



CHaOS

Experiment Files

1: Red cabbage



Break out your detective skills and investigate whether common household items are acids or alkalis using a natural indicator.

Equipment:

Red Cabbage
Bowl
Vinegar
Bicarbonate of Soda
Absorbent white paper
Cups
Knife
Rolling pin

Fun Fact:

How acidic or basic a chemical is can be measured using the pH scale. Acids have a pH of less than 7 and bases a Ph above 7. The concept of pH was created in 1909 by Danish Chemist, Søren Sørensen.

METHOD:

- 1) Chop or tear the red cabbage into small pieces. Get an adult to do this if you are using a knife.
- 2) Crush the cabbage pieces in a bowl using the end of the rolling pin. You can add water here to help create enough cabbage juice.
- 3) Dip strips of white paper into the cabbage juice to make indicator paper
- 4) Dip one of your paper strips into some vinegar. What happens? What about if you dip it into a mixture of water and bicarbonate of soda? Or just water?

Explanation:

Red cabbage contains coloured pigments called 'anthocyanins', which give it its distinctive colour. However, the structure of this pigment changes depending on if it is in acidic or basic conditions and this change in structure changes the pigment's colour. As vinegar is an acid and bicarbonate of soda is a base, the samples make the indicator strips turn different colours. Can you identify any other household items that are acids or bases?

Safety:

Keep knife out of reach of children.

Vinegar and bicarbonate **may irritate eyes or broken skin**. In case of contact, wash with plenty of water.

Disclaimer:

This experiment should only be carried out **under supervision** of a **responsible adult**.

Teachers should perform a risk assessment before using this resource.