**Colors In Chemistry!**

**Using Paper Chromatography to Understand Polarity**

**Video Demo**

Solvent name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Polar or Non-polar? (circle one)

Mixture: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What happened to the solvent?

What happened to the dye (solute)?

Which color pigment is most non-polar? Which is the most polar? Why?

Using your colored pencils, draw what you would expect to see if you used **WATER**, a polar solvent. This is called a **graphical hypothesis**! Why do you think this?

What if we use water (polar) instead of acetone (nonpolar) as a solvent? Draw your prediction here.

**Food Dye Trial**

**PURPOSE:**

* Observe how polarity influences other chemical processes. Learn about and understand what nonpolar and polar molecules are.
* Learn how to separate mixtures using paper chromatography.
* Identify unknown substances using paper chromatography.

**Now let’s do the same experiment, but with a polar solvent.**

Step 1. Draw a start line in pencil 2 cm from the bottom of the chromatography paper strips.

Step 2. Add 50 ml of water to one graduated beaker.

Step 3. Take a toothpick and make a small dot of food dye on the start line of one strip of chromatography paper.

Step 4. Put the chromatography strip into the beaker of water and fold the top over the popsicle stick. Make sure the dye spot is NOT in the solvent.

Step 5. Wait for the strip to develop (15 minutes) then remove from the solvent.

**\*\*Be sure each paper strip is labeled with the correct solute and solvent!\*\***

Tape your labeled chromatograph (or draw it) here:

Was your hypothesis about food dye in water correct? Why or why not?

**Marker Trial**

Now you will be testing each marker (black, brown, green and purple) in the solvent water. Your experimental set-up should look like this:

Brown

Green

Purple

Black

Once your experiment is finished, draw the results in the box.

**Identify unknowns:** compare your results with known colors with those on the board. Draw lines between the colors and unknowns to match them.

 Black Unknown A

 Brown Unknown B

 Green Unknown C

 Purple Unknown D

*If you’re finished and have extra time, you can experiment with different marker colors to make chromatography art!!*

**Wrap-up**

**Polarity:** Finally, let’s draw polar and nonpolar molecules.

Water – H2O Methane – CH4