Name: Date: Pd:

## Lab - Identifying Metals by Density

Purpose: To identify metals by their appearance and density.

## Materials:

- Graduated Cylinder 50 mL/100 mL
- Tap Water

- Digital Balance
- Beaker 400 mL

## Introduction:

At room temperature, densities of individual substances (elements and/or compounds) can be identified and are considered to be an identifying property of that substance. Pure metal blocks are on the higher end of densities vs. nonmetals. Density of an object is obtained by finding the mass of the object and dividing it by its volume.

## Density of an object can be obtained in two ways:

- If the object is a cube, you can obtain mass (electronic balance) and volume using the formula for calculating volume of a rectangular prism (L x W x H)
- If the object is irregular, you can obtain mass (electronic balance) and volume using water displacement where you fill a graduated cylinder to an exact volume, place the metal inside, and record the difference. This difference is the volume of the object!

Procedure: Write a DETAILED procedure to make quantitative observations of <u>each</u> metal and to determine the density of each. Your procedure should be written in numbered steps.

		This port	tion of y	our lab is INDI	VIDUAL- I	Not group work		
	<b>ions/ Results:</b> Formula: <b>Der</b>	nsity = mas	ss/volume	e				
				Table 1: Density	Calculations	<b>.</b>		
Metal	Mass (g)	Volume	e (mL)	Density Calculations (Show Work)		Density (g/mL)	Identity of the Metal (Element Name)	
Α								
В								
С								
D								
Percent Error Formula: % Error = Theoretical Value - Experimental Value Theoretical Value X 100								
			Ta	able 2: Percent Err	or Calculation	ons		
Metal	Actual Der (From table a			etical Density led by teacher)	Pero	cent Error Work	Percent Error	
Α								
В								
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D								

Date:

Data Table: Create a data table to organize your quantitative observations as well as any necessary data collected in the lab to find density. You MUST have your data table complete BEFORE you enter the lab area to collect data.

Pd:

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Name:	Date:	Pd:

Identity of the Metal								
Metal	Identity of the Metal based on your Data (From Table 1)	Real Identity of the Metal (from your teacher)						
Α								
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Graph: Make a graph to show density of each metal. Think about the data to choose a graph style!

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Name:		Date:	Pd:
Analys	sis Questions:		
1.	What type of graph did you choose? Wh	ny?	
2.	Reflect on your percent errors for the meerrors (make your density data closer to		
3.	How would your density data be affecte (Think about what would happen to the		prior to measuring their densities
4.	In addition to having high densities, wha	t are three other properties of meta	ls?