

Forest For the Trees

Grade Levels: 2-6

Nutshell

Students discover what makes trees and forests special. After investigating tree characteristics, students explore the forest and its distinct layers.

Objectives

Upon completion of this lesson, students will be able to

- List 5 tree parts and describe the function of each;
- Identify the 5 layers of the forest;
- Predict what might happen if a layer of the forest community was drastically changed or removed.

Forest For the Trees Pre-visit Activities

The following materials are aids to help prepare your students for their visit to the Central Wisconsin Environmental Station. The vocabulary list contains terms and concepts your students will encounter in their visit. Please modify the definitions as needed. The activities listed below are merely options- it is not necessary to do them all or to follow any particular order. Keep in mind that your student's learning experiences at CWES will be enhanced if they are familiar with these concepts and terms prior to the on-site activities.

Vocabulary

Cambium: the growth part of the tree trunk. As the tree grows outward from the trunk, a new layer or ring is added each year.

Canopy: includes crowns of dominant trees. It receives sunlight as well as strongest winds and rains. Most of forest food production (photosynthesis) takes place here. Examples of inhabitants include hawks, owls, porcupines.

Community: a group of interacting plants and animals in a specific place at a specific time, bound together by a food web and other interrelationships.

Habitat: the place where a plant or animal gets all the things it needs to survive, such as food, water, shelter, air, and space for having and raising offspring.

Heartwood: at the center of the trunk. The tiny tubes that once transported food and water are now clogged with pitch and resin. This part of the tree is no longer living and is sometimes called deadwood.

Herbaceous Layer: the forest layer where plants grow close to the ground. Grasses, sedges, wildflowers and seedling trees grow in this layer.

Lateral Roots: the hundreds of roots that grow outward in all directions to hold the tree upright.

Phloem: the part of the tree that carries food manufactured in the leaves and distributes it to the rest of the tree. This part is made up of thousands of tiny tubes.

Sapwood or Xylem: the part of the tree that draws the water from the roots and sends it to the leaves.

Shrub Layer: forest layer below the understory and above the herbaceous layer. Examples of plants in this layer include blackberry, raspberry, and elderberry.

Taproot: the main root that anchors the tree and protects it from being blown over in storms and strong winds. Not all trees have taproots.

Forest For the Trees Pre-visit Activities

Understory: found under the canopy. Includes shorter, shade-tolerant trees as well as young canopy trees that are still growing. Also called the sub-canopy.

Activity #1

Have the students consider their school and brainstorm a list of all of the living things that depend on the school during part (or all!) of their lives. (Don't forget the mouse in a closet or the bacteria in the sink!) How do all of those living things affect the school building itself? How do all of those things affect each other? Draw pictures of some of the relationships.

Activity #2

Through discussion and investigations, decide as a class how many distinct layers your classroom has from floor to ceiling. Name each layer (e.g. The Dust Zone, Deskland, etc.) How is each layer unique? How are they similar? How is each layer dependent on the other? Discuss what might happen if you removed one of the layers.

Activity #3

Research a variety of birds that are found in forests. Learn about which species are common on the forest floor, which ones are found in the shrub layer, on the tree trunks, high in the treetops. Compare the appearances of the birds with their "home" locations. How do their shapes, beaks, and colors compare? Have the students construct a mural. Draw a picture of a forest and use either drawings or magazine cut outs to place birds in their part of your forest.

Forest For the Trees Post-visit Activities

A visit to the Central Wisconsin Environmental Station can be a school-year highlight for both students and their educators. We feel the knowledge and concepts gained during a Station visit apply outside the Station as well. The following activities will allow students to expand their knowledge and help them incorporate those lessons into their everyday lives. Feel free to pick from and modify the activities as best suits your group

Activity #1

Create a mobile of forest “citizens” unique to each of the layers of the forest as learned while at your visit to the Central Wisconsin Environmental Station. Collect or draw pictures of forest organisms. Include at least one from each of the five forest layers. Then, suspend each organism from a string tied to a stick or hanger. Hang each one at the appropriate height corresponding to its place in the forest community. For example, the forest floor is “hung” from the longest strings or lowest positions from the top of the mobile and the forest canopy is “hung” in the highest positions from the shortest strings.

Activity #2

Challenge your students to write a mystery story about one of the forest citizen’s daily activities without naming that citizen. Encourage them to include many details about interactions with other forest citizens. Then, share the stories and see if other students may be able to guess the identity of the mystery forest organism.

Activity #3

From student teams and debate whether or not forests can live without people. Then, debate whether or not people can live without forests. Outline the various points made during each debate. Following both debates, brainstorm the ways that people and forests depend on each other. You might even consider involving your students in a research project to investigate the connections. Review the major points made during each debate in light of the new information. Has anyone changed their stand? Share each debate “position” with other classes through posters, skits, or displays.

Forest For the Trees Resources

Teacher Resources

NatureScope. 1985. Trees are Terrific. National Wildlife Federation: Washington DC.

Sisson, Edith A. 1982. Nature with Children of All Ages. Englewood Cliffs, NJ: Prentice-Hall. 195pp.

American Forest Foundation. 1993. Project Learning Tree (Pre-K-8). Washington, D.C: American Forest Foundation. 402pp.

Youth Literature

Ermanno, Cristini. 1983. In the Woods. Natick, MA: Picturebook Studio, USA.

Ingoglia, Gina. Look Inside a Tree. New York: Grosset and Dunlap, Inc., 1989. (For Grades Pre K-through 4).

Lerner, Carol. 1987. A Forest Year. New York: William Morrow and Co., Inc. (For Grades K-6)

Markle, Sandra. 1993. Outside and Inside Trees. New York: Bradbury Press. (For Grades K-9)

Pearce, Q.L. and W.J. Pearce. 1990. In the Forest. Englewood Cliffs, NJ: Silver-Press. (For Grades Pre K-4)

Siefert, Patti. Exploring Tree Habitats. Mondo Publishing, 1994. 24pp. (For Grades K-6)