ACIDS AND ALKALIS
LAB

Many common household solutions contain acids and alkalis. Acid-alkali indicators, such as litmus and red cabbage juice, turn different colors in acid and alkali solutions. They can, therefore, be used to show if a solution is acidic or alkali. An acid turns blue litmus paper red and an alkali turns red litmus paper blue

OBJECTIVE:
In this experiment, you will use litmus, red cabbage and a pH meter to determine the pH values of household substances. You will also determine the effects of neutralization.

MATERIALS:

Well plates	Ammonia	Shampoo
Test-tube rack	Lemon juice	Ethanol
Red and blue litmus paper	Soft drink	Vinegar
Wash bottle	Drain cleaner	Hydrogen peroxide
Distilled water	Detergent	Red cabbage juice
Paper towels	Baking soda	Flask
250-ml beaker	Hydrochloric acid	pH Probe
pH meter	Sodium hydroxide	Droppers

PRE-LAB

1. Based on your previous knowledge, predict which of the household substances you will be testing are acids/alkali or neutral

2. What is the pH range of acidic solutions

3. What is the pH range for alkali solutions

4. If a solution is neutral what do you know about the pH

PART 1 LITMUS TESTS

1. Label a piece of paper to place under your well plate with the name of each solution

2. Put a small piece of blue litmus paper into each well. Use the dropper and place 1 drop of solution into each well. Record your observations. Dispose of the well plate contents down the drain and flush with plenty of water. Repeat the procedure using a small piece of red litmus paper

PART 2 RED CABBAGE JUICE INDICATOR

After you have finished the Part 1 litmus test, add 10 drops of red cabbage juice indicator to each of the well plate cells. Next add 10 drops of each solution into the well plate. Record your observations. Dispose of the well plate contents down the drain and flush with plenty of water

PART 3 pH PROBE

After you have finished the Part 2 Red Cabbage juice indicator, add 10 drops of each solution to each of the well plate cells. Using the pH meter probe, test the pH of each solution. Record your observations. Dispose of the well plate contents down the drain and flush with plenty of water.

PART 4 NEUTRALISATION

After you have finished the Part 3 pH Indicator, add 25cm^3 sodium hydroxide solution in a flask. Using the pH probe, read the pH level of the sodium hydroxide. Next add 1 cm3 of hydrochloric acid to the solution. Gently stir the flask. Read and record the pH of the solution. Repeat the procedure 4 more times.

1. At what pH level did neutralization occur?