Date _____

Topic: Measurement and Constructing Graphs

Aim: Calculating and Understanding Density

1. What is the definition of density?

Density – the amount of mass in a given volume

Units: g/cm^3 or g/mL

(how packed the molecules are in a substance – more packed = more dense)

2. How is the density formula used?

a. Density Formula:

Density = mass / volume

D = m / V

b. Density Calculation for **PLASTIC**:

Mass = **18.6 g**

Volume = **15.625 cm^3**

Substitutions:

D = m/V **D = 18.6 / 15.625**

Density = **1.2 g / cm^3**

c. Density Calculation for **ALUMINUM**:

Mass = **42.2 g**

Volume = **15.625 cm^3**

Substitutions:

D = m/V **D = 42.2 / 15.625**

Density = **2.7 g / cm^3**

d. Manipulating the Density Formula and/or using the Density Triangle

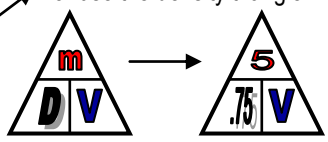
Example 1:
The mass of a piece of oak is determined to be 5g. If the density of oak is known to be .75 g/cm^3, what would the volume of that piece of oak be?

You can do the algebra …
D = m / V

.75 = 5 / V

V = 6.7 cm^3

or use the density triangle



solving for V – just divide 5 / .75
V = 6.7 cm^3

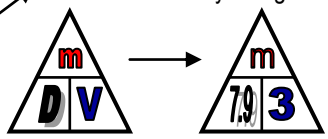
Example 2:
The density of a chunk of iron is 7.9 g/mL. The chunk of iron was found to have a volume of 3mL. What would the mass of that chunk of iron be?

You can do the algebra …
D = m / V

7.9 = m / 3

m = 23.7g

or use the density triangle



solving for m – just multiply 7.9 / 3
V = 23.7g

3. How can the relative densities of different substances be compared without doing any calculations?

When substances of two different densities are mixed together, the more dense substance sinks to the bottom while the less dense substance rises to the top.