PRACTICE TASK: TALLER THAN A TOWER OF TEN?

Approximately 2 days

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

It is important to keep several big ideas in mind when circulating throughout the room having math conversations with your students:

- It is important that the students clearly identify the attribute being measured.
- It is important that the students realize that BOTH objects must share the attribute before a comparison can be made.
- The lining up of the endpoints for an accurate measurement is important.
- Identifying the unit of measurement is essential to sharing your comparison with others

ESSENTIAL QUESTIONS

- Does it matter how we measure?
- What qualities of an object can be measured?
- How can I compare 2 objects by their size?
- How can I record my information?

MATERIALS

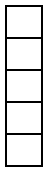
- Box of objects taller, shorter, and the same height as a tower of ten blocks and a tower of five blocks
- Unifix cubes or connecting cubes
- Math Journal to record observations and thoughts

GROUPING

Whole group and partners

TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION

Part I – Benchmark of 5
Gather students together at meeting area and show them a tower of 5 and a tower of 10. Explain that we can compare objects length using a tower of 5 or a tower of 10 cubes. Hold up an object that is the same height as a 5 tower or a 10 tower and ask, "Is this object taller than, shorter than, or the same as my tower? Whisper your answer to your elbow partner. Then share with the class. "Why do you think that?" Model writing a true math statement about your comparison. For example,

My  is the same height as my 

tower of 5 box

Tell students they are going to explore comparing objects and writing true math statements. Explain that, as a group, they are to compare five objects of varying sizes to their tower of 5. Give each group a pre-made bag of items such as books, pencils, crayons, glue sticks, paperclips, etc. making sure that each bag has at least one item that is the same as a tower of 5.

Have each child in the group, select an object and do the comparison. Listen to how they are using the vocabulary taller, shorter and same height. They should record their observation in their math journal and write a true math statement. Continue this lesson, allowing them to explore different objects and comparing them to their tower of five. Students can draw pictures to show their answer and record their thinking.

To close, gather students together on meeting area and have them share and discuss their mathematical thinking along with their true math statements.

Part II – Benchmark of 10

This should be completed the next day.

Tell the students "Today we are using a benchmark of 10." Do you think our comparisons will change? Why or why not?"

Have the students build their own tower of ten cubes and count the cubes orally so you can observe them counting the cubes. Next, show the students the box of objects from yesterday. Ask them to select one object from the box and discuss how the tower of blocks is shorter, longer, and or same height as the object you selected. Listen to how they are using the vocabulary taller, shorter and the same height. Continue this task, allowing them to explore different objects and comparing them to their tower of ten and recording their mathematical thinking in their journals.

To provide closure for the task, gather students together in meeting area and have them share and discuss their mathematical thinking along with their true math statements.

Teacher reflection questions:

- Are students able to compare objects by their size and explain why this would be important?
- Can students explain why their comparisons are correct?
- Are students able to use mathematical language to describe the measurement of attributes of items?
- Can students decide or offer ideas for how to organize/record information?
- Are students able to explain how to record results? Do they understand why this is important to do?
- Can students explain why we need to have common endpoints when comparing the height or length of two objects?

FORMATIVE ASSESSMENT QUESTIONS

- What attributes did you measure?
- What unit did you use to measure it?
- How do you know your comparisons are correct?
- Why are these items longer, shorter, or the same as your tower?
- Are there any more ways to compare these objects?
- Why did you decide to measure it this way?
- Which object is heavier (longer, taller, holds more, etc.)? How do you know?
- If I hold the objects like this (without the endpoints lined up), does your math statement change?

DIFFERENTIATION

Extension

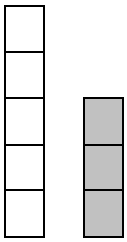
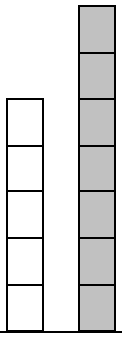
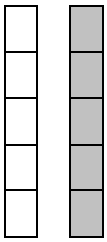
- Students can be encouraged to find objects throughout the room that are the same size as their tower of 5 or tower of 10.

Intervention

- Allow students to work through the stages at a speed that is appropriate for their performance level. Some students may need additional experiences acting out problems, using manipulatives, or drawing pictures.
- Increase the size difference of the objects making it more obvious which one is taller/shorter, etc.
- Put together baggies that have only two items in them instead of 5.
- Draw a line or provide a box with a low lip to help the student line up the endpoints.
- Provide the student with copies of "Tower of 5" and "Tower of 10" recording sheets. The student can use these recording sheets to scaffold their learning.

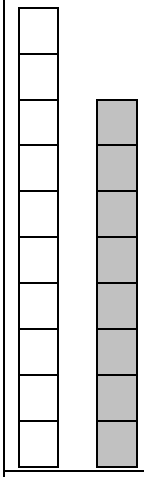
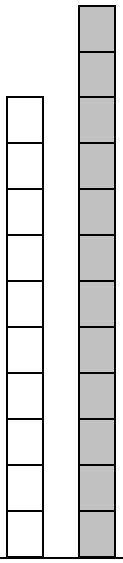
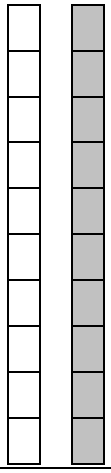
Name_____

Tower of Five

Shorter	Taller	Same
		
Draw a picture of an object that is **shorter** than 5 cubes.	Draw a picture of an object that is **taller** than 5 cubes.	Draw a picture of an object that is the **same** as 5 cubes.

Name_____

Tower of Ten

Shorter	Taller	Same
		
Draw a picture of an object that is **shorter** than 10 cubes.	Draw a picture of an object that is **taller** than 10 cubes.	Draw a picture of an object that is the **same** as 10 cubes.