

Color Chromatography

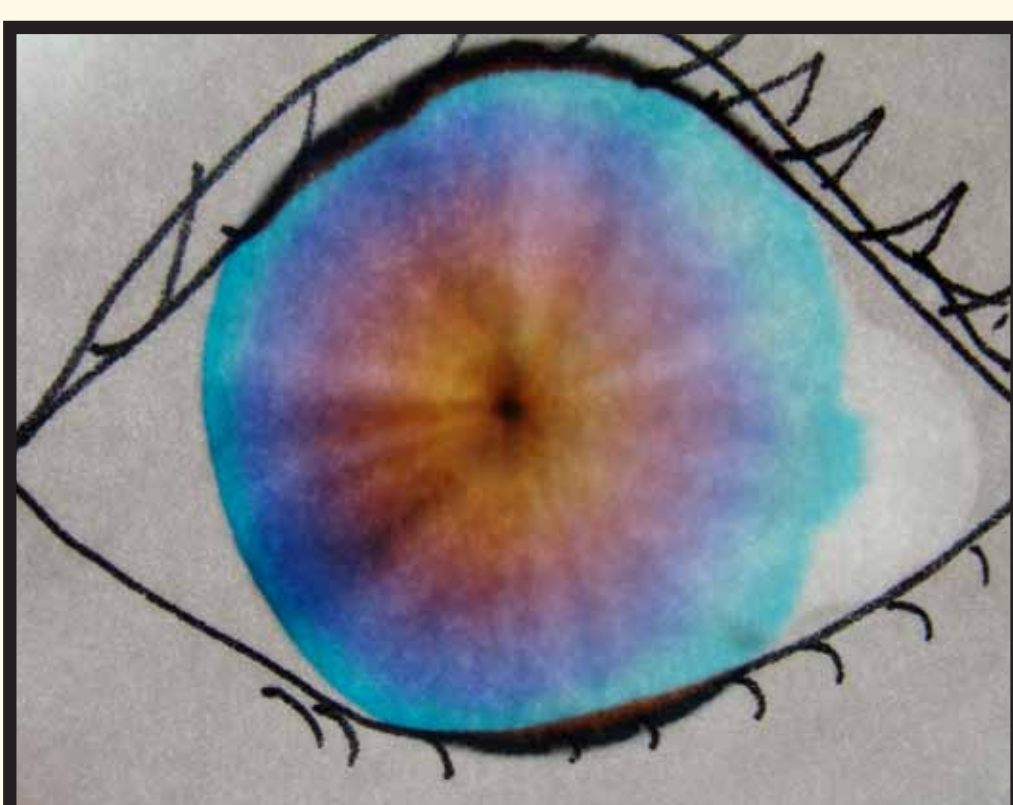
Education is a core tenet of the State Hygienic Laboratory, which is part of the Governor's STEM Advisory Council. Laboratory staff provide training and education programs to teachers and students from all over Iowa. Grab some supplies and have fun with this colorful experiment!

SUPPLIES

- Coffee filter or paper towel
- Water-based markers or gel food coloring
- Sponge (cut to fit in bottom of cup)
- Water
- Plastic cup

PROCEDURE

- Place sponge in the bottom of cup.
- Add enough water to come halfway up the sponge.
- Choose markers or food coloring in non-primary colors.
- Decorate the coffee filter.
- Fold coffee filter in half 3 times to make a wedge shape.
- Put the pointed end of the coffee filter in the cup so it rests on the wet sponge.
- Leave it in the cup and watch as the colors start to spread and separate.



TEACHERS JOIN THE FUN TOO!

A teacher from eastern Iowa performs the chromatography experiment using different supplies at the State Hygienic Laboratory.



THE SCIENCE BEHIND COLOR CHROMATOGRAPHY

- As the water travels up the coffee filter (capillary action) it carries the color pigments with it.
- Different color pigments are carried at different rates and some will travel further than others.
- How fast and how far the pigment travels depends on the size of the pigment molecule and how strongly it is attracted to the coffee filter.
- Some colors will separate because the water carries them at different rates.

HOW CHROMATOGRAPHY IS USED IN THE LAB

The State Hygienic Laboratory uses the same principles of color chromatography to identify various types of chemicals and pollutants in the environment. Instead of using water, chemists at the lab use gas and liquid to flow through a stationary substance. Just like color pigments, chemical molecules also have specific weights that will travel through a stationary object at different rates.



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