Name _____

Changing Units, Changing Perspectives

Density can be expressed in **many different units**, depending on the measurement system used.
You must be able to convert **mass** and **volume** between units correctly.

Common Density Units: g/cm³, g/mL, kg/m³, kg/L

Conversion Factors: 1 g/cm³ = 1000 kg/m³ 1 mL = 1 cm³

1 L = 1000 mL = 1000 cm³ 1 kg = 1000 g

Formulas to Remember: $D = \frac{m}{V}, m = D \times V, V = \frac{m}{D}$

1. A liquid has a density of **1.2 g/cm³**. Convert this to **kg/m³**. _____
2. A metal sample has a mass of **3.5 kg** and a volume of **500 cm³**.
   What is its density in g/cm³? _____
3. A cube of aluminum has a density of **2.7 g/cm³**. _____
   Express this density in **kg/m³**.
4. A sample of oil has a mass of **900 g** and a volume of **1.0 L**. _____
   What is its density in **g/mL**?
5. A block of wood has a density of **0.8 g/cm³**. _____
   What is this density in **kg/m³** and in **g/L**?
6. The density of air at sea level is approximately **1.225 kg/m³**. _____
   Convert this to **g/cm³**.
7. A cube of material has a **mass of 2000 g** and a **volume of 0.002 m³**.
   Find its density in **kg/m³**. _____
8. A scientist reports a mineral's density as **5500 kg/m³**. _____
   What is this in **g/cm³**?
9. A tank of liquid mercury has a density of **13.6 g/cm³**. _____
   Express this in **kg/m³**.
10. A student measures a density of **800 kg/m³**. _____
    Will this substance float or sink in water? *(Show reasoning.)*