Experiment: Neutralisation of Acids and Bases

Objective

To understand the process of neutralisation by combining an acid and a base to produce a neutral solution.

Materials

- Dropper bottle of hydrochloric acid (HCl)
- Dropper bottle of sodium hydroxide (NaOH)
- Dropper bottle of Universal Indicator
- Universal Indicator colour card
- Test tube
- Test tube rack

Method

1. Place 5 eyedroppers of HCl into a test tube.
2. Add 2 drops of Universal Indicator to the test tube.
3. Observe and record the colour.
4. Add 1 eyedropper of NaOH to the test tube and record the colour.
5. Slowly add 2 more eyedroppers of NaOH, recording the colour each time.
6. Continue until you observe a neutral solution (a green colour). If you go past a neutral green solution and the liquid in the test tube goes blue, add acid until it turns green again. Count the number of droppers of acid and base you added.

Table of Observations

Step	**Universal Indicator Colour**	**pH Value**
Initial (HCl only)		
After 1 dropper of NaOH		
After 2 droppers of NaOH		
After 3 droppers of NaOH		
Final (Neutral)		

Total number of droppers of HCl:

Total number of droppers of NaOH:

Questions

1. What colour did the Universal Indicator turn when you first added it to the acid?

2. Is NaOH an acid or a base? How do you know?

3. How did the colour change as you added the base?

4. What does the colour change indicate about the pH of the solution?

5. If the solution turned blue, what could you do to neutralise it?

6. Were any other products formed in this experiment?

7. A solution is acidic if it has more H+ ions than OH- ions. When you added the base, how do you think the number of H+ and OH- ions change when you added the sodium hydroxide?