2A – DENSITY OF A SOLID

Procedure

❷ Write your procedure on a separate paper. Have your teacher approve the procedure.

Analysis

Table 1 – Measurements and density

	Mass (g)	Volume (mL)	Density (g/mL)
Sample 1			
Sample 2			
Sample 3			

Questions

❷ 1. Compare your calculated densities to those listed on the chart. Identify at least one of the solids based on its density and state the identity in your answer. Do you believe there is enough evidence to feel confident about the metal's identity? Why or why not?

Metal	Density (g/mL)
Aluminum	2.70
Zinc	7.13
Iron	7.85
Nickel	8.80
Copper	8.93
Silver	10.49
Lead	11.34
Gold	19.32

❷ 2. Error is a normal part of a scientific investigation. Identify possible sources of error in your experiment.

❷ 3. One way to quantify error in an experiment is a percent error calculation. An accepted value is the quantity scientists agree as the "true" density of a material like the ones listed in the table of densities above. An experimental value is the quantity you determined by your experiment. Calculate your percent error for at least one sample according to the equation:

$$\text{Percent Error} = \left| \frac{\text{accepted value - experimental value}}{\text{accepted value}} \right| \times 100$$

What is your percent error? Do you believe this percentage error is reasonable given the conditions for your experiment? Why or why not?

❷ 4. You have a solid sample with a calculated density of 8.87 g/mL, which falls between nickel and copper on your density table. What additional property could you use to identify your sample?

❷ 5. If a 10.0 cm^3 block of gold has a mass of 193 g, what is the density of gold?

❷ 6. A 7.00 cm^3 block of acrylic has a mass of 8.26 g. What is the density of acrylic?

❷ 7. A 10.0 mL sample of ethanol has a mass of 7.89 g. What is the density of ethanol?