DILUTION LAB

Problem: How do you prepare a diluted solution from a concentrated stock solution?

Pre-Lab: *Use your daily question & pages 485-486 in your book to help you answer the following questions about dilute solutions.*

1. What is the difference between a dilute solution and a concentrated solution?

2. How can a concentrated solution be diluted?

3. What is the equation used when performing calculations with dilutions?

4. In the equation, what do M_1 and V_1 represent? _____

5. In the equation, what do M_2 and V_2 represent? _____

Materials:

50.0 mL volumetric flask	Distilled Water	Plastic pipets
1.0 M $CuSO_4 \bullet 5H_2O$ stock solution	various graduated cylinders	

Procedure:

1. Obtain a concentration card from your teacher.
2. Calculate the volume (in mL) of the stock solution you prepared in yesterday's lab (1.0 M) needed to make 50.0 mL of your assigned dilution. Have your teacher check your calculation before proceeding.

Teacher
Initials:

3. Follow the procedure on the website for making a dilution.
4. How does your dilution compare to your neighbor's dilution? Explain any similarities or differences.

5. How does your dilution compare to the stock solution? Explain any similarities or differences.

6. When you are finished with your solutions, dispose of them in the designated copper waste containers.
7. Clean and put away all of your glassware. Wash your hands before leaving the lab.

Post Lab (Summing Up) Questions:

1. What happened to the color of the solution as you added more water (solvent) to it? Why?

2. What happened to the concentration of the solution as you added more water (solvent) to it? Why?

3. Even though you can't always see the solute in the solution (solution may be colorless), does that mean there is no solute in it? Explain.

4. What is the difference between *making* a dilute solution and *making* a concentrated solution?

5. To 225 mL of a 0.80M solution of KI, a student adds enough water to make 1.00L of a more dilute KI solution. What is the molarity of the new solution?

6. What volume of 1.25M HCl would be required to prepare 180 mL of a 0.500M HCl solution?

Dilution Calculations Practice

1. If I add 25 mL of water to 125 mL of a 0.15 M NaOH solution, what will the molarity of the diluted solution be?

2. If I add water to 100 mL of a 0.15 M NaOH solution until the final volume is 150 mL, what will the molarity of the diluted solution be?

3. How much 0.05 M HCl solution can be made by diluting 250 mL of 10 M HCl?

4. If have 345 mL of a 1.5 M NaCl solution. If I boil the water until the volume of the solution is 250 mL, what will the molarity of the solution be?

5. How much water would I need to add to 500 mL of a 2.4 M KCl solution to make a 1.0 M solution?