



Dose of Discovery: Week 4

Nature Walk Challenge



Learning Points:

- Children will be able to have fun and identify various items in nature and make a journal with written descriptions and sketches of one or more of these items.
- Children will be challenged to really take note of the nature around them and increase their observation skills by interacting with their outdoor surroundings as they're looking around for things on their scavenger hunt list.
- Children will have the opportunity to learn the amazing physical science of chromatography.

Materials:

- 1 [Nature Walk Scavenger Hunt](#) and [Color Wheel Page](#) for each child
- 1 bag or backpack and 1 clipboard for each child (optional)
- Collected objects from the nature walk
 - one found object of each color for the color wheel
 - several green leaves to use during the Chromatography Activity
- Chromatography Activity:
 - black water-soluble markers (a variety of brands would be nice for comparison and you can try some colored markers as well)
 - rubbing alcohol and plastic wrap
 - glasses filled with about 1" of water
 - white paper towels cut into 1" strips
 - pencils and tape
- Several [Nature Journal Pages](#) for each kid to fill out with what they find.



Activity:

Step 1:

Take the family out for a nature walk in your local area. You can choose to do several nature walks with each activity or assign different activities to each kid, depending on age.

Scavenger Hunt – Have the kids see how many of the different items each of them can find during the nature walk. Have them check each item off and journal about the items that they are curious about on their nature journal pages. If there are several siblings, you can make it a competition where they get one point per item found and an extra bonus point for each journal page.

Color Wheel – Have each kid try and find an item that matches each color on the color wheel. Have them gather each item and tape or glue each object to the wheel when you get back home.

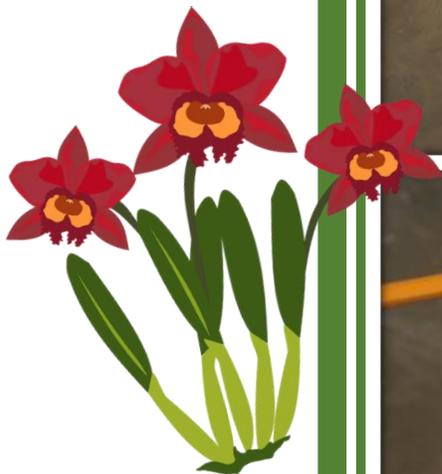
Step 2:

Learn all about Chromatography using household items and leaves that you collected during your nature walk.

Background Info - What is *chromatography*? It is simply a big name that means *separating mixtures*. Or, in this case *separating pigments*. The black ink you find in water-soluble markers is made from a variety of colored pigments. You can determine which pigments were used by separating the individual colors in this easy experiment.

Chromatography with Markers

1. On a strip of paper towel, use one of your markers to draw a thick line horizontally one inch from the bottom. Tape the paper towel to a pencil on the other end and suspend the pencil across the glass so that the very bottom of your strip of paper towel touches the water.
2. Use other black markers (or experiment with other colored markers) to repeat the experiment using a new glass of water each time.
3. Observe the water as it slowly travels up the towel using a force called [capillary action](#). As the water moves through the marker ink, you will notice it pulls and deposits various pigments up the towel. This happens because different colored pigments are carried along at different rates. How fast each pigment travels depends on the size of the pigment molecule and on how strongly the pigment is attracted to the paper. As each pigment is deposited, you are able to see the various colors mixed to make the black ink. (This separation could take up to 30 minutes.)
4. Draw and color the various results in your nature journal for comparison and study.

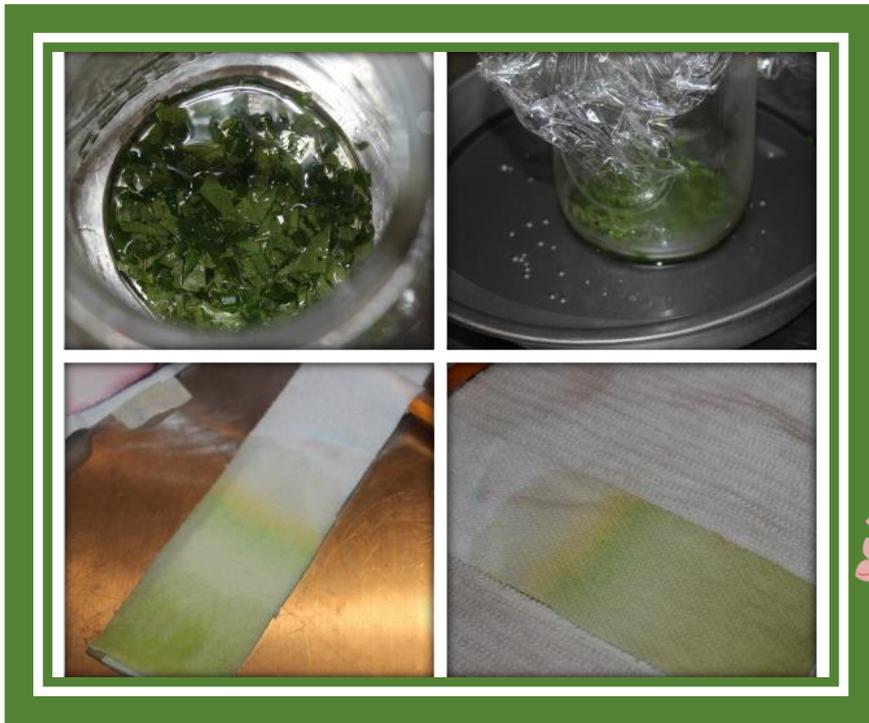


Step 3:

Background Info - This experiment works a bit differently than the marker experiment and the results aren't always quite as brilliant – especially if your leaves are dry from drought.

Chromatography with Leaves

1. Tear one green leaf into very small bits and place the pieces in a glass. Add enough rubbing alcohol to just cover the leaf pieces. Cover the glass with plastic wrap and place it in a shallow pan of hot tap water. The hot water will help the alcohol absorb the leaf pigments. It should take about 30 minutes in the hot water for the alcohol to turn green. You may need to replace the hot water once and swirl the glasses a few times.
2. Tape a paper towel strip to a pencil and suspend the pencil over the glass with the green alcohol so that the very end of the paper strip barely touches the liquid. It will take approximately an hour and a half for the pigments to travel up and separate on the paper.



3. Repeat the experiment several times with different leaves so you can make comparisons. You should be able to see hints of the “real” colors of the leaves and make predictions about their fall colors.

4. Note all your findings in your nature journal.



MUSEUM of IDAHO

Activities Adapted from *Chromatography with Leaves: A Nature Study Experiment* by Our Journey Westward:
<http://ourjourneywestward.com/chromatography-with-leaves/>