

# Candy Chromatography Activity

## Introduction:

Chromatography is a useful method for separating chemicals that are mixed together. It is easy to observe chromatography when a paper marked with water-soluble ink is exposed to the rain. You would probably notice areas where the ink begins to dissolve and bleeds across the paper. Similarly, you may be eating candy that is coated with brightly colored dyes and notice that certain colors begin to dissolve in your hands. These colored inks, paints, and dyes are often made from mixtures of several chemicals. If done carefully, chromatography can be used to both separate and identify these chemicals.

## Objective:

Use chromatography to separate the different chemicals found in candies, drink mixes, and/or markers.

## Materials:

- (2) large coffee filters or filter papers
- (1) 250 mL or larger beaker, filled with water
- (1) pipette
- (1) scissors
- (4-5) cotton swabs or toothpicks for mixing
- (4) color samples

You can use any combination of the following materials:

- different-colored drink mixes
- colorful candies
- water-soluble markers

### **Colored Drink Mix Preparation:**

1. Make a solution by adding a few drops of water to a teaspoon of drink mix in a plate, dish, or bowl.
2. The consistency of your solution should be similar to a paste.

### **Candy Preparation:**

1. Choose three different colors of candies, such as red, green, and blue, and separate them by color into three different bowls. Place no more than 10 drops of water on the candies in each bowl.
2. Let the candies sit for about 10 minutes so as to allow the water to dissolve the coloring chemicals.

### **Chromatography Preparation:**

1. Use a pencil to draw a circle approximately four inches in diameter around the center of a large coffee filter.
2. Write the numbers 1, 2, 3, and 4 at even intervals around the circle or write the name of the sample and its color.
3. Cut a small hole in the center of the coffee filter. This hole is for your paper wick.

### **Paper Wick Preparation:**

1. Cut a six-inch strip of paper from your other coffee filter.
2. Fold the strip of paper lengthwise several times until it is six inches long and less than one inch wide.

## Procedure:

1. Insert the wick from the underside of the filter paper and up through the hole that you cut in the center of the circle.
2. Transfer the liquid from your drink mix or candy solution, drop by drop, onto one of the numbered spots on the coffee filter using a pipette or cotton swab. Alternatively, draw a dot on each numbered area using a water-soluble marker.
3. Continue placing drops until you can clearly see the color on the coffee filter. Proceed around the filter until you have added each sample in order.
4. Once you have transferred all of the samples onto the coffee filter, let the paper dry. (If time is a factor, you may skip this step.)
5. Lift the filter, and place it onto a large beaker filled with water. The wick should touch the water in the beaker and begin absorbing the water upwards. Do not allow the coffee filter itself to touch the water in the beaker. The process works best when the water from the wick moves outward from the center of the coffee filter.
6. The chromatography process may take 10 to 15 minutes, so watch the coffee filter carefully to assure that it does not accidentally fall into the beaker.
7. When the chromatography has been completed, take a picture of the results.

