



# Kitchen Chemistry

## Chromatography

### KEY TERMS

**Chromatography** – The separation of a mixture using a liquid to carry it through a medium

**Mixture** – Contains two or more substances that are not chemically combined

**Capillary Action** – The tendency of a liquid to rise or fall as a result of surface tension in absorbent material

### DISCUSSION QUESTIONS

- The dyes are mixtures of colors, how can you tell?
- These mixtures are made up of different sized and weights of color particles and molecules called pigments.
- When they move along the paper, the heaviest biggest particles stop first, while the lightest smaller particles move the greatest distance.
- When the particles are separated like this, you can see all of the different colors that make up the marker color.
- How does this show capillary action?

### WHAT YOU NEED AT HOME

- Water-soluble markers in multiple colors
- Coffee filters
- A pencil
- Tape
- A ruler
- A bowl
- Some water

### HOW TO DO IT *MARKER CHROMATOGRAPHY*

- Cut coffee filters into short approx 1-inch by 5-inch strips
- Mark each strip with a different color marker about an inch from the bottom
- Tape each strip to the ruler so that the marked end is hanging down
- Lay ruler over the bowl, so that the strips hang down
- Put enough water in the bowl to touch the strips, but not enough to get the marked area wet
- Watch as capillary action pulls the water up the strips of paper, and they take the dye with them

### BONUS ACTIVITY

#### HOW TO DO IT *CHROMATOGRAPHY FLOWERS*

- Take a whole coffee filter, and draw a design using your water-soluble markers
- Then, push the bottom down into a cup with water, and let the capillary action move some of the colors.
- When you are happy with the way it looks, you take it out, and let it dry!
- Once it's dry, you can add a pipe cleaner and make your own flower!