**Concentration and Dilution Lab**

**Objectives**

1. To mix a solution and determine its concentration.
2. To perform three dilutions with your prepared solution.

**Materials**

\* 100 mL beaker (to get a sample of CuSO4) \* balance \* Pipette

\* 250 mL beaker (to dissolve initial sample) \* weigh boat

\* 100 mL graduated cylinder \* spatula

\* 50 mL graduated cylinder \* test tube holder

\* 100 mL volumetric flask \* 3 test tubes

# Concentration Procedure

* Obtain a sample of CuSO4 from the front bench.
* Using your scale weigh out 18g of CuSO4.
* Dissolve the 18g of CuSO4 in 100ml of distilled water.
* Stir until you have reached a homogeneous solution with all the solute dissolved in the solvent.

1. Calculate the concentration of your solution.
2. Compare your solution with the stock solution at the front of the class. Comment on the color of your solution compared to the color of the stock solution.

# Dilution Procedure

1. Using the equation **M1V1=M2V2** calculate the volume of your prepared solution required to end up with **100 mL** of a **0.8 *M*** solution. Show your work. Then make the solution.
2. Repeat step 3 to obtain **100 mL** of a **0.2 *M*** solution. Show your work.

* Bring your 2 test tubes to the front of the room to compare their colors to a previously prepared diluted solution. Have Mrs. Furr check your solutions.

1. What happened to the concentration of your solution as you added more water? Explain on a molecular level.

1. How close were your results to the dilutions at the front of the room?
2. What sources of error could have caused variations in your dilutions?