Density Lab

You will write a formal report for this experiment. The data tables on the back page are just a guide to help you figure out how to design tables in the future. You may write on them today but you will not turn in this actual paper.

Prelab Questions:

1. What is density?
2. Which is heavier, a pound of lead or a pound of feathers?
3. Which is denser, lead or feathers?
4. Are your answers to questions 2 and 3 the same? Why or why not?.

Purpose: Find and compare the density of various materials.

Part A: Blocks.
Use a balance to find the mass of a block of unknown material.

Since your block has a regular geometric shape, you can determine its volume simply by measuring its length, width, and height. The volume will be the product of those three numbers.

Repeat this process for a second block.

Part B: Glass marbles.

Use a balance to find the mass of two or three marbles.

Use water displacement. Partially fill a graduated cylinder with water and note the water level. Add the marbles to the water without splashing and note the new water level. The difference is the volume of the marbles.

Part C: Mystery Material

Obtain an object from you instructor. Figure out how you can determine its density. Record and explain your method and your data.

Questions:

5. Compare the densities of the two blocks. Are they the same (or very nearly the same) or different?
6. A certain piece of wood has the same mass and weight as a certain glass marble. Explain what happens to each object when they are placed into a tub of water. Explain the behavior of each object.
7. Why do Helium balloons float in air?
8. How can you tell if a gold ring is pure gold or has had some cheaper metal added to it without destroying or damaging the ring.

Density Lab Data Tables

Part A: Blocks.

1) Mass of first block _____ g

2) Length of first block _____ cm

3) Width of first block _____ cm

4) Height of first block _____ cm

5) Calculated volume of first block _____ cm^3

6) Density of first block _____ g/cm^3

7) Mass of second block _____ g

8) Length of second block _____ cm

9) Width of second block _____ cm

10) Height of second block _____ cm

11) Calculated volume of second block _____ cm^3

12) Density of second block _____ g/cm^3

Part B: Glass marbles

13) Mass of marbles _____ g

14) Volume of water _____ mL

15) Volume of water + marbles _____ mL

16) Calculated volume of marbles _____ mL

17) Density of marbles _____ g/mL

Part C: Mystery Material

(Create your own table here!)