



Challenger's Morning Science Segment:

July 24, 2017

Topic: Chromatography

Build: Finding colors

Credit:

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

Materials Needed:

White coffee filters / non-permanent markers / pencils or popsicle sticks / tall glasses of water / tape / pencil

Finding colors: To test three different colored markers, begin by cutting coffee filters into three strips that are approx. 1 inch wide and 4 inches long. At 1 cm from the bottom, draw a line across the width of each strip with a pencil. Next, using different markers for each strip, draw a short line at the middle of each pencil line. Use only one marker per strip, and use the pencil to note the color of the marker at the top of the stripe. Tape the end that is opposite the marker/pencil line to a pencil (or popsicle stick) so that the bottom hangs straight down. Repeat the process for each strip. Place the pencil across an empty glass such that the filter strip hangs inside the glass. Finally, add water to each glass until it just touches the bottom of the filter stripe. It is important that the water stays below the marker/pencil line. Check and remove the filters from the glass in 10-15 minutes and observe the results!

The science

https://www.exploratorium.edu/science_explorer/black_magic.html:

Single marker colors can be made of a subset of many different color molecules. Using chromatography, the water on the filter paper carries the different pigments up the paper. Different colors travel at different rates up the paper based on the size of the color molecule. For example, this technique can separate black into many different color pigments. It is a technique used by biochemists to separate mixtures. This is a great way to investigate the make-up of different colors!

Upcoming at the Challenger Learning Center of Maine: Challenger holds STEM camps all summer long for students entering grades K-8. Summer camps are filled with science, innovation, excitement, and fun! FMI- www.astronaut.org