

Tree Factory

By acting out the parts of a tree, students will learn about the structure of a tree. They create a tree factory.

Activity
63

Levels

Activity: Grades 3-6

Variation: Grades PreK-2

Subjects

Science, Physical Education,
Performing Arts

Concepts

- Populations of organisms exhibit variations in size and structure as a result of their adaptation to their habitats. (4.1)
- The structure and scale of an ecosystem are influenced by factors such as soil type, climate, availability of water, and human activities. (4.2)

Skills

Ordering and Arranging,
Representing, Identifying
Attributes and Components,
Comprehending

Differentiated Instruction

Prior Knowledge, Curricular/
Personal Connections, Paired/
Cooperative Learning, Key
Vocabulary, Higher Order
Thinking, Oral/Reading/
Writing Skills

Technology Connections

Digital/Video Cameras,
Presentation Software, Graphic
Organizer Software

Materials

Slips of paper, paper sack,
tape (optional), yarn or string,
art supplies (see "Assessment
Opportunity")

Time Considerations

Preparation: 20 minutes
Activity: 50 minutes

Related Activities

*The Closer You Look, Bursting
Buds, Looking at Leaves, How
Plants Grow, Soil Stories, Trees
in Trouble, To Be a Tree*

OBJECTIVE

- Students will understand the structure of a tree and how different parts of a tree help the tree function.

ASSESSMENT OPPORTUNITY

- Pass out art supplies such as drawing paper, scissors, construction paper, toilet paper rolls, straws, aluminum foil, scissors, and tissue paper. Tell students to create a model of a tree. Explain that they should include and label all tree parts they've learned about and be able to explain what each part does. They may explain orally, or create labels that give these explanations. Encourage them to be as creative as possible while still being accurate.

BACKGROUND

From a tree's tiny **root hairs** buried in the ground to the highest leaves in its **crown**, each part of a tree plays a role in helping it to function. Here's a rundown of the various parts of a tree and what each one does:

Leaves

Leaves are the food factories of a tree. Using energy from the sun, which they capture with a pigment called **chlorophyll**, leaves convert carbon dioxide and water into oxygen and sugar (food!).

This process is called **photosynthesis**. The gases needed for and generated by photosynthesis enter and exit through tiny holes called **stomata**, on the under surface of the leaves. Water vapor also exits through the stomata in the process of **transpiration**.

Trunk and Branches

The trunk provides support for branches, which in turn support the tree's leaves. The trunk and branches contain the tree's "pipes"—the tubes that transport water and nutrients to the leaves, and sugar from the leaves to the rest of the tree. They also contain the growing layer of

the tree that makes the trunk, branches, and roots of the tree thicker each year. Here's a look at a tree trunk from the inside to the outside and a description of what each layer does: (see diagram)

a. Heartwood forms the central core of the tree, is made up of dense dead wood, and provides strength for the tree.

b. Xylem, (*ZYE-luhm*), also called sapwood, carries water and nutrients up from the roots to the leaves; older xylem cells become part of the heartwood.

Tree Trunk Layers

