Density Directions2 Name_____ Period ____

Density = mass divided by volume (D = m/v)

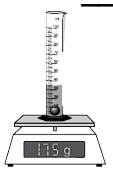
___1. Mass: Find the MASS (in grams) of your substance:

___1.1. Can you put your substance on the scale without a container?

___1.1.1. Yes… Do it. Record the MASS in your chart. Go to **2. Volume**

___1.1.2. No… Go on to 1.2.

___1.2. Do you need a container? **Yes…. If No, go back to 1.1.**



___1.2.1. Find the mass of a suitable container. Record in chart(a).

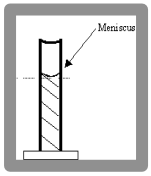
___1.2.2. Add your substance to your container.

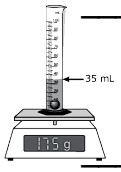
___1.2.3 Find the mass of both container and substance. Record in chart(b).

___1.2.4. Subtract to find the MASS of ONLY your substance. Record in chart(c).

___1.2.5. Go to 2. Volume.

___2. Volume: Find the VOLUME (in milliliters or cubic centimeters) of your substance:





___2.1 Is your substance a liquid?

___2.1.1 Yes…Read VOLUME (ml) from side of graduated container. Read UNDER the meniscus. Record in chart. **Go to 3. Density.**

___2.1.2 No…Go to 2.2.

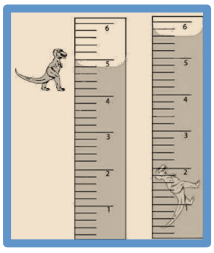
___2.2 Is your substance a rectangular solid that you can measure length X width X height?

___2.2.1 Yes… Measure. Record. Multiply. VOLUME = l X w X h. Record (cm^3).

___2.2.2 No… Go to 2.3.

___2.3 Can you put your substance in water without damage?

___2.3.1 Yes…Continue here to use **WATER DISPLACEMENT**.



___2.3.1.1 Obtain a graduated cylinder with enough water to completely cover your object.

___2.3.1.2 Read the volume of water. Record in chart(a).

___2.3.1.3 Completely submerge your object. (Hold under, if needed)

___2.3.1.4 Read the new water volume. Record in chart(b).

___2.3.1.5 Subtract. The "rise in water level" or "volume of water displaced" is your VOLUME (ml). Record in chart(c).

___2.3.1.6 **Go on to 3. Density.**

___2.3.2 No… Go to 2.4.

___2.4 Can you think of a way to protect your substance and find its volume?

___2.4.1 Yes…Describe:_____

Ask for permission_____. Continue. Record. **Go to 3. Density.**

___2.4.2 No… Ask for help. **Go to 2.4.1**

___3. Density: Find the **density** of your substance.

___3.1 Divide. D = m/v. Round as needed. Record DENSITY in chart.

___3.2 Try a "Does this sound reasonable?" check.

___3.2.1 Yes. My substance floats and I calculated density as less than one(1). OR, my substance sinks. My density is more than (1). **Go to 4. Check.**

___3.2.2 No. My substance floats, but I calculated Density as more than one. OR my substance sinks, but my calculated Density is less than 1. ASK! Or, **Go back**…Review the steps to find an error. **Go to 3.2.**

___4. Have Checked! Get Points! **Yes?** Start with a new substance. **Go to 1. Mass**
NO? Review. Redo. **Go to 4. Have Checked!**