

Build a Tree

Ages: Grades 3-6

Time: 30-40 minutes

No. of participants: 30+

No. of additional adults: 3-5

Required supplies:

- None!

Objective: To learn about the basic parts of a tree and their functions.

Lesson Plan Procedure

1. Introduction:

- a. Today we are going to learn about the parts of a tree and the roles these parts play by acting them out!

2. Beginning Instructions:

- a. I will need all of you to volunteer to be different parts of the tree, so don't be shy - everyone will have a job to do by the end.

3. Main Lesson:

- a. To start, I need 2-3 tall and strong volunteers to be the HEARTWOOD. Ask them to stand with their backs to one another in the center of the area in which you will be building the tree.
- b. Explain - "This is the heartwood, the inner core, the strength of the tree! The heartwood's job is to hold the trunk and branches upright so the leaves can get their share of sun. The heartwood has been around a long time - so long that it's dead; but it's well preserved! The heartwood used to be alive but its thousands of little tubes that carried water up and food down are now all clogged with resin and pitch. So heartwood - your job is to stand tall and strong." Act this out by standing like a soldier.
- c. Ask the group - "What is this part called?" Everyone - "Heartwood!", "What is its job?" Everyone - "To stand tall and strong!" (Heartwood, act out - soldier)
- d. Next I need 4 volunteers to be the TAPROOT. Ask them to sit at the feet of the heartwood facing out.
- e. Explain - "This is a very long root called the taproot. It plants itself deep in the ground and gets water for the tree. It also helps to anchor the tree firmly to the ground. When storms come, the taproot keeps the tree from being blown over from the high winds. Not all trees have one of these, but this tree does! So taproot - your job is to be an anchor." Act out this by swaying with your upper body while keeping your lower body still.
- f. Ask the group - "What is this part called?" Everyone - "Taproot!", "What is its job?" Everyone - "To be an anchor!" (Taproot, act out - sway) And, pointing to the heartwood, "What is this part called?" Everyone - "Heartwood!", "What is its job?" Everyone - "To stand tall and strong!" (Heartwood, act out - soldier)
- g. Next I need 6-8 volunteers to be LATERAL ROOTS, it helps if you have long hair. Ask them to lie on their backs with their feet touching the taproot's feet with their bodies facing out.
- h. Explain - "These are the lateral roots. There are hundreds and hundreds of these in every tree. They grow outward all around the tree, like branches underground. These also help hold the tree up. At the tips there are tiny root hairs."

- i. Stop and ask the lateral roots to spread their hair out around their head and to spread out their fingers.
- j. Continue - "Trees have thousands of miles of root hairs that cover every square inch of soil into which they grow. When they sense water nearby, they grow towards it so they can slurp it up to help the tree grow. So lateral roots - your job is to slurp the water. Can I hear you make a loud slurping sound?"
- k. Ask the group - "What is this part called?" Everyone - "Lateral roots!", "What is its job?" Everyone - "To slurp the water!" (Lateral roots, make slurping sound) And, pointing to the taproot - "What is this part called?" Everyone - "Taproot!", "What is its job?" Everyone - "To be an anchor!" (Taproot, act out - sway) Etc.
- l. Next I need 4-5 people to be SAPWOOD. Ask them to form a circle around the heartwood facing in and hold hands. Be careful not to step on any of the roots!
- m. Explain - "This part of the tree is called the sapwood. It draws the water from the roots and pumps it up to the tree's tallest branches. It can lift hundreds of gallons of water every day and at speeds over 100 miles/hour! So sapwood - your job is to pump up the water." Act it out by bending over and bringing your hands up from your feet to above your head.
- n. Ask the group - "What's this part called?" Everyone - "Sapwood", "What is its job?" Everyone - "Pump up the water!" (Sapwood, act out - hands up from feet). And, pointing to the lateral roots - "What is this part called?" Everyone - "Lateral roots!", "What is its job?" Everyone - "To slurp the water!" (Lateral roots, make slurping sound) Etc.
- o. Next I need 6 of you to be CAMBIUM and PHLOEM. Ask them to form a circle around the sapwood facing in and lift their hands to the sky. Again, be careful not to step on any of the roots!
- p. Explain - "The front part of them is the cambium. This is the growing part of the tree. Every year there is a new layer added. A tree does not just grow taller, but also wider and that is why. The back part of them is the phloem. This is the part of the tree that carries food that is made by the leaves to the rest of the tree. So cambium and phloem - your job is to grow and feed. Act out by wiggling your hands above your head.
- q. Ask the group - "What's this part called?" Everyone - "Cambium and Phloem", "What is its job?" Everyone - "To grow and feed!" (C & P, act out - wiggle hands above head). And, pointing to the sapwood - "What is this part called?" Everyone - "Sapwood", "What is its job?" Everyone - "To pump up the water!" (Sapwood, act out - hands up from feet) Etc.
- r. Lastly, I need the rest of you to be the BARK. Ask them to form a circle around the Cambium and Phloem facing outward crouching like football blockers. Be careful not to step on any of the roots!
- s. Explain - "This is the tree bark. It protects the tree from things like insects, people carving, extreme temperatures, and fire. So bark - your job is to protect." Act out by being as tough as you can.
- t. Ask the group - "What's this part called?" Everyone - "Bark", "What is its job?" Everyone - "To protect!" (Bark, act out - tough). And, pointing to the Cambium and Phloem - "What is this part called?" Everyone - "Cambium and Phloem", "What is its job?" Everyone - "To grow and feed!" (C & P, act out - wiggle hands above head) Etc.

4. Conclusion:

- a. Disassemble the tree after going through the routine a few more times.

- b. Walk over to a large tree nearby and instruct the students to look at the tree while thinking about each of the parts we just learned about.

Adapted from: Cornell, Joseph. *Sharing the Joy of Nature*. pgs. 62-66. Nevada City, California: Dawn Publications, 1989.