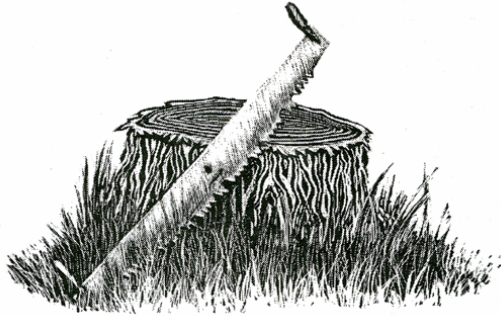


Name _____

Date _____

INTRODUCTION



February's "Good Oak" essay is one of the most quoted works in A Sand County Almanac. In this essay, Aldo Leopold takes us back in time as he describes events that occurred during the life of an oak tree being sawed up for firewood. In doing so he connects the heat received from the firewood to the land, and demonstrates why there is spiritual danger in "believing that heat comes from the furnace."

WHAT TO DO

1. If possible, locate a tree stump outdoors for this experience, or use a section of a tree sawed from a log, sometimes called a "cookie." If possible saw your own log with a cross-cut saw.
2. The following is a description of the cross section of a tree.

The outside of a tree is covered by bark. If you look closely at the bark on older tree logs or sections, you'll notice the bark has two shades of color. The outer bark is scaly and provides protection; the inner bark is the living part of the tree in which food is carried down through the trunk toward the roots. To accomplish this, the inner bark contains vessels known as phloem. In young tree stems, the bark is the same color and the scaly part is missing, not yet developed.

Most of a tree's stem is made up of wood cells, or xylem. The darker wood in the center of a log is heartwood, which helps support the tree: the lighter colored wood around the heartwood is the sapwood, which carries water and food up the tree from the roots to the leaves. In the center of the trunk is the small pith, which is a food and water storage area. The pith marks the birth year of a tree.

Some trunks have lines which radiate from the center pith like spokes of a wheel. These lines are vascular rays, which carry food inward from the inner bark (phloem) to the wood cells (xylem). By looking closely at the cross section, you will see a number of circles called annual rings, one of which is formed each year by the cambium located between the wood and bark.

Examine an annual ring closely, and notice the large pores (cells) making up the first wood produced in the spring (springwood); this layer is generally much narrower than the rest of the annual ring. The summerwood is the second layer of wood in an annual ring, made up of small cells. A complete annual ring is made up of springwood and summerwood. By counting the number of annual rings, you can tell the age of the tree. Growth in the length of branches is accomplished by the elongation of buds along the twigs.

Good Oak Exercise

Student Worksheet. Part 1, to be done in class.

1. Count the rings of the available cross-section to determine the age of the tree it came from.

Age of our tree: _____

Pith year of our tree: _____

2. Did the tree grow the same amount each year? Give reasons for differences in the width of annual rings. Examine our tree section and look closely for insect damage, wounds, and evidence of decay. Based on your observations, write a brief history of our tree.

3. Next, create a personalized version of the tree's cross section. You can draw, write, or describe this vision; however you choose to express this, you must have a tangible product to submit for credit. Your task is to highlight important dates in both your life and the land, pinpoint them in your illustration, and explain why each event is significant to you.

Your cross-section diagram must include:

- ten important events in your life history;
- an important event in conservation history *for each decade* in your cross-section;
- an event in your life that links to Gardner's "Multiple Intelligences";
- an event in your life that utilizes Howe and Strauss's "Student Generations".

Gardner's "Multiple Intelligences" and Howe and Strauss's "Student Generations" will help you to identify your strongest intelligence - or intelligences - as well as general themes from your generation. For example, you might place something into your tree diagram in terms of an example from memory when you first knew something about yourself; how you learned, how your life fit into society, and so forth.

Part 2, to be done outside class: first, read the essay "Good Oak" by Aldo Leopold.

4. Summarize the essay in one paragraph. What theme did the historical events in the essay have in common?

5. On one level, this essay tells about the history of one place. But on another, deeper level it is about humans' relationship with land. Do you think Leopold is optimistic about discovering new relationships with the natural world? Why? Be sure to provide specific details in your answer.

6. Read the attached essay by Barry Lopez, and connect what Lopez says about vulnerability to the ideas about "spiritual danger" that Leopold mentions in his essay. Answer the following questions:

- a. Why do you think Aldo Leopold wrote an essay about an old oak?
- b. What does "spiritual danger" mean to you?
- c. Using Lopez's ideas about vulnerability, what spiritual danger is there in supposing that heat comes from a furnace?

7. Find and quote a formal definition of science. What is the basic premise of scientific thinking that is also evident in the activities Leopold describes in this essay? How might this compare with Leopold's thoughts on science in his essay "Song of the Gavilan" on page 158?