## Lesson 14: Part 1-What Can Tree Rings Tell Us?



Name Date Class
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## What Can Tree Rings Tell Us?

Dendrochronology is the branch of science that studies growth rings in trees, and uses this information to help us understand the ecological conditions in which that tree grew over time. The word dendrochronology comes from the Greek roots dendros meaning tree, and chromos meaning time, or quite simply, the study of trees over relatively long periods of time.

From the study of tree rings, we can approximate the age of trees, as well as the varying climatic conditions in which these trees grew over the course of their lifetime. Each year, trees produce a new layer of wood under their bark. In temperate climates, trees undergo their greatest growth period in the spring and early summer, and slower growth in late summer and fall. There is little, if any growth during the cold winter months. The lighter and wider section is known as early wood, and is laid down during the times of relatively rapid growth. In temperate climates, this growth usually occurs during spring and early summer. The width of a growth ring tells us about the climate in the past because the growth rate depends primarily on precipitation and temperature during the growing season. Trees grow more during wetter years with good temperatures (wider rings) and less during colder, drier years (narrow rings). By measuring, comparing, and analyzing the growth rings of trees, we can draw fairly precise conclusions about the climate in which that tree grew.

1. Observe and study the sample of wood. Describe the pattern, if any, that you notice in the sample. Sketch in as much detail as possible a section of the sample below.

2. Using a dissecting microscope, or a hand lens, look closely at the pattern of rings. Are there any variations within each individual ring? What might have caused this? Sketch your observations below.















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3. Using a ruler, measure several of the rings. Be as accurate as possible, and measure using millimeters as your unit. Are all the growth rings the same width? List and describe at least two or more environmental factors that might have caused this. Explain why the tree's growth might be affected by these environmental factors.

4. How old was this tree when it was cut? How can you determine this? What would you need to know about this sample in order to determine when it *began* growing?

5. Now select at least two different samples and compare them to your original sample. In terms of growth rings, in what ways are they similar? In what ways are they different? Describe at least 4 similarities and 4 differences.

6. Based on what you know about tree rings and the way in which they are formed, rank the samples from oldest to youngest (when they were cut). Which sample had the most consistent growth? Which one had the most inconsistent growth patterns? How do you know this? What factors might have contributed to these different growth patterns?













