

miniLAB 3**Observe Dye Separation**

Applying Concepts Chromatography is an important diagnostic tool for chemists. Many types of substances can be separated and analyzed using this technique. In this experiment, you will use paper chromatography to separate the dyes in water-soluble black ink.

Materials 9-oz wide-mouth plastic cups (2); round filter paper; 1/4 piece of 11-cm round filter paper; scissors; pointed object, approximately 3–4 mm diameter; water-soluble black felt pen or marker

Procedure 

1. Read and complete the lab safety form.
2. Fill one of the wide-mouth plastic cups with water to about 2 cm from the top. Wipe off any water drops on the lip of the cup.
3. Place the round filter paper on a clean, dry surface. Make a concentrated ink spot in the center of the paper by firmly pressing the tip of the pen or marker onto the paper.
4. Use a sharp object to create a small hole, approximately 3–4 mm or about the diameter of a pen tip, in the center of the ink spot.
5. Roll the 1/4 piece of filter paper into a tight cone. This will act as a wick to draw the ink. Work the pointed end of the wick into the hole in the center of the round filter paper.
6. Place the paper/wick apparatus on top of the cup of water, with the wick in the water. The water will move up the wick and outward through the round paper.
7. When the water has moved to within about 1 cm of the edge of the paper (about 20 minutes), carefully remove the paper from the water-filled cup and put it on the empty cup.

Analysis

1. **Record** the number of distinct dyes you can identify on a drawing of the round filter paper. Label the color bands.
2. **Infer** why you see different colors at different locations on the filter paper.

3. **Compare** your chromatogram with those of your classmates. Explain any differences you might observe.

