

**PSBB LEARNING LEADERSHIP ACADEMY**

**2021-2022**

**CLASSWORK ASSIGNMENT**

**GRADE- VIII      SUBJECT –SCIENCE**

**MASS WEIGHT AND DENSITY**

**1. State Archimedes Principle**

The Archimedes Principle states that when a body is partially or wholly immersed in a liquid, it experiences a buoyant force which is equal to the weight of liquid displaced by it.

**2. Which is more dense –sea water or river water? Why?**

Sea water is denser than river water, as it has a higher concentration of salt and minerals than river.

3. (a) Find the volume of 5 g of cork whose density is  $0.25 \text{ g/cm}^3$ .  
(b) Find the volume of 800 g of spirit whose density is  $0.25 \text{ g/cm}^3$ .

**ANSWER:**

(a) Mass of the cork = 5 g  
Density of the cork =  $0.25 \text{ g/cm}^3$   
Volume of the cork = Mass / Density  
Volume of the cork =  $5 / 0.25$   
 $= 20 \text{ cm}^3$

(b) Mass of the spirit = 800 g  
Density of the spirit =  $0.25 \text{ g/cm}^3$   
Volume of the spirit = Mass / Density  
Volume of the spirit =  $800 / 0.25$   
 $= 3200 \text{ cm}^3$

**4. The density of butter is  $0.9 \text{ g/cm}^3$ . What is the volume of 800 g of butter?**

**ANSWER:**

Density of butter =  $0.9 \text{ g/cm}^3$

Mass of the butter sample = 800 g

$$\text{Volume} = \text{Mass} / \text{Density}$$

$$= 800 \text{ g} / 0.9 \text{ g/cm}^3$$

$$\text{Volume of the butter sample} = 888.9 \text{ cm}^3$$

5. What is the mass of 5 m<sup>3</sup> of cement of density 3000 kg/m<sup>3</sup>?

**ANSWER:**

$$\text{Density of the cement sample} = 3000 \text{ kg/m}^3$$

$$\text{Volume of the cement sample} = 5 \text{ m}^3$$

$$\text{Mass of the cement sample} = \text{Density} \times \text{Volume}$$

$$= 3000 \times 5$$

$$= 15000 \text{ kg}$$

6. What is the mass of air in a room measuring 10 m × 6 m × 5 m if the density of air is 1.3 kg/cm<sup>3</sup>?

**ANSWER:**

$$\text{Volume of the air in the room} = \text{Volume of the room}$$

$$= 10 \text{ m} \times 6 \text{ m} \times 5 \text{ m}$$

$$= 300 \text{ m}^3$$

$$\text{Density of the air} = 1.3 \text{ kg/cm}^3$$

$$\text{Mass of the air} = \text{Density} \times \text{Volume}$$

$$= 1.3 \text{ kg/cm}^3 \times 300 \text{ m}^3$$

$$= 1.3 \text{ kg/cm}^3 \times 300 \times 1000000 \text{ cm}^3$$

$$= 390000000 \text{ kg}$$

7. A lump of copper of mass 890 g is dipped into a glass filled to the brim with water. What volume of water will overflow? (The density of copper = 8.9 g/cm<sup>3</sup>.)

**ANSWER:**

$$\text{Mass of the lump of copper} = 890 \text{ g}$$

$$\text{Density of copper} = 8.9 \text{ g/cm}^3$$

$$\text{So, the volume of the lump of copper} = \text{Mass} / \text{Density}$$

$$= 890 \text{ g} / 8.9 \text{ g/cm}^3$$

$$= 100 \text{ cm}^3$$

Thus, when the lump of copper is dipped into a glass filled to the brim with water, the volume of water that will overflow is  $100 \text{ cm}^3$ .