**Primary Schools:  
Exploring Colour with Chromatography**

Approximate timing: 25-30 minutes

Required resources: Instructions, felt-tip pens and/or M&Ms (no nuts) or similar coloured sweets, filter paper, plastic cups, water, Pasteur pipettes

This lesson will introduce students to chromatography – a standard laboratory technique used to purify or separate mixtures. This can also be used in a classroom to investigate the colours in felt tipped pens and sweets.

**The lesson supports:**

*Primary Curriculum – working scientifically*

Pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

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| **Learning outcomes** | |
| All students will: | Carry out a hands-on scientific experiment |
| Most students will: | Describe colour combinations used to make another colour. |
| Some students will: | Explain that mxtures can be separated based on the size of their particles |
| Key word/s | Colour, practical, quick, do-at-home |

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| **Teaching notes** | **Student learning activities** |
| **Starter or ice-breaker activity** (5 mins)  Ask students questions to gauge knowledge and interest:   * What can you tell me about colour? * What are the primary colours?   What examples do you know of colours being mixed together to make a different colour?  Can colours be ‘un-mixed’ back to their constituent colours? | Student actions  Answering questions |
| **Development** (5 mins)  Explain principle activity, ask students to guess what colours make up the pens/sweets that they’re going to use  Print out and read through instructions | Student actions  Read through/listen to instructions, question task ahead to ensure understanding. |
| **Principal Activity** (20-30 mins)  See instructions.  Avoid using yellow and orange felt-tip pens because they don’t show up well.  Students could do two different tests with felt-tips and M&Ms and compare the results, or just do one if materials time aren’t available and/or there is insufficient time | Student actions  Follow instructions.  Compare results – identify which colours contain 1, 2 3 or other colours |
| **Plenary** (5 mins)  Plenary questions are linked to initial learning outcomes  Allow them to take their filter paper home with them if they want to - give out extra paper to allow students to try experiment at home | Students answer question(s) to assess learning. |
| **Homework** | Look at ingredient lists on food packaging, identify what colours they contain and research what the ‘E’ numbers actually mean. |