



Coffee Filter Chromatography

Chromatography sound like serious, boring and difficult science. But it isn't! This project shows you that it can be easy, fun and... colorful!



Category:	Science	Time frame:	half an hour
Age:		Where:	
Level:	easy	What you need:	everyday objects
Keywords:	chromatography, coffee filter, chemistry, color, ink		

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So what's chromatography? Wikipedia gives you a [long explanation](#), but I'll try a simple (and maybe less accurate...) one: it is a method to separate the components of a substance for analytical purposes. In this project we show how it works.

What you need:

- black non-permanent felt pens (a few different ones, only some will work)
- coffee filter
- scissors
- small glass with water

Take the coffee filter and cut it into stripes (not too small). Take one of your felt pens and draw a horizontal line in the middle of one of the coffee filter stripes.

Now take the glass and fill it with water. Put the stripe into the water, but make sure your felt pen line is above the water level. Now watch what happens. The coffee filter sucks the water up slowly. When the water raises above the point where the felt pen line is, the water will take parts of the ink with it. The lighter parts of the ink will raise quickly with the water, up towards the upper edge of the filter stripe, while the heavy parts of the ink stay where they are. That's the principle of chromatography.

Remove the coffee filter from the glass just before it water reaches its top edge (or when nothing happens any more). Put it on a piece of newspaper and let it dry.

For some inks your chromatography result will look like this:



Here you can see, that your black ink was actually a mixture of colored inks. The different colors have different weights and therefore they can be separated using this form of chromatography.

In case you don't see any colors, you have a pen with real black pigments. Just try another one.

OK, enough science. You can also turn this into an art project by using differently colored pens on one piece of coffee filter. Have fun!

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