CHaOS SCIENCE ROADSHOW

CHaOS@Home Experiment Files

Red Cabbage

About CHaOS

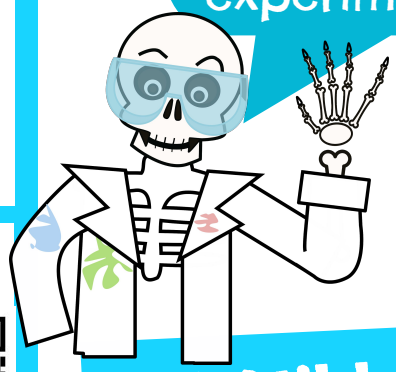
Cambridge Hands-On Science - CHaOS for short - is a volunteer led group from the University of Cambridge.

We believe that science is fun and relevant to everyone! CHaOS take our wide range of hands-on science experiments & enthusiastic student demonstrators to venues across the country!

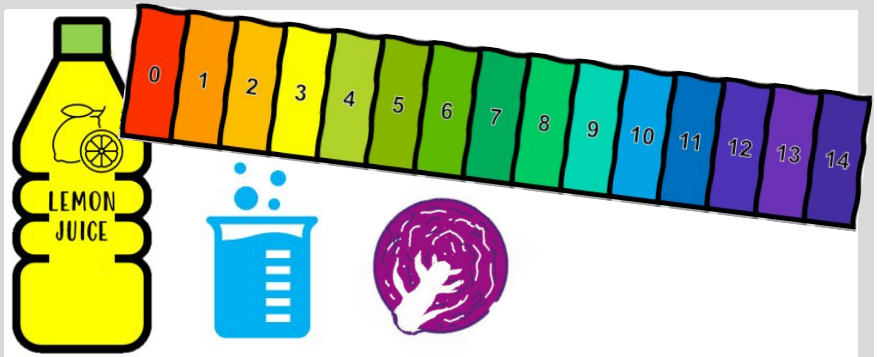
We always love to hear what you think of our experiments - so to get in touch, find even more experiments, and see more of what we do, visit our website!
www.chaosscience.org.uk

Disclaimer
This experiments should only be carried out **under supervision of a responsible adult.**
Teachers should perform a risk assessment before use.

I'm **Boris Bones**, the friendly CHaOS skeleton. I'm going to guide you through this experiment!



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



YOU'LL NEED

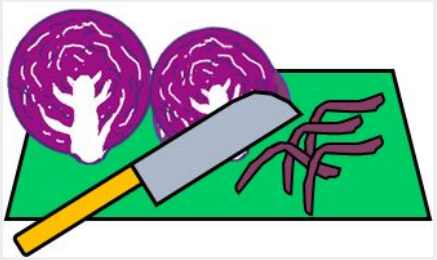
Red Cabbage, Vinegar, Bicarbonate of Soda, Absorbent white paper, Cups, Bowl, Knife, Rolling pin

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.

Step 1

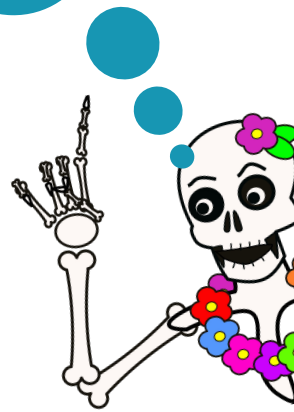
Chop up (or tear) the red cabbage into small pieces. Get an adult to do this if you are using a knife.



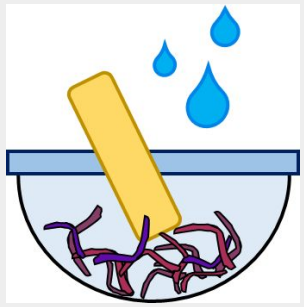
TOP TIP

This experiment is messy! Try making your cabbage juice in the kitchen or put some newspaper down to protect surfaces.

Try your red cabbage juice out on other things from around the house. Which are acids or bases?



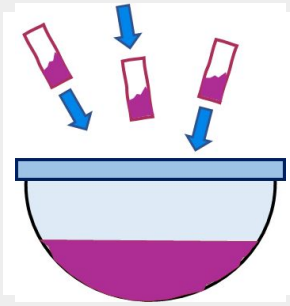
Step 2



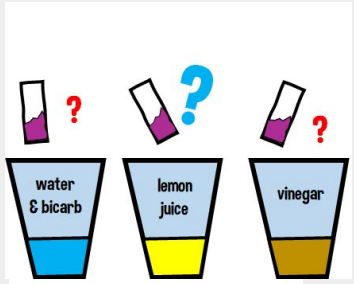
Crush the cabbage pieces in a bowl using the end of a rolling pin. Add water to help create enough cabbage juice.

Step 3

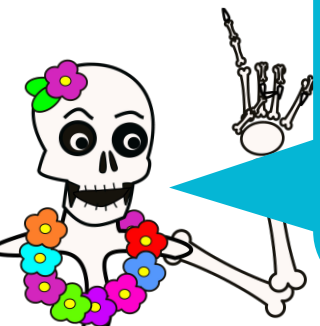
Dip strips of white paper into the cabbage juice to make indicator paper.



Step 4



Dip one of your paper strips in some vinegar. What happens? What about if you dip it into a mixture of water and bicarbonate of soda? Or just water?



Look out for colour changes! Keep a note of your results.

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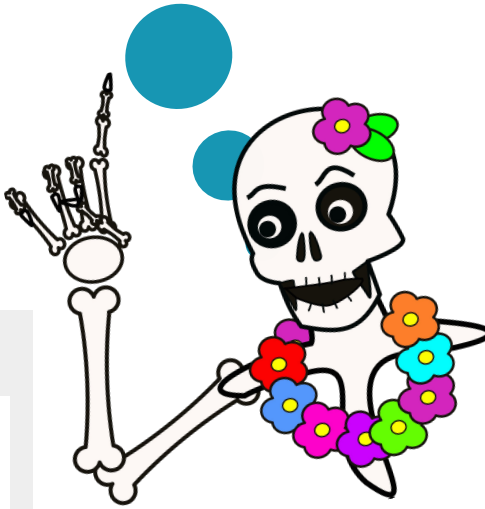
Explanation

Red cabbage contains coloured pigments called "anthocyanins", which give it its distinctive colour.

The structure of this pigment changes depending on whether it is in acidic or basic conditions - this change in structure changes the colour of the pigment.

Vinegar is an acid, and bicarbonate of soda is a base, so the samples make the indicator strips turn different colours.

Keep thinking!
Can you identify another other household items that are acids or bases?



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 have a pH above 7. The concept of pH was created in 1909 by Danish Chemist Soren Sorensen.

Want more?

Check out more experiments with household acids! Try **"Cleaning Coppers"** or **"Mini Explosions"**.

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