

# MATH LEADERSHIP NETWORK

OCTOBER 21, 2014



# STAND UP IF.....

- You traveled less than an hour to get here
- You traveled more than a half hour to get here
- You traveled less than a half hour to get here
- You are the oldest child
- You are the youngest child
- You are the middle child
- You have taught elementary school
- You have taught middle school
- You have taught high school
- You have facilitated adult learning
- You plan ahead
- You wait until the last minute

# PURPOSE OF THE MATH LEADERSHIP NETWORK

- To be a part of and support a system that focuses on math making sense for all students
- To be a part of a community of learners that focuses on putting the shifts into practice to reflect the CCSS vision
- To share (deprivatize) what we learn with those who impact mathematics instruction in our district

# WHAT IS YOUR ROLE?

- How will you use what you learn today in your building, in your district?
- How can the Math Leadership Network support you?

# WHY DO AMERICANS STINK AT MATH?

Four “A”s Protocol

**STEP 1: 5 minutes**

Review the text silently, highlighting it and writing notes in the margin or on sticky notes in answer to the following 4 questions:

# WHY DO AMERICANS STINK AT MATH?

- What **Assumptions** does the author of the text hold?
- What do you **Agree** with in the text?
- What do you want to **Argue** with in the text?
- What parts of the text do you **Aspire** to or want to **Act** upon?

# WHY DO AMERICANS STINK AT MATH?

## Four “A”s Protocol

STEP 2: 2 minutes per person

In a round, have each person at your table identify one of the four A’s in the text, citing the text as evidence.

# WHY DO AMERICANS STINK AT MATH?

## Four “A”s Protocol

### STEP 3: 2 minutes per person

Meet with others who choose the same A as you did. In a round share why you chose your A, citing the text as evidence. When all participants have shared, write a single sentence that expresses why you each choose your A.



# WHY DO AMERICANS STINK AT MATH?

## Four “A”s Protocol

STEP 4: 1 minutes per group

Groups share their A and their sentence.

# WHY DO AMERICANS STINK AT MATH?

## Four “A”s Protocol

STEP 5: 10 minutes

As a whole group respond to the question: *What does this mean for our work with teachers and students?*

# FORMATIVE ASSESSMENT: THE THREE MATHEMATICAL SHIFTS

- Use sticky notes to identify words or phrases that help you make meaning of the Mathematical Shifts
- Focus
- Coherence
- Rigor

# THE THREE SHIFTS...

- **FOCUS:** Focus where the standards focus
- **COHERENCE:** Within and across grade levels
- **RIGOR:** is addressed both in the content standards and the Standards for Mathematical Practices
  1. Conceptual Understanding:
  2. Procedural Fluency
  3. Application

# LET'S WARM UP!

A slab of soap on one pan of a scale balances  $\frac{3}{4}$  of a slab of soap and a  $\frac{3}{4}$  pound weight on the other pan. How much does the full slab of soap weigh?

<https://www.illustrativemathematics.org/MP6>

# REVIEW THE THREE SHIFTS?

Using the task and our standards, identify the following:

**FOCUS:** What is the *focus* of the task and how does it relate to the grade level?

**COHERENCE:** How does the task speak to coherence within and across the grade levels

**RIGOR:** How is rigor evident in the task?

# A POSSIBLE NON-EXAMPLE

<https://www.youtube.com/watch?v=g0nuomCCu9A>

# COHERENCE CARD ACTIVITY

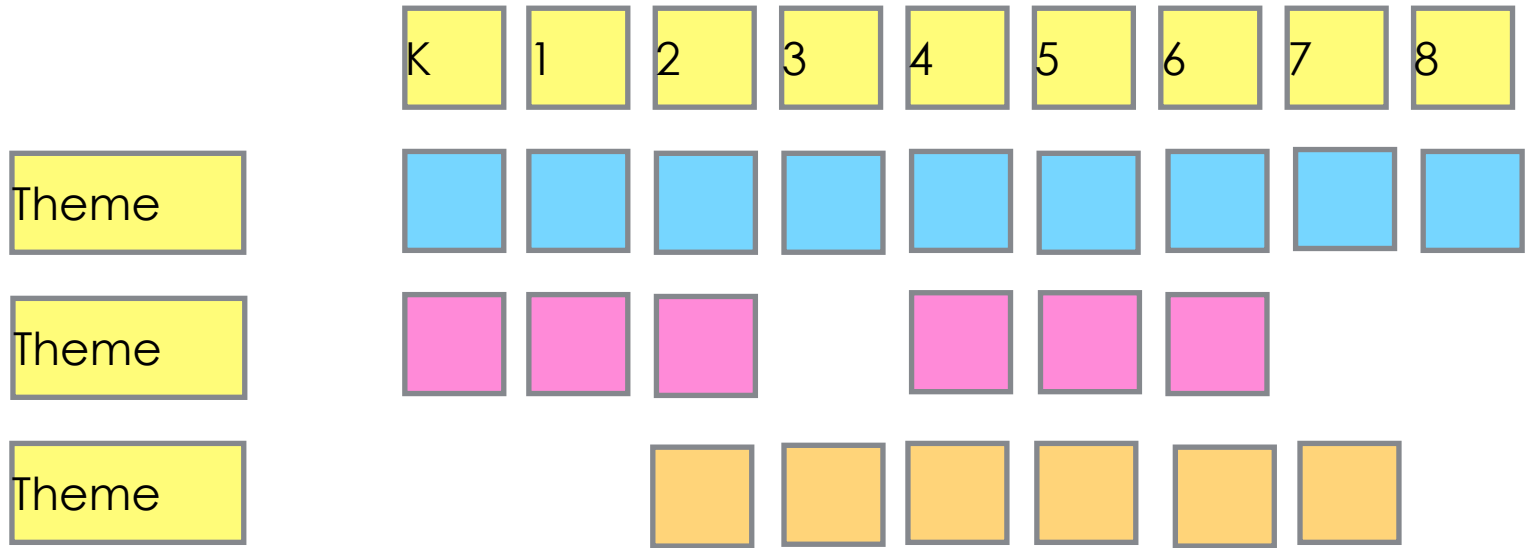
Activity: Place the standards your group is given of each color under the appropriate grade (K-8).

Work as a group — the conversation is important.

- Determine a “theme” for each color.
- No grade has two of the same color card.
- Some “themes” that have only a few cards might represent consecutive grades and some may not.
- Read each card in it’s entirety to help determine placement.
- Do not check your Standards until you and your colleagues agree on the final product.
- Discuss horizontal and vertical observations with your partners.



# COHERENCE CARD ACTIVITY



**When your whole group agrees, check your answers against your standards document.**

**Make corrections.**

# OUTLINE

- Welcome Activity (10 min)
- Brief overview of purpose and the day (5min)
- New York Times Article (20 min)
- Task (15 min)
- FA on Three Shifts (20)
- What is your role in the Mathematics work in your district...What is our work as a MLN? (20)
- Update from OSPI/Resources Available including Dan Meyer
- Lunch 11:30-12:30
- Baseline Tasks (60 min)
- Principals in Action ( 30 min)
- Digital Library task for grade bands. Print?

# CONSIDERING OUR STUDENTS

## Setting the Baseline Task

**PURPOSE:** To deprivatize our practice and take risks in order to facilitate high quality mathematics instruction and experiences students have with the mathematics. In order to understand where we are in our practice, we will use a baseline task to examine student ideas through the lens of the standards.

- This will be operationalized through the content clusters and Standard for Mathematical Practice 3 and 6 (SBAC Claim 3)
- This task will be re-examined at the end of the year to explore student growth

# DOING MATH TOGETHER

- Select and complete a task that you are not familiar with at your grade band.
- Think about multiple ways that you might complete this task.

# Assessment Claims for Mathematics

## Overall Claim (Gr. 3-8)

“Students can demonstrate progress toward college and career readiness in mathematics.”

## Overall Claim (High School)

“Students can demonstrate college and career readiness in mathematics.”

# Assessment Claims for Mathematics

## Claim 1

### Concepts and Procedures

“Students can explain and apply mathematical concepts and interpret and carry out mathematical procedures with precision and fluency.”

## Claim 2

### Problem Solving

“Students can solve a range of complex, well-posed problems in pure and applied mathematics, making productive use of knowledge and problem solving strategies.”

# Assessment Claims for Mathematics

## Claim 3

### Communicate Reasoning

“Students can clearly and precisely construct viable arguments to support their own reasoning and the reasoning of others.”

## Claim 4

### Modeling and Data Analysis

“Students can analyze real-world, complex scenarios and can construct and use mathematical models to interpret and solve problems.”

# Communicate Reasoning

**Claim 3:** Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others.

- A. Test propositions or conjectures with specific examples.
- B. Construct, autonomously, chains of reasoning that justify or refute propositions or conjectures.
- C. State logical assumptions being used.
- D. Use the technique of breaking an argument into cases.



**Claim 3:** Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others.

- E. Distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in the argument—explain what it is.
- F. Base arguments on concrete referents such as objects, drawings, diagrams, and actions.
- G. Determine conditions under which an argument does and does not apply.

# MAKING SENSE OF THE TASK

- Look at the task as though you are a student so that you can think about misconceptions that might arise.

Discuss:

- What knowledge do your students need to have to be successful on this task?

# CONNECTING IT TO THE RUBRICS

## Content Cluster Rubric

- Focuses on a specific cluster for the task

## SBAC Achievement Level Descriptor Rubric

- Focuses on Claim 3 broadly

Review the rubrics and consider what a response might look like based on the task you completed.

# ANCHORING YOURSELF IN STUDENT WORK

- Look at the 3 anchor papers associated with your task.
- Discuss as a group:
  - What Content Cluster score does this student demonstrate?
  - What SBAC ALD score does this student demonstrate?
- What considerations does this illuminate for your students?
- Review the official scores for your papers and annotated notes.
  - What further clarification do you need?

# ADMINISTERING THE TASKS COLD

- These tasks will be used as a baseline
- Please do not give any prior instruction, it is very important that your students demonstrate what they know at this time
- This data will be used as a baseline—it is more important that your students grow from this baseline, than do well at this first administration.
- K-1 should read the task for the students and accept dictation as answers if needed

# FOCUSING ON STUDENT LEARNING PROTOCOL

- Review the protocol
- Prior to our second meeting please:
  - Administer the task to your students “cold”
  - Tally the Content Cluster and SBAC ALD rubric results
  - Bring back
  - Consider the Implications for teaching
- Data Collection REL support?
  - Your students scores in Content and Claim 3
  - Your implications for teaching