

# A Science Experiment to do at Home

*Courtesy of Wayne State chemist Emil Lozanov*

## **Paper Chromatography**

Did you realize that colored markers are actually made up of different colors? A brown marker, for example, is really a mixture of about three other colors.

Chromatography is the scientific technique for separating mixtures into their components. In this experiment you will see how many different color dyes make up a single color marker. You also will examine and compare your ink samples, view and compare the separation of colors in the markers, and learn separation techniques.

### **Materials needed:**

Paper coffee filter, regular paper, newspaper or paper towel

Several different colors of water soluble markers

Water

A tall glass (try to get one you can see through!)

Wrapping paper

Scissors

### **Experiment**

1. Using scissors, cut the paper coffee filter, regular paper, newspaper and paper towel into long strips about one inch wide
2. Draw a line with a marker on each strip of paper, about one inch from the bottom
3. Pour enough water in the glass to just cover the bottom
4. Place one strip of paper into the glass so the drawn line is above the level of the liquid
5. Bend the strip around the top of the cup and cover with wrapping paper
6. Take out the strip when the water absorbs up to about 0.5" to the top
7. Observe if the one color you used separates into different colors
8. Try again with the same color on a different type of paper
9. Then, try again with a different color on all paper types

### **Conclusion**

Examine each type of paper to find out which dyes create the different colored markers. Are there some markers that are only made up of one dye? Does it take longer for some colors to separate than others?