



Learning on the Great Lakes Seaway Trail

One of America's Byways

Chapter 2 – Through the Seasons in a Forest - *Seaway Trail Wildguide*

Lesson #1 Forests

Unit: Nurturing an Environmental Ethic

Lesson: The Importance of Plant Life to Natural and Social Environments

Subjects: Social Studies, Science

Developmental Level: 6 to 8 years old

Margaret Putman

NYS Learning Standards:

- Mathematics, Science, and Technology Standard 4: Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.

Objectives:

1. Students will recognize the interdependent existence of natural and social environments.
2. Students will recognize that localized environmental changes can have far-reaching results.
3. Students will actively participate in the restitution of the American chestnut tree.

Key Concepts:

1. Citizens' Environmental/Community Responsibility
2. Endangered and Threatened Species

Materials:

1. **The Lorax** by Dr. Seuss
2. Topographical map of the world
3. A picture of an American Chestnut tree

Essential Questions:

1. How do communities suffer when the environment is damaged?
2. Can some of history's environmental mistakes be corrected?
3. What are a good citizen's environmental responsibilities?

Management Reminders:

1. Review the importance of listening quietly and attentively.
2. Remind students that questions are welcome, but they must raise a hand to indicate that they have one.

Anticipatory Set:

1. Tell the students that the discussion today will be about the importance of trees to our community.
2. Ask students if they have heard of Arbor Day.
3. Ask students to consider what trees are good for.



Learning on the Great Lakes Seaway Trail

One of America's Byways

4. Briefly discuss the origins of Arbor Day. Point out Nebraska on a map or ask students if they know where Nebraska is on the map (depending on previous study of geography). Discuss the connection to northern New York.

Summary: Forests

North America has several distinct types of vegetation called biomes.

1. Arctic Tundra
2. Boreal Forest
3. Deciduous Forest
4. Prairie Grassland
5. Western Coniferous Forest
6. Desert

In the Northeast of North America the Biomes for the area are the boreal (Evergreen) forest and the deciduous (Summergreen) forest. The Seaway Trail has many types of trees found in these biomes. The most abundant types for this area are the balsam fir, white spruce, beech, and maple. There are several other kinds of trees as well (black spruce, jack pine, larch, tamarack, red maple, hemlock, hickory, basswood, yellow birch, northern red oak and ash.)

There are four layers that make up a climax forest.

1. **Canopy** - Top layer of a forest where the tallest trees stand as tall 120' or more. The leaves block a lot of the sun to the vegetation below.
2. **Understory** – The second highest level in the forest. They grow just underneath the tall trees and have smaller trunks.
3. **Shrub** – The next level is the shrub level where woody plants grow in clumps where they stand from one foot to 10' feet or more. These shrubs could not survive in an open field.
4. **Herbaceous** – (or non-woody layer) The plants are less than one foot high, but some have grown up to two to three feet high.

The deciduous forest has four distinct seasons; the seasons for a tree in a deciduous forest comes at different times compared to the calendar seasons we know. This is known as the Ecological Seasons. The canopy trees mark the beginnings of each ecological season that affects the whole forest and all living creatures that live in the forest. Trees need the precipitation to be equal to or greater than the potential for evaporation. The duration of the growing season plays a major factor in tree growth. The tree must be able to produce seeds and manufacture enough carbohydrates to last through the winter.

Teach:

1. Read **The Lorax** by Dr. Seuss aloud to the class and show them the pictures.
2. After reading page three, ask if any of them would like to live in the place that is pictured and described.
3. After reading page fifteen, ask if any of them would like to live in the place that is pictured and described.
4. After reading page twenty-three, ask them why the trees need someone to speak up for them.



Learning on the Great Lakes Seaway Trail

One of America's Byways

5. After reading page thirty-three, ask the students what is happening to the Truffula trees.
6. After reading page thirty-seven, ask the students why the Brown Barbaloots have to leave.
7. After reading page forty-three, ask the students why the Swomee-Swans have to leave.
8. After reading page forty-seven, ask the students why the Humming-Fish have to leave.
9. Ask students “In real life, if a pond got polluted, could the fish choose a new pond to live in?”
10. After reading page fifty-one, ask the students what happened to all of the Truffula trees and who was responsible for their disappearance.
11. At the end of the story, ask students to consider who in the story was responsible for the disappearance of the Truffula trees (all those who participated in their overuse) and who suffers because of their loss (the entire community). [*Citizens' environmental/community responsibility*]
12. Ask students to recall (from previous lessons) what a “citizen” is.
13. Ask students which characters in the story they thought were being good citizens.
14. Ask students if they know what “threatened,” “endangered,” and “extinct” mean in regard to plants and animals.
15. Briefly discuss local animals and plants that are threatened, endangered, or have become extinct.
16. Discuss the disappearance of the American Chestnut tree due to the introduction of a fungus from a Japanese tree species. Use a world map to indicate the Appalachian mountain range as well as the location of Japan in relation to the United States. Emphasize the loss of food, resources, and industry due to the decline of the American chestnut. [*Endangered and threatened species*]

Guided Practice:

1. Explain to students that the seeds of nut trees, such as the American chestnut, are inside the nut.
2. Cut open an American chestnut seed to show the students the seed within.
3. Each student, with the help of the school groundskeeper, will plant an American chestnut seed in the school garden. Explain that the trees, which survive, will later be transplanted around the school grounds. [*Citizens' environmental/community responsibility*]

[*Note: This part of the lesson is not appropriate for schools in the Appalachian Mountain range because pure American Chestnut trees can no longer survive in their natural habitat.*]

Closure:

1. Why is it important for citizens to protect the environment? [*Citizens' environmental/community responsibility*]
2. Record student responses on a flip chart for consideration throughout the remainder of the unit.



Learning on the Great Lakes Seaway Trail

One of America's Byways

Additional Instructor Resources:

1. The American Chestnut Foundation: <http://chestnut.acf.org/>
2. The National Arbor Day Foundation: <http://www.arborday.org/>
3. The New York State Department of Environmental Conservation Endangered Plant Species: <http://www.dec.state.ny.us/website/df/privland/forprot/endspec/>
4. The New York State Department of Environmental Conservation Threatened and Endangered Fish and Wildlife Species:
<http://www.dec.state.ny.us/website/dfwmr/wildlife/endspec/etsclist.html>