ARIZONA
SCIENCE
CENTER

Never stop wondering.
Never stop imagining.™

Outdoor Science! Week 1

Day 3: Investigating Photosynthesis

Teacher/Parent Background:

- In this activity, students will review photosynthesis and examine and separate leaf pigments using chromatography.

Related Standards:

- Construct an explanation for how some plant cells convert light energy into food energy.

Key Terms:

Photosynthesis
Carbon Dioxide
Radiant Energy
Chemical Energy
Glucose
Chlorophyll

Materials List:

- Small Cups or Baby Food Jars
- Isopropyl Alcohol
- Coffee Filter
- Aluminum Foil
- Casserole Dish

Activity Description:

Collect two or three large leaves from different trees.

- Tear or chop leaves into very small pieces and put them into cups labeled with the name or location of the tree.

- Add rubbing alcohol to each cup to cover the leaves and then carefully grind the leaves in the alcohol.
- Cover the cups loosely with aluminum foil and place cups into a shallow tray containing one inch of hot water.
- Leave cups in water for at least 30 minutes. Twirl each jar about every 5 minutes and replace hot water if it cools off.
- Cut filter paper strips for each cup.
- Remove jars from the water and place a coffee filter strip into each cup so that one end is in the alcohol and the other is bent over the edge of the cup and secured with tape.
- After 30-90 minutes you should be able to see different shades of green or possibly different colors depending on the leaf type.

Closure:

Ask students to discuss the following:
-What role does the Sun's energy play in the process of photosynthesis? *Radiant energy from the Sun is required for photosynthesis to occur; it is transformed to chemical energy as a result of the process.*
-How could you create a flowchart showing the relationship between plants and animals and their interaction with oxygen and carbon dioxide? *One example would be to show the flowchart as a cycle, with plants giving off oxygen, animals using oxygen and giving off carbon dioxide, and back to plants taking up carbon dioxide.*

Extension:

Watch & Play- [Photosynthesis for Kids](#)