

Paper Chromatography

Name _____ Date _____ Period ___ Group ___

How does paper chromatography work to separate a mixture?

A small spot of solution that contains the sample is applied to a strip of chromatography paper about 1 cm from the base. This sample is absorbed onto the paper and may form interactions with it. Any substance that reacts or bonds with the paper cannot be measured using this technique. The paper is then dipped in to a suitable solvent, such as ethanol or water, and placed in a sealed container.

The solvent moves up the paper by capillary action, which occurs as a result of the attraction of the solvent molecules to the paper and to one another. As the solvent rises through the paper it meets and dissolves the sample mixture, which will then travel up the paper with the solvent.

Different compounds in the sample mixture travel at different rates due to differences in solubility in the solvent, and due to differences in their attraction to the fibers in the paper. Paper chromatography takes anywhere from several minutes to several hours. (http://en.wikipedia.org/wiki/Paper_chromatography)

Procedures:

1– You will receive from your teacher, a square sheet of chromatography paper, that has previously been marked with an unknown mixture, one half inch from the bottom edge of the paper. (Diagram 1)

2– Measure a point, one half inch up from the bottom edge of the paper, at the two sides of the paper. Draw a **pencil** line that connects these two points and runs through the center of the unknown mixture. Put your name at the top in pencil.

3– Now mark eight dots along the pencil line, spaced 1 centimeter apart from each other. (Diagram 2)

4– Put a colored dot from the various markers available, at each of these points on the line. Touch the marker tip to the line with light pressure for one second. Put a different colored

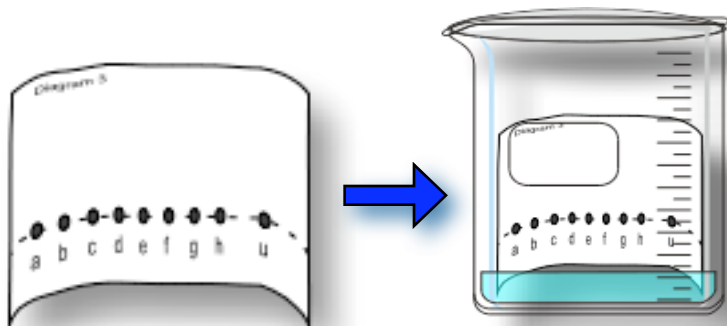
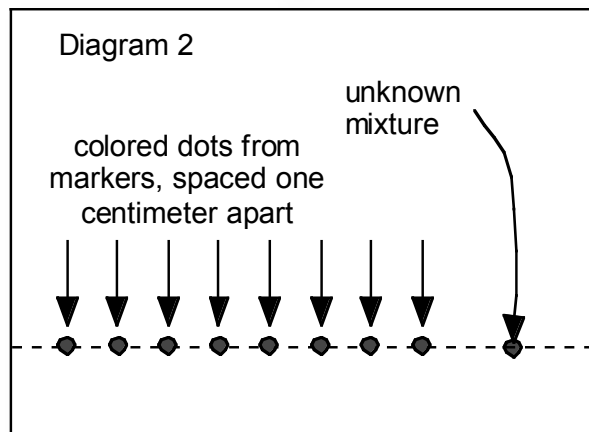
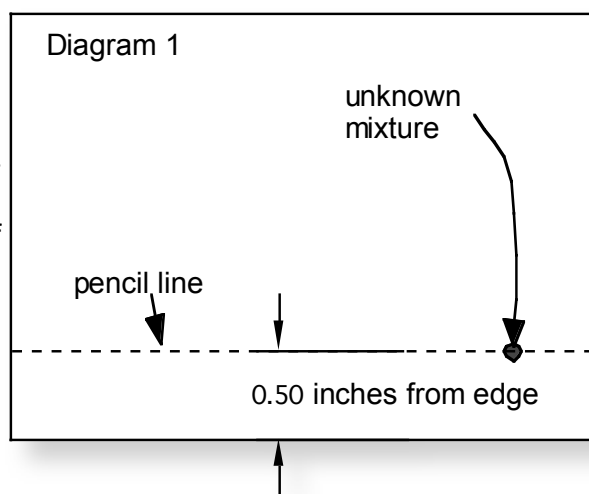
dot at each of the points on the line.

5– Using a pencil, write the first letter(s) of each color below each dot. Do not make the letter too large. Write a letter “U” below the unknown mixture, also in pencil.

6– Curl the paper to look like below. Place into a dry 250 ml beaker. It should not touch the sides of the beaker. If it does, curl the paper more. Then take the paper out of the beaker.

7– Use a graduated cylinder to pour 10 ml of room temperature water into the 250 ml beaker, and then carefully place the curled paper into the beaker.

8– Cover with an inverted watch glass and set aside until the highest band of color is 0.50 inches from the top of the paper!



Materials: Chromatography paper, ruler, pencil, markers, beaker, water, watch glass

