

Carnivorous Plants: A Bugs Nightmare!

OBJECTIVES

The student will do the following:

1. compare and contrast different types of carnivorous plants and how they trap insects.
2. create a report about a newly discovered imaginary carnivorous plant for a field guide.

GRADE LEVEL: Middle-High School

TIME: variable depending on grade level.

MATERIALS:

Books about Carnivorous Plants and/or a computer with Internet access.

Craft Supplies-such as scissors, paper, markers, staplers, etc....

BACKGROUND INFORMATION

Students are fascinated by carnivorous plants, sometimes called insectivorous plants. A great deal of biology may be learned by studying them. For example, like all green plants, they are able to make their own food by photosynthesis. They do not capture the insects for food (a source of energy). In most settings, plants and animals die, their nutrients are returned to the environment by decomposers, and the nutrients are then absorbed by plants that reincorporate the nutrients into their own molecules. In wetland environments like bogs, water is stagnant and therefore low in oxygen. Compounds from decaying plants accumulate and increase the acidity of the water. When the water becomes acidic, two things happen. First many microorganisms which aid in decomposition cannot function, so when plants die they do not rapidly decay—they just become waterlogged. With little decomposition, there are few nutrients for plants. Second, when the soil is very acidic, it is difficult for a plant to assimilate nutrients. Both of these factors—decreased composition and the difficulty of obtaining nutrients from acid water—contribute to making bogs nutrient poor habitats. Since carnivorous plants are unable to get enough nitrogen from the soil, their leaf structures have adapted over time to be able to trap and digest insects. Proteins of the insects' bodies are rich in nitrogen and the carnivorous plants can use this nitrogen for their own purposes. So carnivorous plants are photosynthesizing sugars and starches used for energy but are trapping insects as a source of nutrients; in this case nitrogen.

PROCEDURE

1. Have students research different types of carnivorous plants from around the world using books and/or the Internet. (Have students try to identify species of carnivorous plants that grow in the region where they live.)
2. Divide the students into teams. Tell them that they are botanists who have just

discovered a new species of carnivorous plant. They must report their findings to the Carnivorous Plant Society at once!

3. In this report they must include the following information: a suitable scientific and common name for the plant, describe its habitat, what it eats, its special features and a detailed drawing of what it looks like.(have students design their reports in the same format to make it easier to combine them to make a Field Guide)
4. Have each team make a presentation to the class (a.k.a. the Carnivorous Plant Society), about their newly discovered plant.
5. Combine all the reports into a Carnivorous Plant Field Guide!

EXTENSIONS

Have students make a 3-D model of their new plant to display at the Carnivorous Plant Society Meeting.

Construct a bog terrarium in the classroom; have students observe the plants as they grow and develop; have students keep a journal about the project. (For a list of materials you will need consult the website on Your First Bog Garden listed below.)

Take a field trip to a bog in your area. Take pictures of the plants you see; have students research the plants and make a field guide using the pictures and information they have researched.

RESOURCES

(Information for this activity was obtained and adapted from several of web sites)

www.carnivorousplants.org Homepage of the International Carnivorous Plant Society.

www.sarracenia.com/faq Excellent site to learn about Carnivorous Plants.

www.suite101.com/article.cfm/enabling.garden/2778 Carnivorous Plants-Your First Bog Garden
Author Diana Pederson.

<http://schoolweb.missouri.edu/>
Carnivorous Plants Those Beastly Eaters by Lori Mathys

<http://www.hpl.hp.com/bot/cp-home> Carnivorous Plant Database

Books:

Bix, Cynthia Overbeck. **Carnivorous Plants**. Minneapolis, MN: Lerner Publications Co., 1982.
D'Amato, Peter. **The Savage Garden: Cultivating Carnivorous Plants**. Berkeley, CA: Ten Speed Press, c1998.

Darwin, Charles. **Insectivorous Plants**. New York, NY: D. Appleton and Co., 1896.

Kneidel, Sally. **Skunk Cabbage, Sundew Plants, & Strangler Figs: And 18 More of the Strangest Plants on Earth**. New York: John Wiley & Sons, Inc., 2001.

Lecoufle, Marcel. **Carnivorous Plants: Care and Cultivation**. London: Cassell; New York, NY: Distributed in the U.S. by Sterling Pub. Co., 1993, c1990.

Leisman, Gilbert A. **Carnivorous Plants**. Emporia, KA: Emporia State University, 1984.

Lloyd, Francis Ernest. **The Carnivorous Plants**. Waltham, MA: Chronica Botanica Company, 1942.

Schnell, Donald E. **Pitcher-Plants of the United States and Canada**. Winston-Salem, NC: J.F. Blair, c1976.

Slack, Adrian. **Carnivorous Plants**. Cambridge, MA: MIT Press, 1980, c1979.

Slack, Adrian. **Insect-Eating Plants and How to Grow Them**. Seattle, WA: University of Washington Press, 1988, c1986.

Torrey, John. **On the *Darlingtonia californica*, a New Pitcher-Plant from Northern California**. Washington, D.C.: Smithsonian Institution, 1853.

Walcott, Mary Vaux. **Illustrations of North American Pitcherplants**. Washington, D.C.: The Smithsonian Institution, 1935.

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