

Magic Pens – Chromatography for younger children

Equipment needed:

Coffee filter papers (available in most supermarkets Rombouts no 4 work well)

Scissor

Variety of water soluble pens (Crayola super tips, Berol broad)

Water



Instructions

Cut out pieces of filter paper.

Use the pens to draw a simple pattern, dark colours work best.

Dip your finger in the water and drop onto the paper. A pattern will form as the inks separate and move out. Leave the paper to dry. Papers can be used to make pictures, attached to pipe cleaners for to make simple flowers etc. They also look good hung over a window with the light behind.



Chromatography for primary school children

Equipment needed:

Coffee filter papers (available in most supermarkets Rombouts no 4 work well)

Variety of water soluble pens (Crayola super tips, Berol broad)

Scissor

Water

Small shallow container e.g. ramekin (GU pudding ones work well), empty Tupperware or shallow yogurt carton

Instructions

Cut the largest circle you can from the coffee filter. Your paper must be able to sit on the rim of your container.

Make a very small hole in the middle

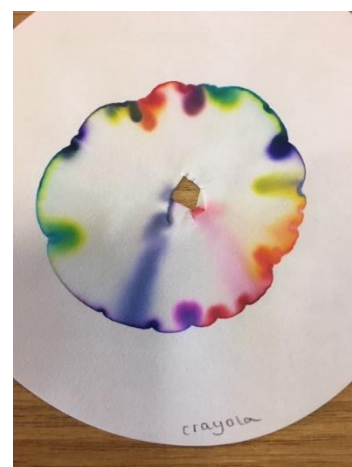
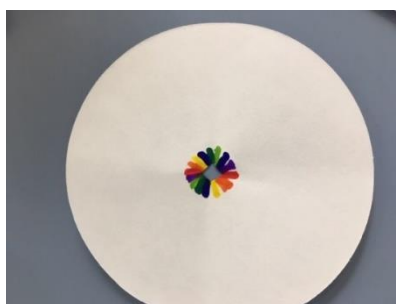
Add decoration around the hole in different colours. Keep your pattern close to the hole.

Take another piece of filter paper and roll up.

Push the second piece of paper into the hole.

Fill the container with a little water and sit your paper on the top as shown. The bottom of the rolled up piece should just be touching the water.

Leave your experiment for the magic to happen. Be careful to check on it often and take it out of the water when you are happy with the pattern. If you leave it too long the colours will end up too close to the edge.



Chromatography for older children

Who wrote the note in the empty fridge? Three suspects (A,B and C) who all carried black pens in their pockets have been identified and their pens have been confiscated.

Equipment needed

Coffee filter papers (available in most supermarkets, Rombouts no 4 work well)

Water

Scissor, ruler and pencil

At least two different brands of washable black pens (found on the 'suspects')

Several paper cups or glasses

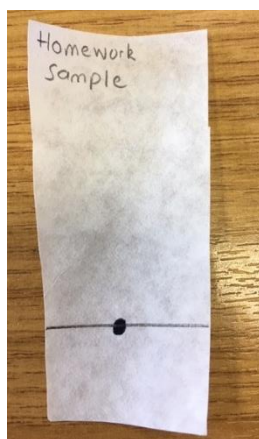
Thin stick (e.g skewer, chopstick, straw)

Bulldog clip

Instructions

For parents:

Before you start analysing which black pen has written the note, prepare a 'sample' of the note found in the fridge using the culprits black pen, see example below. This is *evidence 1*.



How to prepare *evidence 1*?

Cut small strips of the filter paper, approximately 4 x 8 cms.

Using a pencil draw a line 2 cm up from the bottom of the paper. The pencil line must be above the water level.

Make a small mark with the correct black pen on the centre of the pencil line.

Evidence 2-Analysing the suspects pens.

Again, cut small strips of the filter paper, approximately 4 x 8cms.

Using a pencil draw a line 2 cm up from the bottom of the paper. The pencil line must be above the water level.

Make a small mark with the correct black pen on the centre of the pencil line.

Repeat for the other two pens on the same piece of paper left and right of the first pen mark. See picture.

Label each of the pens indicating which suspect they belong to (A, B, C).

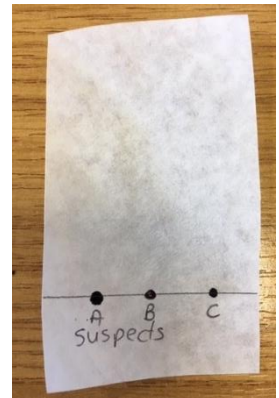
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For both evidence 1 and 2, please attach a clip to the top of the paper and insert a skewer through.

Fill a cup for each with approx. 1cm of water. It is important that the water level is less than the 2cm line on your paper.

Hang your paper across the top of the cup and wait.

You should see a different pattern for each pen. Now compare *evidence 1* with 2 and identify the culprit.



In the example above the ink on the left had more red and orange in it, than the one on the right. The ink in the middle (not water soluble) did not move at all.