

Determining Density Through Graphing

Data:

	Volume (mL)	Mass (g)
	5.0	44
	15.0	133
	24.0	212
	52.0	460
	64.0	566
	81.0	717
	95.0	841
	101.0	894
	142.0	1260
Procedure:	153.0	1350

1. Create a plot of mass versus volume.

The independent variable, volume, always goes on the x-axis. The independent variable is the variable over which the experimenter has control. You need to decide what the value each block of your graph paper will be and be consistent. If each block is 5mL at the right side of the graph, you can't change to 10mL at the left side of the graph.

The dependent variable, mass, is placed on the y-axis.

Be certain to label the axis with both the variable and its UNITS.

Make certain to give your graph a title.

2. Draw a trend line, or line of best fit, through your data points.

Do not connect the dots!

3. Calculate the slope of the line by locating two points on the line.

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1} = \text{density}$$

4. Report the density on your graph.

Conclusions:

1. Use the information in the following [chart](#) to determine which substance was involved in this experiment?

Substance	Density (g/mL)
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Copper	8.92
Lead	11.3
Gold	19.3

2. Using your graph, determine the [mass](#) of 10.0 mL of material.
3. What is the [volume](#) of 30.0 grams of material?