



Guide for Parents

Chromatography is a technique used to obtain pure compounds from mixtures. Many substances are made of a number of different compounds, which you can't always tell from looking at them. Scientists use the chemical properties of compounds to separate and identify the components of a mixture.

Chromatography usually requires a surface that does not move, called the stationary phase (e.g. the paper), and a substance that moves through it, the mobile phase (e.g. the water). The movement of the compounds in the mixture depends on their relative attraction each of the phases. So, if the compound is more attracted to the mobile phase it will move further along the paper than a compound that is more attracted to the stationary phase. Scientists will use different combinations of surfaces and liquids get the best separation of compounds. Sometimes a mixture of two or more liquids in different proportions might work better, and a few tests are often needed to find out. Some mobile phases you could try yourself are:

- Water
- Methylated spirits (ethanol)
- Window cleaner
- Acetic acid (vinegar)
- Acetone (nail polish remover)
- Mineral oil (Baby oil).

Some questions you could ask while doing this experiment:

- Why do some coloured felts separate better than others?
- How many colours can you see from one felt?
- How long does it take for the mixture to separate?
- What does the filter paper look like if you use different brands of the same colour?
- Why does the same colour give different results when you use different liquids?
- How many colours can you see? How could you separate the colours further?
- What other substances could you separate colours from by using this process? Lollies? Fruit and vegetables? Leaves?

Here are some other resources you can use for doing chromatography:

<https://www.sciencelearn.org.nz/resources/381-having-a-go-at-chromatography>

<http://www.chemguide.co.uk/analysis/chromatography/paper.html>

<https://www.scientificamerican.com/article/chromatography-be-a-color-detective/>