

LESSON 1

Discovering Plants Through Observing and Reading

OBJECTIVES

Student will be able to identify needs and characteristics of plants and understand how they commonly reproduce.

METHOD

Students share their collective knowledge about plant biology while examining a real plant, and then together read a story (*The Tiny Seed*) and discuss what they have learned about plants.

MATERIALS

- ✎ A live potted plant
- ✎ The book *The Tiny Seed* by Eric Carle
- ✎ Hand lenses

BACKGROUND

All plants share certain characteristics as well as environmental challenges. Plant anatomy, or “morphology”, describes the structure and parts of a plant: the leaves, stems, flowers, roots, and smaller components. All plants need sunlight, air (oxygen and carbon dioxide), water, and nutrients. Plants make their own food by converting water and carbon dioxide into sugar, using sunlight as energy, through the process of photosynthesis. Oxygen is released as a byproduct. Plants take water and nutrients in primarily through their roots, and sunlight and air enter through their leaves (roots also take in oxygen from the soil). Chlorophyll, a substance which makes photosynthesis work, also gives leaves their green color. In respiration, plants use oxygen to convert the sugars into energy for growth and metabolic processes.

Most plants reproduce by seeds, which are formed when flowers are pollinated. Seeds leave the parent plant by a variety of methods. Some simply drop to the ground below or near the plant. Others are carried by wind, water, or animals. If they end up in a place where the conditions are appropriate for germination, they grow. Alternately, they may be eaten, crushed, parched, drowned, or otherwise die.

Grade level: K-4

Subject Areas: Biology, language arts, literature

Duration: 30-45 minutes

Setting: Classroom

Season: Any

Conceptual Framework Topics:

Plant life cycles, habitat

Extensions

Read *How a Seed Grows* by Helene Jordan

Do **Lesson 24: Hitching a Ride** in the kNOweeds Guide

PROCEDURE

1. Start the lesson by asking students what they can tell you about plants. (Responses might include: They grow in dirt, they are green, they have leaves).

2. Ask students to closely examine a plant and make observations together about its characteristics. You may want to use guided questions to help them think about what they see and why plants are the way they are:

- What parts of the plant can you name?
- What are the leaves for?
- Why are they green?
- Are there parts you can't see? Where are they? What are they called? What do the roots do?
- Can plants move? How can they avoid being eaten or crushed?
- What makes them grow? How do they "eat"?
- How do they reproduce, or make more plants?
- Why do some plants have flowers?

3. Now read aloud *The Tiny Seed*, a book by Eric Carle.

- Do all seeds turn into plants?
- Why not?
- What are some of the things that can keep a seed from becoming a plant?
- What do seeds need to grow?
- Do all seeds grow below the parent plant? How do they get to other places? (Some travel by wind, as in the story. Others are spread by water, animals, humans, etc.)