

Title of Lab: Density Virtual Lab

(From: GVL)

Purpose: Density is a physical property of matter. Recall that density is an intrinsic property meaning that the density of a substance can be calculated regardless of the size. Density is one of two properties that prove to be most useful to forensic scientists when comparing glass fragments.

Density can be calculated by dividing mass by volume. $d=m/v$ Mass is measured in grams and volume is measured in milliliters. It is possible to find the density of an object by measuring its mass and then the amount of water it displaces.

Procedure: Go to the following website and complete the data table below to find the density of the objects.

<http://ww2.unime.it/weblab/mirror/ExplrSci/dswmedia/density.htm>

Directions:

- ✓ First, look at each object and predict/hypothesize which items will have the greatest density and which item will have the lowest density.
- ✓ Select an object and use your mouse to drag it onto the scale; record the mass
- ✓ Next, drag the object to the graduated cylinder and record how much water it displaces
- ✓ Finally, drag the object to the pail of water to see if the object floats or sinks.
- ✓ Complete the table by ranking the density of each object from lowest (1) to highest (10) density.

Hypothesis: Greatest density _____ Lowest density _____

Data:

Description	Mass (g)	Volume (mL)	Density (g/mL)	Float or Sink	Rank
Blue square					
Blue triangle					
Red square					
Red oval					
Pink square					
Purple oval					
Green Triangle					
Grey Triangle					
Tan rectangle					
Red/Black rectangle					

Questions:

1. What is the density of water?
2. Is there a pattern between the density of the objects and their ability to float or sink? Explain.
3. If you cut a piece of glass into 4 pieces what would happen to its density? How would the volume of one of these pieces of glass compare to the original?

4. If you were able to identify the “unknown” glass as the type found at the sight of a hit-and-run accident and were also able to match the “unknown” glass to a suspect’s car, does this evidence positively prove that this suspect is guilty? Explain your answer.

Graded Assignment: Turn in the completed assignment to the Dropbox labeled Density Virtual Lab.