Name _____

The Basics of Density

Concept Reminder - Density tells us **how much mass fits into a certain volume**.
Use the formulas below to solve the problems:

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}} \quad \Rightarrow \quad D = \frac{m}{V}$$

$$\text{Mass} = \text{Density} \times \text{Volume} \quad \Rightarrow \quad m = D \times V$$

$$\text{Volume} = \frac{\text{Mass}}{\text{Density}} \quad \Rightarrow \quad V = \frac{m}{D}$$

1. A small block has a mass of **60 g** and a volume of **20 cm³**. What is its density?

2. A liquid fills a container with a **volume of 50 mL** and has a **mass of 65 g**.
Calculate its density.

3. A cube of metal has a **density of 7.8 g/cm³** and a **volume of 10 cm³**.
What is its mass?

4. A sample of gas has a **density of 0.002 g/mL** and a **mass of 0.4 g**.
What is its volume?

5. A mineral has a **mass of 240 g** and a **density of 8 g/cm³**.
Find the volume of the mineral.

6. Which object is denser?

Object A: mass = 200 g, volume = 50 cm³

Object B: mass = 150 g, volume = 30 cm³

7. A student measures a **mass of 90 g** for a sample with **volume 45 mL**.
Is this material denser or less dense than water (1.0 g/mL)? Explain.

8. If an object's mass doubles but its volume also doubles, what happens to its
density? *(Explain conceptually.)*

9. A rectangular block measures **5 cm × 4 cm × 2 cm** and has a **mass of 160 g**.
Find its density.

10. A cube has a density of **2.7 g/cm³**. If it is cut into two equal halves,
what is the density of each half?