**Density Activity**

Density is how much mass a material has for a given volume. Think about a sponge. Most artificial sponges today are made of a foamed plastic. Assume you have a one pound sponge. If you melt it down to a plastic soup with all the bubbles gone, it will be much smaller, but it will still weigh one pound. It is now denser. We use water as sort of a standard for density. We say water has a density of 1. If something weighs twice as much as the same volume of water we say its density is two. This is really handy for figuring out all sorts of things like if something will float or not. Anything that has a density less than 1 floats. Anything that has a density higher than 1 sinks. Ice is ~12% less dense than water so ice floats. Water gets bigger when it freezes so ice is less dense than water. It's a good thing too since life probably would not exist if that were not the case. A U.S. aircraft carrier weighs more than 200,000,000 pounds, but I know its density is still less than one. I know this without even asking anyone since I have seen them floating.

**Objective:**

How do we calculate density and see if an object floats?

**Hypothesis:**

**Procedure:**

1. Find the mass and volume of the materials listed in the table.

 2. Calculate the density of the materials.

 3. Put the object in water and see if the findings hold true: does it float in water?

 4. Create a graph comparing the density of the 4 objects.

**Materials:**

 1. Cork, wood, metal and rock

 2. Scale

 3. Graduated cylinder

 4. Water

**Data Table:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Material | Mass (g) | Volume (ml) | Density (g/ml) | Does it Float? |
| Cork |  |  |  |  |
| Wood |  |  |  |  |
| Metal |  |  |  |  |
| Rock |  |  |  |  |