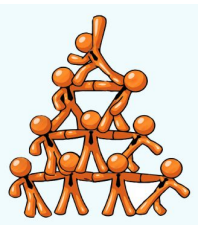


3-3: Learning Goals

- Let's measure things.

3-3-1: Width of a Paper

Your teacher will show you two rods. Does it take more green rods or blue rods lined up end to end to measure the width of a piece of printer paper?



3-3-2: Measurement Stations

Station 1

- Each large cube is 1 cubic inch. Count how many cubic inches completely pack the box without gaps.
- Each small cube is 1 cubic centimeter. Each rod is composed of 10 cubic centimeters. Count how many cubic centimeters completely fill the box.

	cubic inches	cubic centimeters
volume of the box		



3-3-2: Measurement Stations

Station 2

Your teacher showed you a length.

- Use the meter stick to measure the length to the nearest meter.
- Use a ruler to measure the length to the nearest foot.

	meters	feet
length of _____	<input type="text"/>	<input type="text"/>



3-3-2: Measurement Stations

Station 3

If not using real water, open <https://vimeo.com/184901230>.

- Count how many times you can fill the quart bottle from the gallon jug.
- Count how many times you can fill the liter bottle from the gallon jug.

	quarts	liters
1 gallon of water		



3-3-2: Measurement Stations

Station 4

If not using a real scale, open <http://ggbm.at/eQQVYB7D>.

- Select 2–3 different objects to measure on the scale.
- Record the weights in ounces, pounds, grams, and kilograms.

	ounces	pounds	grams	kilograms
object 1				
object 2				
object 3				



3-3-2: Measurement Stations

Station 5

- Count how many level teaspoons of salt fill the graduated cylinder to 20 milliliters, 40 milliliters, and 50 milliliters.
- Pour the salt back into the original container.

	milliliters	teaspoons
small amount of salt	20	
medium amount of salt	40	
large amount of salt	50	



3-3-2: Measurement Stations

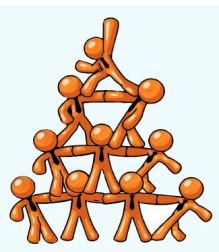
After you finish all five stations, answer these questions with your group.

1.
 - a. Which is larger, a cubic inch or a cubic centimeter?
 - b. Did more cubic inches or cubic centimeters fit in the cardboard box? Why?
2. Did it take more feet or meters to measure the indicated length? Why?
3. Which is larger, a quart or a liter? Explain your reasoning.
4. Use the data from Station 4 to put the units of weight and mass in order from smallest to largest. Explain your reasoning.
5.
 - a. About how many teaspoons of salt would it take to fill the graduated cylinder to 100 milliliters?
 - b. If you poured 15 teaspoons of salt into an empty graduated cylinder, about how many milliliters would it fill?
 - c. How many milliliters per teaspoon are there?
 - d. How many teaspoons per milliliter are there?



3-3: Lesson Synthesis

- What do quarts and gallons measure?
- Which is bigger: 1 quart, or 1 gallon?
- How many quarts are in 8 gallons?
- How many gallons are in 8 quarts?



3-3: Learning Targets

- When I know a measurement in one unit, I can decide whether it takes more or less of a different unit to measure the same quantity.



3-3-3: Which Measurement Is Which?

1. Lin has a pet German Shepherd that weighs 38 when measured in one unit and 84 when measured in a different unit. Which measurement is in pounds, and which is in kilograms?

38 _____

84 _____

2. Elena has a pet parakeet that weighs 6 when measured in one unit and 170 when measured in a different unit. Which measurement is in ounces, and which is in grams?

6 _____

170 _____

3. Behind Lin's house there is a kiddie pool that holds 180 or 680 units of water, depending on which unit you are using to measure. Which measurement is in gallons, and which is in liters?

180 _____

680 _____

4. Behind Elena's house there is a portable storage container that holds 29 or 1024 units, depending on which unit you are using to measure. Which measurement is in cubic feet, and which is in cubic meters?

29 _____

1024 _____

