

Density Lab

Purpose: The purpose of this lab is to practice finding the density of various substances or objects.

Collect info:

One of the basic tasks of scientists is to identify and classify substances. Many physical properties are observed in order to identify what substances are. Density is one physical property that you will focus on in this activity.

Define Density: _____

Formula for calculating density $D =$ _____

Tool used to measure mass: _____

Tool used to measure volume: _____

Procedure:

1. Find the density of the following substances. Show all data collected and the work for any calculations you use to calculate density:

Solids	Mass	Volume	Density
Metal Bar			
Green cube			
Bolt			
Cork			
Rubber Stopper			

Liquids	Mass	Volume	Density
Distilled Water (lg beaker, lg cylinder)			
Candle Oil (small cylinder. Small beaker)			

Discussion:

1. What substance is the most dense?
2. What substance is the least dense?
3. Explain how density is a characteristic property using the information from the lab.

Physical Properties and Density

1. If salt takes the shape of the container it's put into, why is it still considered a solid?
2. Remember what you know about the particle model of matter. Based on this, would gasses or liquids usually have lower densities?
3. Substance 1 has a lower mass per unit volume ratio than does substance 2. Which of the substances is less dense?
4. A liquid was found to have a mass of 22.5g and a volume of 25mL. What is the liquid's density?
 - a. Would it float on water?_____ Why or why not?
8. What is the volume of 30g of water? No calculation should be needed for this.
9. What is the mass of a gold ring whose volume is 5cm³? Gold has a density of 19.3g/cm³.

Standard 5: Mathematics and Computational Thinking

0.0 - F	0.5 - F	1.0 - D	1.5-C/D	2.0 - C	2.5-B/C	3.0 - B	3.5-A/B	4.0 - A
No Evidence or missing	Beginning to or shows prerequisite understanding of mathematics and computational thinking, but does not show evidence of the basic skills and strategies associated with this concept, yet.	Uses computational thinking to help solve a problem, showing calculations <i>(application may be incorrect or inadequate)</i> Is inconsistent in demonstrating the concept through different representations Fails to attend to precision (problems not consistently set up correctly, major calculation and labeling errors)	and uses computational thinking appropriately to help solve a problem, showing all calculations and/or demonstrates some understanding of the concept through different representations and/or attends to precision (correctly set up problems, minor calculation or labeling errors)	and uses computational thinking, showing calculations where appropriate, and uses math to support reasoning. and/or consistently demonstrates understanding of the concept through multiple representations and consistently attends to precision (clear scientific language, symbols, and labels)				

