CHaOS SCIENCE ROADSHOW

CHaOS@Home Experiment Files

Sweet Chromatography

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 **creative skills** and make **colourful patterns** by separating out **household dyes**.

YOU'LL NEED

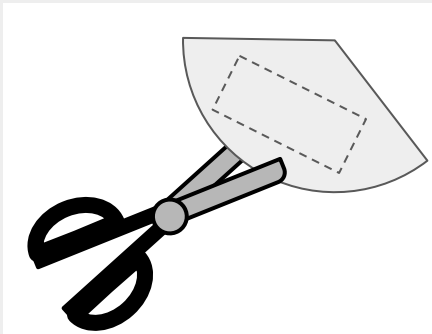
- Coffee Filter Paper
- Scissors
- Cotton Swabs
- A Glass or Beaker
- Sugar-coated sweets e.g. M&Ms
- Coloured Felt Pens

SAFETY

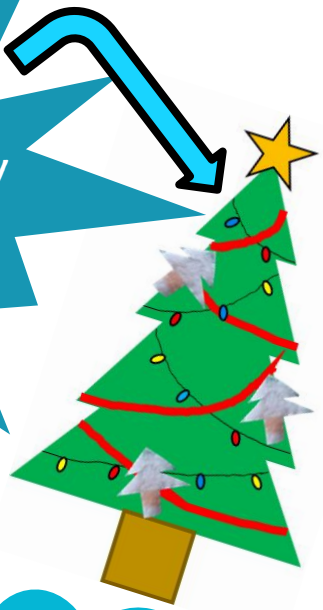
Be careful of **spills** - **wipe them up** straight away to avoid **slippages**.
Children should be particularly careful with **sharp scissors**.

Step 1

Carefully cut out a rectangle from the filter paper using the scissors.



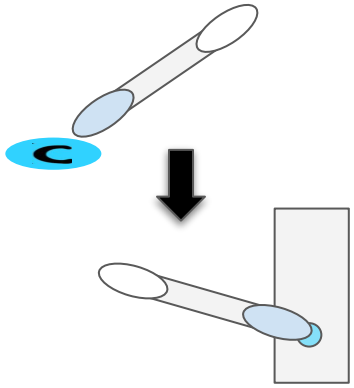
Cut the paper into mo interesting shapes and see what happens. Why not try a festive shape and make it into a decoration?



Step 2

TOP TIP
Let the dye dry out and reapply the dot several times to get stronger colours.

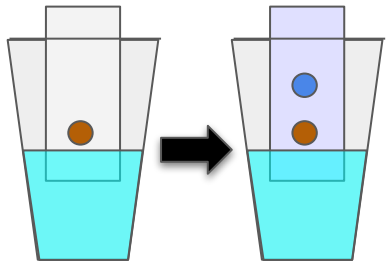
Dampen the cotton swab. Use it to put drops of water on the surface of the sweets and leave for a minute for it to dissolve the colour. Now make a medium size dot of the coloured water on the paper about 2 cm from one end.

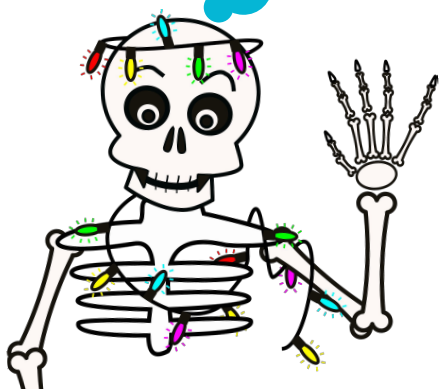


How many colours does the dot split into? Try out a different colour of sweet, a different brand of sweet, coloured pens, or anything else colourful you can find.

Step 3

Put about 1 cm depth of water into the glass or beaker. Stand the paper in the water so that the dot is just above it. Or try hanging the paper in the water using a paperclip and cocktail stick. Watch the paper soak up the water. Observe what happens to the dot and its colour over the next 10-15 minutes.





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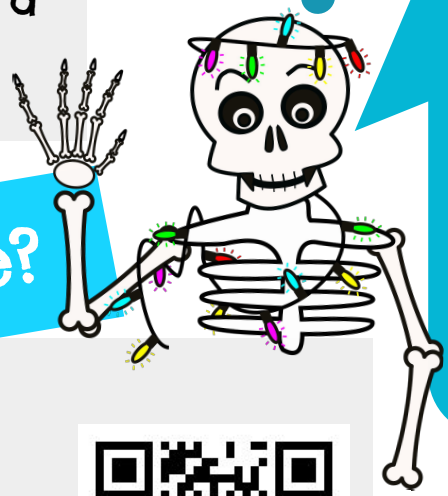
Explanation

The colours in coloured pens or coloured sweets come from chemicals called dyes - sometimes these dyes are mixed to make other colours.

Some dyes are really easily dissolved in water, whereas others prefer to stick to the paper. Those that dissolve easily are carried up the paper by the water.

What you have just done is called “chromatography”. This is where we can split up a substance to see what it is made of - we can tell by how far different dots have moved in a given time. Brown colours are usually made from more colours so give us more different dots.

Try getting the same colour from two different sources e.g. two types of sweet and make two dots side by side. You can use chromatography to see if they are made of the same dyes.



The photo on the front shows a dye that contained orange (which stayed at the bottom) and blue (which went to the tips of the paper).

Fun fact!

Chromatography is used in lots of places to detect what things are made of or what substances are present. For example it is used in forensics to test samples that have been taken from the scene of a crime to provide evidence.

Want more?

Check out more colourful food experiments with **“Red Cabbage”** or **“Celery Food Colouring”!**

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