



ENVIRONMENTAL LEARNING PROGRAMS CELEBRATE WILDFLOWERS

#7 PLANTS ALIVE!

CONTENT	Plants are living organisms.
GRADE LEVEL	K-6
OBJECTIVES	Understand that plants are living organisms.
PROCESS AND RESEARCH SKILLS	Experimentation, observation, and reporting.
PRODUCT	Observations and understanding that plants are living organisms.
SUGGESTED LOCATION	Classroom or schoolyard.
TIME REQUIRED	10 minutes preparation time. 1 week of observation.
MATERIALS	Small leafy house plant or schoolyard flower or shrub, plastic bag, twist tie, petroleum jelly,
BACKGROUND	<p>One of the most difficult concepts to get across to children is that plants are living things. They do not move. Animals are certainly alive. Plants are alive too, and their lives are just as tenuous and their bodies are just as fragile as those of any animal.</p> <p>In one regard, plants are better off than humans and other animals — they make their own food from scratch. Just as when we collect ingredients to make a chocolate cake, plants collect water and minerals from the soil, oxygen from the air, and energy from the sun to produce sugars and starches which they use to live and grow. Plants make their own food and humans and other animals eat plants.</p>
ACTIVITY AND DISCUSSION	<p>Plants exchange the carbon dioxide humans and other animals breathe for oxygen, but can we prove that plants “breathe”? Yes, we can.</p> <ol style="list-style-type: none">1. Put the house plant or some growing leaves of the flower or shrub inside the plastic bag.2. Seal up the bag with the twist tie.3. Watch the bag for a week, keep a journal of your observations.



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ACTIVITY AND DISCUSSION CONTINUED

4. What happens? (Moisture collects on the inside of the bag.)
5. Why do you think this happens? (As a plant respire or "breathes" some moisture escapes from its body — just like humans and other living organisms.)

Plants breathe through their leaves. Putting petroleum jelly on the leaves will clog the pores (stomata) through which air passes in and out of the leaf.

1. Take the plant out of the plastic bag.
2. Carefully cover both sides of two leaves with petroleum jelly.
3. Coat just the top sides of another two leaves.
4. Coat just the undersides of another two leaves.
5. Observe for a week, record observations in a journal.
6. What happens? (The coated leaves are pale and wilting. The ones that are coated on both sides are in the worst shape.)
7. How many days does it take before a leaf drops off? (Varies) Which leaf drops off? (The leaf coated on both sides.)
8. Why do you think the leaves with only one side coated are better off? (Stomata are on both sides of the leaf.)
9. Which of the one side coated leaves is doing better? (The ones coated on the top sides.) Why do you think this is so? (There are more stomata on the underside of the leaf.)

EVALUATION

Written observations in journal.

EXTENSION

The circulatory system of a plant is called the vascular system. It is made up of "veins" of phloem and xylem. Water and minerals move from the roots to the leaves by way of the phloem. Manufactured sugars and starches move through the xylem from the leaves to storage areas in stems, trunks and roots. These food storage organs are usually used during the winter months to store food energy until spring when it is needed again to build leaves and flowers.

Materials

- Stalk of celery
- Large carrot
- 2 jars or drinking glasses
- Red and blue food coloring
- Paring knife