Module 2 - Engaging Activities

A. Evaluate the following. Present your solution.

1. A block of aluminum occupies a volume of 15.0 mL and weighs 40.5 g. What is its density?
2. What is the weight of the ethyl alcohol that exactly fills a 200.0 mL container? The density of ethyl alcohol is 0.789 g/ml.
3. A flask that weighs 345.8 g is filled with 225 mL of carbon tetrachloride. The weight of the flask and carbon tetrachloride is found to be 703.55 g. From this information, calculate the density of carbon tetrachloride.

B. Evaluate the following. Present your solution.

1. Mercury metal is poured into a graduated cylinder that holds exactly 22.5 ml. The mercury used to fill the cylinder weighs 306.0 g. From this information, calculate the density of mercury.
2. A rectangular block of copper metal weighs 1896 g. The dimensions of the block are 8.4 cm by 5.5 cm by 4.6 cm. From this data, what is the density of copper?
3. Calculate the density of sulfuric acid if 35.4 mL of the acid weighs 65.14 g.
4. Find the mass of 250.0 mL of benzene. The density of benzene is 0.8765 g/ml.
5. A block of lead has dimensions of 4.50 cm by 5.20 cm by 6.00 cm. The block weighs 1587 g. From this information, calculate the density of lead

Performance Tasks

Design a simple experiment about mass, volume and density using the available materials in your home like measuring cups (convert to mL), ordinary weighing scale (you need to approximate and convert to grams), books, bible or wooden block (for regular solid), screws, coins, pebbles/stone or marbles (for irregular solid). If you are using measuring cups, use 3-4 pebbles or marbles for the water to rise. Use the format below in presenting your Performance Task#2.

Performance Task #2

Determination of Mass, Volume and Density

Introduction

The purpose of this experiment is to understand the meaning and significance of density of a materials. Density is a physical property of liquids and solids. A physical property can be measured without changing the chemical identity of the substance. Density is defined as the mass per unit volume of a substance, it is determined by dividing the mass of a substance by its volume

$$Density = \frac{Mass\ of\ a\ substance}{Volume\ of\ a\ substance}$$

Objectives:

1.

2.

3.

Equipment and Materials:

Procedure:

Data and Result:

Conclusion: