



SOIL SCIENCE

Different plants prefer different soils. You can work out what kind of soil you have by adding some soil to the red cabbage juice.

Cabbage chemistry

WARNING!
Ask an adult to help you chop the cabbage and boil it on the hob.

Make an amazing colour-changing liquid.

What you need

- Knife
- Chopped red cabbage
- Saucepan
- Water
- Sieve
- Measuring jug
- 3 small clear containers
- 1 tsp vinegar
- 1 tsp bicarbonate of soda

How does it work?

Red cabbage contains a pigment (a chemical that provides colour to things) called anthocyanin. This chemical is called an indicator: it changes colour when mixed with an acid or a base. Almost every liquid is either an acid or a base, and this determines the kinds of chemical reactions it undergoes. Vinegar makes the purple cabbage water turn red – this means that vinegar is an acid. Water doesn't change the colour of the liquid because water is neither an acid nor a base – it's neutral. Bicarbonate of soda turns the indicator blue because it is a base.

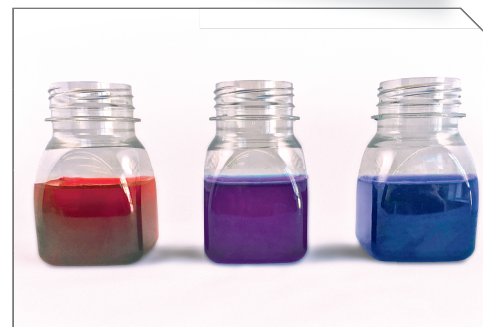
TRY THIS
You can also test other substances in the cabbage water, such as lemon juice and shavings of soap. Are they acids or bases?



1 Chop up a red cabbage and put it in a pan. Then, cover with water and bring to the boil. Turn off the heat and let it cool. The liquid will turn dark purple.



2 Remove the cabbage by pouring the mixture carefully through a sieve, over a measuring jug. Then, pour the purple juice into three containers.



3 Add 1 tsp of vinegar to one jar, 1 tsp of water to another jar, and 1 tsp of bicarbonate of soda to the third jar. Watch what happens.