



National Forests of Wisconsin and Puerto Rico

Summary:

Students utilize a variety of technology (PowerPoint, Internet, video, CD-ROM) to learn about the similarities and differences between the Chequamegon-Nicolet National Forest in Wisconsin and El Yunque Caribbean National Forest of Puerto Rico. At the end of the research, students participate in a game that requires them to apply the knowledge learned about the different forest ecosystems.

Background Information:

Although the Caribbean National Forest (CNF) is one of the smallest forests in the National Forest System, (28,000 acres or roughly 11,300 hectares), it is one of the most biologically diverse areas that the agency manages. Why is there so much rainfall in the Caribbean National Forest? Most of the rainfall in the CNF is orographic (associated with mountains) in nature. Moisture-laden air is carried by wind and forced to ascend over the mountains. The rise in elevation cools the air, causing condensation in the form of rain. The CNF is commonly divided into four forest vegetation types that are characterized by different variations in climate, soil, slope and the dominant tree species it is named after. Starting at the base of the mountain to the top are the Tabonuco Forest (Rainforest), Palo Colorado Forest, Sierra Palm Forest, and Cloud (Dawrf) Forest. (See attachments for specific information on each forest type.)

The Chequamegon-Nicolet National Forest is located in Wisconsin's Northwoods, covering over a million and a half acres. It consists primarily of dry temperate forests. In general, this biome is located in most of North America, northeastern Asia and western/central Europe. Unlike the tropical forest biome, the temperate forests have distinct seasons, including winter. The temperate forest has a moderate climate and due to its latitudinal location has a growing season of 140-200 days and 4-6 frost-free months. The temperate forest biomes do not have the diversity of species of the tropical forest biome. Many have only six or eight species present per square mile. Broad-leaved trees are the dominant species found in the

Grade Level: 5th grade

Goal: There are differences among ecosystems.

Key Concepts: The type of forest community present on a site depends on soil and climate, but is also influenced by natural events and past management practices.

Objectives: Upon completion of this lesson, students will:
1) Compare and contrast characteristics of temperate and tropical forests.

Teaching Location: Indoor classroom

Lesson Time:
Three to seven sessions, depending on research time

Subject Areas for Infusion:
environmental education, science, social studies

Standards:
Environmental Education
B.8.6

Science
C.8.8
F.4.4

Social Studies
A.8.4-5

temperate biome. Some examples of temperate tree species are oak, beech, maple, hemlock, hickory, basswood, cottonwood, elm, and willow. Wisconsin's temperate dry forests also contain conifers. The temperate forests' soil is much more nutrient-rich than that of the tropics.

For more information see:

2003 annual report for Chequamegon-Nicolet National Forest of Wisconsin

<http://www.fs.fed.us/r9/cnnf/reports/annual/2003.pdf>

Information from the UW-Stevens Point website- general information about forest biomes with links to specifics about Wisconsin forests

<http://www.uwsp.edu/natres/nres743/T1Clas.htm>

El Yunque Forest Facts

<http://www.southernregion.fs.fed.us/caribbean/forest.htm>

<http://www.southernregion.fs.fed.us/caribbean/resources3.htm>

Vocabulary

Tropical Forest: a forest that grows in "winterless" tropical climates with high temperatures and generally high annual rainfall.

Temperate Forest: a forest that grows in regions with moderate temperatures, found north and south of tropical forests.

Orographic: weather associated with mountains

Materials:

- Explanation of Wordsplash activity for teacher
- "National Forests" PowerPoint Slideshow (available on g:drive)
- Explanation of ABC summarizer for teacher
- "Wisconsin Forests Forever" CD-ROM and teacher's guide p. 93
- "Name That Forest?" worksheet for teacher (attached)
- Maps showing location of Chequamegon-Nicolet and El Yunque Forests

Set-Up:

1. Assign students to independently do a Wordsplash with the topic of "forests" prior to doing introductory lesson.
2. Arrange for LCD projector for classroom and access to computer lab.

Procedure:

Introduction (Day 1)

1. Have students share their Wordsplash assignment.
2. Share the PowerPoint slideshow presentation with students and have them predict which pictures are represented from the Chequamegon-Nicolet National Forest of Wisconsin and El Yunque Caribbean National Forest of Puerto Rico. Flip quickly through the slides.
3. After flipping quickly through the pictures, go back through the presentation more slowly to verify students' predictions. (See the teacher's notes under the slideshow to help you give specific information about each picture).

Activity 1 – Getting to know El Yunque (Day 2-3)

1. Show students the video “Caribbean National Forest – El Yunque” (27 minutes).
2. Direct students to the USDA Forest Service Websites for the Caribbean National Forest <http://www.southernregion.fs.fed.us/caribbean/resources3.htm> and/or <http://www.southernregion.fs.fed.us/caribbean/forest.htm> to gather information about the characteristics of El Yunque. Students collect notes using the ABC summarizer sheet.

Activity 2 – Getting to know Chequamegon-Nicolet National Forest (Day 5-6)

1. Use “Wisconsin Forests Forever” CD-ROM for students to learn about northern forests of Wisconsin. Refer to teacher's guide p. 93 to direct students to the appropriate spot on the CD for the information.
2. Direct students to the internet site from the UW- Stevens Point Natural Resource 743 information <http://www.uwsp.edu/natres/nres743/T1Clas.htm> to gather more information about the characteristics about northern temperate forests of Wisconsin. (There's also information on tropical forests on this site.) Students will be required to take notes using graphic organizer while doing research.

Conclusion – Name That Forest? (Day 7)

1. Students participate in a game that requires them to apply the new knowledge learned about the differences and similarities of the national forests in Wisconsin and Puerto Rico. (See the sample statements that can be use for the game attached).
2. How to play: Divide the class into two teams. Each team should be lined up on opposite sides of the room. Write the names “El Yunque” and “Chequamegon-Nicolet” on the chalkboard. Give the first person in each line a fly-swatter and have them step up to the board. Read each statement aloud to the students and ring a bell after completing it. Students use the fly-swatter to slap the answer on the chalkboard they are choosing. **They may not slap the board before hearing the bell.** The first person to slap the correct answer at the appropriate time receives the point. If neither person chooses the correct answer, no points are awarded.

Assessment

Have student revisit the Wordsplash they made at the beginning of this study. Have them complete a Venn Diagram comparing and contrasting the El Yunque and Chequamegon-Nicolet National Forests.

References:

“Caribbean National Forest – El Yunque” (video), Eastern National, 2001

“Wisconsin Forests Forever” (CD-ROM and teacher’s guide), Wisconsin Forest Resources Education Alliance, 2000

“The Year in Review – Chequamegon-Nicolet National Forest 2003 Annual Report”, U.S. Department of Agriculture, Chequamegon-Nicolet National Forest, 1170 4th Ave. S., Park Falls, WI 54552

“El Yunque – Caribbean National Forest” (brochure), U.S. Department of Agriculture, Caribbean National Forest, P. O. Box 490, Palmer, PR 00721

El Yunque Forest Facts

<http://www.southernregion.fs.fed.us/caribbean/forest.htm>

<http://www.southernregion.fs.fed.us/caribbean/resources3.htm>

USDA Forest Service Websites for the Caribbean National Forest

<http://www.southernregion.fs.fed.us/caribbean/resources3.htm> and/or

<http://www.southernregion.fs.fed.us/caribbean/forest.htm>

UW- Stevens Point Natural Resource 743 information

<http://www.uwsp.edu/natres/nres743/T1Clas.htm>

UWSP- general information about forest biomes with links to specifics about Wisconsin forests

<http://www.uwsp.edu/natres/nres743/T1Clas.htm>

2003 annual report for Chequamegon-Nicolet National Forest of Wisconsin

<http://www.fs.fed.us/r9/cnnf/reports/annual/2003.pdf>

Sample statements for

Name That Forest?

Answer key = CN – Chequamegon-Nicolet EY – El Yunque

1. I am considered a dry temperate forest. – CN
2. I have only a rainy and a dry season present and no winter. – EL
3. I am known for having the largest diversity of plant and animal species of any biome. – EL
4. Though the overstory allows little light penetration, many plants, vines, and flowers thrive in the dark understory and forest floor. –EL
5. I have a moderate climate and due to my latitudinal location. -CN
6. My growing season of 140-200 days and 4-6 frost-free months. – CN
7. I may only have six or eight species present per square mile. – CN
8. I have four forest types. – EL
9. Some of my endangered species are the parrot and boa constrictor. – EL
10. Wolves are making a recovery in my ecosystem. –CN

(As students do research, pull more statements to use)

Forest Comparison Matrix

Characteristics	Item #1:	Item #2:

Summary of Learning: “What new knowledge have I gained from this comparison?”