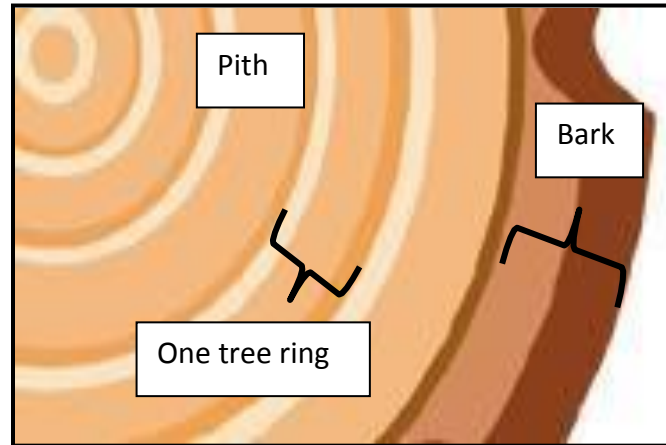


What Can Trees Tell Us?

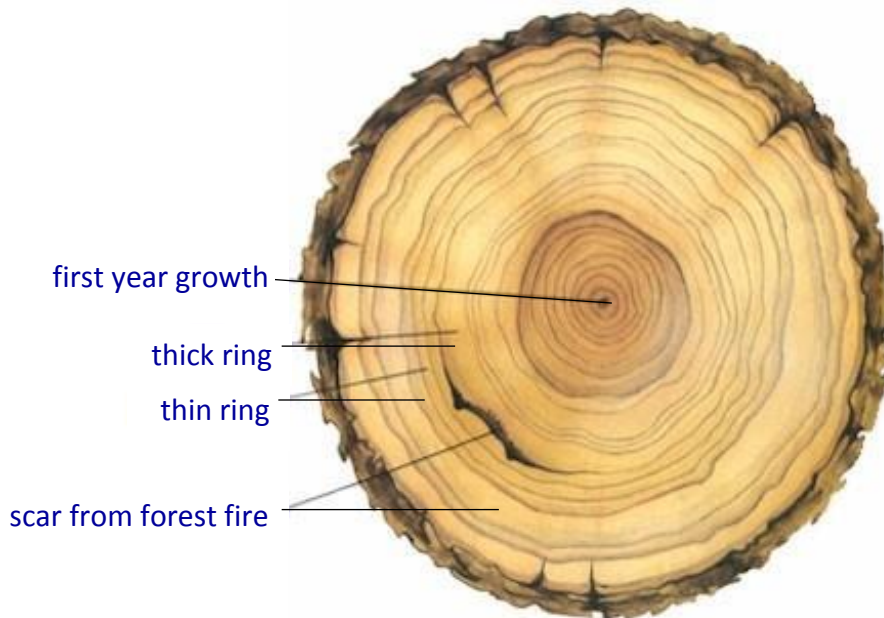
Trees gain one ring per year, like candles on a birthday cake. In this activity, students use tree rings to tell the story of a tree and its environment.

Dendrochronology is the science of determining tree age by looking at tree rings. It is also practiced on buildings. At Tudor Place, scientists took samples of wood from parts of the Tudor Place mansion. The scientists used dendrochronology to figure out in approximately what year the wood was cut down, and discovered that those parts of the building were older than we had thought.



Each tree ring begins with the light band of wood and ends with the dark band. The innermost circle represents the pith of the tree and should not be counted. The outermost thick, beige or brown ring on each sample represents the bark of the tree and should not be counted. For more information, see the Glossary and Additional Resources at the end.

What Can Trees Tell Us?



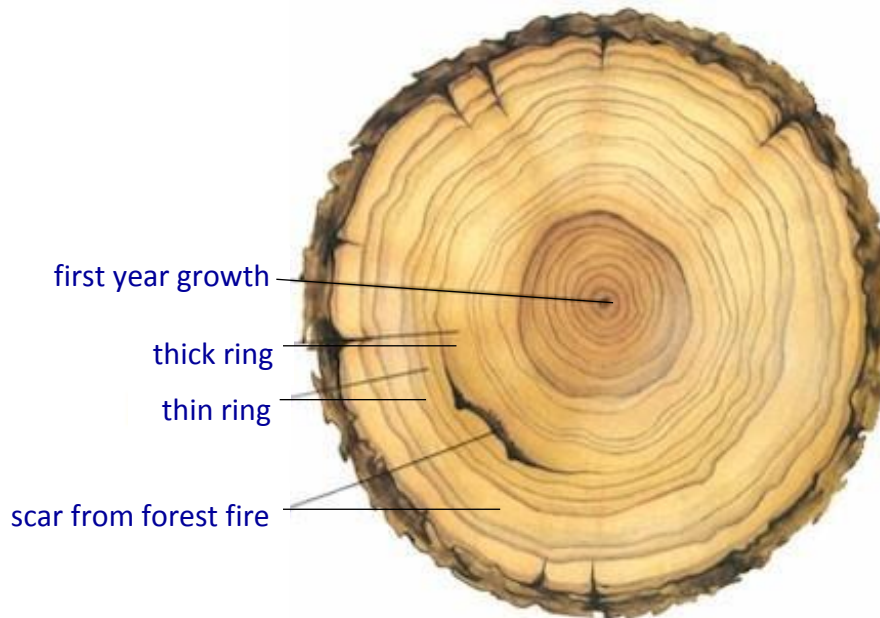
Like birthday candles on a cake, the number of tree rings can tell us how old a tree is. Count the rings. The tiny dark circle at the center and the dark, rough bark on the outside of the tree are not growth rings, so they don't count. Remember that each dark band means the *end* of a growing season. During one season, this tree was burned by a forest fire, leaving a scar. The tree continued to grow around the scar each year, but a burn mark was left on that year's ring.

- How old is this tree? _____
- Imagine that this tree's first year growth (represented by the first ring outside of the dark center core) happened in 1800. In what year was the tree scarred by forest fire? _____

Trees can also tell us about their environment. Trees grow thick rings during growing seasons that provide lots of water and nutrients. They grow thin rings during growing seasons that don't provide as much water or nutrition.

What does the tree tell us about the weather in the years before the fire? After the fire?

What Can Trees Tell Us? (Answer Key)



Like birthday candles on a cake, the number of tree rings can tell us how old a tree is. Count the rings. The tiny dark circle at the center and the dark, rough bark on the outside of the tree are not growth rings, so they don't count. Remember that each dark band means the *end* of a growing season.

- How old is this tree? **19**
- Imagine that this tree's first year growth (represented by the first ring outside of the dark center core) happened in 1800. In what year was the tree scarred by forest fire? **1813**

Trees can also tell us about their environment. Trees grow thick tree rings during growing seasons that provide lots of water and nutrients. They grow thin rings during growing seasons that don't provide as much water or nutrition.

What does the tree tell us about the weather in the years before the fire? After the fire?

Before the fire was a strong, rainy growing season.

After the fire were several years of dry seasons.

Glossary

Bark – the outermost, protective layer of a tree

Climate – the weather in a place over a long period of time

Dendrochronology – the science of using tree rings and other features of trees to learn about the age and history of a tree or piece of wood

Dendroclimatology – the science of using tree rings and other features of trees to learn about the climates of the past

Garden – a place designed by humans where plants are grown, often for enjoyment

Pith – a soft, spongy part of a plant that moves nutrients through the plant. In this lesson, the pith is the circle at the center of the tree trunk

Seed Dispersal Vectors – Factors, like wind, animals, or humans, which carry seeds to new locations with optimal growing conditions

Additional Resources

- History of the Tudor Place garden
<http://www.tudorplace.org/who-we-are/garden/history-of-the-garden/>
- Video clip (1 minute) of a maple seed falling in slow motion
<https://www.youtube.com/watch?v=ZUEXKapAVcY>
- Video clip (43 seconds) of dandelion seeds in slow motion
<https://www.youtube.com/watch?v=0MB3nHiogjl>
- Interactive dendrochronology activity from the National Park Service that divides tree rings into “growth” and “rest” rings, and demonstrates simple cross-dating techniques.
<https://www.nps.gov/webrangers/activities/dendrochronology/>
- “About Tree Rings,” *Laboratory of Tree-Ring Research, The University of Arizona*
Counting tree rings is a simplified form of dendrochronology. This resource delves into more complex concepts and techniques.
<http://lrr.arizona.edu/about/treerings>
- Video clip (2 minutes) about dendroclimatology from Professor Steven Chischilly, Navajo Technical College
<https://whut.pbslearningmedia.org/resource/nasa11.sci.ess.watcyc.navdendro/dendroclimatology-in-the-navajo-nation/#.WmdJHoWcG70>