

# What's inside a tree?

## Activity



### CURRICULUM CONNECTIONS

Science and History

### LEARNER OBJECTIVES

- Use tree rings to learn about the history of a particular tree as well as potential factors that may have affected its growth and health.
- Represent events which occurred during the life of a particular tree on a time line.

### MATERIALS NEEDED

Tree cookie, paper and pencil for each student.

### PREPARATION TIME

5-10 minutes

### ACTIVITY TIME

30-40 minutes

## Overview

One of the best ways to learn about a tree is to look at its annual rings. Tree rings show patterns of change in the tree's life as well as changes in the area where it grows. In this activity, students will trace environmental and historical changes using the enclosed cross section of a tree trunk, or tree cookie.

## Background

Every growth season, a tree adds a new layer of wood to its trunk. That's why you can tell a tree's age by counting its growth rings. Each ring has two parts: a wide, light part (early wood) and a narrow, dark part (late wood). The early wood is produced during the wet, spring growing season. The late wood forms during the drier summer months as the season changes to fall and winter.

The rings provide clues about the climate of the area over time and evidence of disturbances on or near the tree, such as fires and floods. The shape and width of the annual rings differ from year to year because of varying conditions. For example, during a moist growing season, a wide ring is formed. During a drought or colder-than-average winter, a narrower ring will be produced.

Another interesting thing to note is that growth rings get closer together near the end of a tree's natural life cycle, which in most Minnesota trees is 50 to 70 years. That means tree growth slows as a tree matures, and eventually stops when a tree dies naturally.

To study a tree's growth rings without harming the tree, scientists drill into the center of a tree trunk with a hollow instrument called an increment borer. This allows them to remove a long, narrow cylinder of wood called a core sample. The growth rings appear as lines on this sample.

## The Activity

1. Pass around the enclosed tree cookie.
2. Have students answer the following questions as they examine the cookie:
  - How old do you think this tree was when this cookie was cut?
  - Does it look like any of the growing seasons were longer than any others? Why or why not?
  - What events could have happened to this tree in its lifetime?
3. Assume that the cookie was cut this year. Have the students create a time line showing the years of life for this tree until the cookie was cut.
4. Research and then label the following events on the tree timeline:
  - significant world events that occurred during the life of the tree;
  - significant events in U.S. history during the life of the tree;
  - significant events of people in your class or community during the life of the tree.