**Volume**

*2nd and 3rd Grade*

**Bret Underwood**

**Benchmarks:**

SLC 3: Students will compare relationships in units of metric measurement (i.e., a kilometer is larger than a meter) (i.e., heavier, lighter, longer, shorter, etc.) between measured objects and select appropriate unit of measure.

**Purpose:**

This lesson will help students have a better understanding of volume and how it is measured.

**Materials:**

- Several different shaped clear containers (unmarked)
- Several clear containers of the same size (with volume markings)
- Thin, tall graduated cylinders
- Rulers
- Masking tape
- Duct Tape
- Water

**Initial Demonstration:**

*Set Up*: Before class demonstrator should put a piece of masking tape vertically on each of the unmarked clear containers and each of the marked containers. Demonstrator should cover up markings on marked containers by placing duct tape over them. Demonstrator should measure out an equal amount of water (suggestion: 200 mL) and put in each unmarked container for use in the lesson.

Demonstrator shows the class one of the unmarked containers filled with water. Demonstrator has a student come up and put a pencil mark where the water level is and measure from the bottom of the container (the table top) to the mark to see how much water is in the container.

**Target Observations:**

- The water mark is 5 cm from the bottom of the container

**Target Model:**

*The amount of water in a container can be found by measuring how high it is.*

**Procedure:**

Break the class up into groups of 4-5 students each. Demonstrator gives students one of the unmarked containers filled with water and asks them to determine how much water they have in it by measuring how high the water is. When the groups have
completed this, give them the marked (but covered) containers and ask them to pour (carefully!) the water from the unmarked container into the marked container and measure once again the height of the water.

**Discussion:**

How “much” water did the groups have with the first container? How much did they have with the second container? Are the numbers different? Why are the numbers different? Did everyone in the class get the same amount? Did the amount of water change, or just the height? Is measuring the height a good way to find out how much water is in something? Have the students (carefully!) take off the duct tape. What are these lines for? Can they help us? How much water do the groups have using these lines? These lines are like the inches and centimeters of a ruler.

**Target Revised Model:**

- The amount of water in a container can be found by measuring how many milliliters it has in it.

**Procedure:**

Ask the students if they think that the amount of water (the number of milliliters) will change if they pour it into another container? Have the class work in their groups to pour the water into the tall graduated cylinders and find the number of milliliters.

**Discussion:**

Did the groups get the same number? How can they explain that? Is there any relationship between the amount the lines are spaced on the tall cylinder and the spacing on the marked container and their sizes? Does our explanation of how to find volume still work after this experiment?