
Forests for All



Objective

1. To help students understand the multiple uses of our forests, to both humans and the plants and animals that depend on healthy forests for survival.
2. To put students in the role of forest managers, and to discuss the ecological consequences of different management techniques.

Materials

- Forest Products You Can Find At Home laminated sheets (10)
- Cobbly Creek Map game boards (10)
- Laminated Scenario Cards (10)
- Green Dry erase markers

Background Information

Forests provide a multitude of products and uses for humans. Over 5,000 products that we use come from or are derived from trees, including timber, paper, toothpaste, tires, clothing, and medicine. The forests also provide recreation opportunities such as hiking, biking, bird watching or simply enjoying the peace and quiet of the woods. They also play a very important role in providing us with clean drinking water.

Besides humans, there are thousands of species of plants and animals that make use of the forest. To them, the forest is home, and provides the food, water and shelter necessary to live and prosper. Many of these species are very small, but some (bears, spotted owls, wolves and others) require very large tracts of undisturbed forests in order to survive and reproduce successfully. Without a healthy forest system, these creatures would not be able to survive. Everything needs a home, and these forest species are no exception.

The rivers and streams that run through the northwest forests provide habitat for hundreds of distinct salmon runs. Streamside vegetation provides both shade and cover for the fish, and heavy logging has been shown to increase sedimentation and water temperature. Both of these conditions are detrimental to the survival of salmon.

Appropriate Grade Level: 5th and up
Time Required: approx. 45 - 60 mins

Curriculum Benchmarks:

Unifying Concepts and Processes – ID interactions among parts of a system, describe actions that cause or prevent change (Grade 5)

Life Science - ID/describe factors that influence or change populations (Grade 8), describe and analyze the effect of humans on an ecosystem (CIM)

Social Science- ID, analyze, and select course of action to resolve issues (common curriculum goals)



Historically, the management of our forests has been driven mainly by economics to meet the needs of a rapidly growing population. As a result, there is little left of the intact, old-growth forests that once blanketed huge portions of the country. According to current estimates, 85 – 97% of the forested land in the United States has been logged, and we continue to log the small percentage of remaining old-growth forests. This wide-ranging and unsustainable harvest history has resulted in increased extinction rates, more erosion and flooding, and diminished water quality.

Sustainable forestry is an idea that is gaining momentum, and provides a means to manage forests in an economically viable, environmentally friendly, and socially beneficial way. The overall goal of any kind of sustainable management is to meet the needs of humans while allowing natural processes to continue. Thinking about and planning for the long term takes precedent over short-term economic gain and environmental degradation. Timber is still harvested and forest products are still provided, but not at the expense of ecosystem health. Ideas like sustainable forestry are essential if we are to achieve a balance between the needs of people and the needs of the natural world, today and into the future.

Activity

1. Begin this activity with a discussion of the uses of forests. Ask students, “How many products can you think of that are made from trees?” Elect one or two students to write the list of responses on the board.
2. After this initial discussion, divide the class into groups of 2-4 students, so that there are no more than 10 groups. Distribute a copy of the Forest Products sheets to each group. Give the groups 5 minutes or so to pick which of the listed products do *not* come from trees, and have each group share their results with the class.

The fact is that *all* of the products listed are made at least in part from trees! The basic message you’re trying to get across is that *forest products are very prevalent in our society and that almost everyone uses them every day.*

3. Ask the groups to each come up with a list of other uses that the forest provides besides tangible forest products. They may find this challenging, but you are trying to illicit responses like “homes for plants and animals”, “places to go hiking, biking, fishing...”, “clean air and water”, etc. If you need to, give hints like “think like an animal” or “do people go camping in the city, or in the woods? Why?” Have each group share their responses with the class. The main point is



that the forest provides many important uses to humans, plants and animals by simply being there.

4. Once the students understand the many uses of a forest, bring up the concept of forest management. Briefly discuss the idea that different methods and quantities of timber harvest produce different amounts of forest products, and can have varying effects of the health of the forest. 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?”
5. Introduce the concept of **sustainability**, which is simply defined as the management of resources so that productivity and the health of the natural community will both be maintained over time. 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).
6. Tell the groups that they will be playing the role of forest managers in the Cobbly Creek area. Distribute a game board 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 Northern Brown Spotted Ferret Weasel Bat, and the Sparkler Lily. Their habitats have been placed off-limits to logging, as indicated by a picture of these species on your map. There is also a large natural clearing called Sunrise Meadow, which is also shown on your map. Sunrise Meadow contains no trees, so it cannot be logged.



Your group is required to harvest timber from the area, based on the instructions given on your scenario card. 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.

7. Hand a scenario and dry erase marker out to each group. Tell the students to color in all of the squares of ‘forest’, indicated by a blank square that is not covered at all by one of the endangered species or the creek. They will then read their scenario, and erase 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.
8. 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.
9. 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!

Extensions

1. 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?*
2. Often times, managed forests are set on a schedule of repeated harvest, or a harvest rotation. When an area is logged, it is replanted with seedlings that are then harvested at a predetermined time in the future (generally 40 – 100 years later). 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 accommodate such a rotation? Will there be enough trees to repeat the same harvest? Would a rotation such as this have further impacts on the ecological health of the area? **For further exploration of how to maintain a sustainable harvest, have your students do Activity #10, Forever Trees.*



3. An important element of sustainable forestry is *restoration*. This is the process by which land managers assist in returning the forest to its natural condition. Give each group the assignment of not only managing according to their scenario card, but then developing a restoration plan to help the forest recover from any damage they may have caused. Ideas may include re-planting trees and native vegetation, building nesting boxes for birds, and restoring the natural vegetation and condition of streamside habitats. A wonderful project would be for your class to actively participate in a local restoration project. The Lomakatsi Restoration Project (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>
4. Optional assessment: 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

Glossary

Sustainability: the management of resources so that productivity and the health of the natural community will both be maintained over time

Restoration: the process by which land managers assist in returning the forest to its natural condition.

Additional Resources

Organizations

Forest Stewardship Council: <http://www.fscus.org>

Institute for Sustainable Forestry: <http://www.isf-sw.org>

PO Box 1580, Redway, CA 95560

707-923-4719

Wisconsin Paper Council: <http://www.wipapercouncil.org>

Lomakatsi Restoration Project: <http://www.lomakatsirestorationproject.org>

PO Box 3084, Ashland, OR 97520



Internet Resources

International Paper's Sustainable Forestry Challenge:

http://www.internationalpaper.com/our_world/sfi/sust_forestry1.html

Industry initiative and perspective on promoting sustainable forestry.

Sustainable Forestry Initiative: <http://goodforests.com>

Good source of information regarding aspects of sustainable forestry (water quality, biodiversity, reforestation, etc.)

Ecoforestry Institute: <http://www.ecofrestry.ca>

Provides an easy-to-understand list of the basic principles of ecological forestry.

California Forest Products Commission, "Forestry Facts":

<http://www.calforests.org/education/facts.html>

Short bits of information regarding California forests, wildlife, and forest management

"Ask and Idaho Forester": <http://www.idahoforests.org/forester.htm>

Questions and answers on many forestry related topics (forest health, fish and wildlife, forest products, forest management), provided by an Idaho forester

Literature

Aplet, et. Al. (ed.). 1993. Defining Sustainable Forestry. Island Press, Washington, D.C.

Gray, et. Al. (ed.). 2001. Understanding Community-Based Forest Ecosystem Management. Haworth Press, Binghamton, NY.

Higman, et. Al. (ed.) 1999. The Sustainable Forestry Handbook. Earthscan Publications, London.

Maser. 1994. Sustainable Forestry: Philosophy, Science and Economics. St. Lucie Press, Boca Raton, FL.

Orr. 1994. Earth in Mind: On Education, Environment, and the Human Prospect. Island Press, Washington, D.C.

