

Name: \_\_\_\_\_

### Mass vs. Density Lab

**Problem Statement/Introduction:** If mass increases or decreases how does the value density change?  
How can we identify materials using density?

**Known values for cube densities (g/cm<sup>3</sup>)**

Acrylic = 1.16 – 1.19

Aluminum = 2.7

Brass = 8.0

Copper = 8.9

Nylon=1.13

Oak = 0.6 – 0.9

Pine = 0.35-0.60

Polypropylene = 0.85 – 0.95

Lignum Vitae (Ironwood) = 1.28 – 1.37

Steel = 7.6

Poplar = 0.35-0.50

PVC = 1.39-1.42

**Hypothesis:** If the volume remains constant and the mass \_\_\_\_\_, then the density of the cube will \_\_\_\_\_.

**Procedures:**

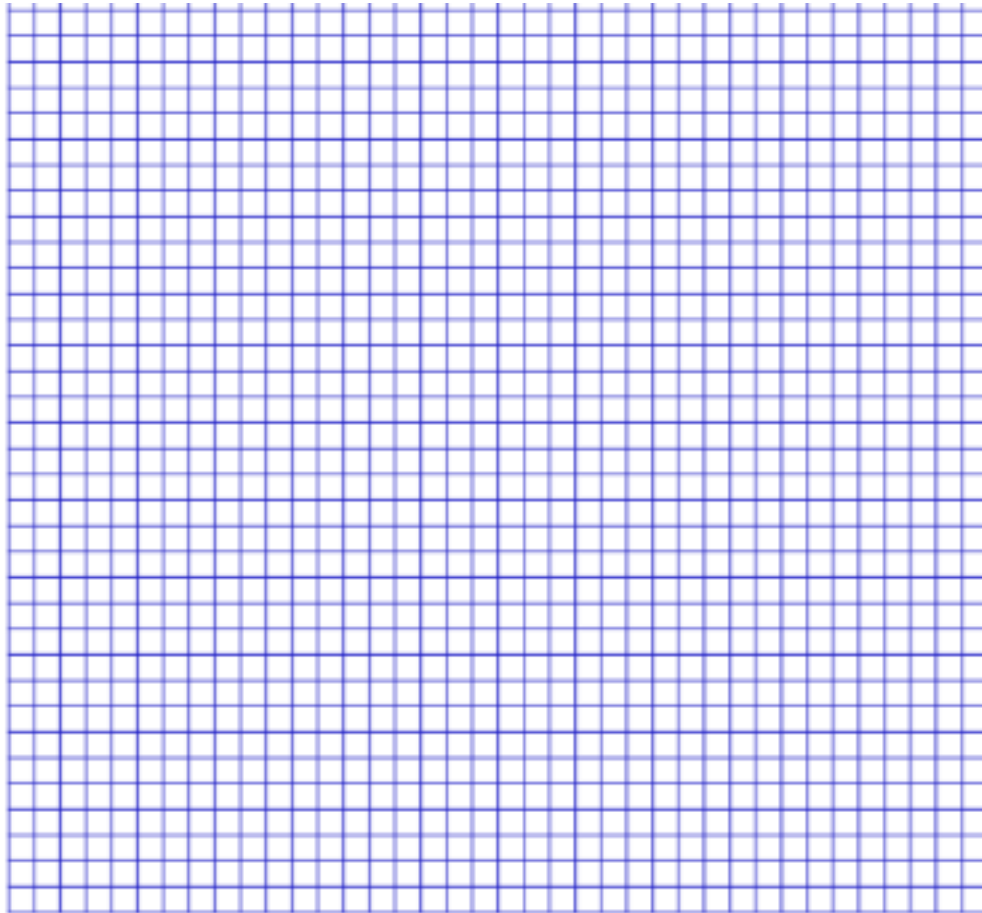
1. Hold each cube and line them up from lightest to heaviest.
2. In this order find the mass of each cube using a balance and record results in the data table.
3. Find the volume of each cube (Length x Width x Height) and record results in the data table.
4. Calculate the density by dividing the mass by the volume and record results in the data table.
5. Identify the mystery cubes based on their densities from the background information above.

**Data:**

Mass (g)	Volume (cm <sup>3</sup> )	Density (g/cm <sup>3</sup> )	Sinks or Floats	Describe Material	Possible Identity of Material
				Copper Cube	
				Gold Cube	
				Black Cube - Heavy	
				Silver Cube- Light	
				Clear Cube	
				Thin Grained Cube	
				Opaque White Cube	
				Thick Grain - Woody Smell	
				Thick Grained Cube	

				Grey Cube	
				White Cube	
				Dark Wood Cube	

**Make a graph that shows how the dependent variable changes as the independent variable changes. DON'T FORGET TAILS!**



**Conclusion (2-3 sentences):**