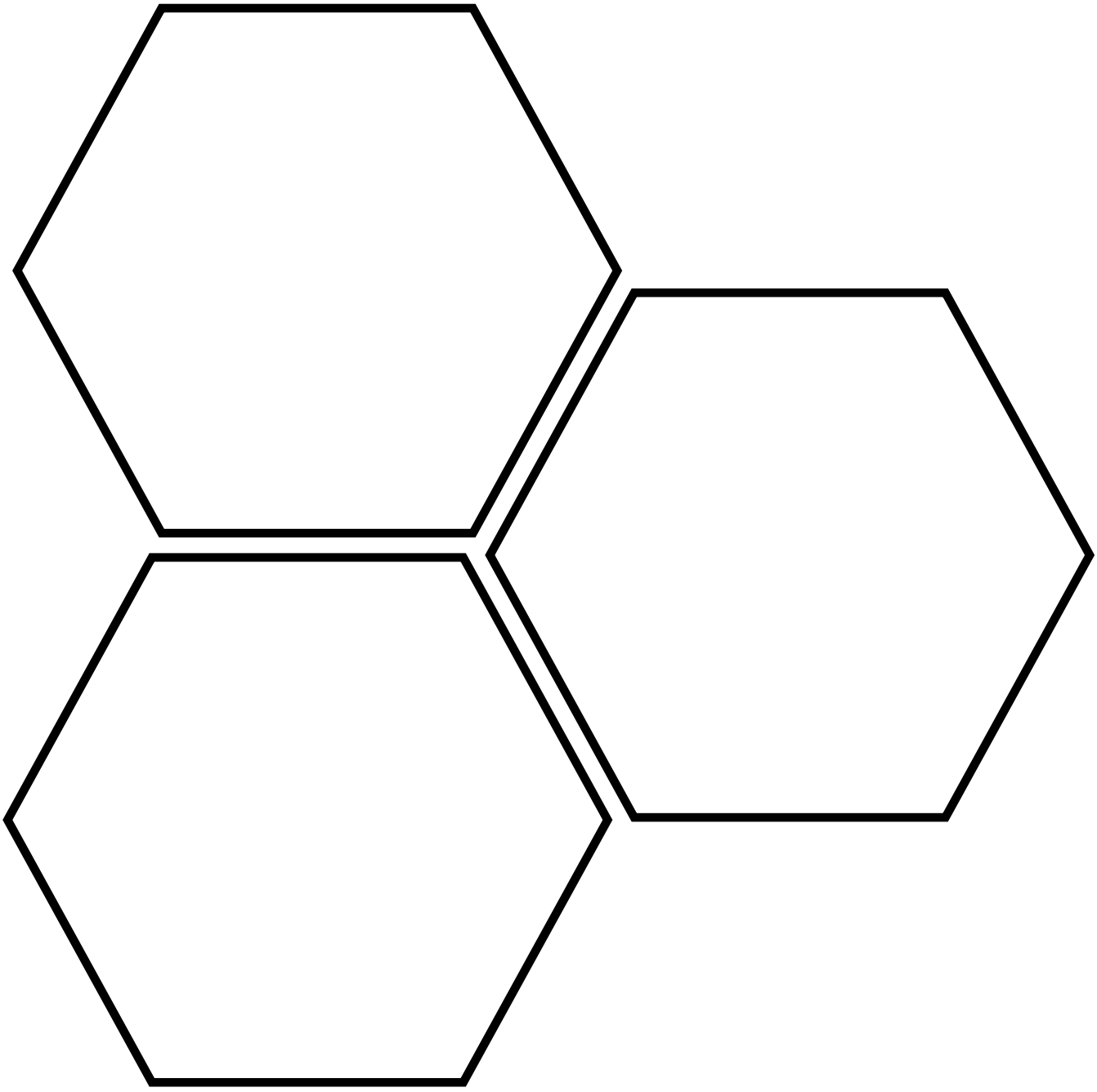
Helpful Hints:

- Holes are drilled with either the sharpened pencils OR the end of the scissors.
- The arm should have multiple brad holes so that you can change the distance from the brad to the string sling – the shorter the distance, the heavier the weight can be lifted.
- Washers are used as the counter weights.
- The open paper clip also has additional holes to adjust the position of the counterweights on the arm.

BLM- Unit 6, TV Lesson 1 **Crane Base Hexagon Base**

Duplicate on heavy cardstock – three bases on each page, or enough for three teams

Students will be making a hexagonal pyramid – that is, a pyramid with a hexagon as the base. This is drawn to be a regular hexagon with 2" sides. This page has three bases, or enough for three teams.



BLM- Unit 6, TV Lesson 1 **Crane Base Faces**

Duplicate on heavy cardstock – six faces, or enough for one team

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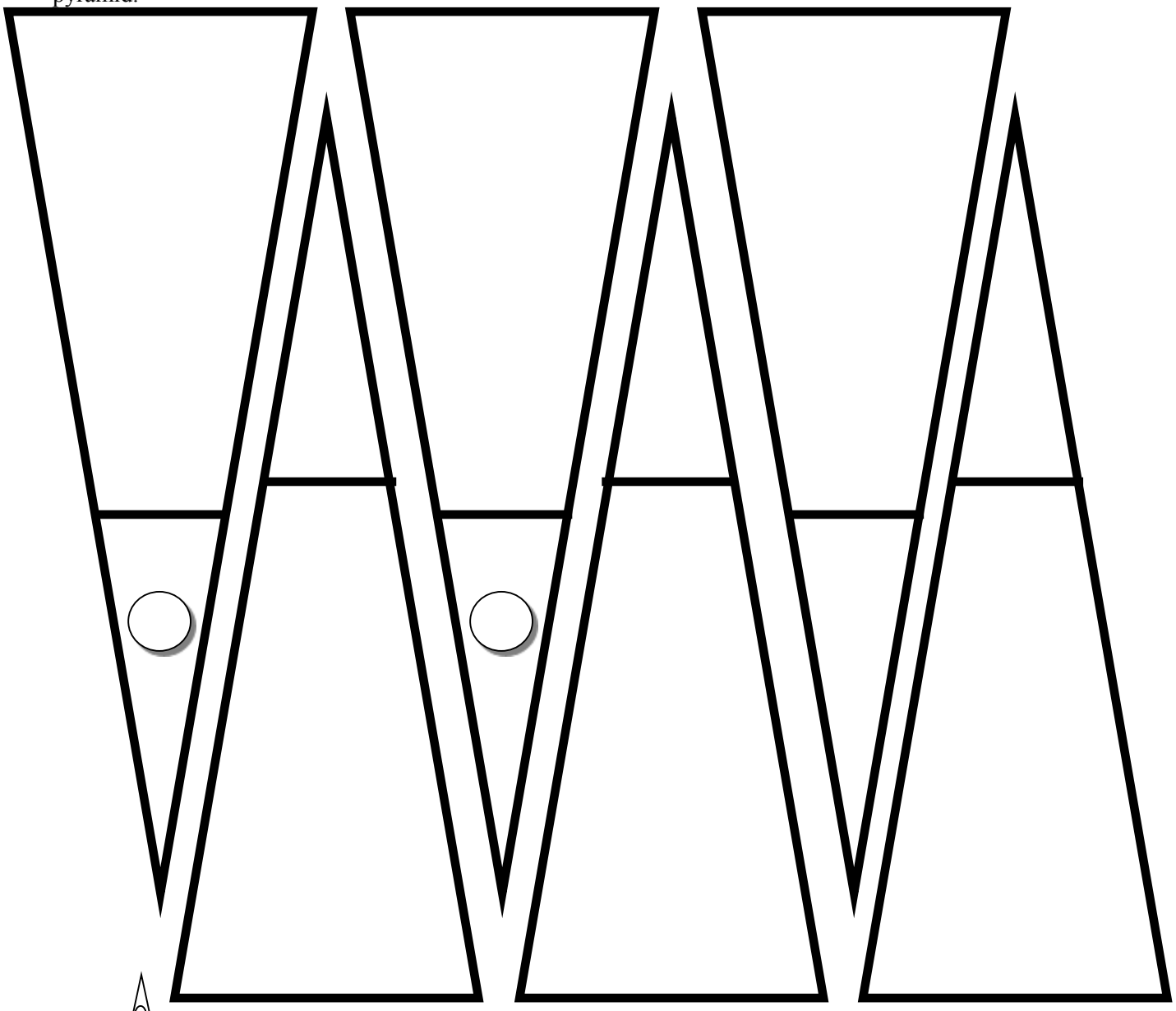
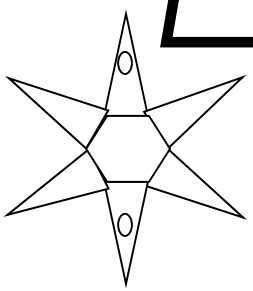




BLM Unit 6, Follow-up Lesson 1 **The Assembly**

One sheet per student (Recorder must have a well-written paper for the Reporter to read.)

Group Members:

Leader:_____ Recorder: _____

Reporter:_____ Materials Manager: _____

This is how our group discussed, adapted and assembled the Mechanical Crane:

First we:

Then we:

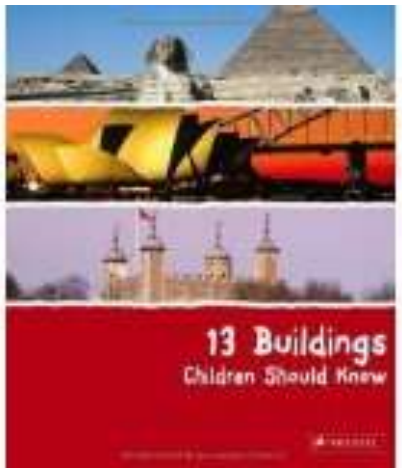
We knew we were finished when:

OPTIONAL

We explored various loads and lifts by:

Any notes you want to remember from experimenting with load and lift:

Family Fun – 3rd -4th, Unit 6 Lesson 1



Dear _____,

We read ***13 Buildings Children Should Know*** today.

Did you know that _____

_____

We used math by _____

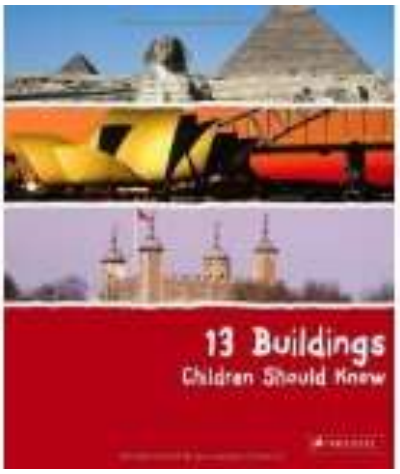
_____

_____

My teacher would like for us to:

Sincerely,

Family Fun – 3rd -4th, Unit 6 Lesson 1



Querido _____,

Hoy leímos ***13 Buildings Children Should Know.***

Sabías que_____

_____

Usamos las matemáticas cuando…

_____

_____

_____

A mi maestro/o le gustaría que nosotros…

Atentamente,

Math Objectives
- Share a snack in half.
- Explain why each portion is half.

Language Objectives
- Explain why each portion is half.
- Share-write what is a half.

Vocabulary
half
fair shares
equal pieces

Materials
- one 8.5 x 5.5 sheet of paper (whole duplicating sheet cut in half) per group of 4
- Energy Snack Mix (*you may have the students mix this, in which case you need all of the measuring cups, spoons, bowls and mixing spoons; or you may premix and give the groups of 4 the pre-mixed ingredients in a quart plastic bag*.)
  - 1 cup choc chips
  - ½ c oatmeal
  - ½ c crunchy peanut butter
  - ½ c nuts
  - 1 T honey
  - Wheat germ (optional)
- quart Ziploc bags
- 4 paper plates
- 4 paper towels
- 4 plastic knives
- Chart paper with question**: How do you know you each have half of the snack?**

Snack Fractions will be simple during this unit because of the extensive project design in the main unit. Students simply share and answer orally administered questions.

Unit 6, Lesson 1 3-4

Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

You are going to work in partners, but with another set of partners for this activity. So get a partner, then I will pair you with other partners.

(*If you are having the students mix the ingredients, do it before you begin the lesson that follows.)*

This mix is to make an Energy Snack. First, I want the four of you to decide how you will divide the mix so each partner pair will have half of the mix. (*Give students time to plan.*)

(*When all partners are ready, share their plans as follows.)*

Alright, let's talk about your plans. I have cut rectangles so that as you describe your plan, I can divide the rectangle as you have described (*or let the student pairs come up and draw as they explain – your choice).* This large rectangle represents the whole mix of energy snack mix. How will you divide this rectangle so that each pair will have an equal share of the mix?

(Let each group of four describe their sharing. Divide the rectangle exactly as the group describes, then have the class decide whether they have divided into fair shares. The intent is for the pairs to divide the snack mix in HALF; however, some may see that each person in the group of four should get one-fourth. That is alright, as long as they can explain what they did once the mix has been cut into the fractional parts. That group, of course, will not do the next part of the activity.)

Now, as partners, how will you divide your portion of the snack mix? (*Share the mix into two equal parts or halves. If another group did divide into fourths, have them now prove that their 2-fourths is the same amount as the halves the other partners took.)*

- What fractional part of the partner portions do you have? *(half)*
- How do you know you have half of the partner mix? *(two equal portions)*
- What is a fractional part of a whole or set?

	Unit 6, Lesson 1 **3-4**  **Snack Fractions** **Oral Response:** • **How do you know you each have a fractional part of the snack? What fractional part do you have?** **Objectives:** Read the objectives. How did we accomplish these in our snack fraction lesson?

Materials
- (all posters as before)
- **BLM** Unit 6, Fraction Action **BLM** CGI
- Unknown Quantity Cards (add/subtract)

Math Objectives
- Solve word problems using a variety of strategies and defend their strategies.
- Model and solve 3-step word problems.
- Construct concrete models of fractions.
- Compare fractional parts of whole in a problem situation using concrete models.

Balanced Literacy Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.

Arthimus Portio's Corner Lesson 2
Describe your Engineering project, and tell us how you will improve it, and what test made you think as you do.

Unit 6, Lesson 2 3-4

Daily Routine

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL
What's Missing? *(3rd assessment item 2)*
- **Lessons 2, 3** *follow directions in the Daily Routine Explanations. Check the assessment items so that you are certain you include samples to practice the shape in the assessed location.*

Fraction Action

(*3rd grade Assessment Items 1, 3; 4th Assessment items 3, 5, 7*)
Lesson 1 – post-assessment
Lesson 2 - Fraction Action and Measurement Lab 2
Lesson 3 - Fraction Action and Measurement Lab 3

CGI
- Lesson 1 – post-assessment
- **Lesson 2 – Division, Measurement** (*3rd Assessment item 5*)
- Lesson 3 – Division, Partitive (*3rd Assessment item 4*)

Literature Selection
13 Buildings Children Should Know
By Annette Roeder

Materials
Language Materials
- World wall map – 1 per classroom
- Chart paper and large marker
- **EiE Poster(s)** ordered from http://www.eiestore.com/posters.html
- **BLM** Fairytale Castles

Transition to Math Materials
- Camera to take pictures of the process – 1 for teacher

Literature Vocabulary
technology
engineers
engineered
cross-section
mechanical crane
lever
load

Math Vocabulary
Word Wall used in context

Unit 6, Lesson 2 3-4

Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students will review to see if they have accomplished both math and language objectives.

Math Objectives:
- Identify math in everyday situations.
- Explain and record observations using objects, words, pictures, numbers and technology.
- Make generalizations from patterns or sets of examples and non-examples.
- Justify why an answer is reasonable and explain the solution process.

Language Objectives:
- Listen to classmates and to teacher discuss and read.
- Speak, read and write vocabulary words in context.
- Brainstorm and discuss the various problems given.
- Create a chart of sorted items and explain how you decided to sort them.
- Create a list of things to do before building a skyscraper can begin.
- Justify your conclusions based on the results of your investigations.

Science Objectives:
- Demonstrate safe practices and the use of safety equipment as needed during investigations.
- Plan and implement descriptive investigations, including asking well-defined questions, making inferences, and selecting and using appropriate equipment or technology to answer the questions.
- Collect and record data by observing and measure, using descriptive words and numerals such as labeled drawing, writing, and concept maps.
- Analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured.
- Communicate valid, oral and written results supported by data.
- Brainstorm and discuss the various problems given.
- Generate charts to describe the outcomes of investigations.

Unit 6, Lesson 2 3-4

Classroom Lesson - continued

Practice and Application
Your team built a Mechanical Crane in lesson 1. What technologies did you use to build the crane? Look at your crane information and work with your building team to come up with a list of the technology used in your crane.

(*Give students time to complete this task*.)

We'll go around the room. The Recorder from each group will give us one item new to the list on a turn. We will continue around the room until we have exhausted every team's list.

(*Do so. Make sure there are no duplicates. Every part of their crane task was technology from the paper the instructions were written on to the tape, scissors, and other supplies used to make the crane. Be sure that students understand that technology is anything that man has made to make something easier.)*

It really is amazing how many items of technology we take for granted, isn't it! Technology is all around us, and those that engineered it are the engineers of the world, whether they have designed paper or a rocket ship to the moon, those who question, imagine, develop, improve for the benefit of mankind are engineers!

Neuschwanstein Castle virtual tour – preview and use what you want of this.
http://www.youtube.com/watch?v=QrJyeearNNk

Building Background, Literature
Although our challenge from Akila regards the mechanical crane used to help build the amazing pyramids, we are going to read of another amazing building, this time a castle. I wonder if there are similarities in technology used to build this amazing castle.

What is a castle? *(responses*) Castles were the homes of noblemen during the times of Kings and Queens. Usually they were surrounded by walls that provided enough grounds so that many of the townspeople could quickly come into the protection of the walls in case of attack.

The castle we will visit today is found in Bavaria in southern Germany. (*Locate Germany on the wall map. Depending on the detail of your map, you may be able to find Fussen, the township near Neuschwanstein Castle.*)

Let's take a look at the Neuschwanstein Castle before we begin our reading for today. *(Neuschwanstein Castle virtual tour link*)

The narrator kept calling this castle a "fairy tale castle." Why do you suppose that is? *(responses)* How many of you have watched a Walt Disney movie? Do you remember what the Walt Disney symbol is at the

beginning of the films? *(responses)* Why, a castle?

Unit 6, Lesson 2 3-4

Classroom Lesson - continued

(*BLM Fairytale Castles distributed*) Look at these two castles. One of them is the Neuswanstein Castle that King Ludwig II built in Bavaria. The other is the Walt Disney castle that is part of the logo on many of the Walt Disney films.

Which is which, do you think? *(responses)*

We'll answer the bottom question after we've read a bit today.

The picture on the left is the Walt Disney logo. The picture on the right is the Neuswanstein Castle in Bavaria. How amazing that something real can influence the movies that we watch! By the way, Neuswanstein is German for "new swan stone." The swan is a very important figure in German tradition.

Teacher Resource: Other "modern" technologies used to build Neuswanstein are: electricity, plumbing, heating and steamboats to carry the building supplies - http://www.atlasobscura.com/places/neuschwanstein-castle

(*The link given on page 29 is a fine website, but is unfortunately in German.*)

Comprehensible Input
Time now to turn to page 26 in our resource book.

(Visit the timeline – notice that these times are in Common Era. We live in the Common Era. Read through the timeline to see how many technologies have been engineered during this span of time –

- *1796 reinforced concrete*
- *1860 – combustion engine, like in cars*
- *1876 the telephone)*

Read the main portion of page 27 – the heading and three paragraphs.

What other technology is mentioned that was included in this castle that would not have been engineered during the time the pyramids were built? (*flushing toilet*)

Look at the sketch at the bottom of the page and the key to the left of it. Work with a partner to read the key and interpret the drawing.

- What areas were completed during the King's lifetime?
- What areas were completed after the King's death?
- What area was planned but never completed?

(*Provide time to have partners share their findings.)*

Turn now to page 28. This picture shows us what some of the inside of the castle looked like. It is a partial cross-section of the castle. The King's dining room was three stories ABOVE the kitchen. Read to find how the food was delivered to the dining room? *(pulley system – see Inside the Castle insert*) What other rooms do you think you can see? Describe their

location so we can easily find them while you tell us about what you see.

Unit 6, Lesson 2 **3-4**

Classroom Lesson - continued

Read the top portion of page 29 – The Unhappy Fairy-tale King.
Why do you suppose the author titled this portion as she did?

Have student partners read the last paragraph on the page to one another then discuss what happened to King Ludwig? What do they think happened and why?

Look again at the picture on page 28. This was a gigantic. The floor space inside the castle is about 65,000 square feet. And there were about 90 rooms, but only about 14 were finished at the time he lived there. This is about the size of an average shopping mall today. And King Ludwig lived alone in the castle with only the servants.

Let's go back to the last question on our **BLM** Fairytale Castles. Would you like to live in a castle? Talk to your partner about reasons why you would want to live in a castle and why you would not want to live in a castle. Jot down your ideas and be ready to share back with the large group.

(*Provide time to complete and share this activity before going on to the Transition to Math portion of the Classroom Lesson.)*

BLM Unit 6 Classroom Lesson 2 **Fairytale Castles**

One per student

One of these castles is the Neuswanstein Castle in Bavaria in Southern Germany.

The other is the fairytale castle from Walt Disney.

Can you tell which is which?

Would you like to live in a castle? Explain your answer.

Math Objectives
- Identify math in everyday situations.
- Explain and record observations using objects, words, pictures, numbers and technology.
- Make generalizations from patterns or sets of examples and non-examples.
- Justify why an answer is reasonable and explain the solution process.

Transition to Math Materials
- Camera to take pictures of the process – 1 for teacher

Table of Assorted Load Items
A table of assorted items to be lifted such as, but not limited to the following. There should be enough that multiple teams can choose the same items.
- Individual crayons
- Individual markers
- Inch cubes
- Small scissors
- Small candy bars such as Snickers
- Chalk or whiteboard erasers
- DVD disks in case
- Small paperback book
- Box of 8 crayons
- Box of markers
- Any manipulatives you have used this summer that can be balanced and lifted.
- **BLM TM** Asking Questions from Lesson 1 – 1 per student
- **BLM TM** Mechanical Crane Data – 1 per student

Math Vocabulary
Word wall used in context

Classroom Lesson - continued
TRANSITION to Math

Building Background, Math
As you think about the construction of the Neuschwanstein Castle, do you think mechanical cranes? Actually, steam engines drove the cranes.

What use do you think they would have had in the building? (*responses*)

So the simple crane that we are developing that might have been used during the building of the Pyramids certainly improved through engineering innovations.

And that is what we are going to do today. We are going to test and improve our mechanical cranes.

First, using your BLM Asking Questions from Lesson 1, are there any questions still left unanswered? What are those questions? (M*ake a list of the questions students still have in their "What do we want to know?" column. Decide which of those questions can be answered through testing. Circle any questions they will need to research for the answer.)*

We know that Akila wants to know how heavy a load your crane can lift and how high you can lift it, so you will definitely test for that.

What you are going to do during this part of the lesson is to decide on the loads you want to use for your testing. We have room for five load items on your Mechanical Crane Data record sheet, so your team needs to select five load items.

Here is our process for selecting the loads.
- First, your Reporter will come up to the table to see what is available to measure. You may bring a piece of paper to write notes, or you may try to remember as many items as possible.
- Your Reporter will come back to your group and report on the load items available on the table.
- Your Team will decide on the five load items.
- Your Materials Manager will go back to the table and select the five load items, bringing them back to the Team for our Follow-up Lesson.
- As a Team, decide how to estimate the weight of each load and arrange them from lightest to heaviest.
- Your team will list the items in the Load Description column.

(*Provide time for the Teams to collect their five load items, estimate their mass and write their loads on the data sheet*.)

Unit 6, Lesson 2 3-4

Classroom Lesson - continued

TRANSITION to Math

Building Background, Math

Our TV Teacher and Arthimus are going to help us create a homemade balance so that we can check our weight estimates, and are going to test their Mechanical Crane using the same process we will use during the Follow-up Lesson.

Objectives: Let's review our lesson objectives, making sure you tell me how we accomplished each.

DISTRIBUTE TV MATERIALS

- EiE Engineering Design Process Poster(s) – 1 set for class
- **BLM** Mechanical Crane Data (clean sheet) 1 per student

Per Discovery Group

- Tape measure
- 200 base ten unit cubes
- a 12" ruler with hole in center
- 2 coffee can lids
- 1 large marker
- 4 pieces of duct tape each 4" long
- 1 small paper clip

BLM-TM Unit 6, Lesson 2 **Mechanical Crane Data**
One per student

Group Members:

Leader:_____ Recorder: _____

Reporter:_____ Materials Manager: _____

Load Description	**Load Weight** Weight measured in base ten cubes	**Load Lifted** Height measured in centimeters	**Notes**
Conclusions			

Transition to Math Process	**Follow-up Process**
1. Reporter sees what is available on table. 2. Reporter reports available loads to Team. 3. Team decides on five loads. 4. Materials Manager picks up the five loads. 5. Team estimates weight of each and arranges from lightest to heaviest. **6.** Team lists the loads in that order in the Load Description column of data sheet.	1. Team finds mass in base ten units of each load and records on data sheet. 2. Beginning with the lightest load, lift and measure the heights you could lift the load with available string. 3. Note whether you think you could make adaptations to the Mechanical Crane to lift either heavier loads or lift a specific load higher. 4. You may improve on the spot by adding another sling or reinforcing the arm.

Literature Vocabulary
technology
engineers
engineered
cross-section
mechanical crane
lever
load

Math Vocabulary
Math wall in context

Materials
Per Discovery Group
- Tape measure
- 200 base ten unit cubes
- a 12" ruler with hole in center
- 2 coffee can lids
- 1 large marker
- 4 pieces of duct tape each 4" long
- 1 small paper clip

Other Materials – for TV
- 200 base ten unit cubes
- Measuring tape

A table of assorted items to be lifted such as, but not limited to the following. There should be enough that multiple teams can choose the same items.
- Individual crayons
- Individual markers
- Inch cubes
- Small scissors
- Small candy bars such as Snickers
- Chalk or whiteboard erasers
- DVD disks in case
- Small paperback book
- Box of 8 crayons
- Box of markers
- Any manipulatives you have used this summer that can be balanced and lifted.
- EiE Engineering Design Process Poster(s) – 1 set for class
- **BLM –** Mechanical Crane Data – Clean sheet 1 per student

Unit 6, Lesson 2 3-4

TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Identify math in everyday situations.
- Explain and record observations using objects, words, pictures, numbers and technology.
- Make generalizations from patterns or sets of examples and non-examples.
- Justify why an answer is reasonable and explain the solution process.

Language Objectives:
- Listen to classmates and to teacher discuss and read.
- Speak, read and write vocabulary words in context.
- Brainstorm and discuss the various problems given.
- Create a chart of sorted items and explain how you decided to sort them.
- Create a list of things to do before building a skyscraper can begin.
- Justify your conclusions based on the results of your investigations.

Science Objectives:
- Demonstrate safe practices and the use of safety equipment as needed during investigations.
- Plan and implement descriptive investigations, including asking well-defined questions, making inferences, and selecting and using appropriate equipment or technology to answer the questions.
- Collect and record data by observing and measure, using descriptive words and numerals such as labeled drawing, writing, and concept maps.
- Analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured.
- Communicate valid, oral and written results supported by data.
- Brainstorm and discuss the various problems given.
- Generate charts to describe the outcomes of investigations.

Building Background, Math
Well, we have questioned, imagined, planned and created our mechanical crane. Now it is time for us to test and improve our models.

First, we are going to make a handy little balance that you and your Team will use to measure the MASS of your loads using the base ten cubes as your weights. So I hope you have all of your materials ready.

Time Clue
BB = 2 minutes
CI = 25 minutes
AC = 1 minute

SMARTBOARD
- Pictures of mechanical Cranes (*link provided*)
- Common Parts of a simple mechanical crane (*link provided as well as the BLM KEY)*

Classroom Teachers
Please circulate the room to see that students are participating.

Unit 6, Lesson 2 3-4

TV Lesson - continued

You will need:
- a 12" ruler with hole in center
- 2 coffee can lids
- 1 large marker
- 4 pieces of duct tape each 4" long
- 1 small paper clip

And, because you are going to make this, then you are going to observe Arthimus and my testing, I'm going to ask you to make the balance on one of your desks that can be pulled away from the group after we finish making the balance. You will pull it back to group again when it is time for your Follow-up Lesson.

Do you have your pull-away desk chosen? *(pause)* Great!

(Show your pre-made balance.) This is what we are going to make. It won't be exact in balancing, but it should give you a pretty good estimate of the load mass or weight.

By the way, do you know the difference between mass and weight? Weight is measured on a spring scale, like a bathroom scale, and is usually in customary measurements like pounds and ounces. Weight uses the pull of gravity to produce the measurement. So you would weigh differently depending on where you were weighed – weight on the moon is one-sixth the weight on Earth because the gravitational pull is less on the moon than on Earth.

Mass is measured on a balance. The load is balanced against unit of measure. The gravity affects the load and the unit the same. So no matter where you are, like on the moon or on Earth, your MASS is the same!

On Earth, however, weight and mass are the same measures. So you will hear weight and mass being used interchangeably.

OK, let's make our balance! *(Explain each step, then do and pause after each step.)*

1. Take your ruler. Roll up one piece of duct tape and put the tape on each end of the ruler. You want the roll to be flush with the ends of the ruler.
2. Now take your two coffee can lids and fit them so the circumference for each lines up with an end of the ruler. Press hard so that the rolled up duct tape tapes the lid to the ruler.

Unit 6, Lesson 2 3-4

TV Lesson - continued

3. On the pull-away desk, take that big marker and tape it in the middle of the desk using one of the strips of duct tape. Make sure you tape it securely so it doesn't move. *(do and pause)*
4. Take your small paper clip and open the small end like this. Be careful that no one gets hurt at this point! Use another duct tape strip to tape the LARGE end of the paper clip to the marker. Again, make sure the tape is secure so the paper clip doesn't move.
5. Now take the ruler and put the middle hole onto the paper clip. Carefully bend the paperclip over so that no one will get hurt on that sharp point.
6. Now, you have your homemade balance! OK, move the pull-away desk away from the group *(pause)*. The person who sits there needs to move back to the group and share a desk with someone else in your team. *(pause while they do that)*

Comprehensible Input
It's time now for Arthimus and I to test our mechanical crane, record our data and make notes for any improvements we might want to make.

We would like for all of you to record our testing results as we complete our tests. This will accomplish two things. First of all, you will be practicing what you will be doing in the Follow-up Lesson. But more importantly, you are going to have an opportunity to tell us what improvements you would make based on our testing. Get your clean BLM Mechanical Crane Data sheet that you will complete with our testing load items and results.

Here are the load items we have chosen (*show your five load items).* We estimated their weight or mass from lightest to heaviest like this (*show an arrangement and record on Load Descriptions column on the data sheet– be sure you do not have a perfect order so that you can show students what to do if their order is not lightest to heaviest).*

You have done this much already. Now we will test and show you what you will do during the Follow-up Lesson.

- *Measure the mass of the first load item you have on the data sheet. Record the mass making sure you write the unit of measure which is base ten units. Remind students to record as well.*
- *Repeat until all of the load items have been massed on the homemade balance, reminding students to record as well.*

We have all of the load items massed. I see that we were a little off with our estimates, but that's OK. We still want to test our load lift with the lightest load first and work our way up to the heaviest.

Arthimus Portio's Corner **Lesson 2** Describe your Engineering project, and tell us how you will improve it, and what test made you think as you do.	**Unit 6, Lesson 2** **3-4**  **TV Lesson** - continued Why do you think we want to test in that order? Talk in your class about why you think that is our best testing approach. *(pause)* I want to make sure that I don't have trouble with my crane too soon. Remember, today is testing – we will make notes and improve in Lesson 3! I think the heavier items might give us a little more trouble, so lightest first. *Now test the load lift.* • *Take your first load item. Can you use just the one sling to lift it? If not, you may make that improvement now because you can't continue with the testing if you can't lift the load. But be sure to mark in the notes that you needed the second sling for that load item.* • *Measure the height of the lift.* • *If successful, and if you have enough string on the crane, you may move the crane up higher, leaving the load on the floor. Measure the height of the lift.* • *If successful and you think you could have gone higher if you had more string, note that in the notes column as a needed improvement.* • *If your crane arm weakens, you may reinforce the arm by adding another crane arm. You cannot continue the testing if your crane arm is too weak.* *Continue the process for all of your load items, measuring the height of lift for each. Be sure that you select the items according to their load weight – remember, lightest to heaviest.* We have completed our first testing. I can see that we have several improvements that we can make. What do you think, boys and girls? What improvements do you see that we can make to possibly lift heavier loads or lift loads higher? Talk about that in your Follow-up Lesson, then go onto MAS Space and tell us what you think! Alright Arthimus, what do you think of our project so far? **Pirate**: This is great! I can see lots of places for improvement, though. We have a lot to do! And boys and girls, we want to hear what improvements you are going to make too! (*Discuss the Pirate's Corner task*.) **Objectives:** And now before we go, let's review what we have learned today! *(do so)*

BLM-TM Unit 6, TV Lesson 2 **Mechanical Crane Data**
One per student

Group Members: TV Teacher Arthimus

Load Description	**Load Weight** Weight measured in base ten cubes	**Load Lifted** Height measured in centimeters	**Notes**
Conclusions			

Our Team thinks you can make the following improvements:

Literature Vocabulary
technology
engineers
engineered
skyscrapers
foundation
impact

Math Vocabulary
Math wall in context

Materials
- Camera – 1 for teacher

Each Team Needs:
- The 5 load items they had chosen and recorded in the TM Lesson
- Their Mechanical Crane
- Copies of the **BLM** Mechanical Crane Data from the TM Lesson – 1 per student
- 200 base ten unit cubes
- 1 measuring tape
- **BLM** – Our conclusions – 1 per student

Unit 6, Lesson 2 3-4

Follow-up

Math Objectives:
- Identify math in everyday situations.
- Explain and record observations using objects, words, pictures, numbers and technology.
- Make generalizations from patterns or sets of examples and non-examples.
- Justify why an answer is reasonable and explain the solution process.

Language Objectives:
- Listen to classmates and to teacher discuss and read.
- Speak, read and write vocabulary words in context.
- Brainstorm and discuss the various problems given.
- Create a chart of sorted items and explain how you decided to sort them.
- Create a list of things to do before building a skyscraper can begin.
- Justify your conclusions based on the results of your investigations.

Science Objectives:
- Demonstrate safe practices and the use of safety equipment as needed during investigations.
- Plan and implement descriptive investigations, including asking well-defined questions, making inferences, and selecting and using appropriate equipment or technology to answer the questions.
- Collect and record data by observing and measure, using descriptive words and numerals such as labeled drawing, writing, and concept maps.
- Analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured.
- Communicate valid, oral and written results supported by data
- Brainstorm and discuss the various problems given.
- Generate charts to describe the outcomes of investigations.

Practice and Application
Before we begin our own testing, let's talk in our Teams about the TV Teacher and Arthimus' testing results and your suggestions for improvements based on their results. I will give you a little time to formulate your ideas as a Team, then we will gather back as a large group and make a Class list of suggestions which we can post on MAS Space.

Skills CENTERS

Technology

Any previously introduced sites could be a self-checking center activity.

Unit 6, Lesson 2 3-4

Follow-up

(*Give time, then facilitate the Class list on chart paper. This is a very important step because students are using the testing results to guide improvements. Insist that students explain why the improvement is needed based on the testing results. Use the same format 2-column as the students' BLM Our Conclusions.)*

I think we are ready now to begin our own testing. Are there any questions? *(responses)*

Alright, pull that desk back into your team that has the balance, and begin your testing just as we observed in the TV Lesson. Remember your Team jobs:

- **Leader,** the person who makes sure that everyone is on task and is involved in the project.
- **Recorder**, the person who keeps official records for the group.
- **Reporter**, the person who will report back to the class at the close of the activity. If you are a team of three, the Recorder, Reporter can be the same person.
- **Materials Manager,** the person who is in charge of getting and returning materials for the group.

When your Team has finished the testing and jotted down ideas for your conclusions, you are to complete the BLM Our Conclusions sheet. Work on this as a Team, but everyone needs his or her own copy completed.

(*Circulate the room to observe the students. Listen to their discussions. Watch how they handle times when they need improvements. See the type of improvements they are suggesting. Make sure that everyone in the group has an active part in the process – that would be the only intervention.)*

Now that we have finished, let's hear from each Team. I'd like your Reporter to report your Our Conclusions back to the whole class. *(do so)*

Math Writing

Students complete the cloze parent letters.

Objectives: Read through the language and math objectives for this portion of the lesson, and have students tell you how they accomplished each.

BLM-TM Unit 6, Lesson 2 **Mechanical Crane Data**
One per student

Group Members:

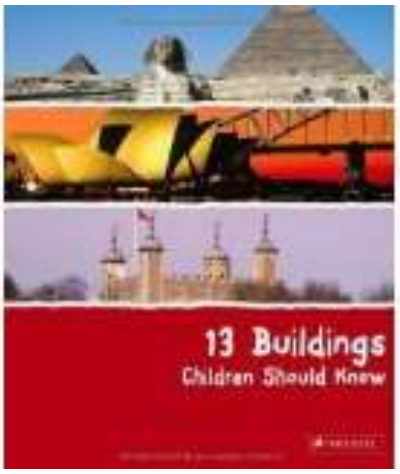
Leader:_____ Recorder: _____

Reporter:_____ Materials Manager: _____

Based on our testing results, we will make the following improvements to our mechanical crane.

Test that showed we needed an improvement.	**The improvement we will make to the mechanical crane.**

Family Fun – 3rd -4th Unit 6 Lesson 2



Dear _____,

We're learning a lot about amazing buildings, but also about the Engineering Design Process. Please ask me about what part of the process we have worked in so far this unit.

I think this process will be helpful to me when I _____

_____

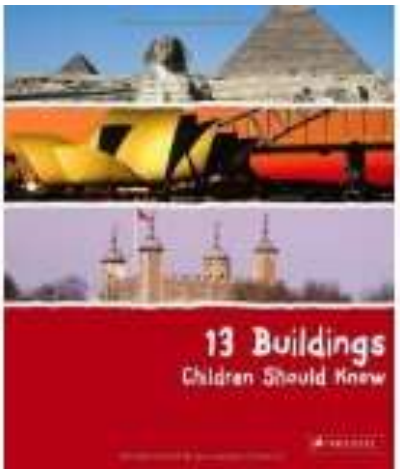
One thing I would like to do at home using what I have learned during this summer session is:

_____

_____

Sincerely,

Family Fun – 3rd -4th Unit 6 Lesson 2



Querido _____,

Estamos aprendiendo mucho sobre algunos edificios asombrosos y también el proceso de diseno de la ingeniería.

Favor de preguntarme en qué parte del proceso estamos en la clase ahora.

Creo que este proceso me será útil cuando…

_____

_____

Una cosa que me gustaría hacer en casa utilizando los conceptos que he aprendido durante esta sesión de verano es….

_____

_____

Atentamente,

Math Objectives
- Share a snack in half.
- Explain why each portion is half.

Language Objectives
- Explain why each portion is half.
- Share-write what is a half.

Vocabulary
half
fair shares
equal pieces

Materials
- 1 oz. turkey
- 1 piece Swiss cheese
- 1 leaf lettuce
- 1 T cranberry relish
- 1 burrito-size tortilla
- 2 paper plates
- 2 paper towels
- 2 plastic knives
- Chart paper with question**: How do you know you each have half of the snack?**

Snack Fractions will be simple during this unit because of the extensive project design in the main unit. Students simply share and answer orally administered questions.

Unit 6, Lesson 2 3-4

Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

Today is very simple, girls and boys. Divide the snack ingredients with a partner so that you each have fair shares. When I come around, be ready to answer these questions:

- What fractional part of the partner portions do you have? *(half)*
- How do you know you have half of the partner mix? *(two equal portions)*
- What is a fractional part of a whole or set?

Oral Response:
- Share-write the student answers to: **How do you know you each have a fractional part of the snack? What fractional part do you have?**

Objectives:
Read the objectives. How did we accomplish these in our snack fraction lesson?

Materials
- (all posters as before)
- **BLM** Unit 6, Fraction Action **BLM** CGI
- Unknown Quantity Cards (add/subtract)

Math Objectives
- Solve word problems using a variety of strategies and defend their strategies.
- Model and solve 3-step word problems.
- Construct concrete models of fractions.
- Compare fractional parts of whole in a problem situation using concrete models.

Balanced Literacy Language Objectives
- Speak to partners, teacher, and class using vocabulary.
- Discuss problem solving process and strategies.

Arthimus Portio's Corner Lesson 3
Describe how you will present your Engineering project.

Unit 6, Lesson 3 3-4

Daily Routine

The following daily activities will help prepare your students for the Post-assessment. ***They are essential and are not optional****.*

ESSENTIAL
What's Missing? *(3rd assessment item 2)*
- **Lessons 2, 3** *follow directions in the Daily Routine Explanations. Check the assessment items so that you are certain you include samples to practice the shape in the assessed location.*

Fraction Action

(*3rd grade Assessment Items 1, 3; 4th Assessment items 3, 5, 7*)
Lesson 1 – post-assessment
Lesson 2 - Fraction Action and Measurement Lab 2
Lesson 3 - Fraction Action and Measurement Lab 3

CGI
- Lesson 1 – post-assessment
- Lesson 2 – Division, Measurement (*3rd Assessment item 5*)
- **Lesson 3 – Division, Partitive** (*3rd Assessment item 4*)

Literature Selection
13 Buildings Children Should Know
By Annette Roeder

Materials
Language Materials
- World wall map – 1 per classroom
- Chart paper and large marker – 1 for class
- **EiE Poster(s)** ordered from http://www.eiestore.com/posters.html
- Photos of Australian wildlife to select and project **http://www.photographsofaustralia.com/photos_and_posters_of_australian_native_animals.html**
- Chart paper and large marker
- Oranges or tangerines – 1 per student
- Pieces of wax paper roll wide and about 10 inches long – 1 per student
- **BLM** Identify Australian Animals – 1 per student
- **BLM** Australian Animals – set of 4 posters – 1 set per Team
- **BLM** What do you see? – 1 per student

Transition to Math Materials
- Camera to take pictures of the process – 1 for teacher
- Table of Assorted Load Items from lesson 2 – additional choices for additional tests
- Teams should have their load items from Lesson 2 for re-testing after improvements are made
- Team-created mechanical cranes
- **BLM TM** Mechanical Crane Data – 1 per student from Lesson 2 Follow-up

Literature Vocabulary
technology
engineers

Unit 6, Lesson 3 3-4

Classroom Lesson

Every day teachers must post the objectives on the board, read them to the students, and have students read them together with the teacher. You must also talk about what the objectives mean, giving examples where appropriate. At the end of the lesson, teacher and students will review to see if they have accomplished both math and language objectives.

Math Objectives:
- Identify math in everyday situations.
- Explain and record observations using objects, words, pictures, numbers and technology.
- Make generalizations from patterns or sets of examples and non-examples.
- Justify why an answer is reasonable and explain the solution process.

Language Objectives:
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- Brainstorm and discuss the various problems given.
- Generate charts to describe the outcomes of investigations.

engineered
cross-section
mechanical crane
lever
load

Math Vocabulary
Word Wall used in context

Unit 6, Lesson 3 3-4

Classroom Lesson - continued

Building Background, Literature
Our third and final building to study is in Australia. Can someone find Australia on our wall map? (*volunteer*) Australia is a wonderful country. It is also its own continent!

Does anyone know of any animals that come from Australia? *(responses)*

Here are a few *(show selected slides from the link)*.

Australia has hundreds of animals that are unique to it and its surrounding islands. We have posters of just eight of them with a little information about each. You are going to work in your Discovery Teams to read about these strange and interesting animals, then identify them on your BLM Identifying Australian Animals sheet.

(*There are links to the San Diego Zoo website for more information on these animals if there is time at some point during the day.)*

There are many interesting and unusual facts about Australia. From such a unique country, it is no surprise that the building we are going to study today is so different from others we have studied or read about.

Comprehensible Input
Time now to turn to page 38 in our resource book.

(Visit the timeline – notice that these times are in Common Era. We live in the Common Era. Read through the timeline to see how many unusual buildings have been built or destroyed in this timeline range.

Look at the picture of the Sydney Opera House on page 38. Those odd looking white things sticking up are actually the roof! What do they remind you of? (*Take all responses, then read the author's paragraph to the left of the picture.)*

Look at the cross-section sketch at the bottom of the page 38 and the key to the left of it. Work with a partner to read the key to see how many different rooms there are in the opera house. (*Give time to do so.*) What do you think is the purpose of each room? (*open discussion*)

Now look at the sketch at the bottom of page 39. This is a top-view sketch. Work again with your partner to describe what you see. Notice the note about the Opera House to the right of the sketch. Be sure in your description to use the terms peninsula and harbor in your description. Use the BLM What do you see?, to help you generate your description.

Unit 6, Lesson 3 3-4

Classroom Lesson - continued

(*Provide time to have partners write their descriptions, then share their findings. To save time, you can assign different descriptions to different groups.*

Generate a class description using their partner-generated descriptions.

- *Have one pair read their description. Choose a pair that has a less-described view.*
- *Write quick descriptive phrases from their descriptions on the chart paper.*
- *Ask if any pair has an additional descriptive phrase to add to the list. Accept only one additional phrase from each pair until all pairs have added any new descriptions to the class chart.*
- *Finally, take the quick descriptive phrases and pull them together as a class to write a descriptive paragraph or two about what the sketch tells you.)*

(*Watch the virtual tour and 360 views.*)
This is an amazing building. Imagine the architect who designed this. As with anything that is very unique, there were some problems, though.

- Have you ever been in a dispute with a friend? *(responses)*
- What happened between you? *(responses)*
- How was the dispute resolved or reconciled? *(responses)*

Let's read page 39 to find out what happened between the architect and the people of Sydney. *(read then ask)*

- Why was there a dispute?
- What did the architect do to show he was not pleased?
- How did Sydney treat him?
- When and how was the dispute resolved or reconciled?

Page 40 gives us a little more detail about the unusual roofs. Let's read about them. *(do so)*

Architects, like engineers, improve on other designs. They take what they have seen or what they envision in their minds and build on the ideas. Let's read what experiences the architect used to help him design this amazing building. *(read p 41)*

- What elements did the architect want to include in the opera house?

Virtual tour of the Sidney Opera house – starts and ends with real images, then uses computer-generated architectural views to "see" the structure.
http://www.youtube.com/watch?v=EI_FoDqOM4c

360 viewing of the opera house
http://www.pixelcase.com/showcase/portfolio-items/sydney-opera-house/#

Unit 6, Lesson 3 3-4

Classroom Lesson - continued

Let's see what the author meant about "the orange principle." I have an orange for each of you. Before we peel it, let me give you a piece of wax paper. Please work on the wax paper to keep your desk clean, but also to keep your orange pieces clean.

Now, please peel the orange carefully, but leave the orange whole. *(Students do so as does the teacher.*)

When the author says that "the curvatures" of the roof pieces were all the same, she was talking about the roundness of the orange. These pieces of orange make up the round whole orange, or the sphere. The outside of this sphere has the same curve all around it.

Now separate the orange sections (*all do so*). Place the sections around as if they were the roof pieces of the Sydney Opera House *(do so)*.

From this perspective, the sections do not look connected. They all look like parts of a different sphere. But we know we took them from the same orange, so they all have the same curve to them. Pretty smart, I think! Who would have thought eating an orange could create such an unusual roofline.

You are free to eat your oranges now. *(Finish the treat, then wash hands before continuing to the Transition to Math (TM) lesson.)*

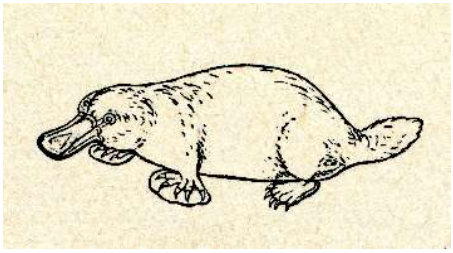
BLM Unit 6 Classroom Lesson 3 **Identify Australian Animals**

One per student

Draw a line from the name to the animal.

Platypus

Tasmanian devil



Echidna

Koala

Kangaroo

Cassowary

Wombat

Emu

http://animals.sandiegozoo.org/animals/wombat

BLM Unit 6 Classroom Lesson 3 **Australian Animals (3/4)**

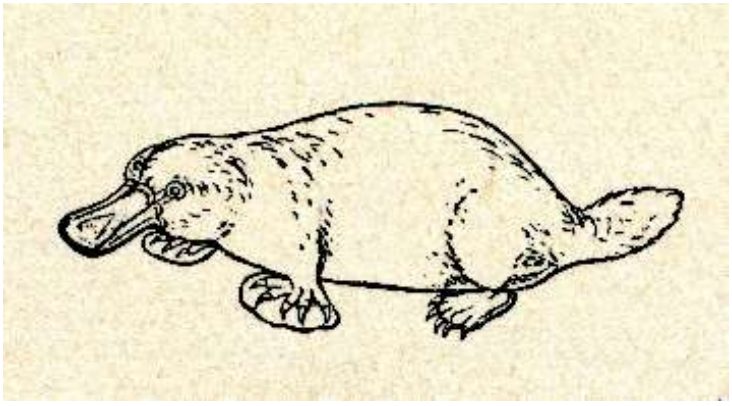
One animal set for the class

Echidna (ih-KID-na)

The echidna is such a strange animal that it still confuses researchers.

This creature looks the same now as it did during prehistoric times! But what really makes it strange is the fact that this mammal lays eggs!

Find more facts about this strange animal at http://animals.sandiegozoo.org/animals/echidna



Platypus

This strange creature is native to the rivers and fresh water lakes of eastern Australia. Like the echidna, these mammals lay eggs.

Their body looks like a combination of a beaver's body, otter fur, and a duck's bill and webbed feet.

Be careful though – there are spurs on their hindfeet that can emit a strong poison when struck into an enemy.

http://www.livescience.com/27572-platypus.html

BLM Unit 6 Classroom Lesson 3 **Australian Animals (1/4)**

One animal set for the class

Koala

The Koala is not a bear. There are mammals, but are very special mammals because they have little pouches where they carry their newborn babies, called joeys. This type of mammal is called a marsupial.

Koalas live in the eucalyptus trees of southeastern and eastern Australia.

Want to learn more about this fascinating animal? Check out http://animals.sandiegozoo.org/animals/koala

Kangaroo

The kangaroo is another of Australia's fascinating marsupials. If you look closely you can see an older joey peeking out of its mama's pouch. This is a gray kangaroo which lives in Australia's savannas and open woodlands.

There are many types of kangaroos that range in size from the tiny rat-kangaroo of about 8 inches tall to the red kangaroo that grows to be about 5 feet tall.

http://animals.sandiegozoo.org/animals/kangaroo-wallaby

BLM Unit 6 Classroom Lesson 3 **Australian Animals (2/4)**

One animal set for the class

Tasmanian Devil

This fearsome looking creature is found only on the island state of Tasmania, a part of Australia.

It is also a marsupial and is related to koalas and kangaroos.

They are about the size of a dog, and as their name implies have fierce tempers.

More information about the Tasmanian devil can be found at http://animals.sandiegozoo.org/animals/tasmanian-devil

Wombats

Wombats are funny little Australian creatures that dig and are most active during the night time, or are nocturnal animals.

They might look cute and cuddly, but are very aggressive animals if they feel threatened.

They burrow, creating tunnels underground that lead to a series of sleeping chambers much like our ground squirrels.

Wombats are marsupials just like the kangaroo, koala, and Tasmanian devil.

BLM Unit 6 Classroom Lesson 3 **Australian Animals (4/4)**
One animal set for the class

Cassowary

The cassowary is a bird that does not fly. It lives in the tropical forest and wetlands of Northern Australia, New Guinea and the surrounding islands.

This bird is considered the most dangerous bird in the world. Each foot has a dagger-like claw up to 4 inches long than can slice open any potential threat with a single kick. And don't try to out run it, either. This bird can run up to 31 miles an hour through thick forest underbrush.

Want to know more about this intriguing bird? Go to http://animals.sandiegozoo.org/animals/cassowary

Emu

The emu is Australia's tallest bird. It lives in the grassy plains and open forest of Australia, New Guinea, Indonesia, Solomon Islands and the Philippines.

It has a pouch in its throat that is used to communicate either a booming drumming or grunting sound during courtship, or a bloodcurdling hiss to warn off dangers.

http://animals.sandiegozoo.org/animals/emu

BLM Unit 6 Classroom Lesson 3 **What do you see?**

One per student

Pretend that you are viewing the opera house from a hot air balloon. Use descriptive words to describe what you see for each of the following drawn on page 39.

1. Describe your walk to the Opera House from the top portion of the land which will jut out into the harbor as the peninsula. Use the photograph on page 38 to determine what the small dots are that ring the peninsula and the walk leading up to it.

2. Describe the walk up the stairs to the opera house. How many stairs are there? Where are the various stairs and how wide are they in comparison to the penisula?

3. Describe the restaurant and the approaches to it.

4. Describe the concert hall including where it is located on the peninsula.

5. Describe the Opera including where it is located on the peninsula.

Math Objectives
- Identify math in everyday situations.
- Explain and record observations using objects, words, pictures, numbers and technology.
- Make generalizations from patterns or sets of examples and non-examples.
- Justify why an answer is reasonable and explain the solution process.

Transition to Math Materials
- Camera to take pictures of the process – 1 for teacher
- Table of Assorted Load Items from lesson 2 – additional choices for additional tests

Per Discover Team
- Teams should have their load items from Lesson 2 for re-testing after improvements are made.
- 200 base ten units
- Balance they made in lesson 2
- Tape measure
- Team-created mechanical cranes
- **BLM TM** Improved Mechanical Crane Data – 1 per student from Lesson 2 Follow-up

Math Vocabulary
Word wall used in context

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Classroom Lesson - continued
TRANSITION to Math

Building Background, Math
You are going to use this time today to finalize the improvements on your mechanical cranes. I still have the table of load items, so once you have re-tested using your original load items, you are free to select one or two more to add to your testing results.

First, use the data Mechanical Crane Data sheet from Lesson 2 to fill in what you can on our new data sheet, BLM Improved Mechanical Crane Data. You can fill in everything except the new Improved columns for the load weight and lift, and the notes column.

So what part of the Engineering Design Process are you in today? *(Improvement)* For engineers, that is a constant back and forth process – keep improving, keep testing, keep improving… That is how we now have such sophisticated technology! Every generation of engineers improves on the past generation.

I know that you could improve and improve on your cranes, but this will be the last opportunity for us. We will send in our reports to Akila at the end of today. Remember, too, that Akila's team of engineers will take our results and improve on them. We are part of the engineering process, for sure!

Alright, you know the process, so please begin your final improvement / testing phase. Keep track of what you have done and how the improvement worked.

(*When all have finished, have them show their final mechanical crane to the class*.)

Objectives: Let's review our lesson objectives, making sure you tell me how we accomplished each.

DISTRIBUTE TV MATERIALS
- EiE Engineering Design Process Poster(s) – 1 set for class
- **BLM** What We Learned about our Cranes

BLM-TM Unit 6, Lesson 3 **Improved Mechanical Crane Data**
One per student

Group Members:

Leader:_____ Recorder: _____

Reporter:_____ Materials Manager: _____

Load Description	**Load Weight** Weight measured in base ten cubes		**Load Lifted** Height measured in centimeters		**Notes**
	Original	Improved	Original	Improved	
Conclusions					

Based on these testing results, here are improvements we would make if we had more time to do so.

Literature Vocabulary
technology
engineers
engineered
cross-section
mechanical crane
lever
load

Math Vocabulary
Math wall in context

Materials
TV Teacher Only
- 200 base ten unit cubes
- Measuring tape
- Homemade balance
- Load items from Lesson 2
- Improved mechanical crane
- EiE Engineering Design Process Poster(s) – 1 set for class
- **BLM** Mechanical Crane Data from Lesson 2 with all of the data filled in – TV Teacher only – to be displayed on SMARTBoard
- **BLM –** Improved Mechanical Crane Data – Clean sheet 1 per student
- **BLM** Final Report to Akila – 1 per student

Classroom Teachers
Please circulate the room to see that students are participating.

SMART BOARD
BLM Mechanical Crane Data from Lesson 2

Unit 6, Lesson 3 3-4

TV Lesson

Read objectives while pointing to the words in the math lesson objectives. After each math objective, show children what that means.

Math Objectives:
- Identify math in everyday situations.
- Explain and record observations using objects, words, pictures, numbers and technology.
- Make generalizations from patterns or sets of examples and non-examples.
- Justify why an answer is reasonable and explain the solution process.

Language Objectives:
- Listen to classmates and to teacher discuss and read.
- Speak, read and write vocabulary words in context.
- Brainstorm and discuss the various problems given.
- Create a chart of sorted items and explain how you decided to sort them.
- Create a list of things to do before building a skyscraper can begin.
- Justify your conclusions based on the results of your investigations.

Science Objectives:
- Demonstrate safe practices and the use of safety equipment as needed during investigations.
- Plan and implement descriptive investigations, including asking well-defined questions, making inferences, and selecting and using appropriate equipment or technology to answer the questions.
- Collect and record data by observing and measure, using descriptive words and numerals such as labeled drawing, writing, and concept maps.
- Analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured.
- Communicate valid, oral and written results supported by data.
- Brainstorm and discuss the various problems given.
- Generate charts to describe the outcomes of investigations.

Building Background, Math
Today is the big day! We have read many suggestions from Junior Engineering Teams out there. Thank you! I think you will see some of your ideas in our improvement.

Let's review our data from lesson 2 *(do so from your mechanical crane data sheet)*.

Here are the improvements we made to our crane. See which ones you suggested *(show the improvements and refer to the need from the data)*.

SMART BOARD **BLM** Final Report to Akila **Arthimus Portio's Corner** **Lesson 3** Describe how you will present your Engineering project.	**Unit 6, Lesson 3** **3-4** **TV Lesson** - continued And we have the same load items we used to test in Lesson 2. I think we are ready for our final test! Boys and girls, please use the Improved Mechanical Crane Data sheet to keep track of the results our improvements give us. Here is our data from lesson 2. Please fill in our sheet as you did your sheet in the Transition to Math lesson today. *(Pause to allow students to copy data from your copy to their clean sheet.)* **Comprehensible Input** (*Conduct the test just as you did in Lesson 2. Be sure to explain how you think the results will be different this time due to a specific improvement*.) Well, boys and girls, we'd like to have more time, but Akila wants these results quickly. What did you think of our improvements and our final results? We're going to add a little note to Akila to let her know some suggestions for further improvements. You will want to do that, too. Let's write our final report to Akila. Follow along on your copy. You don't have to fill in everything the way we are doing, but you might like to take notes so you will know what to do on your copy. (*Complete the BLM.)* Well, this has certainly been a busy summer! I really hate to see it end! **Pirate**: So do I. I will miss hearing from the boys and girls! And speaking of hearing from you, we'd like to know how you are going to present your engineering project to the school. Jot us a line on MAS Space to tell us. Maybe you can even upload a photograph of the display! (*Discuss the Pirate's Corner task*.) **Objectives:** And now before we go, let's review what we have learned today! *(do so)*

BLM Unit 6, Lesson 3 **Improved Mechanical Crane Data**
One per student

Group Members: TV Teacher Arthimus

Load Description	**Load Weight** Weight measured in base ten cubes		**Load Lifted** Height measured in centimeters		**Notes**
	Original	Improved	Original	Improved	
Conclusions					

Suggested Improvements

BLM-TM Unit 6, Lesson 3 **Final Report to Akila**
One per student

Group Members:

Leader:_____ Recorder: _____

Reporter:_____ Materials Manager: _____

Sketch of our improved Mechanical Crane

Final Measurements

Height of Hexagonal Base: _____inches

Length of Arm: _____ inches

Number of cardboard arms used _____

Number of slings _____

Length of slings (from bottom of arm to bottom of sling _____ inches

Mass of heaviest load lifted _____ base ten cubes

Height of highest load lift _____ inches of the load massing _____ base ten cubes

What we learned about our Mechanical Crane

Suggestions for Additional Improvements

Literature Vocabulary
technology
engineers
engineered
skyscrapers
foundation
impact

Math Vocabulary
Math wall in context

Materials
- Camera – 1 for teacher

Each Team Needs:
- The 5 load items they had chosen and recorded in the TM Lesson
- Their Mechanical Crane
- Copies of the **BLM** Mechanical Crane Data from the TM Lesson – 1 per student
- 200 base ten unit cubes
- 1 measuring tape
- **BLM** – Our conclusions – 1 per student

Unit 6, Lesson 3 3-4

Follow-up

Math Objectives:
- Identify math in everyday situations.
- Explain and record observations using objects, words, pictures, numbers and technology.
- Make generalizations from patterns or sets of examples and non-examples.
- Justify why an answer is reasonable and explain the solution process.

Language Objectives:
- Listen to classmates and to teacher discuss and read.
- Speak, read and write vocabulary words in context.
- Brainstorm and discuss the various problems given.
- Create a chart of sorted items and explain how you decided to sort them.
- Create a list of things to do before building a skyscraper can begin.
- Justify your conclusions based on the results of your investigations.

Science Objectives:
- Demonstrate safe practices and the use of safety equipment as needed during investigations.
- Plan and implement descriptive investigations, including asking well-defined questions, making inferences, and selecting and using appropriate equipment or technology to answer the questions.
- Collect and record data by observing and measure, using descriptive words and numerals such as labeled drawing, writing, and concept maps.
- Analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured.
- Communicate valid, oral and written results supported by data.
- Brainstorm and discuss the various problems given.
- Generate charts to describe the outcomes of investigations.

Practice and Application
(*The Discovery Teams will write up their final reports to Akila. Share the reports back to the whole class.*

When you have finished, plan how you will display your mechanical cranes in the All-School Project presentation area, then display them.

View the all-school display at the appointed time.)

Skills CENTERS

Technology

Any previously introduced sites could be a self-checking center activity.

Unit 6, Lesson 3 3-4

Follow-up

Math Writing

Students complete the cloze parent letters.

Objectives: Read through the language and math objectives for this portion of the lesson, and have students tell you how they accomplished each.

BLM-TM Unit 6, Lesson 3 **Final Report to Akila**
One per student

Group Members:

Leader:_____ Recorder: _____

Reporter:_____ Materials Manager: _____

Sketch of our improved Mechanical Crane

Final Measurements

Height of Hexagonal Base: _____inches

Length of Arm: _____ inches

Number of cardboard arms used _____

Number of slings _____

Length of slings (from bottom of arm to bottom of sling _____ inches

Mass of heaviest load lifted _____ base ten cubes

Height of highest load lift _____ inches of the load massing _____ base ten cubes

What we learned about our Mechanical Crane

Suggestions for Additional Improvements

Family Fun – 3rd -4th Unit 6 Lesson 3

Dear _____,

This is our last family letter for the summer. We had a great time today finishing our engineering project. Please ask me about it.

I think practicing the Engineering Design Process will help me

_____

_____

It's been a great summer session. One of my best memories is

_____

_____

_____

Thank you for seeing that I was able to go to school. I learned a lot.

Sincerely,

Family Fun – 3rd -4th Unit 6 Lesson 3

Querido _____,

Esta es la ultima carta a la familia este verano. Nos divertimos mucho hoy terminando nuestro proyecto de ingenieria. Favor de preguntarme sobre el proyecto.

Creo que practicando el proceso de diseño de la ingeniería me será util cuando

_____

Este verano ha sido muy divertido. Una de mis mejores recuerdos es

_____

_____

_____

Gracias por ayudarme con las matemáticas este verano.

Atentamente,

Math Objectives
- Share a snack in half.
- Explain why each portion is half.

Language Objectives
- Explain why each portion is half.
- Share-write what is a half.

Vocabulary
half
fair shares
equal pieces

Materials
Per partner:
- 1 personal pan pizza
- 2 individual servings fruit juice
- 2 paper plates
- 2 paper towels
- 2 plastic knives
- Chart paper with question**: How do you know you each have half of the snack?**

Snack Fractions will be simple during this unit because of the extensive project design in the main unit. Students simply share and answer orally administered questions.

Unit 6, Lesson 3 3-4

Snack Fractions

Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

Objective:
Today, I just want you to share your snack with a friend. Look at your snack.
- What fractional part will each of you receive of the pizza?
- What fractional part will each of you receive of the juice?

Writing:
- Share-write the student answers to: **How do you know you each have half of the snack?**

Objectives:
Read the objectives. How did we accomplish these in our snack fraction lesson?

This portion of the curriculum, although NOT required, should be used as needed to supplement and enrich the Unit's activities.

Family Fun Suggestions:
Technology walk at home

Possible Center Suggestions:
- Online Math Games
- Online Science Game
- Art – any are simple enough for centers

ENRICHMENT Suggestions 3rd-4th

MATH WALK

Walk your campus. What evidence do you see of engineers at work? Take a big notebook to gather all of the technology you see! Remember, "anything that has been designed or modified to be useful to some person or groups of people is technology."

Technology Connections

- **Math Practice**
  http://www.infoplease.com/ipa/A0001338.html
  Chart of the world's tallest buildings as of 2010 – students could make up their own problems using this data.
  http://www.learningplanet.com/sam/ff/index.asp
  Excellent equivalent fraction review
  http://www.iqflash.com/skyscraper-puzzle.shtml
  This is a very challenging visual perception game based on skyscrapers. Read the directions carefully to understand the numbering system.
- **Science Connection**
  http://www.coolmath-games.com/0-mini-scientist/index.html Once you understand that this is an observation game of what steps need to be taken and in what order, it's cool.
- **Social Studies Connection**
  http://www.discoveryeducation.com/teachers/free-lesson-plans/higher-and-higher-amazing-skyscrapers.cfm
  Lesson plan on quickly understanding skyscrapers and building techniques.
- **Art Connection**
  http://cp.c-ij.com/en/contents/2025/list_15_1.html
  Creative Park from Canon – detailed models that can be downloaded and folded into buildings. These are remarkable paper folding!
  - http://cp.c-ij.com/en/contents/3153/03352/index.html Great Pyramid of Khufu
  - http://cp.c-ij.com/en/contents/3153/03353/index.html Sphinx
  - http://cp.c-ij.com/en/contents/3152/03343/index.html Taj Mahal
  - http://cp.c-ij.com/en/contents/3154/03363/index.html Neuschwanstein Castle,
  - http://cp.c-ij.com/en/contents/3152/03344/index.html Sydney Opera House

FAMILY FUN Involvement **3rd-4th**

Overview for Unit 6, ***13 Buildings Children Should Know***

This overview will provide a one-page view of the suggested Family Fun Activities for this unit, as well as other opportunities provided for Family Involvement.

Lesson 1

- Vocabulary Cards so students can practice language and math vocabulary at home
- Family Fun Unit 6 Lesson 1 Cloze Family Letter

Lesson 2

- Family Fun Unit 6 Lesson 2 Cloze Family Letter

Lesson 3

- Family Fun Game – using previous unit cards
- Family Fun Unit 6 Lesson 3 Cloze Family Letter

Enrichment Suggestions

- Take a walk around your home and see all of the technology there is.
  HINT: Technology is anything that is manmade.

Math Objectives

Post-assessment

Because of the unique presentation of the STEM Unit 6, we are suggesting that for all of the grade bands you select ONE simple machine investigation from the Kinder selection, ***Simple Machines*** for all of the students in the house. Bring the materials for that project and let the family work together to experience it and learn a little physics

Differentiate

Snack Fraction Notice

All snack fractions are common throughout the grade bands. All grade bands have daily snack fraction activities provided. All snack fractions for a unit in a specific grade band will practice the same set of skills. Therefore, you may choose from any of the 3 activities. **Lesson 3** has been suggested for its ease of delivery.

NOTE: Students are not asked to complete a BLM this time. They are just asked to enjoy the snack, having shared it with one other person.

Materials

• BLM Post-assessment

Materials for the activity of your choice from the Simple Machines book for Kinder.

Family Fun

Use previous cards and materials if you choose to have students play this game.

Snack Fractions – TV lesson 3

Materials per partner:

- Personal Pan Pizza (1 per pair)
- Fruit juice (2 individual serving containers per pair)
- 2 paper plates
- 2 paper towels
- 2 plastic knives
- Chart paper with question**: How do you know you each have half of the snack?**

QUESTIONING

As a result of this lesson, your students should be able to respond to the following:

- What did you enjoy about this summer reading and math session?
- What do you feel very comfortable with now after having come to the sessions?

Math Vocabulary

Word wall vocabulary in context

CGI Problem no additional problems today – Post-assessment

Journal Writing

Explain what a math movie is.

Family Fun – No new game cards this Unit. Feel free to have families use any of the previous unit cards.

Snack Fractions - Lesson 3

Assessment – Post-assessment Today.