

Density of Solids I

Scientist: _____

Per: _____ Date: _____

Objective: To calculate densities of regularly shaped solids.
To identify unknown samples by their densities.

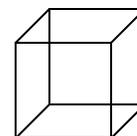
Materials: Blocks of various materials, ruler, triple beam balance, calculator

Procedure:

Step 1. Using **Tables 1 and 2**, measure and calculate the required values for each sample and answer the questions. Check your calculated densities with the Table of Densities located around the room.

Step 2. Calculate the densities of each of the unknown samples, using the Table of Densities, identify the samples.

Step 1. Working on ONE sample at a time, complete the data table below. Be sure to include units.



Data Table 1

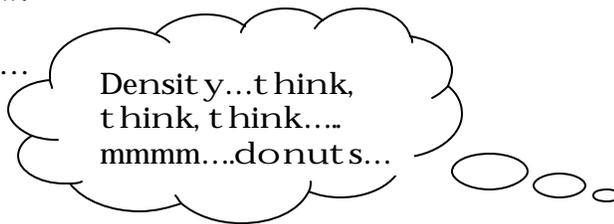
Sample	Length	Width	Height	Volume	Mass
Aluminum A					
Aluminum B					
Plastic					

Questions

1. You should notice that two of the blocks are made of aluminum. The two blocks obviously have different shapes and weights, but will their densities be different? Record your guess now by circling the letter below.

The density of the larger block will be...

- A. higher than the smaller block
- B. equal to the smaller block
- C. less than the smaller block



2. In general, if you have two pieces of the same material but of different sizes, will their densities be different? _____

3. Explain your answers. _____

4. Complete **Data Table 2**, then check your calculations with the Table of Densities



Data Table 2.

Sample	Calculated Density	Listed Density
Aluminum A		
Aluminum B		
Plastic		

4. Were your calculated densities close to the listed densities? If not, explain where error may have been introduced.

Step 2. Working on only one unknown sample at a time, complete the data table below.

Data Table 3.

Sample	Volume	Mass	Calculated Density	Material Identity
Unknown A				
Unknown B				
Unknown C				
Unknown D				

Discussion

1. Check your results with a teacher or TA. Have them sign the box if the materials are correct. If a material has been incorrectly identified then redo your calculations.
2. Which of the unknown samples would float in water? _____
3. From the Table of Densities list, you will find that most metals sink in water, how are large tankers and cruise ships that are made of metal able to float?



I've correctly identified all the unknowns!

