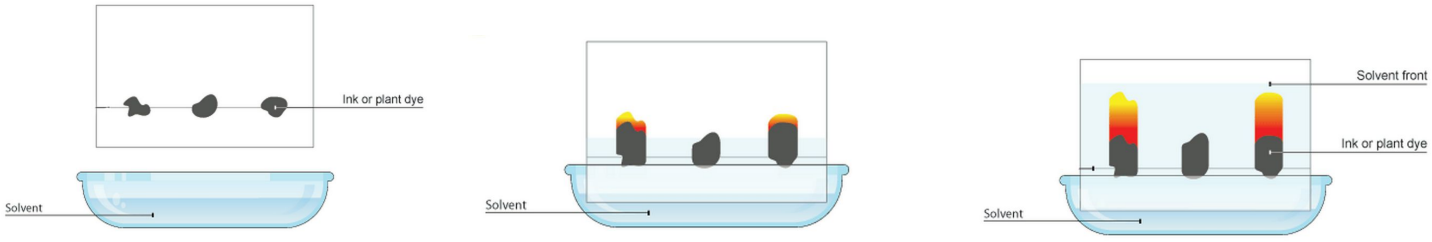
Hannah Karsen
Using Art and Science to Create Colorful Experiments
-

Paper Chromatography is used as a scientific processes to identify materials and components- but we will be exploring it in a way that looks at unexpected color mixtures- caused by a solvent and ink, which is facilitated by this same process.

-
Materials:

Various markers (Mr. Sketch markers work well)
Water
Cup or spray bottle
White coffee filters
Pipe cleaners (to form stem)
-

Here is a visualization of what will occur during this lab- as the solvent moves up the paper, it allows the ink to travel with it, marking the paper in a specific way based on its properties.



Students may use various colors and designs on their filters for their experimentation. Working in small groups, students can observe other experiments happening as well!

-

Part One:

Set up paper chromatography by making it familiar- I like to have students think about what happens to ink or text on paper if we spill something on it- or if it is left out in the rain. I address the scientific aspect of paper chromatography briefly- having students understand that each material has a unique make up and that by adding a solvent to it- it reacts in a specific way.

What is interesting about this lab is the crossover between art and science, which can highlight that the process by which we create can be experimentation, and we don't have to start out knowing exactly how something will look. Allowing for chance and experimentation can yield surprising results!

I think discuss the lines we are able to make with different kinds of materials- like when we are water coloring versus when we are using markers. The water added to the pigment makes it more liquid, and allows for the color to be applied in a different, less calculated way.

Part 2:

Helen Frankenthaler is an artist I personally like to highlight with this lesson because of her experimentations with oil and acrylic paint using solvents to thin them out, honing in on an aesthetic through her experimentation. When pouring the paint, the physicality became palpably organic, which then related to her interest in nature and landscape. She communicated this with her titling, but also through her use of color and also through a sensibility relating to her imagination. I choose to show a wide breadth of her work, presenting the titles alongside. Students can pick up on various elements within these works and identify and relate the title to the artwork, but also were able to make observations and speak about certain emotions evoked by her use of color or certain memories or landscapes it reminded them of personally.

Helen Frankenthaler
Nature Abhors a Vacuum , 1973

Helen Frankenthaler
When The Snow Melts, 1975

Part 3

1. Working on coffee filters (on top of plates), students were given five minutes to color their filter in any way they wanted, choosing markers out of a communal shared bag. While initially apprehensive, reminding them they had multiple experiments within the lesson was really conducive to allowing for their experimentations.
2. After they finished coloring, they were able to take turns spraying their filter with water out of a small spray bottle, watching as the ink moved by way of the solvent. Another way to do this is to have small cups of water and dip the filter's tip into the water and watch as the solvent moves up the filter, bringing the ink with it. Having the filters flat and spraying them was more conducive to observation, though.
3. As each person took their turn, everyone else in the table group was asked to watch as the colors mixed and moved around. As quite a bit of water is needed for this to be observed, after a period of time students were asked to put their wet filter in between two dry filters to let the wet filter start to dry.
4. In between the first experiment and second I asked students what they were surprised by, what colors were most affected or least affected. After hearing responses I let the class begin their second and then third experiments.
5. Once all the experimentations are completed students are able to form their own flowers by wrapping a pipe cleaner around the three layers of filters, pinching all layers in the center and wrapping the pipe cleaner around the pinch-