

All About Plants

Teacher's Guide

Grade Level: 3-5

Curriculum Focus: Life Science

Lesson Duration: 1-2 class periods

Program Description

Plants surround us everywhere, and the segment *Plant Cells* (6 min.) highlights the similarities and differences between cells in plants and animals. *The Needs of Plants* (6 min.) explains the process of photosynthesis that plants use to stay alive – and release oxygen. *Plant Reproduction* (4 min.) describes and illustrates the mechanisms that plants have developed for reproducing, while *Trees* (3 min.) explains how trees differ from other plants and how they contribute to the ecosystem of the forest, dead or alive.

Onscreen Questions

Segment One: Plant Cells

- Where are cells found?
- What do you think is inside a cell?
- What are the differences between plant and animal cells?
- Why do plant cells have a wall?

Segment Two: The Needs of Plants

- What are some different kinds of plants?
- How do plants help animals?
- What do plants need to survive?
- What are the parts of a flowering plant?

Segment Three: Plant Reproduction

- What do you know about how plants reproduce?
- What different types of plant seeds are you familiar with?
- How do insects and animals help plants reproduce?
- Why have plants developed different methods of reproduction?

Segment Four: Trees

- Why are trees important to a forest ecosystem?
 - What is the function of a tree's roots?
-

Lesson Plan

Student Objectives

- Identify and describe the parts of a flowering plant.
- Differentiate between types of plants.
- Describe the needs of plants.
- Define the term photosynthesis.

Materials

- *All About Plants* video and VCR, or DVD and DVD player
- Crayons, colored pencils, or markers
- Paper and pencils
- Encyclopedias, botany or gardening books, or magazines with images and descriptions of plants
- Computer with Internet access (optional)

Procedures

1. Discuss plants and what they need. Ask students if all plants are alike, and what they require to grow. Show *All About Plants* to give students an understanding of plants and their needs.
2. After watching the video, talk about the types of plants featured. Do all plants look alike? What needs do plants have? How do they get their food? Discuss the parts of flowering plants and the process of photosynthesis, the process by which plants make food. Talk about plants that are familiar to the students. What do they look like? Where do they grow? What are their needs?
3. Have students choose a familiar flowering plant they would like to learn more about; tell them they will research and write a paragraph about it. Each paragraph should include the plant's common and scientific names; a description of the parts (seed, root, stem, leaves, and flower); its needs; and at least three interesting facts. Also have students draw a picture with each plant part labeled. Students may use encyclopedias, botany or gardening books, or magazines for research. The following Web sites also have useful information:
 - <http://plants.usda.gov/>
 - <http://www.botany.com/>
 - <http://www.plantkingdom.com/plntlist.htm>

4. Allow time in class for students to research and complete their paragraphs and drawings. Then divide the class into groups of three or four so they can share their work. Ask them to discuss within their groups the differences and similarities of the plants.
5. Ask for volunteers to share what they learned from their research and group discussions. Review what students have learned about the needs of plants, the parts of flowering plants, and photosynthesis.

Assessment

Use the following three-point rubric to evaluate students' work during this lesson.

- **3 points:** Students were highly engaged in class and group discussions; used research materials appropriately; produced a complete paragraph that included all requested information; and correctly identified all parts of a flowering plant.
- **2 points:** Students participated in class and group discussions; used research materials with little assistance; produced an adequate paragraph, including most of the requested information; and correctly identified at least three parts of a flowering plant.
- **1 point:** Students participated minimally in class and group discussions; were unable to use research materials without teacher assistance; created an incomplete paragraph with little or none of the requested information; and identified two or fewer parts of a flowering plant.

Vocabulary

flower

Definition: The bloom or blossom of a plant; the reproductive organ of an angiosperm plant

Context: Flowers come in all shapes, sizes, and colors.

leaves

Definition: The main organs of photosynthesis and transpiration in plants

Context: When you look at a forest in summer, you can see the green leaves of trees.

photosynthesis

Definition: A process used by plants to convert water, carbon dioxide and sunlight into carbohydrates and oxygen

Context: Photosynthesis allows plants to make their own food.

roots

Definition: The usually underground part of a seed plant body

Context: Roots hold the plant in place.

seed

Definition: A fertilized and mature ovule containing a plant embryo

Context: A new plant will come from the seed.

stem

Definition: Stalk; a slender or elongated structure that supports a plant

Context: The stem pokes up through the soil.

Academic Standards

National Academy of Sciences

The National Science Education Standards provide guidelines for teaching science as well as a coherent vision of what it means to be scientifically literate for students in grades K-12. To view the standards, visit <http://books.nap.edu/html/nse/html/overview.html#content>.

This lesson plan addresses the following science standards:

- Life Science: Characteristics of organisms; Life cycles of organisms

Mid-continent Research for Education and Learning (McREL)

McREL's Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education addresses 14 content areas. To view the standards and benchmarks, visit <http://www.mcrel.org/compendium/browse.asp>.

This lesson plan addresses the following national standards:

- Science: Life Sciences – Understands the structure and functions of cells and organisms
 - Life Skills: Working With Others – Displays effective interpersonal communication skills
 - Language Arts: Writing: – Gathers and uses information for research purposes;
Reading – Uses reading skills and strategies to understand and interpret a variety of informational texts
-

Support Materials

Develop custom worksheets, educational puzzles, online quizzes, and more with the free teaching tools offered on the [Discoveryschool.com](http://www.discoveryschool.com) Web site. Create and print support materials, or save them to a Custom Classroom account for future use. To learn more, visit

- <http://school.discovery.com/teachingtools/teachingtools.html>
-