

Math & Science Collaborative Lesson Plan



**Northwest Educational
Service District 189**

Together We Can

Lesson Title: **Building the Ant Hotel**

Unit Learning Target (Standard/Performance Expectation(s)) 3.6.E & G CCSSM Practice Standard #1 Students will select and use one or more appropriate strategies to solve a problem, and explain why a specific problem-solving strategy was used to determine a solution.	
Building Block or Lesson Learning Target: Model and practice checking a solution to determine if the solution is correct, or make an adjustment as necessary to arrive at a correct solution. (Guess and Check)	Student Success Criteria: Students will draw 3 different perimeters with an area of 36 square units and compare and discuss their findings.
Previous Lesson Learning Target: Model and demonstrate creating pictures to represent a variety of math problems (Draw a Picture)	
Target Introduction/ Thinking Question * Present students with a 20 square unit area drawn on graph paper. (4 x 5) 3 leveling questions include: “What do we call the space inside the rectangle?” “What do we call the distance around the outside of the rectangle?” “If this rectangle on the graph paper is a diagram of a floor, is there some quick way to find the area without counting?”	
Lesson Progression (Flow) with Talk-Structures (Student Discourse) Pass out cm square graph paper to each student. “Harry Trump is building a new ant hotel and wants to have a room that has a floor of 36 square units. Take a few moments and draw as many different rectangular shapes as you can find that would work for Harry.” “Before you draw, What do you think would be the perimeter?” (Guess) <i>S to T</i> “You may use color tiles to help you plan and figure out different floor plans.” “I would like each of you to find at least three different plans.” “Now take a few minutes to discuss your plans with your elbow partner.” <i>S to S</i> “What did you notice?” (Pick up the phone and pretend to have a conversation with Harry) “Harry says he now has a tight budget and needs to have a 36 square unit room with the smallest perimeter so he can save money building the walls.” “Compare our answers with your group.” <i>S to G or G to G</i>	Key terms for this lesson Perimeter Area Square Units Guess and Check Rectangle
	Formative Task or Question* <i>Designed to elicit student misconception(s)</i> “Who knows the difference between perimeter and area?” “Is perimeter always larger or smaller than the area?” or “Which is larger, perimeter or area?”
	Forms of Student Discourse to include: Student to Teacher Student to Student Student to Small Group Group to Group
Lesson Closure: Write a proposal to owner, Harry, of the new Ant Hotel with a sketch that is labeled that shows the rectangular design of the room you recommend that will have an area of 36 square units and the shortest perimeter.	Exit Task* Writing out the note on a small piece of paper – less than 3” by 3”

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<p>Do the Math for the Thinking Question</p> <p>4 times 5 equals 20</p> <p>$5 + 5 + 5 + 5 = 20$</p> <p>Skip count by 5s</p>	<p>Lesson Anticipated Misconceptions:</p> <p>Confusion between Perimeter and Area Confusion about units of measurement. Why ants have a hotel? Counting the lengths of each side. Counting all of the sides of each color tile or each side of each square used on the graph paper.</p>
<p>Lesson Instructional Adjustment(s) (if needed) <i>Tied to common misconception(s)</i></p> <p>Building other structures or floor sizes for the student who quickly solves the original problem. Give a limit for a perimeter and see what area designs are possible.</p>	<p>Manipulatives and materials to include and have ready to support the lesson *</p> <p>CM graph paper</p> <p>Color Tiles</p> <p>Possibly use clip boards and pencils</p>

* Opportunity for formative assessment