

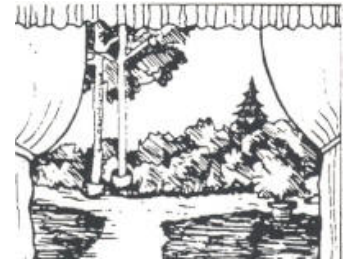


WOODY THEATER

Activity 38

AGE LEVEL = 9-12 (7-13)
DURATION = 30-45 min.
LEARNING STATION = Anywhere
RELATED ACTIVITY = \longleftrightarrow Solar Treats

WHEN =  



UNDERSTANDING: Trees are complex living organisms with special methods for gathering and storing food and water and surviving dramatic climatic changes.

SPECIAL NOTES: Number of participants: minimum 16, maximum 40. Locate a wide open space. The activity works best outside in an open area near a forest or a small patch of trees, but a school gymnasium works as well.

MATERIALS:

- None are essential, but laminated cards of tree parts (heartwood, taproot, lateral root, sapwood, cambium, phloem, bark) would be helpful.
- Group Size-Parts of Tree Chart

PREPARATION: Familiarize yourself with the lesson. No further knowledge is needed to understanding tree physiology.

LESSON:

Warm-up: Have everyone stand in a large circle. Place yourself in the center. Ask: "What is a tree? How does a tree work? Has anybody ever seen the inside of a tree? What does it look like?" Explain that the children will be building a tree.

Activity: Choose tall or strong-looking children for the heartwood. (Refer to the chart for number of assignments.) Place them in the middle of the circle. Tell them: "Your job is to hold the tree tall and strong. The rest of the tree hangs on you. The branches, the growing wood, the bark and the leaves all depend on you to hold them up. You are the heartwood. You used to be alive, bringing water and food up and down thousands of tiny tubes, but now you are dead, clogged with resin and pitch. You keep the tree upright during windstorms, snowstorms and all sorts of awful weather. You are the heartwood. Let's practice your line: When I say, 'The wind's a blowing and a hollering.' You say, 'I've got heart!!!'"

Next, choose other strong-looking children to be the taproot. Have them kneel at the base of the heartwood. Tell them: "Try to imagine sinking down into the ground 30 feet. You are the taproot. You anchor the tree firmly to the ground, sinking deep into the soil, through clay and rock. You hold tightly onto the earth. When the fiercest storms come, you keep the tree from being blown over by the raging winds. You are the taproot. Let's practice your line: When I say, 'The wind's a blowing and a hollering.' You say, 'Anchors Away!'"

Then choose children to be lateral roots. You might want to choose children with long hair so you can demonstrate the root hairs extending down into the soil. Have them lie down on their backs with their feet up against the heartwood and their bodies extending away from the tree. Tell them: "There are hundreds of you that stretch out from the trunk in all directions for long distances, sometimes hundreds of feet. You are the lateral roots. Like the heartwood and the taproot, you help hold the tree up. Some trees, like redwoods, depend only on you. They don't have taproots. Extended from you are tiny little roots called root hairs. (At this point, kneel down and spread out the hair of the lateral roots.)"

Your root hairs suck up water trapped by the soil. You are the lateral roots. You supply the tree with water, so when I say, 'Slurp,' you make slurping sounds."

The sapwood children are next. Have them encircle the heartwood, facing inward, and being careful not to step on the root hair or lateral roots. Tell them: "You draw water up from the roots and lift hundreds of gallons of water a day high into the air. In your tiny #tubes, water sometimes surges upwards at 200 miles per hour. After the roots bring up the water from the ground, your job is to bring the water up the tree. You move water up the tree, so when I say 'Bring the water up!', you say 'Whoooooo!'" (ascending note).

Have the tree practice its parts, then choose children to be the cambium/phloem layer of the tree. Have them form a circle around the sapwood, facing inward, and stretching their arms upwards and outwards so they intersect each other at the wrists, leaving their hands free to flutter like leaves. Tell the children: "You are the most vital, alive part of the tree. You are the cambium/phloem layer. When I say 'Make food!', you rustle your leaves in the sun. And when I say 'Bring the food down!', you say 'Whoooooo!' (long descending note), bend at the knees and drop your arms and body to the ground."

Review the sounds and motions of the tree parts. Then have the remaining children be bark and circle around the tree. They face outward because they protect the tree. Tell them: "Your job is to protect the tree. You are the bark. You work day and night putting up with all kinds of abuse. If some critter gnaws on your bark you soon grow a new layer. You are the bark. Because you are so protective, let's practice your line: When I say 'Chomp! Chomp!', you say 'Roff! Roff!', like a dog, and snarl."

Wrap-up: Walk around the tree and lead the group in the following sequence:

Adult leader says:

- 1) The winds a blowin' and a hollerin'
- 2) Slurp.
- 3) Bring the water up.
- 4) Make food.
- 5) Bring the food down.
- 6) Chomp! Chomp!

Children Say and Do:

- Heartwood - I've got heart
Taproot - Anchors away
Lateral roots - Slurp
Sapwood - Whooooo! (ascending note)
Cambium/Phloem - Rustle leaves, Whooooo! (descending note)
Bark - Roff! Roff! and snarl

Go through the sequence two or three times. Finally, have everyone applaud their stupendous tree.

OPTIONS AND FURTHER EXPLORATIONS:

1. After introducing the bark as part of the tree, create a story about an insect intruder: You can play the part of the bark beetle or assign one of the children to play the part. The child should be selected in advance to avoid disorganizing the tree. If you are a dramatist, you can scowl, flutter your wings, wave your antennae and point your sharp nose at the tree. Or you can penetrate the bark's protective layer. The children can use their arms to try to push you away.
2. Go on a nature walk (see Leader's Guide and Activity 12 - The Nature Hike), with trees as your theme. Have the children look for tree parts they have learned. Have them collect leaves to make leaf rubbings or to identify.

PARTS OF TREE	GROUP SIZE				
	15	20	25	30	40
Heartwood	1	1	2	3	4
Taproot	1	1	1	1	1
Lateral Roots	2	2	3	4	5
Sapwood	3	3	4	5	7
Cambium/Phloem	3	5	6	7	10
Bark	5	8	9	10	13