***Solution Preparation and Dilution***

**Purpose**: To prepare and then dilute a copper(II) sulfate solution.

**Materials:** CuSO4 5H2O water volumetric flask

 Balance scoopula 50 mL graduated cylinder

 Filter paper Pipette glass funnel

 Stirring rod 250 m beaker test tube & rack

**Method:** Each group will prepare a 0.100M, 0.200M or a 0.300M solution, the choice is yours.

***Part 1: Solution Preparation***

 1. Calculate the required mass of solute needed to prepare your solution.

 2. Obtain this mass and then dissolve it in about half of your final assigned volume in the 250 mL beaker.

 3. Transfer this mixture to the volumetric flask your group was given. Rinse all glassware into the volumetric flask.

 4. Add water to the *fill line, stopper and shake. Adjust volume if required.*

5. Label a test tube with your solution concentration and place approximately 20 mL of solution into the test tube.

 6. Place this solution into the display test tube rack for colour comparisons.

***Part 2: Solution Dilution***

1. Obtain a specific volume of the prepared solution using your assigned pipette.

 2. Transfer this solution to the volumetric flask.

 3. Add water to the fill line, stopper and shake. Adjust *volume if required.*

4. Calculate the diluted solution concentration

5. Label a test tube with your solution concentration and place approximately 20 mL of solution into the test tube.

 6. Place this solution into the display test tube rack for colour comparisons.

**Analysis:** 1. Describe any colour differences between your concentrated and dilute solution.

2. Calculate the mass of solute in your concentrated solution.

 3. Calculate the concentration of your dilute solution.

***List of required pictures.***

1. Weighing of solute.

2. Dissolving of solute in beaker.

3. Transfer of solution to volumetric flask.

4. Filling of volumetric flask.

5. Pipetting of prepared solution.

6. Transfer of pipetted solution into volumetric flask.

7. Filling of volumetric flask.