

Climate in a Tree Stump

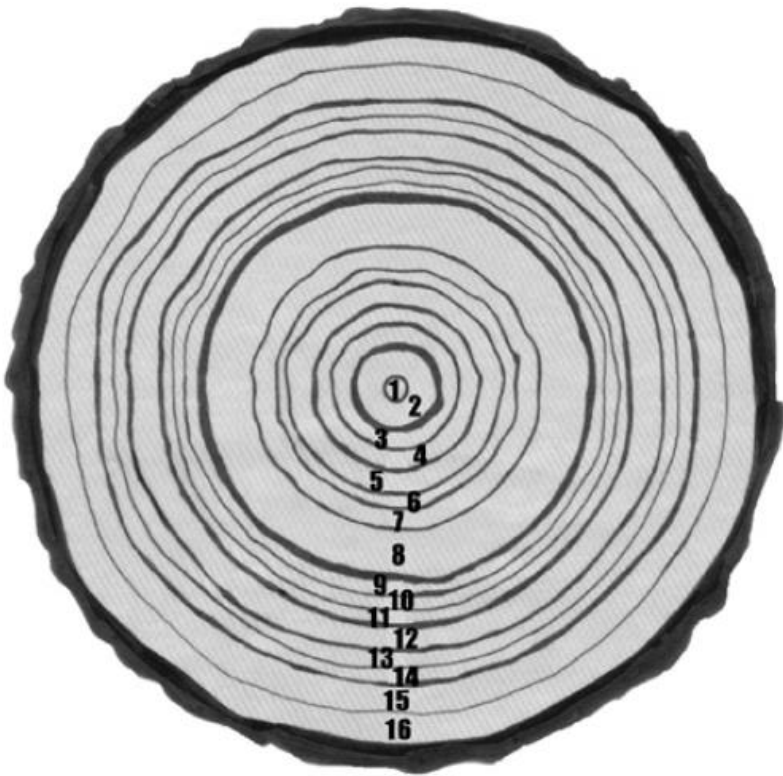
You can do these activities outdoors if you can find a tree stump with visible tree rings, or you can do it indoors using the picture below.

You can learn a lot from tree rings

Each year a tree grows a new ring under its bark as it gets thicker and grows taller. If you find a tree stump, you can tell how old the tree was when it was cut down by counting the rings! But the rings tell us more than just the tree's age; they can also tell us something about the climate while the tree was growing. The thickness of a tree ring depends on the climate conditions during the summer. Trees grow more during warm, wet summers, making wider rings, and less during cold, dry summers, making narrower rings.

Tree rings can also tell stories about extraordinary events that happened during the tree's life that were big enough to have affected the tree's growth. For example, fires can leave scars in a tree's rings. Scientists who study tree rings are called Dendrochronologists (dendro = trees, chronology = timeline).

Be a climate detective using tree rings!



Use the picture of a “tree cookie” (a slice through a tree) on this page to answer the following questions.

1. How many years old was the tree when it was cut?
2. Let's say that this tree was cut this year. Find the ring that grew during the year you were born.

Was it a cool, dry year or a warm, wet year?

How do you know?

3. In what year of growth was the climate the coolest and driest?
4. In what year of growth was the climate the warmest and wettest?

Make a tree ring timeline!

1. To do this with the picture of the tree cookie on the other side of this page, fold the tree cookie picture in half (making sure to go through the center of the picture) and place it on another sheet of paper.

To do this with a tree stump outdoors, place a sheet of paper on top of the stump so that one edge of the paper goes out from the center of the stump toward the outside of the stump.

2. With a pencil, place a small tick mark on the paper to mark the position of each tree ring.

3. Remove the paper. You now have a series of tick marks.

4. Extend these lines so they are about 1/4 inch long. With a ruler, draw a line connecting each tick mark. It should look similar to the image below

5. Label each year. You have now made a timeline!



Learn more: Tree ring science around the world

Scientists can learn about past climate from studying tree rings. While tree rings alone cannot tell the whole story of climate, knowing about what types of environments different trees lived in help to put the rest of the story together. When trees live near the edge of their habitat range, they are more susceptible to changes in temperature and rainfall. When multiple trees from multiple habitats across the globe are studied, climate reconstructions from trees tell an amazing story of the history of Earth's climate.

This activity was adapted from a lesson plan in the Paleontological Research Institution's *Tracking Climate in Your Backyard* curriculum. Ingrid Zabel, 4/2/2020