

**TEACHING KATE
TEACHING KIDS ABOUT THE ENVIRONMENT**

COOKIE FRAMES

Grade Level: 7-8

Time Required: 3 class periods

SC Science Standards

This lesson plan was correlated with only the grade level specified unless otherwise noted.

7th: I. A. 1. d. 1
I. A. 4. a.
I. A. 7. a.

8th: I. A. 1. d. 1
I. A. 4. a.
I. A. 5. b.
I. A. 7. a

Note: Easily adaptable for younger students.

Purpose

Students will identify parts of a tree. They will make and label representations of tree cross sections (cookie frames). Students will identify changes in a tree's life history using a "tree cookie." They will also identify factors that affect trees (fire, water, etc.).

Skills

Concept forming, concluding, comprehending, determining cause and effect, discussing, inferring, interpreting, observing, ordering and arranging, organizing, predicting, reasoning.

Concepts

The environment is "too big" to study a one time so instead of looking at the big picture students will look at one part of the environment, a "tree." Organisms change over their lifetimes: birth, growth, maturity, death. All organisms are affected by outside intervention (fire, humans, insects, plants, weather, pollution). All organisms are interrelated with in the environment.

Materials Needed

Chart Paper	Colored Markers
Outside Class Study Area	Hand Out Sheets
Tree Field Guide	Coat Hangers
Shrink Wrap Paper	Blow Dryer
Scotch Tape	Q-Tips
Clear Satin Finish Spray	
Glow In The Dark Paint (several different colors)	
Glow In The Dark Markers (several different colors)	

Definition of Terms

<u>Abiotic</u>	Non-living factor of the environment. (ex. light, water, heat, rocks, gases)
<u>Annual Ring</u>	Ring of growth produced in one growing season.
<u>Bark</u>	Tough exterior covering of a woody root or stem.
<u>Cambium</u>	A layer of cells located inside the bark between the xylem (wood) and phloem (inner bark). Cambium cells divide during the growing season to form new xylem and phloem cells.
<u>Cone</u>	The “fruit” of pine trees and other conifers. Cones contain hundreds of seeds.
<u>Canopy</u>	The layer of covering in a forest made up of tree crowns.
<u>Ecology</u>	A branch of biology which deals with the relations of organisms to the natural conditions under which they are living.
<u>Environment</u>	The existing condition of the surroundings that result from a combination of forces such as climate, soil, topography, plants, animals and their influence on the existence and development of a living organism.
<u>Forest</u>	A plant community in which the dominant vegetation is trees.
<u>Habitat</u>	The natural environment of a specific plant or animal containing all the resources necessary for the plant or animal to live, grow and reproduce.
<u>Heartwood</u>	The older, harder, non-living central portion of wood.

<u>Phloem</u>	The plant tissue that transports dissolved nutrients from the leaves to the other parts of the plant.
<u>Sapwood</u>	The younger, living, active outer portion of a tree's wood that lives between the cambium and the heartwood. Transports water and nutrients.
<u>Tree</u>	A woody plant having a well defined stem and crown.
<u>Xylem</u>	The complex woody tissue of higher plants that includes systems for transporting water, storing nutrients, and structural support.

Before the Session

Collect needed materials. Walk around your school and choose a site for an outside class study area. Make copies of papers.

Background Information

The environment is too big to study at one time so the students will study one part, trees! This plan will set-up an environmental unit from which the activity can branch off in any direction desired. Soil, water, wildlife, etc. will all lead back to trees, forests, plants, sunlight, atmosphere, water, living, nonliving, etc. They are all connected. More items may be added but they will still be connected to trees in some shape and form.

Suggested Lesson Plan

Day 1- Nature Word

1. Have each student choose a nature word.
2. Ask for one volunteer to go to the chart paper taped to the wall.
3. Tell that student to draw their nature word using the colored markers.
4. That student chooses the next person to draw their nature word (continue until all have a turn — including the teacher — one of the students will usually choose the teacher. The teacher should use tree as his/her nature word if it has not been chosen by a student.)
5. After all students have drawn their nature word, discuss the drawing that you, the teacher, created. Introduce the word environment.

6. Tell the students that the environment is too big to study at one time, so only one part will be studied at present, the tree.

Day 2- Concept Map

1. Review first lesson: Nature Word Activity.
2. Hand out plain paper.
3. Ask each student to list everything that they can think of about a tree. (Give 5 minutes.)
4. Then ask them to make a Team Concept map. Use chart paper. (See sample.) (Give 20 minutes.)
5. Let each group present their maps to the class.
6. Hang the maps and discuss them.

Day 3- Walk Around the School

1. Ask students - "What makes a tree?"
2. Go for a walk around your outside class study area.
3. Pick a tree and do a quick sketch of the tree.
4. Discuss.

(Can make mats to sit on by laminating large sheets of construction paper. This cuts down on whining.)

Day 4- Cookie Frames

1. Discuss parts of a tree. (See Tree Cross Section diagram and Tree Growth Layer diagram.)
2. Hand out equipment.
3. Bend coat hangers into squares.
4. Cut a large piece of plastic wrap to cover coat hanger.

5. Tape plastic wrap to hanger.
6. Use blow dryer to shrink wrap around coat hanger.
7. Place shrink wrapped hanger over Tree Cross Section diagram.
8. Trace major rings using different colors of glow in the dark paint.
9. “Cookie Frames” may be sealed using a clear satin finish spray.
10. The “Cookie Frame” is finished. Allow to dry and turn over to view.
11. They may be labeled using glow in the dark markers.
12. Discuss parts of tree, changes in trees and factors that effect trees.
13. Display the “Cookie Frames.”

Extension

Write a poem about a tree.

Invite a forester to speak to the class.

Show The Lorax to the class. Have the students continue the story. Discuss.

Bring in newspaper articles to discuss.

Start a nature trail.

Play (tape recorder) “Five’s Walk on Thursday.” Discuss.

Plant a tree.

Make a collage.

Hand out real “tree cookies.”

Resources Available

Boller, L. J., Sr. 1994. Clemson University, Department of Forest Resources, Clemson S. C. 29634.

Elements of Ecology. 1992. R. L. Smith. Harper Collins Publishers, New York.

Familiar Trees of South Carolina, A Manual for Tree Study. S. C. Forestry Commission in cooperation with Clemson Univ. Cooperative Extension Service, Clemson, S. C. 29634-0310.

Kessler, G. 1994. Clemson University, Department of Forest Resources, Clemson S. C. 29634.

Life, Death and Rebirth of A Tree (poster AFS-356). 1980. U. S. Department of Agriculture-Forest Service.

Project Learning Tree, We All Need Trees (poster). American Forest Foundation, 1111 19th St. NW, Washington, D. C. 20036.

Project Wild. 1992. Western Regional Environmental Education Council, Bethesda, M. D.

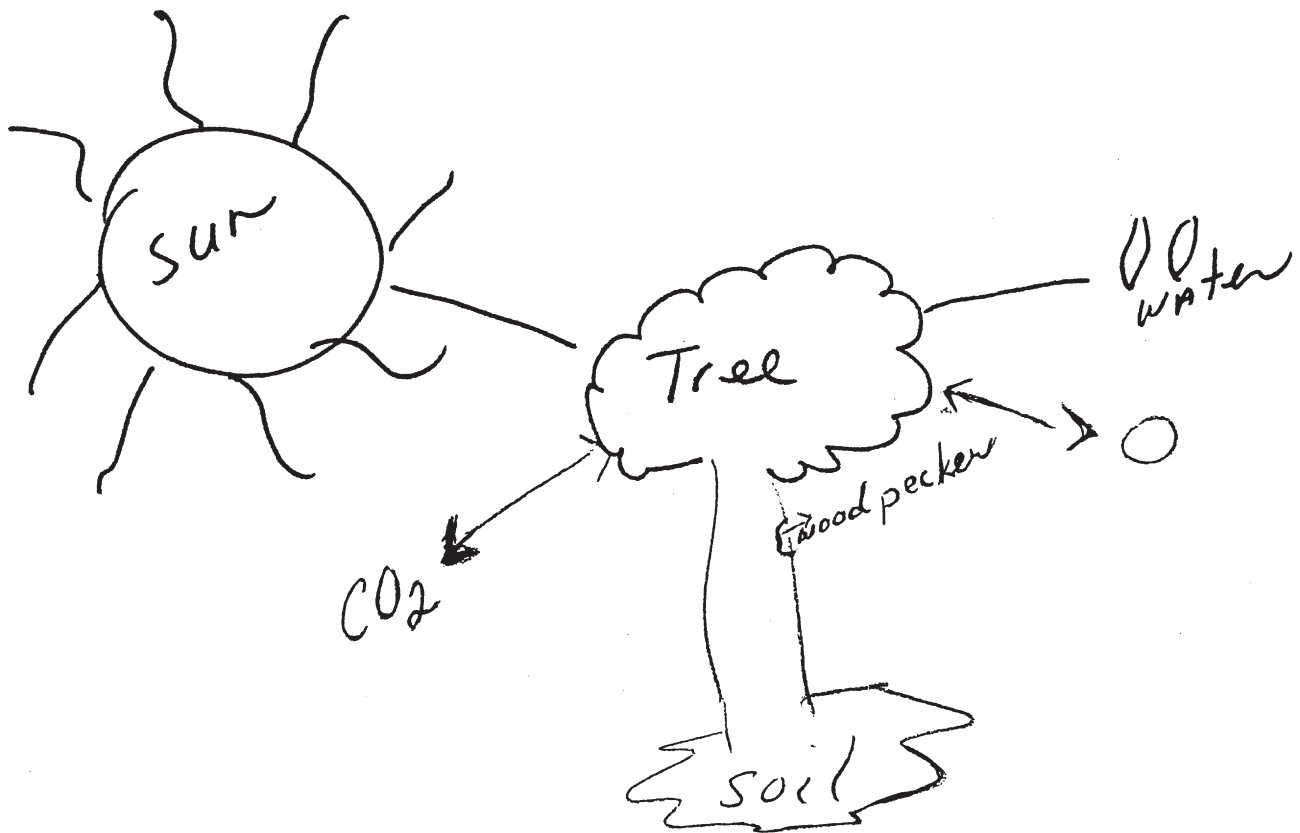
South Carolina Department of Natural Resources, Columbia, S. C.

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SAMPLE CONCEPT MAP

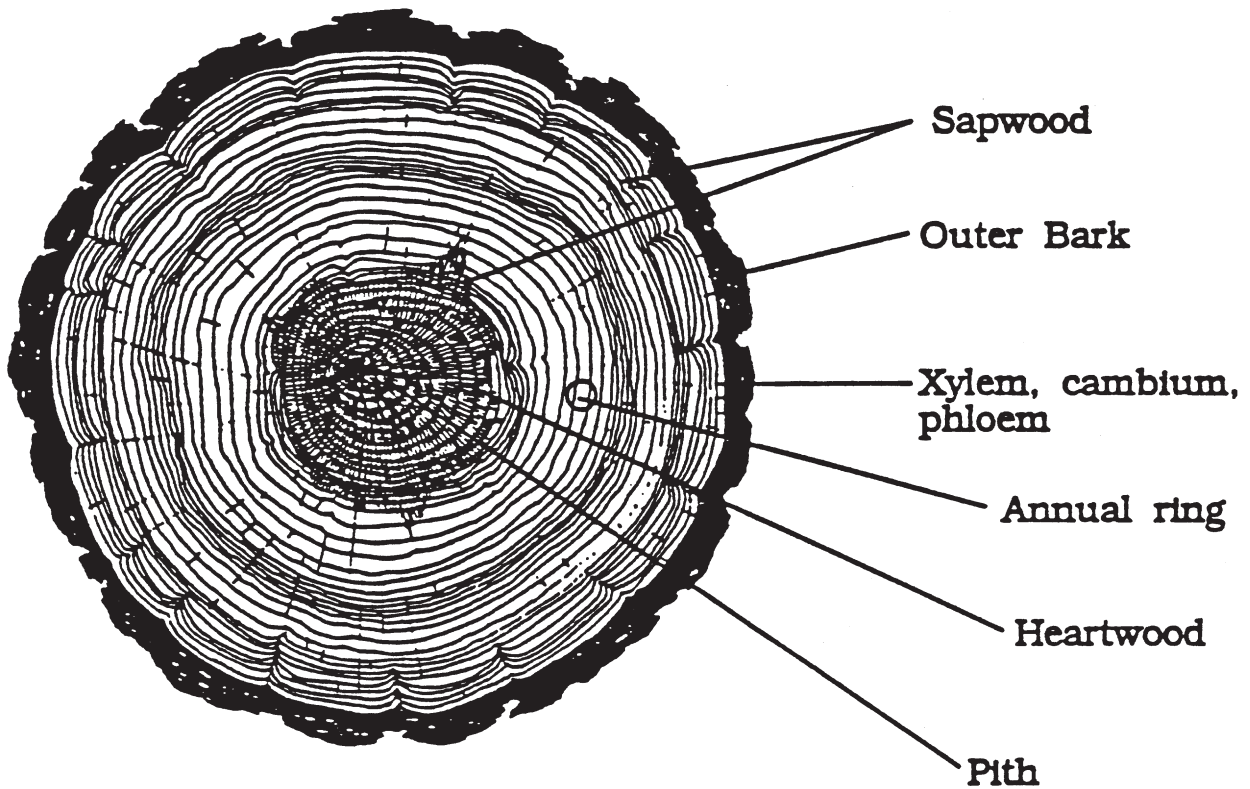


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TREE CROSS SECTION

Parts of a Tree



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TREE GROWTH LAYERS

