

## Paper Chromatography Lab

In this activity we will use a simple technique to separate the colors from black ink. Because the ink is soluble in water, we will allow the solution to be adsorbed on filter paper. As the solvent rises on the paper and evaporates, it leaves the colors in its path. You will write a formal lab report for this experiment.

### Pre-Lab Questions:

- 1) Define Chromatography.
- 2) What is the meaning of the term “primary colors”?
- 3) What are the primary colors of ink?
- 4) Define adsorb.
- 5) Define absorb.

### Procedure:

1. Cut a strip of filter chromatography paper long enough to fit easily almost to the bottom of the container and to fold about 1 cm over the lip. The strip should be about 15 cm long and 2.5 cm wide.
2. Using a black felt-tip pen, place a small dot about 1.5 cm from one end of the filter paper.
3. Add enough water to the container to cover the bottom of the filter paper but not enough to reach the ink dot.
4. Place the filter paper in the container with the dot end facing down.
5. Allow the water to climb the paper. When the ink is no longer moving up with the water, you are done. Record your observations. Because the ink used in this activity is water-soluble, it dissolves and is adsorbed on the filter paper. As the ink rises on the paper, the different colors are deposited according to their degree of solubility in water and their attraction to the paper. The more soluble the color, the farther these pigment molecules tend to move up the paper.
6. Repeat with two more colors.
7. You and your partner need to share your strips so you can include them in your reports. Fasten them into the Data section of your reports.

### **Post Lab Questions**

- 1) What colors separated from the black ink?
- 2) Why do these colors come from black ink?
- 3) Why are the colors that separate out from blue ink different from those in black ink?
- 4) What is the solvent (sometimes known as the mobile phase) used in this lab?
- 5) What is the stationary phase used in this lab?
- 6) Chromatography is a technique used to separate different substances. Name another.
- 7) What are some of the practical applications of the technique you listed in the previous question?

### **Conclusion**

Your conclusion should state the colors that separated from the black ink.