Everyday experimenting for secondary schools:

Smartie chromatography!

SCIENCE WEEK
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We all love sweets, especially colourful ones like Smarties, M&Ms and Skittles. But how do they get all those colours? Well, the manufacturers mix different food colourings to make the wide variety of colours we see in each pack. We can use a process called **chromatography** to separate the different dyes and explore the colours in sweets. Chemists use chromatography to separate difference chemicals and to investigate what is in different mixtures.

What is needed

- Sweets (Smarties, M&Ms or Skittles)
- Coffee filter paper (or kitchen towel if you can't get some)
- Some salty water
- A scissors
- A saucer
- A pencil
- A paint brush

What to do

1. First sample some of the sweets – you will need some brain food for this one!
2. Open up the coffee filter paper carefully and cut into a rectangle using the scissors
3. Draw a line using a pencil about 1cm above the bottom of the filter paper
4. Add water and salt to a saucer and dissolve
5. Wet the sweet using the paintbrush and transfer the dye to the line you drew on the paper
6. Repeat until the sweet goes white - you can now eat the sweet ☺
7. Dip the paper into the saucer (don't dip above your line) of salty water and watch the different colours separate!
8. Repeat using different coloured sweets or by changing the sweet type

What has happened?

The different coloured dyes in the sweets separate by travelling up through the paper. You will find some colours contain two or maybe three different dyes! Explore which colours contain most dyes and compare different sweets!

What else can you use?

Try using markers or different food colourings in exactly the same way, to explore which colours contain the most dyes.