



## COLORFUL CHEMISTRY

Discover "what makes a color," using a real laboratory technique.

### Materials

White coffee filter

Water

At least one black marker (not permanent)

Small cup or bowl

Piece of paper

Note: Markers labeled "washable" do not work for this activity. We used regular Crayola, Roseart, and vis-a-vis markers.



Chromatography is a powerful analytical tool with a wide range of applications, from art to crime scene investigation.

### Procedure

- Fill your cup with about 1/2 inch of water.
- Lay your coffee filter out flat onto the piece of paper. Using the black marker, draw a line around the inside rim of the coffee filter.
- Fold the coffee filter in half twice, so that it looks like a slice of pizza.
- Stand your paper up inside of your cup, with the pointed end in the water. Make sure the part you drew on is not submerged.
- Wait for the water to make its way up the coffee filter, and watch what happens when it meets the black line you drew.

### Results

You can see the colors that were mixed to create the black pigment.

### Why?

You used a process called paper chromatography to separate the different color molecules that were mixed to make the black pigment in the marker. The water moves the different color molecules through the paper at different speeds, based on their sizes and how attracted they are to the paper. Different manufacturers use different mixes of pigments to create black pigment, so try experimenting with different black markers! Ask a parent or sibling to write a message using one of the black markers, and use paper chromatography to discover which one they used!

This activity was adapted from the NISE Network "Explore Science: Let's do Chemistry" kit. You can find more activities on their website, nisenet.org