



Plant Energy

Fifth Grade

(10 – 11 yr olds)

Overview

All living organisms need energy to stay alive. Some animals can get their energy from eating plants, also known as being a primary consumer. Other animals can get their energy from eating other animals, which is known as being a secondary consumer. But how do plants get their energy? Plants are producers, meaning they create their own food. This process is called photosynthesis.

Objectives

- Where do plants get their energy?
- What materials are needed for this process?
- Where in the plant does this happen?
- Where Do Plants get their color?

Background Information

Plants have between 3-4 major features, 1) The roots, 2) The stem, 3) The leaves, and 4) the flower pedals. Inside the roots and stem of the plant are long vascular tissues used to transport water and minerals up the plant known as the xylem. Through the absorption of water and carbon dioxide, the sun helps bind these two components through a process called photosynthesis. Photosynthesis happens in a structure within the cells of the plant called chloroplasts. Chloroplasts have a green pigment called chlorophyll which give green plants their color. Next to the xylem is a similar vascular tissue known as the phloem which takes the synthesized sugars made after photosynthesis and transports them to the rest of the plant that needs the energy. This energy allows the plant to continue to live, and grow, and provide nutrition to other animals.

Tie Dye Bouquet Activity

1. **Let your flowers sit out of water between 30-60 minutes (this will make them nice and thirsty)**
2. **Use your scissors and cut the end of the stem of each flower (you will be able to observe the cross-section of the stem where the xylem and phloem are)**
3. **Fill up your pitchers and cups with water and mix in as much food coloring as you'd like. (The more food coloring, the more color)**
4. **Divide your flowers and place some in one cup with one color, and some in another.**
5. **Place your water and flowers by a window to collect sunlight.**
6. **Use a notebook and record what happens each day for your results.**

Materials

- 2-3 Plastic Cups or pitchers of water
- 2-3 White Carnations or Roses.
- Scissors
- Food Coloring

Science Practices

- Use a model to test interactions concerning the functioning of a natural systems
- Construct an argument with evidence, data, and/or a model.

Crosscutting Concepts

- Systems and System Models

Post Activity Discussion Topics

- Freshwater, where is it found?
How much is there?
Who else uses it?
- How do plants and animals help each other live and grow?