**Chromatography**

**OBJECTIVE:**

Discover the bike thief through the use of chromatography.

**LAB MATERIALS:**

* Coffee filter paper
* Various black pens
* Masking tape
* Scissors
* Bucket
* Water
* Skewer/pencil/stick
* Paper towels

**GROUP LEADER/VOLUNTEER/TLC ROLE**

[How they can help you]

**SETUP PROCEDURE**

1. Cut the coffee filters into half-inch strips
2. Draw a line about an inch from the bottom of the strip with each pen on separate sheets
3. Fill the bottom of the bucket with a half-inch of water
4. Drape the filter strip over a pencil and hang it down into the water, not letting the pen mark touch the water
5. See which pens look too similar and find a different pen
6. Label the pens to be used
7. Write a ransom note with one of the pens on a sheet of coffee filter

**LAB PROCEDURE**

1. Read the ransom note, then cut it into half-inch strips to each person
2. Drape the filter strip over a pencil and hang it down into the water, not letting the pen mark touch the water
3. Once the inks are approximately ¾ of the way up the filter paper, lay it down to dry on paper towels
4. Draw a line about an inch from the bottom of the strip with each pen on separate sheets
5. Repeat steps 2 and 3 with all the pens
6. Compare the various pens to the ransom note and find out who is the culprit

**WHAT IS HAPPENING?**

Black ink can be made by combining red and green, as well as several other combinations of colors. This means that the ink recipe is unique to the manufacture of the pen. This means that by separating out the colors and seeing which colors were used, you can tell apart black pen marks from each other.