



Autumn Color Activity

Materials Needed:

- Glass jar(s)
- Coffee Filters
- Rubbing Alcohol
- Fall Leaves

Background Information:

All plants are **producers**. They are called this not because they produce fruits and veggies for us to eat, but instead because they produce their own energy. Can a tree go to the grocery store?

Producers have to make their own food through a process called **photosynthesis**. Plants use sunlight, **carbon dioxide** (the type of air that we breathe out), and water to create their food- a sugar called **glucose**. Through this process they also create **oxygen**. What part of air do we need to breathe? How are we connected to plants?

Plants would not be able to create their own sugar without a tiny portion of their cells called **chlorophyll**. There are several types of chlorophyll, but the most abundant are the green ones that make leaves and stems green.

There are other colors that are always in the leaves caused by **carotenoids**, we just can't see them during the spring and summer because the chlorophyll masks the others. When **autumn** comes, the green chlorophylls are no longer needed and they start to fade away leaving the other colors to shine through. Can you name other carotenoid colors based on the colors that leaves change to in the fall?

In this experiment you will separate out all of the types of chlorophyll and carotenoids that are in fall leaves.

Scientific Method: OHECK

1. **O**- Observe: Make an observation about autumn trees and their colors
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2. **H-** Hypothesis: Based on the information above, how many different types of chlorophyll do you think you will find in this experiment?

3. **E-** Experiment:

- a. Collect your materials. Go on a nature hike and find autumn leaves that have recently fallen that still have color left in them.
- b. Sort the leaves based on color. Depending on how many jars you have will depend on how many different colors you can do. You need at least three leaves for each jar.
- c. Rip up the leaves as small as you can and place them in the bottom of the jars (keeping the colors separate.)
- d. Pour enough rubbing alcohol to just barely cover the leaf pieces.
- e. Fold a coffee filter into a cone/triangle and place the pointed end into the jar so that it is submerged in the rubbing alcohol.
- f. Leave overnight for the coffee filter to fully absorb the rubbing alcohol.

4. **C-** Conclusion: What are your results! How many different colors did you find on your coffee filter? If you did more than one jar, what was the result for different colors?

5. **K-** Knowledge: The last part of the scientific method is knowledge. What did you learn from this entire process, from start to end?

