

Name _____

Period _____

Date _____



Measuring Liquid Volume

Directions: Work with your partner to complete the volume lab, read each procedure carefully. Do not begin a new experiment without checking with Mrs. Lauer first!

Part 1: Count Your Drops!

Step 1: Make a Prediction

How many drops of water will it take to equal 1 milliliter? _____ drops

Step 2: Gather materials

- ✓ 25 mL graduated cylinder
- ✓ Beaker of water
- ✓ Eyedropper

Step 3: Experimental Procedure

1. Fill the graduated cylinder with 10 mL of water.
2. Using your eyedropper, slowly add drops of water to the cylinder until you reach 11 mL. Be sure to count each drop you add!
3. Record the number in your chart.
4. Leave the water in the graduated cylinder. Count the number of drops it takes to raise the volume to 12 mL. Record the number in your chart.
5. Leave the water in the graduated cylinder. Count the number of drops it takes to raise the volume to 13 mL. Record the number in your chart.
6. Calculate your average and round to the nearest tenth.

# of drops to 11 mL	# of drops to 12 mL	# of drops to 13 mL	average

Based on your average, how close were you to your guess? _____

Based on your average, how many drops would it take to make 1 liter?

Part 2: Water Displacement

Step 1: Define Displacement

Use the dictionary to find the definition of *displacement*. Record it here:

Step 2: Gather materials

- ✓ 100 mL graduated cylinder
- ✓ Water
- ✓ 3 marbles

Step 3: Experimental Procedure

1. Add 20 mL of water to the 100 mL graduated cylinder. Record this amount in your table.
2. Add three marbles to the graduated cylinder and measure the volume. Record this amount in your table.
3. Find the difference between the 2 volumes and record in the chart. The difference between the 2 measurements will be the volume of the marbles.

Volume before adding marbles	Volume after adding marbles	Difference (after – before)	Volume of marbles

Why did you have to subtract the 2 volume measurements?

Part 3: Volume by formula

Step 1: Write the volume formula

_____ x _____ x _____ = _____

Step 2: Gather materials

✓ Ruler

Step 3: Calculations

1. Use the ruler to measure the length, width and height of the box,
2. Record these dimensions in the workspace and calculate the volume.

Work space

Length = _____ Width = _____ Height = _____

Show work: _____ x _____ x _____ = _____

Volume = _____

General Lab Questions

1. What is volume?

2. We read the volume of a liquid using the base of the curve of the liquid called the

_____.

3. For each graduated cylinder, record the volume.

4. List 5 examples of liquid sold by volume.

5. The prefix milli- means $1/1000^{\text{th}}$. How many times would you have to fill and empty a 10 mL graduate cylinder to fill a 1-liter soda bottle?

6. A plastic collar may be wrapped around the cylinder. Why is this a useful safety feature?
