

Winter/Christmas – Christmas Chromotography

Chromotography can be used to create colourful patterns.

Materials:

- Water-soluble markers (different colours including black)
- Coffee filters
- Scissors
- White pipe cleaners (hobby supply store)
- Small cups
- Water
- String or Yarn (dark colour preferred)
- Tape
- Thin cardboard



Procedure: (Remember to have your parent's permission and have them watch and help you.)

- Draw a pattern of a Christmas light bulb shape on the thin cardboard and cut it out.
- Using a pencil, trace the pattern onto a number of coffee filters.
- Cut out your light bulbs.
- Use a marker to make a circle or large dot in the center of the bulb area. You may use two markers, but too many colours will look smeared.
- Insert one end of a white pipe cleaner into the center of the ink dot (careful not to tear it).
- Place the other end should be placed into the container of water with the filter paper light bulb resting across the top of the cup.
- Allow time for the water to travel up the pipe cleaner, through the filter paper and reach the edges.
- Remove the pipe cleaner and place the light bulbs in an area to dry.
- Once dry, tape the light bulbs to a piece of black yarn to create a string of lights.

What's Happening:

Chromatography is a race. On the starting line is the mixture of dye chemicals in the markers' ink (each colour is a mixture of different dyes). When the race starts, runners soon spread out because they have different abilities. So too do the different dye chemical molecules. They travel at different speeds over the filter paper.

If you cut out each "ring of colour" and you would have the same kind of molecules that make up that dye colour. Similarly this idea is used to identify the molecules that make up a substance. A gas chromatograph can do this with very small sample of material. Chromatography is actually one of the most useful analytical techniques chemists use from helping to identify biological materials to finding clues at crime scenes. More info: <http://www.explainthatstuff.com/chromatography.html>

Extension:

Try different shapes or different temperatures of water to see if this changes the results.

This activity is based on our Winter/Christmas kit. The source for this lab was: <http://www.sciencespot.net/Media/christmasbulbs.pdf>. Our teaching kits (described on our website) are loaned out FREE to provide classroom teachers and parents of home schooled children an opportunity to explore Science in interesting ways. Please consider volunteering as a classroom guest speaker or allow your business as a field trip location.

Lorne Cooper, Regional Executive Director

PRAXIS, "Making Science Fun". Contact Praxis at praxis@praxismh.ca, www.praxismh.ca, Tweet or follow us @PraxisMedHat, or friend us on Facebook. Address: c/o 200 7th Street S.W., Medicine Hat, AB, T1A 4K1 Phone: 403-527-5365, Fax: 403-527-6570.