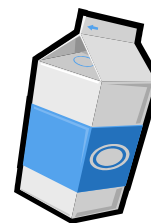


Measuring with Fluids



Strand B: Measurement

Benchmark MA.B.2.1.1: The student uses direct (measured) and indirect (not measured) comparisons to order objects according to some measurable characteristics (length, weight).

Grade Level Expectations: The student:

- uses customary and metric units to measure, compare, and order objects according to their lengths, weights, or capacities.

Overview:

The amount of liquid a container holds is called **capacity**. The students will engage in an activity that will allow them to measure the capacities of containers by counting the number of scoops required to fill each container. In addition, the students will compare the capacities of containers by comparing the quantity of fluid it takes to fill the two containers being compared. They will then order the containers by capacity.

Materials:

- Measuring Containers: teaspoon, tablespoon, cup, pint container, quart container, gallon container
- Assorted Objects (see *Fluid Power Worksheet*)
- Beans
- Water

Procedures:

Activity #1

1. Read the book *Lulu's Lemonade* to the students. If possible, have available the measuring items mentioned in the story. As you read the story, point out the measurement marks on each container and discuss their use in the story.
2. Review measurements: gallon, half-gallon, quart, pint, cup, tablespoon, and teaspoon. Ask questions such as: If you did not have a quart container, how could you add a quart of orange juice to the recipe?

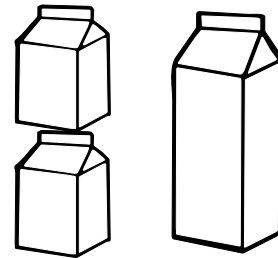
Customary Units of Capacity



1 cup = 8 ounces



2 cups = 1 pint



2 pints = 1 quart

Activity #2

1. Demonstrate how a scoop can be used to measure the capacity of a container. Have two students fill an identical container with beans. Record the total number of teaspoons it took for each student to fill the containers with beans. If any major discrepancies are reported, have the students discuss how they used the scoops. For example, did they round the scoops or level them? They can agree as a class on a uniform technique to use.
2. Use containers like the one shown in the *Measuring with Beans* worksheet to estimate how many teaspoons full of beans will fill each container. Then measure and write the amount for each container.
3. Use containers like the one shown in the *Measuring with Beans* worksheet; estimate how many tablespoons of beans will fill each container. Then measure and write the amount for each container.

Activity #3

1. Comparisons can be made by filling one container and pouring the contents into the other container. If the second container has not been filled, then the second container holds more. If the second container overflows, then it holds less.
2. Remind students to rank the containers before they complete the actual comparison.

Literature Connection: *Lulu's Lemonade* by Barbara deRubertis (ISBN: 1-5756-509-3)

Assessment:


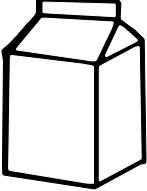
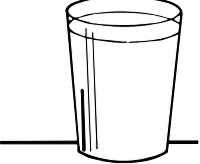

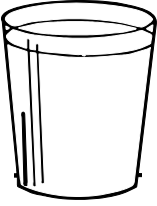
- Have students complete *Measuring with Beans* and *Fluid Power* worksheet.

Extension:

- Extend the activity by using ounces instead of grams.

Measuring with Beans

Directions: Using containers like the ones shown below, estimate how many spoonfuls of beans will fill each container. Then measure and write the number.

Container	Estimated number of teaspoons of beans	Actual number of teaspoons of beans	Estimated number of tablespoons of beans	Actual number of tablespoons of beans
				
				
				
				
				

Fluid Power

Directions: Use water to fill the containers listed below. Make an estimate first of the order of the containers from least-to-most capacity. Then fill with water and compare to find the actual order of capacity.

Container Type	Estimated Capacity	Actual Capacity
