Heavy Metal Lab

Introduction: The *density formula* (Mass divided by Volume; or M/V = D) allows us to compare different items in the same way. We are going to investigate some metal cubes and cylinders. These cubes and cylinders may have different mass', volumes, and densities. Can you predict these measurements? If you could see the particles that make up these metal cubes and cylinders what would they look like?

Review the definitions for Mass, Volume, and Density with your team members. Be sure you understand these definitions

Prediction/Hypothesis (Write the lab title and the predictions in your science journal):
Which cube do you think will have the greatest mass?

Which cube do you think will have the least density?

Which cylinder do you think will have the greatest mass?

Which cylinder do you think will have the least density?

Procedures:

1. Decide what job each team member will have today.
2. Decide who will measure each cube and cylinder. Share your measurements with your team.
3. Measure the mass of each cube with the scale and record it on the chart.
4. Measure the volume of each cube with the ruler in centimeters and record it on the chart. Remember that the formula for volume is length x with x height.
5. Calculate the density of each cube. Remember the formula for density is mass divided by volume.
6. Answer the questions.
7. Repeat STEPS 3 – 6 for the cylinder. Instead of measuring the cylinder in centimeters, use the displacement method, demonstrated in class and shown on our website.

FILL OUT THE TABLE BELOW, CUT IT OUT AND PASTE IT IN YOUR SCIENCE JOURNAL

Cube Description	**Mass** (divided by)	**Volume** =	**Density**
Cylinder Description	**Mass** (divided by)	**Volume** =	**Density**

Questions (answer these questions in your science journal):

1. How are the cubes you measured the same?
2. How are the cubes you measured different?
3. How are the cylinders you measured the same?
4. How are the cylinders you measured different?
5. Which cube is the least dense? Which cube is the most dense?
6. What items can you think of are made of these materials?
7. Which cylinder is the most dense? Which cube is the least dense?
8. What items can you think of are made of these materials?
9. Do you think the density of a material might be a factor in choosing to manufacturer an item? Explain by giving an example.
10. What did you learn from doing this lab?