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Science Experiences That Come To You

Smarty Plants – Chlorophyll Extraction

Ingredients & Supplies:

- 3-5 spinach leaves
- 1 coffee filter
- 1 popsicle stick
- 1 black water soluble marker
- 1 piece of wax paper big enough to cover coffee filter
- Paper Towels (Do this experiment on top of a paper towel because the ink from the markers may bleed through to your table. If this happens, it should not be a problem to clean as the markers are water soluble.)

Instructions:

First flatten your coffee filter as much as possible, but it doesn't have to be completely flat. Place your coffee filter on a paper towel. Now take your black water-soluble marker and draw a simple leaf in the middle of your coffee filter. (It can be any type or shape of leaf.) Next, place 1 spinach leaf on top of your drawn leaf. Lay the wax paper over the top of everything.

Now use your popsicle stick to rub on the wax paper and over the leaf. (Don't rub too hard so the wax paper doesn't tear. If you do tear the wax paper, just shift it over to a spot that has not ripped.) After about 15-20 seconds, lift up your wax paper and spinach leaf. Observe the coffee filter. You will see areas of a greenish liquid. That's CHLOROPHYLL! Try this experiment on all of your spinach leaves.

The Science Behind It:

What's Chlorophyll? It is a natural chemical that makes plants green! Chlorophyll is found not only in plants but also in algae and some bacteria. Chlorophyll is found in tiny *organelles* called *chloroplasts*. Chloroplasts are the food producers for plants. They make the sugar and starch to give plants energy.

Plants go through a process called *photosynthesis*. During this process, chlorophyll uses sunlight, water and carbon dioxide to create food energy for the plant. Chlorophyll keeps plants green and alive! During your experiment, you extracted or removed the chlorophyll from the spinach leaves. That is why a greenish liquid was on the coffee filter.



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