

Name _____
Date _____

Class _____
Chromatography lab
(40 minutes)

Background Information

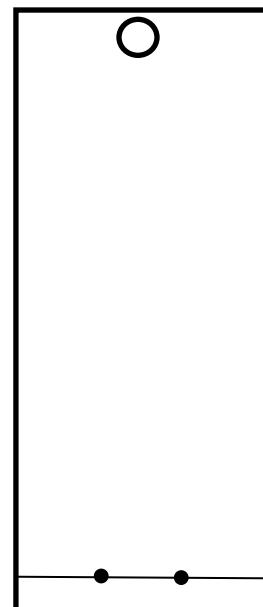
Chromatography is a broad range of physical methods used to separate and to analyze complex mixtures. Chromatography is one of the most useful laboratory methods in chemistry. It is used in thousands of different ways in the chemical and biochemical world. One of the most important is the purification of compounds of all types.

Materials

- 2 different colored markers
- Ruler
- Chromatography paper
- String
- Paperclip
- Chromatography chamber
- Water
- Alcohol

Procedure

1. Prepare a data table on the next page to record the color of marker, type of solvent and what color dyes separated.
2. Choose two different colored markers.
3. Obtain 2 pieces of chromatography paper. On each of the pieces of chromatography paper draw a line 2 cm from the bottom of the paper **IN PENCIL**. Make a small dot with each of the two markers on this line. They should be evenly spaced apart from each other to keep them separated. This should look like the picture to the right. Be sure to record where you put each color on the paper.
4. Using a ruler on the outside of the beaker, pour water into one of the beakers to a height of 2 cm. In the other beaker pour alcohol to a height of 2 cm. **The level of the liquid must be lower in the beaker than the dots from the markers on the chromatography paper once it is inserted into the beaker.**
5. Carefully place your paper into the liquid so that only the area of paper below the dots is in contact with the water. **Do not allow the paper to slip down into the liquid. Do not let the pencil line with the dots to go below the liquid level.**
6. When the level of the liquid has advanced through most of the paper, Remove the paper from the developing solution. Hold the paper and observe the colors carefully.
7. Keep the chromatographs if you like. Since you are using waste alcohol, if your alcohol is not contaminated with marker, pour it back in the container. Otherwise pour it down the drain with water.



Prepare data table here

How will you treat your experimental group different than your control group?

What is your independent, aka manipulated, variable? _____

What is your dependent, aka responding, variable? _____

List 3 other variables that you should keep constant between the control and experimental groups.

1. _____
2. _____
3. _____

Analysis Questions

1. Why did you use pencil and not pen when marking on the chromatography paper?
2. Why must the marker spots on the paper remain above the level of the liquid in the beaker?
3. Which marker/s, if any, had more than one dye?
4. Which dye dissolved best in water (which one went farthest)?
5. Which dye dissolved best in alcohol (which one went farthest)?
6. How could a technique like this be used in the real world?