**Materials**

0.1 M HCl

* 1. M NaOH

Buret

Universal Indicator

Miscellaneous Glassware

**Procedure**

1. Fill buret with sodium hydroxide.
2. Place approximately 20 mL of HCl in a clean, dry flask.
3. Record the actual volume of acid added to the flask.
4. Add 5 drops of universal indicator. What color is the solution in the flask?
5. While swirling the flask, slowly add NaOH from the buret to the flask containing the HCl and the indicator.
6. Stop adding the base when the color of the solution is green. Record the volume of base added to the flask.
7. Clean the flask and repeat the procedure 2 more times.

**Questions**

1. Write the balanced chemical reaction occurring between the acid and the base.
2. How many **moles** of acid were added to the flask in each trial?
3. How many **moles** of base were added to the flask to get the universal indicator to turn green in each trial?
4. Compare the number of moles of acid to the number of moles of base contained in the flask when the indicator turns green.
5. What are the components of the flask when the indicator is green?
6. Predict the pH of the solution in the flask when the indicator is green.
7. What happens to the color in the flask if the base is added after the solution turns green?