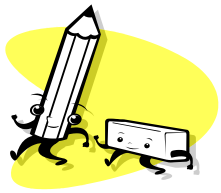


CONSTRUCTING TASK: SHORTER OR LONGER?

Approximately 1 day *(Adapted from "Is it Shorter" found at K-5_MathTeachingResources.com)*

STANDARDS FOR MATHEMATICAL CONTENT

MCC.K.MD.1 Describe measureable attributes of objects, such as length or weight. Describe several measureable attributes of a single object.

MCC.K.MD.2 Directly compare two objects with a measureable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter*.

STANDARDS FOR MATHEMATICAL PRACTICE

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

BACKGROUND KNOWLEDGE

An important part of measuring is identifying the unit of measurement. Always have the child state that the objects in the room are being compared to the "tower of 10 cubes". This is the "unit of measurement" for this task. Do not accept statements such as, "Mine is longer" or "This is shorter than that".

ESSENTIAL QUESTIONS

- Is it important to identify what you are using to make the comparison?
- Does it matter how we measure?
- How can I compare 2 objects by their size?
- How can I record my information?

MATERIALS

- Containers with 10 connecting cubes

GROUPING

Individuals

TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION

The teacher should have 10 connecting cubes, per student. Have students go to the meeting area and model the Shorter or Longer task described below by showing the students how you complete the task. Model your thinking as you make the comparisons and what attribute you are measuring. Stress the importance of identifying what unit (a tower of 10 cubes) is being used to make the comparison.

Have each student get a set of 10 of cubes. The students should join the connecting cubes in their container to make a tower. Find some objects in the classroom that are shorter than your tower of ten cubes and some objects that are longer than your tower of 10 cubes. Use pictures or words to show your work. The teacher should circulate around the room and observe individuals as they make their comparisons and ask the engaging questions. Listen for the use of correct vocabulary (length, taller, shorter, longer, more, less). As the students make their comparisons, be sure students are using end-points when they compare lengths. Partners should record what objects in the classroom are shorter than their tower and how they know this to be true.

After allowing an appropriate amount of time to complete the task, bring students together. Have students share and discuss their work. Have them identify objects that are shorter and explain their reasoning. Use a different unit (larger or smaller tower of cubes) to show why the identification of the unit is importance and how it can make a difference.

Teacher reflection questions:

- Are students able to compare objects by their size and explain why this would be important?
- Are students able to use mathematical language to describe the measurement of attributes of items?

FORMATIVE ASSESSMENT QUESTIONS

- What unit did you use to make the comparison?
- Is this task similar to other task we have done? How?
- Does holding the objects end-to-end affect the answer? Is this important?
- What attributes did you measure?
- Which object is heavier (longer, taller, holds more, etc.)? How do you know?
- How can you organize your information so that someone else can understand it?

DIFFERENTIATION

Extension

- Give the student a different object (marker, pencil, crayon) and have them find some objects in the classroom that are shorter than their object.

Intervention

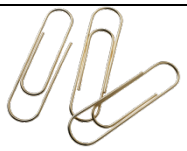
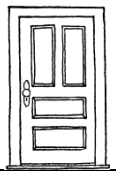
- Give the student a recording sheet, such as "Shorter or Longer", with specified objects around the classroom that should be compared to their tower of cubes. Have focused conversations with the student about how to compare two objects and why one is taller/shorter than the other.

ADDITIONAL RESOURCES:

Van de Walle (2006) Teaching Student-Centered Mathematics Grades K-3, Longer, Shorter, Same: p. 228

Name_____

Shorter or Longer?

1. My tower of 10 is	shorter than longer than	
2. My tower of 10 is	shorter than longer than	
3. My tower of 10 is	shorter than longer than	
4. My tower of 10 is	shorter than longer than	
5. My tower of 10 is	shorter than longer than	
6. My tower of 10 is	shorter than longer than	
7. My tower of 10 is	shorter than longer than	
8. My tower of 10 is	shorter than longer than