

Activity #4  
Concentration of copper in copper nitrate

Name \_\_\_\_\_

Date \_\_\_\_\_

You know from your experience in the real world that solutions can be prepared in various concentrations. You know that when uninvited guests show up you can always dilute the lemonade to make it go a bit further. There are various ways to determine these concentrations. In this exercise, you will be asked to devise a procedure to make several different concentrations of solutions from one stock solution.

Materials:

Copper nitrate stock solution (0.200M)

Various, volumetric glassware

Ammonia solution

1. Prepare 10 to 100 mL of each of the following concentrations of copper nitrate solution, using distilled water to dilute.

0.0200M

0.0100M

0.00500M

0.00200M

2. Prepare an additional set of the same concentrations of copper nitrate, only this time you will use ammonia water to dilute.

Record your successful procedure here:

3. Once these have been produced, obtain the UV-Vis spectrum of each.
4. Record how the various spectra differ from each other within each set of dilutions, and how the two different sets of solutions vary from each other.

Set number one, water diluted:

Set number two, ammonia diluted:

Differences between the sets:

Speculate on what the observed differences might mean on an atomic level.