## Liquid Rainbow:

Fill in the table below by finding the mass, volume and density of each liquid:
Before you start, find the mass of the 100 mL beaker. When you find the mass of each liquid, you will need to subtract this number from the mass BEFORE you record it. This will give you an accurate measurement of the liquid only.

Mass of the beaker: $\qquad$
Measure out 100 mL of each of the following substances. Find these measurements:

| liquid | Color <br> (change by <br> adding food <br> color) | Mass <br> (mass - mass of <br> beaker) | Volume | Density <br> (mass/volume) |
| :--- | :---: | :---: | :---: | :---: |
| water | red |  | 100 mL |  |
| oil | yellow |  | 100 mL |  |
| corn syrup | green |  | 100 mL |  |
| rubbing alcohol | purple |  | 100 mL |  |
| dish soap | blue |  | 100 mL |  |

PREDICT: Make a prediction, based on the densities of each substance listed above, of the order the liquids will separate in the rainbow:
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$

Once you have the density of each substance, measure $\mathbf{8 0} \mathbf{~ m L}$ of each substance into the beaker labeled for each substance. (Make sure the substance is measured by the properly labeled beaker or your rainbow may not turn out.)

Make the water, corn syrup and rubbing alcohol the colors indic ated in the table by adding NO MORE than $\underline{\underline{5}}$ drops of food coloring ( $\underline{\underline{1}}$ of each color to the purple) to each of those liquids. Stir using the wooden stirrers.

Slowly pour the liquids into a jar one at a time, starting with the liquid with the highest density (largest number) going to the lowest density (smallest number). You need to pour slowly down the inside of the jar to correctly form your rainbow. For the top layer, pour the liquid down the back side of a spoon.

Answer the following questions:

1) Which liquid is the most dense (heaviest)? Where is it at in the rainbow?
2) Which liquid is the least dense (lightest)? Where is it at in the rainbow?
3) How did your prediction compare with your results of the rainbow? (How did the order of the liquids come out)?
4) Sketch your rainbow. Label each liquid.
5) How is your rainbow similar to the other rainbows on the counter?

When you are finished, put the lid on the jar tightly (lid and ring), write the names of each person in your group on a post-it, put the post-it on the lid of the jar. Slowly and carefully carry the jar to the counter in front of the window. Compare your rainbow with the other groups.

