

Chromatography Station

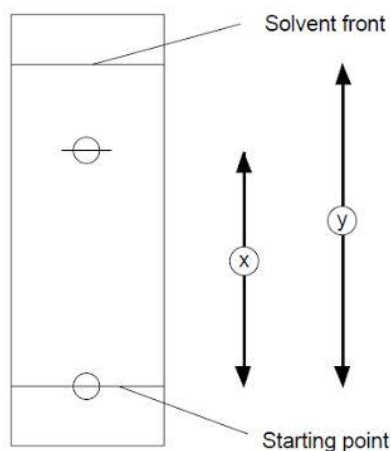
A black dot was drawn at the bottom of the first chromatography paper, and the paper was transferred to the glass container. Which pen drew the black dot? Let's use chromatography to figure it out!

- 1.) Add a dropper full of acetone to the glass container. The acetone is called the **SOLVENT** because it will dissolve the ink.
- 2.) Observe whether the ink in the black dot rises as the acetone travels up the chromatography paper. The ink is called the **PIGMENT** because it contains color.
- 3.) Once the solvent has reached the top of the chromatography paper, remove the paper and set it aside.
 - Did the black dot move up the chromatography paper?
 - Did it stay one color or did it separate into many colors?

Now it's time to test which pen made the mark.

- 4.) Choose one of the pens, and draw a dot near the bottom of the paper.
- 5.) Transfer the paper into the glass container and add one squirt of solvent.
- 6.) Observe as the solvent travels up the paper.
 - Did the black dot move up the chromatography paper?
 - Did it stay one color or did it separate into many colors?
 - Does it match the original paper?
 - What is the Retention Factor?

Now test the other pens. What do these pens look like? Can you figure out what pen made the original mark?



$$R_f = \frac{\text{distance moved by solute}}{\text{distance moved by solvent}} = \frac{x}{y}$$

