

Investigations

Book: Bigger, Taller, Heavier, Smaller – Investigation 2

Session: 5

Page: 50-55

1. Concept:

- Exploring measuring techniques
- Measuring capacity
- Relating size and shape to capacity
- Comparing capacities of different containers
- Counting quantities

2. CSOs:

- MA.0.1.4.2 select appropriate units and tools to measure and compare two objects or events according to volume.

3. Technique/Procedure/Introduction/Set:

- Set up water station with five bottles, two of which should have the capacity. Explain to the students that they will need to figure out which two bottles have the same capacity. Have them make a prediction. Help students focus on the shapes and sizes of the bottles. Discuss how much *tallness* or *width* of the bottle will affect how much water it holds. Have the students figure out how to determine which two bottles hold the same amount. Demonstrate at least one method. Show students how to use the funnel.
- Have a student volunteer use the funnel to fill up the bottles.
- Have students explain how they determined which bottles hold the same amount. What does this experiment tell you about which bottle is bigger?
- Have student helpers find out how many cups of water each container holds. The students will measure out the water and use the funnel to fill up the bottles.
- Have the students (in partners) do the same experiment, recording their answers on Student Sheet 12. Observe students as they work.
- Have a class discussion about the results the students found.

- Recall the activity “Which Holds More Sand?”. Explain that sand and water are continuous quantities, in that they cannot be counted. In the following activity, explain that they will be using countable objects. Show the students the labeled containers and cubes. Ask them to predict which container will hold the most cubes and explain their prediction. Have students recall how they filled containers with sand in the previous activity, “Which Holds More Sand?”. Decide as a class how to determine if a container of cubes is full. Have students help fill containers with cubes. Have them help count as you remove cubes and snap them together. Show them Student Sheet 5, which they will use to record their results. Have them give ideas on how they can record their results, for example, tally marks, numbers, cube towers of 10, etc.
- Tell the students that they will be participating in Choice Time. The three choices are “Comparing Bottles”, “Which Holds More Cubes?”, and “Block Puzzles”. Remind students of the directions for each activity and the sheets they will use to record their results. Observe students as they work.

Closure:

- Review each activity that was completed during Choice Time. Discuss the results from each activity. Talk about if there were any other ways to get results from the activities. Review the vocabulary. Explain that the students will be doing Choice Time again in the next math lesson.

Homework:

- Page 57 of Teacher’s Manual. Students will need to take home Student Sheet 13, “Two Containers”. They will need to find two containers at home and figure out which one will hold more water (or another substance that is easy to pour). The students will need to decide what they want to use to measure the water. Students will need to record their findings on Student Sheet 13.

4. Today’s Math/Assessment:

- Today’s Math page 164 “How Much Does It Hold?” and page 165 “Solve the Riddles”
- Observations
- Student sheet 5

- Student sheet 12
- Student sheet 13 (homework)

5. Materials:

- Interlocking cubes (class set, available in tubs of 50-60)
- Containers labeled with letters (for cube activity)
- Student sheet 5 (1 per student)
- Student sheet 12 (1 per student)
- Pattern Blocks and Block Puzzles from Sessions 2-4
- Three containers of different shapes, two with the same capacity
- Funnels (1 per pair of partners)
- Student Sheet 13 (1 per student, homework)

6. Vocabulary: capacity, prediction, tallness, width, funnel, continuous quantities, countable objects