

Separating Colors

Objective: Students will predict the results of chromatography and then conduct a series of color splitting experiments, vary conditions, record results and compare to their predictions.

Key Concept: Certain color formulas can be reversed to show their original color components.

Supplies Needed:

- Crayola® classic color markers (both original formula and washable)
- Crayola® white sidewalk chalk
- Cups and water

Procedure and Results:

1. Have a class discussion about chromatography. Chromatography is a color splitting experiment, which graphically shows the separation of colors which were combined to form another color. Chromatography can be done on different surfaces including paper towels or coffee filters. One of the clearest methods for showing students the component parts of colors is to conduct this experiment on white sidewalk chalk. Chalk is an absorbent surface that shows each of the color layers distinctly as they creep up the stick and then dry in the variegated (exhibiting different colors, especially as irregular patches or streaks) layers.

2. Group students into cooperative learning teams, each to experiment with different amounts of time, different amounts of water, different colors and different marker formulas (washable versus non-washable formulas). Have each team record the conditions of their experiment and compare the results. Teams might even compare the results of using colorful sidewalk chalk versus white, although white will give the clearest color results.

3. Each team will brainstorm the variations they want to test/compare and gather those supplies. Students should predict the results, prior to conducting the experiments. Students will draw one ring of one marker color all the way around the sidewalk chalk stick near the bottom of the stick, but above the water level. Repeat for each color being tested.

4. Set each stick in a cup of water with a small amount of water. (Experiment with different water levels.) As the water creeps up the chalk, hits the marker line and continues to creep up, the component layers of color will become visible. The colors separate at different speeds and get “locked” into place as the absorbent chalk surface dries. (Note: brown, violet and green makers work best. Interestingly, some new formulas of black do not divide into component colors—compare formulas).



FACT:



Chromatography is a color splitting experiment which shows the separation of colors which were combined to form another color!