Calculating Density Lab

Pre-lab

Vocabulary:

Term	Definition (That make sense to you)	Picture (That shows how to measure it.)
Mass		
Volume		
Density		

Formulas:

Write three versions of the density formula:

D=	V=	M=

Part A: Calculating Mass

1) Instructions

- Materials:
  - Set of 5 Small cubes
  - Ruler
  - Scale
- Procedure:

  1) Just by feel and touch, predict which block will have the most mass and which will have the least numbering them 1-5 (1 being least mass, 5 being most mass)

  2) Use the ruler to measure the volume of each object. Record data.

  3) Using the density and volume values calculate the mass of each object. Record data.

  4) Using the scale, Measure the mass of each object to check your calculations.

  5) What was surprising and discuss the results vs your predictions

Part A: Calculating Mass

2) Data Table

Object	Prediction (Number lowest mass to highest mass 1-5)	Density (g/cm^3)	Volume (cm^3)	Calculate Mass (g)	Measure Mass (g)
Small Block 1		**8.98**			
Small Block 2		**7.87**			
Small Block 3		**2.7**			
Small Block 4		**7.13**			
Small Block 5		**8.73**			

What was surprising? Discuss the results vs your predictions:

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Part B: Calculating Volume

1) Instructions

- Materials:
  - Wooden Block
  - Aluminum Ball
  - Plastic Bead
  - Beaker with water
  - Scale
- Procedure:

  1)Use the scale to measure the mass of each listed object. Record data.

  2) Using the Mass and Density values, calculate the volume of each object. Record data.

  3) Using a ruler or graduated cylinder, measure the volume of each object to check your calculations. Record data.

Part B: Calculating Volume

2) Data Table

Object	Density (g/cm^3)	Mass (g)	Calculate Volume (cm^3)	Measure Volume (cm^3)
Aluminum Ball	**2.7**			
Wood Block	**2.01**			
Plastic Bead	**0.74**			
Rubber Stopper	**1.1**			

Part C: Calculating Density

1) Instructions

- Materials:
  - Set of 10 large cubes
  - Ruler
  - Scale
- Procedure:

1) Predict which block has the most density.
2) Use the scale to measure the mass of each block. Record Data
3) Using a ruler, measure the volume of each object. Record Data.
4) Calculate the density for each object and record.
5) Using your calculated density and the “Hidden” density Key, write which material each block is made of.

Part C: Calculating Density

2) Data Table

Object	Prediction (Number lowest density to highest density 1-10)	Mass (g)	Volume (cm^3)	Calculate Density (g/cm^3)	Material based on comparing calculated density to actual densities
Large Block 1					
Large Block 2					
Large Block 3					
Large Block 4					
Large Block 5					
Large Block 6					
Large Block 7					
Large Block 8					
Large Block 9					
Large Block 10					