

Build a Tree

Grade Level(s): Elementary, though adaptable to all

Subject Area(s): Science

Environmental Topic: Trees

References: 1) *Tree Factory*, Activity 63 in K-8 Project Learning Tree guide, and 2) *Build A Tree*, Cornell, J. (1989). *Sharing Nature with Children II*, 62-66. Nevada City, CA: Dawn Publications

Summary:

In this lesson, students will experience building a human tree to understand how the structure and function of the parts of a tree. They will then write a thank you note to a tree relating to a benefit provided by trees and wear it as a necklace.

Kentucky Core Content:

Science:

SC-04-3.4.1

Compare the different structures and functions of plants and animals that contribute to the growth, survival and reproduction of the organisms.

Each plant or animal has structures that serve different functions in growth, survival and reproduction.

Objectives: Students will:

1. explain how important trees are in the environment;
2. simulate and explain the parts of a tree and the function of each part.

Materials:

- Vocabulary necklaces (tree parts) for building a human tree. For a group of 30 students, provide 1 heartwood, 3 xylem, 1 taproot, 2 lateral roots, 5 cambium, 6 phloem, 8 bark, 4 leaves.
- Parts of a Tree Poster
- Recycled brown paper bags and/or notecards
- Yarn or string
- Hand held hole punch
- Markers or pencils
- Dry Erase Board and markers

Procedures:

As the students approach the activity area, draw their attention to the trees around the trail. Have students observe & identify the visible parts of a tree.

Instructor writes the terms on a portable dry erase board.

Ask students if there are any parts of the tree we cannot see. Briefly discuss the function of each of these parts. Introduce next part of lesson by commenting that there are many parts of the tree that we don't see.

Build a human tree:

- Have each student pick a tree part necklace from a sack to find out what role to play in the tree.
- Ask the student with heartwood card to stand in the middle of an open area. Explain that this is the center of our tree and has to be strong. Have the student flex his/her muscles to look strong and chant, "I support, I support".
- Ask students where the water for the tree comes from (absorbed by roots). Have the student who is the taproot sit cross-legged at the feet of the heartwood. Have the two lateral roots students lay down on the ground on their backs, with their feet close to the heartwood and their arms and fingers spread out to represent root hairs. Have the roots make slurping sounds as if they were taking up water.

Note: Be sure to warn other students not to step on the roots!!

- Ask students how the water from the roots gets to the rest of the tree (xylem). Have the xylem students join hands in a circle around the heartwood. Have students raise and lower their joined hands and chant "gurgle, slurp, move the water".
- Ask students where the water from the xylem travels to (leaves). Then have the heartwood hold the ends of the 4 pieces of string and give the other end of each piece to the 4 students who are leaves. Ask the leaves what they do all day (make food for the tree through photosynthesis). Have the leaves flutter their hands and chant, "We make food, we make food".
- Ask the leaves what happens to all the food they make for the tree using air, sunlight, and water (it gets moved to the rest of the tree.) Have the phloem students join hands and form a large circle around the tree. They are to reach above their heads and grab for food and then squat and open their hands (releasing the food) while chanting "Food to the tree! Food to the tree!"
- Ask the students if they know another part of the tree that makes new xylem and phloem to keep the tree growing and healthy (cambium). Have the cambium students form a circle, standing between the xylem and phloem. Tell them to sway from side to side and chant, "New phloem, xylem, and cambium. New phloem, xylem, and cambium."
- Ask students what final part of their tree is missing. It's something that protects the tree (bark). Have the bark students lock arms and form a circle that faces out from the center of the tree. Ask them to look tough, march in place, and chant, "We are bark. Please keep out. We are bark. Please keep out."
- On the count of three, have each student perform their parts to put the tree into motion.

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- Discuss the roles performed by looking at the "Parts of a Tree" poster and relating the roles to the "build a tree" simulation.

- Look at the trees in the environment. Have students pick one nearby tree to stand next to and observe.
 - Ask them to identify visible parts & functions of these parts. **Instructor** compares this list to list made by students prior to “build a tree” activity, writing any new terms on the dry erase board.
 - Ask students to identify part of the tree they cannot see and describe their functions. **Instructor** lists these parts on the dry erase board.
- Using a recycled paper bag, cut into pieces approximately 5 inches by 7 inches or a notecard to be worn as necklaces with yarn, have students write thank you note to their tree for a specific benefit provided by trees. Have the students wear their necklace for the rest of the day to remember the importance of trees and their appreciation of trees.

Assessment Techniques:

The teacher will informally evaluate the students as they interact with their group and participate in discussions. They can label the parts of a tree and explain the function of each part. In their journals, students can explain how important trees are in our lives. Their pledge cards will assess knowledge of why trees are important.

Resources:

Plants, Trees, and Soils Trunk: Non-consumable materials needed for this lesson may be loaned to you for a two-week period. Visit the Center for Environmental Education web site at <http://www.nku.edu/~enved/regional.htm> to see these and other supportive materials available. Building a Human Tree lesson was based on “Tree Factory”, Project Learning Tree.