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# Forests for All

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## Purpose:

- The purpose of this activity is for students to understand the multiple uses of forests and the importance of sustainable timber harvest.

## Objectives:

- Students will recognize that both humans and wildlife utilize forests for various aspects of their survival by brainstorming ways that both groups use the forest.
- Students will role play as a forest manager, creating a forest harvest plan and supporting it in a town hall scenario.

## Materials:

- Cobbly Creek Maps – 10 (provided)
- Laminated Scenario Cards – 10 (provided)
- Dry erase markers and erasers (provided)
- Photos of Gentner’s fritillary and Townsend’s big-eared bat - located on kit flash drive (provided)

**Time Required:** 45-60 minutes

**Appropriate grades:** 5<sup>th</sup>-12<sup>th</sup>

**NGSS and Common Core Standards:**

**5-ESS3-1:** Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.

**3-5-ETS1-2:** Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

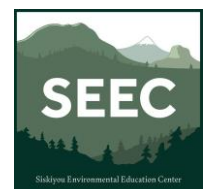
**MS-LS2-5:** Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

**CCSS.ELA-LITERACY.SL.6.4:** Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.

**CCSS.ELA-LITERACY.SL.11-12.4:** Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of



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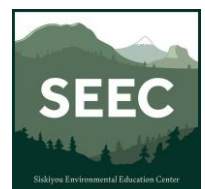
Seaside Environmental Education Center

## Activity:

<b>Introduction</b>	Begin this activity with a discussion of the uses of forests. Ask students, “Why would anyone cut down a tree?” Elect one or two students to write the list of responses on the board.
<b>Body</b>	<p>After this initial discussion, divide the class into groups of 2-4 students, so that there are no more than 10 groups.</p> <p>Ask the groups to each come up with a list of uses that the forest provides. They may find this challenging, but you are trying to elicit responses like homes for plants and animals, places to go hiking, biking, fishing, etc., clean air and water, etc. If hints are needed, encourage students to take on the perspective of an animal living in the forest or ask why people prefer to camp in the woods over the city. Have each group share their responses with the class. <b>The main point is that the forest provides many important uses to humans, plants, and animals.</b></p> <p>Once the students understand the many uses of a forest, bring up the concept of <b>forest management</b>. Briefly discuss the idea that <b>different methods and quantities of timber harvest produce different amounts of forest products, and can have varying effects of the health of the forest</b>. You may ask questions like, “If you only cared about building as many houses as possible, would you cut more or less trees?” or “If you wanted to help save a rare or endangered animal living in a forest, would you cut more or less trees?”</p> <p>Introduce the concept of <b>sustainability</b>, which is defined as <b>the management of resources so that productivity and the health of the natural community will be maintained over time</b>. In terms of forest management, this means that timber harvest will occur, but will minimally affect the natural functioning processes of the ecosystem. Maintenance of water quality, biodiversity, soil health and the complex structure of a healthy forest are all important elements of a sustainable forestry plan (for more detailed information on sustainable forestry, please see the list of references below).</p> <p>Tell the groups that they will be playing the role of forest managers in the</p>



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Cobbly Creek area. Distribute a map to each group, and then read them the following scenario:

*The Cobbly Creek area is characterized by towering forests, which provide habitat for many species of plants and animals, and clean drinking water to Cobbly Village, a small community nearby. Cobbly Creek and its tributaries support healthy populations of salmon, salamanders, and other aquatic species. The creek valleys are narrow and steep, and blanketed with trees, shrubs, and other vegetation.*

*The area is inhabited by two rare species: the Townsend's big-eared bat, and Gentner's Fritillary. Their habitats are indicated by a picture of a bat or a lily on your map, and have been placed off-limits to logging. There is also a large natural clearing that contains no trees called Sunrise Meadow shown on your map; this area cannot be logged.*

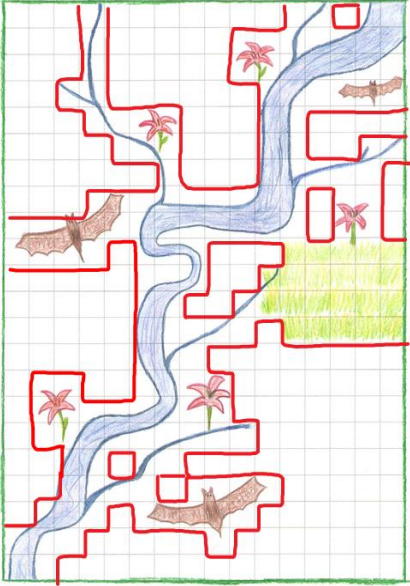
*Cobbly Village is experiencing a toilet paper shortage, and needs to harvest more trees, pronto! Your group is tasked with harvesting timber from the area based on the instructions given on your scenario card. Different groups will use different harvesting methods. On the back of the card are three questions that your group will need to answer at a town hall meeting attended by the citizens of Cobbly Village (your classmates!) after you make your decision.*

Hand a scenario and dry erase marker out to each group. Tell the students to outline the 'forest,' which consists of blank squares that are not covered at all by one of the endangered species, the meadow, or the creek. See below for properly outlined map.



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	<p style="text-align: center;">Activity #7: Forests for All    Cobby Creek Map</p>  <p>Students will read their scenario, and color in the squares that they decide to harvest. Give students 15 minutes to ‘harvest’ and discuss the three questions on the back of their scenario card to prepare for the town hall meeting. Once all groups have finished, call the meeting to order and have each group present their harvest plan and defend their plan to the group. This activity allows for a lot of discussion, but you can adjust for your class as appropriate. For more discussion ideas, see the extensions section. Hold a town vote, deciding which group’s harvest strategy is “the best.” Encourage students to consider protection of habitat, endangered species, water sources, and forest health. Each student must vote for a project that is not their own to solve the toilet paper crisis.</p>
<p><b>Closure</b></p>	<p>Conclude by summarizing the definition of sustainability and asking what the students learned about how to harvest a forest sustainably. What is the best way to harvest? Is this the way that we are currently managing forests? How long will this ‘sustain’ the human population? There are a lot of tough questions that we don’t necessarily have answers to yet!</p>

**Extensions:**



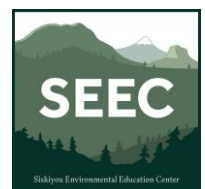
- Clear a space on the ground, and put all of the game boards next to one another. Imagine that this represents a much larger forest ecosystem. How would the cumulative harvest of all the groups affect the health of the ecosystem? Is there enough forest left to maintain a healthy system over the whole area? Can intensive management in one area be offset by small-scale management in others?
- A wonderful project would be for your class to actively participate in a local restoration project. The Lomakatsi Restoration Project ([lomakatsi@hotmail.com](mailto:lomakatsi@hotmail.com)) is a local organization that works to restore forested areas, and is a great starting point for information. Watershed councils also undertake restoration projects and would be happy to have a group of young and vibrant volunteers! To find your local watershed council, check out this website: <http://oregonwatersheds.org/councils>
- Have the students write papers explaining how their lives would be different if there were no more forests. The following are a few examples of the type of insights to look for: absence of many material items (toilet paper, pencils, clothing, rubber, etc.); extinction of numerous plant and animal species; severely diminished water quality and availability; elimination of recreational opportunities; elimination of possible food and medicine sources; increase of atmospheric carbon dioxide. In addition to simply stating these conditions, look for ways the students perceive their everyday-lives to be altered/affected because of these differences

## Modifications:

- **Lower Elementary:**
  - Work through the activity as a class, providing each student their own map (paper copy) to work on. You could choose to work through several scenarios together and compare solutions from students. Assign each scenario a different color so that students are able to visualize the requirements for each harvest method.
- **Upper Elementary/Lower Middle School:**
  - Many harvests are repeated after it has been replanted with seedlings. These harvests generally occur every 40 - 100 years, depending on the type of tree being harvested. Tell each group that their area of land will be harvested according to their scenario card, replanted, and then scheduled for the same harvest in 50 years. Will their area be able to accommodate the plan? What impacts would this have on the ecological health of the area?
- **Upper Middle School/High School:**
  - Extend the town hall portion of the activity by having each group create a PowerPoint presentation about their scenario to present to their peers. Have them create a restoration plan for their harvest based on their scenario. A restoration plan helps the



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forest recover after a harvest. It can include ideas such as replanting native trees and vegetation, providing nesting boxes for birds, controlled burns and planting native vegetation along streams to reduce erosion.

