Determine the Density and Making Sense of Density

- See pages 15-16 in your text for explanations of characteristic properties and pages 26-27 for an explanation of density.

Word Bank: Words you can use in your hypothesis and conclusions.

- accurate
- accurate to the nearest...
- characteristic property
- substance
- change
- volume
- mass
- density (g/cm$^3$)
- grams (g)
- milliliters (ml)
- cubic centimeters (cm$^3$)
- water displacement
- unknown substance
- calculate
- measure
- graduated cylinder
- scale/balance
- formula
Determine the Density and Making Sense of Density

Finding the Density:

1) Find the **mass** of the object.
   a) **mass**: the amount of matter in an object. For our purposes, this is the “weight” of the object.
   b) Use a **scale/balance** to find the **mass** of the object (weigh it).

2) Find the **volume** of the object.
   a) Use a graduated cylinder and water to determine how many milliliters the water rises. Then convert ml to cm$^3$ (1 ml = 1 cm$^3$).
   b) OR you can use geometry to solve for volume. Measure the length, height, and width. Then multiply these three dimensions together ($V = L \times W \times H$).

3) Then use the **density formula** to calculate the **density**.
   a) $D = \frac{m}{V}$
   b) **Density**: the amount of matter in a given space.
   c) This means that we can get density by mass ÷ volume.
   d) For example,
      An object that is 10 grams and has a volume of 5 cm$^3$ is calculated as 10 grams ÷ 5 cm$^3$. The answer is 2 g/ cm$^3$.
   e) g/ cm$^3$ is a standard unit for density.

4) Recap: an example
   1) mass = 10 g
   2) volume = 5 cm$^3$
   3) $D = \frac{m}{V}$
   4) $D = 10 ÷ 5 = 2$
   5) $D = 2$ g/ cm$^3$