



Getting to Know Your Forest

This lesson plan was created by Ashley Stanley as part of the Acadia Outdoor Teacher Collaborative program. AOTC created lesson plans are created by educators for educators. Any books or links suggested in this curriculum are not an endorsement by the National Park Service.

Grade Span	K-2 Earth Systems
Time Span	<p>8 sessions (30-45 minutes each)</p> <ul style="list-style-type: none"> • 4 in early fall (could be stretched to 9 class sessions) • 4 in late spring (once there are leaves on trees) <p>For Kindergarten, it may be more appropriate to do the fall sessions only and do them in late spring once their counting skills are more reliable.</p>
Standards	<p>Make observations (firsthand or from media) to collect data which can be used to make comparisons.</p> <p>Planning and Carrying Out Investigations Developing and Using Models</p>
Focus Question	<p>How many live trees and how many dead trees are in our special space?</p> <p>How does woody debris help the forest?</p>
Overview	In this mini unit students will identify an outdoor space with trees that they would like to observe. They will count the amount of live trees and dead trees (snags). They will watch for changes over time and share the data they collect with others.
Objectives	<p>Students will understand the role of decomposing vegetation in the health of a forest.</p> <p>Students will count and monitor the number of live trees and snags (standing dead trees) in an area.</p> <p>Students will identify the parts of woody debris (CWD).</p> <p>Students will communicate the data they collected with others.</p>
Materials Needed	<p>Supplemental Materials (Forest Health Journal, Alive and Snag Photos for Conversation (below), Forest Health Mentor Text)</p> <p>Wooded Area along a walking path</p> <p>Surveyor's flags</p> <p>Clip boards</p>
Vocabulary	<p>Alive: Something that can grow, create offspring and adapt to its environment.</p> <p>Analyze: Look at something closely and think about the parts.</p> <p>Coarse Woody Debris: dead plant material that is not a snag... things like down/dead trees, large limbs, and leaning dead trees. Woody debris that measures 31cm or</p>



	<p>more in circumference is considered coarse woody debris.</p> <p>Decompose: When something rots and breaks down into smaller parts.</p> <p>Fine Woody Debris: dead plant material that is not a snag... things like down/dead trees, large limbs, and leaning dead trees. Woody debris that measures 31cm or less in circumference is considered fine woody debris.</p> <p>Snag: A dead tree that is still standing.</p> <p>Woody Debris: Wood found touching the ground that is not attached to a standing tree or is only attached by a small amount.</p>
<p>Teacher Prep</p>	<p>Identify an area to study (wooded, along a walking path) Collect examples of coarse and fine woody debris for lesson 3.</p>
<p>Background</p>	<p>Students should have some basic knowledge about the parts of a tree (leaves, branches, trunk, bark).</p> <p>Teachers Background Materials: Forest Monitoring Fact Sheet Forest Monitoring Detailed</p>
<p>Procedure</p>	<p>Fall: <u>Session One (Engage - 1-3 class sessions):</u> In this session you will introduce the first parts of the scientific method through a video from Ranger Lisa. You will then use the information in her video to begin studying a special forest location near your classroom. Students practice identifying live trees and snags.</p> <ul style="list-style-type: none"> ● Ask students “What do scientists do?” Have them share ideas with a partner then share with the class. Discuss how there are many differences between scientists then let them know that one thing scientists have in common is being curious and asking questions. Let them know that Ranger Lisa is a park ranger who asks questions just like a scientist. She works hard to make sure forests are healthy so that the creatures that live in the forest can be safe. Let students know she and her team need help monitoring the forests on our island. Show her introduction video. (Introduces herself and poses a question about forest health. Shares how we find out by counting living trees and snags.) Introduce that the scientific method begins by asking a question and stating a hypothesis. When someone has a hypothesis they have a thoughtful guess about the answer to their question. Have the class discuss the



questions “Is our forest healthy?” and form a class hypothesis. (Journal page 1 will support this.)

- You will then have students practice identifying live trees and snags. (This can be done in your outdoor space or by using [the photos in the supplemental materials](#) if the outdoor space is not accessible during this session.) Journal pages 2 and 3 could be used during outdoor exploration to investigate and identify trees that are alive and snags.

Session Two (Explore - 1-2 class sessions): Let students know that today you will begin testing the class hypothesis about the health of the forest near your school (or your house if doing this at home) and to get ready for this you will take a count of living trees and snags in a forest picture. Have students look at a forest picture from the supplemental materials and have them record how many live trees and snags they saw on their data sheet. Reinforce that scientists may get different counts depending on how carefully they count so they should always count twice to check. It will also be helpful to reinforce that sometimes it is difficult to tell if a tree is alive or dead from a picture and that scientists discuss their thinking with others to make a choice about how they will count that tree.

Next, go to your wooden walking area and with students, measure out three 10 foot sections of a wooded area along the side of a walking path and mark each section using surveyor’s flags. Label each area with A, B, or C. Have students count the number of live trees and snags in each area and record their counts on journal page 4. (Students will need 1 page for each forest area.)

When counts are finished, record an average of their data on a histogram for each location. (This can be done with students or by the teacher prior to session 4.)

Session Three (Explanation - 1-2 class sessions): In this session the class will be learning about woody debris. You will begin by reading the mentor text included with this unit. Next, you will show students an example of coarse woody debris and fine woody debris that you have collected. Pass the pieces around and discuss the following questions.

1. How big is it? (Is it coarse or fine woody debris?)
2. Is the bark attached?
3. Is it round or flattened?
4. Does it spring back when it is squeezed?
5. Does moisture come out when it is squeezed?



Have students measure the circumference of the pieces using a 31.5cm long piece of ribbon to determine if they are classified as coarse or fine woody debris. Record class answers to each question on [journal page 5](#). Next students go to the special forest spots to collect a piece of woody debris and record their observations of the piece using journal page 5.

Session Four (Explanation - 1-2 class sessions): Review class data and revisit the class hypothesis. What does the class data tell us? Is the school forest healthy? Why or why not do you think this is true? If not, what should the class do with this information?

- Students complete their own [conclusion journal page \(page 6 or 7\)](#) of the Forest Health journal materials. There are two versions available.)
- Students share out their conclusions as a class
- Share collected data and class conclusions with a park ranger.

Spring:

Session Five (Engage - 2 Sessions): Introduce that scientists revisit questions they've already answered to see if there have been changes. Watch the video from Ranger Lisa. Revisit the mentor text to remind students of the work they did in the fall. Have students make predictions about the difference between fall and spring in their forest. (Consider the question "Has the health of our forest changed? Do we think the amount of live trees and snags have changed? Why or why not?") Have students complete [journal page 1](#) with their hypothesis.

For the second part of this session take students back to the forest areas from the fall and repeat the counting of living trees and snags. Record information on [journal page 4](#).

Session Six (Explore - 1 Class Session): Review procedure for analyzing woody debris with students. Observe and record information about woody debris using [journal page 5](#).

Session Seven (Explanation - 1 Class Session): As a class, compare fall and spring forest data. Using [journal pages 6 & 7](#) have students draw conclusions about the question "Has the health of our forest changed?" Have students share their findings with a park ranger. For extension, discuss what the changes in the fall to spring data were. Why do students think these changes occurred? Have students predict what they believe the health of this area will be next spring

Extension: This unit could be extended by the Biodiversity: Plant ID unit to begin



	<p>identifying how many of each type of tree are in the designated space.</p> <p>If the students conclude that the forest area is not healthy, they could follow up with investigations about why they believe that is true or what is causing a problem for their area. Classes could take counts of additional areas to see if there are differences along one path.</p> <p>For older students it would be good to have them use a measuring tape to measure and record the circumference of the snags they count. The larger the snag, the more vertebrates that can inhabit the snag. This would deepen the conversation about the importance of snags and leaving dead trees present in wild spaces.</p> <p>Math Extension: Build a model of a healthy forest using green and brown legos. A green tower represents a living tree. A brown tower represents a snag. Build one model with a 1:9 ration snags to living trees. Build another model with far fewer snags. Discuss the importance of snags in a forest to keep the forest healthy. Next, show a model with far more snags than live trees. What would this tell the park ranger about the health of that forest? Why would this be important?</p>
<p>Wrap-Up</p>	<p>Evaluate:</p> <p>Formative Assessment: <u>Student data collection sheets and woody debris observation pages</u></p> <p>Summative: <u>Final conclusion journal pages</u> and report out to park ranger.</p>























