Stewardship program educator's guide
online version

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www.nacdstore.org

Please submit information to share with others on your successful stewardship programs or conservation education activities.
stewardship@nacdnet.org

Thank you!

Special thanks to:

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- **NACD Text writer, Teresa D. Southerland, IN**

NACD Stewardship and Education
Committee 2010

<table>
<thead>
<tr>
<th>State</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idaho</td>
<td>Mr. Steve Miller, Chairman</td>
</tr>
<tr>
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</tr>
<tr>
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<td>Michigan</td>
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<tr>
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<td>Missouri</td>
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</tr>
<tr>
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<td>Mr. Norman Hammond</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>Mr. Richard Went</td>
</tr>
<tr>
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<td>Mr. Roy Gillis</td>
</tr>
<tr>
<td>Tennessee</td>
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<tr>
<td>West Virginia</td>
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</tr>
<tr>
<td>West Virginia</td>
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</tbody>
</table>

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# Table of Contents

**Forests for People**  
*More Than You Can Imagine!*

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>NACD Stewardship &amp; Education Committee</td>
<td>2</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>3</td>
</tr>
<tr>
<td>About NACD and Stewardship</td>
<td>4</td>
</tr>
<tr>
<td>NACD Forestry Education Material</td>
<td>5</td>
</tr>
<tr>
<td>Photo and Poster Contest Information</td>
<td>6</td>
</tr>
<tr>
<td>Level 1—Grade K-1 Booklet Objectives, Vocabulary and Science Standards</td>
<td>7</td>
</tr>
<tr>
<td>Level 1 Activity: Leaves and Me</td>
<td>8</td>
</tr>
<tr>
<td>Level 2—Grade 2-3 Booklet Objectives, Vocabulary and Science Standards</td>
<td>9</td>
</tr>
<tr>
<td>Level 2 Activity: Life in a Tree</td>
<td>10</td>
</tr>
<tr>
<td>Level 3—Grade 4-5 Booklet Objectives, Vocabulary and Science Standards</td>
<td>11</td>
</tr>
<tr>
<td>Level 3 Activity: Cones—More than meets the eye</td>
<td>12</td>
</tr>
<tr>
<td>Level 4—Grade 6 &amp; up Booklet Objectives, Vocabulary and Science Standards</td>
<td>13</td>
</tr>
<tr>
<td>Level 4 Activity: Careers in Forestry</td>
<td>14</td>
</tr>
<tr>
<td>Literature Connections</td>
<td>15</td>
</tr>
<tr>
<td>Forestry Bingo Activity and Forestry Resources</td>
<td>16</td>
</tr>
<tr>
<td>FORESTRY RESOURCES AND ACTIVITIES</td>
<td>17</td>
</tr>
<tr>
<td>Level 1 Worksheet: Leaves and Me</td>
<td>18</td>
</tr>
<tr>
<td>Level 4 Worksheet: Life in a Tree</td>
<td>19</td>
</tr>
<tr>
<td>Level 3 Worksheet: Careers in Forestry</td>
<td>20</td>
</tr>
</tbody>
</table>

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**Forests For People**  
*More Than You Can Imagine!*

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NACD Forestry 2011
The National Association of Conservation Districts is the non-profit organization that represents the nation’s 3,000 conservation districts, their state associations and the 17,000 men and women who serve on their governing boards. For almost 70 years, local conservation districts have worked with cooperating landowners and managers of private working lands to help them plan and apply effective conservation practices.

Conservation districts are local units of government established under state law to carry out natural resource management programs at the local level.

NACD's mission is to serve conservation districts by providing national leadership and a unified voice for natural resource conservation. The association was founded on the philosophy that conservation decisions should be made at the local level with technical and funding assistance from federal, state and local governments and the private sector. As the national voice for all conservation districts, NACD supports voluntary, incentive-driven natural resource conservation programs that benefit all citizens.

NACD maintains relationships with organizations and government agencies; publishes information about districts; works with leaders in agriculture, conservation, environment, education, industry, religion and other fields; and provides services to its districts. NACD is financed primarily through the voluntary contributions of its member districts and state associations.

The association's philosophy is that conservation decisions should be made by local people with technical and funding assistance from federal, state and local governments and the private sector. The association's programs and activities aim to advance the resource conservation cause of local districts and the millions of cooperating landowners and land managers they serve.

Visit www.nacdnet.org for additional information. To find your local district contact information, go to www.nacdnet.org/about/districts/directory/index.phtml

**STEWARDSHIP WEEK INFORMATION**

NACD has sponsored Stewardship Week since 1955. 2011 marks the 56th year to celebrate NACD Stewardship Week.

Education is a critical element of the conservation effort at the local, state and national levels. Educating youth ensures that the next generation will be wise stewards of America’s natural resources. Helping today's adults understand the need for effective conservation practices builds on the conservation legacy. Through NACD’s Stewardship and Education efforts, we help districts and communities extend the reach of their education programs.
NACD Forestry Education Material
Student booklets, bookmark, posters and more!

VISIT
www.nacdstore.org
and
www.nacdnet.org/education/resources/forestry

NACD/Auxiliary
POSTER CONTEST

2011 Poster Contest
Theme is
Forests for People
More Than You Can Imagine

You can find all the forms and rules online
and ideas for the 2011 theme at:

www.nacdnet.org/education/contests/poster/

NACD/Auxiliary
PHOTOGRAPHY CONTEST

Entries are due December 1st of each year
Photo entry contest form and rules can be
found online at:

www.nacdnet.org/education/contests/
Forests for People
More Than You Can Imagine
Level 1 *Designed for grade K-1*

**Booklet Objectives**

**Students will:**
- Differentiate between manmade and naturally occurring sounds.
- Compare tree parts and their functions to body parts and functions.
- Utilize deductive reasoning to solve riddles.
- Grasp the connection between forests and their daily needs.
- Recognize numbers and count objects.

**Vocabulary Words:**

**Bark** - The rough outer covering of the woody stems of trees or bushes.

**Leaf** - A green part that grows in various shapes from the stems or branches of a plant or tree and whose main function is photosynthesis.

**Trunk** - The main stem of a tree, excluding branches and roots.

**Seed** - A plant part produced by sexual reproduction that contains the embryo and gives rise to a new individual.

**Root** - The part of a plant that has no leaves or buds and usually spreads underground, anchoring the plant and absorbing water and nutrients from the soil.

**Litter** - Pieces of trash that have been carelessly left on the ground, especially in a public place or outdoors.

**Stomata**—A stoma (*pl.* stomata) is a microscopic pore on the surface (epidermis) of land plants.

**Science Standards**

1) **Unifying Concepts and Processes**
   Systems, Order, and Organization
   Evidence, Models, and Explanation
   Form and Function

2) **Science as Inquiry**
   Abilities Necessary to do Scientific Inquiry
   Understanding about Scientific Inquiry

3) **Physical Science**
   Properties of Objects and Materials

4) **Life Science**
   The Characteristics of Organisms
   Organisms and their Environments

5) **Earth and Space**
   Properties of Earth Materials

6) **Science & Technology**
   Abilities to Distinguish Between Natural Objects and Objects Made by Humans

7) **Science in Personal and Social Perspectives**
   Types of Resources
   Personal Health
   Characteristics and Changes in Population

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Leaves and Me
Examining the life cycles and benefits of leaves

Objectives:

Students will observe that leaves have many sizes, shapes and colors.
Students will relate the process of photosynthesis to eating and breathing.
Students will recognize the benefits of leaves to trees and humans.

Materials:

Leaves or pictures of leaves
Magnifying lenses if real leaves are available
Student worksheet (Page 20)

Discussion:

A) Show the class several different leaves or pictures of leaves. Point out that:
◊ leaves come in many different shapes and sizes
◊ leaves come in a variety of colors
◊ leaves help us identify the tree species

B) Ask the students they think leaves do for trees. Explain to them that leaves make food for trees:
◊ leaves get energy from the sun.
◊ leaves use the energy to change carbon dioxide and water into oxygen and sugar.
◊ leaves get carbon dioxide from the air we exhale.
◊ the sugar the leaves make is food for the trees.
◊ this process is called photosynthesis.

C) leaves have tiny holes on the bottom surface that are used to let carbon dioxide and water into the leaf. The holes also let oxygen and water vapor leave the leaf.

D) Ask the students what the leaves on trees do for us and write their answers on the board.
Point out that:
◊ we need the oxygen made by the leaves to breathe.
◊ leaves filter water and help keep it clean.
◊ leaves on trees give us shade.

Instructions:
Utilize real leaves if available—pictures can be substituted.
1. Divide the class into groups of 2-3.
2. Provide each student with a worksheet. (Page 20)
3. Provide each group with a leaf and a magnifying lens.
4. Invite students to examine the back of the leaf for stomata.
Forests for People
More Than You Can Imagine
Level 2 Designed for grade 2-3

Booklet Objectives
Students will:

♦ Differentiate between nouns, verbs, and adjectives
♦ Grasp the connection between animal and plant adaptations to survival in their biome.
♦ Apply deductive reasoning in decision making.
♦ Improve writing skills.

### Science Standards

1) **Unifying Concepts and Processes**
   - Systems, Order, and Organization
   - Constancy, Change, and Measurement
   - Form and Function

2) **Science as Inquiry**
   - Abilities Necessary to do Scientific Inquiry
   - Understanding about Scientific Inquiry

3) **Physical Science**
   - Properties of Objects and Material

4) **Life Science**
   - The Characteristics of Organisms
   - Organisms and their Environments

5) **Earth and Space**
   - Properties of Earth Materials
   - Changes in the Earth and Sky

6) **Science in Personal and Social Perspectives**
   - Types of Resources
   - Personal Health
   - Characteristics and Changes in Populations
   - Changes in Environments

### Vocabulary Words:

**Biome** - A division of the world's vegetation that corresponds to a defined climate and is characterized by specific types of plants and animals.

**Boreal** - Describes a region that has a northern temperate climate, with cold winters and warm summers.

**Coniferous** - Any tree that has thin leaves shaped like needles and produces cones.

**Species** - A subdivision of a genus considered as a basic biological classification and containing individuals that resemble one another and may interbreed.

**Deciduous** - Trees and bushes that shed their leaves in the fall.

**Evergreen** - A tree or bush that retains its foliage throughout the year.

**Taiga** - The subarctic coniferous forests located south of the tundra in North America, northern Europe, and Asia.

**Temperate** - A climate that has a range of temperatures within moderate limits.
Life in a Tree
Examine the interaction within a temperate forest

Objectives:
- Students will classify living and non-living organisms according to their role in the forest ecosystem.
- Students will role play the interrelationships of forest organisms.
- Students will recognize human influences on the forest ecosystem.

Materials:
Copies of Life in a Tree cards so that each student has a card, cards should be hole punched and attached to a piece of yarn so that students can hand the cards around their necks or clothes pin to clothes. Cards can be found at: http://www.nacdnet.org/education/resources/forestry ready to print.

Discussion:
◊ Discuss with students the differences in temperate, boreal and rain forests in regards to ecosystems and geographical locations.
◊ Turn the focus of the discussion to the temperate forest:
  Most trees have leaves that change colour in the fall and lose their leaves in the winter.
  These forests experience four distinct seasons.
  Temperate forests get an average of 30-60 inches of rain per year.
  Animals like birds, chipmunks and bears live in these forests.
  Many species of hardwood trees like maple, birch, hickory and oak live in these forests.
  Plants of all sizes live in temperate forests; moss, ferns and many others.
  Temperate forests are always changing due to the weather, animals, and people.
◊ Choose one particular tree and ask students what animals might live in the tree, what animals might use the tree for food, what plants might be growing near the tree and what ways humans might use the tree if it were harvested.

Instructions:
1. Move desks and chairs to the perimeter of the classroom so that there is an open space in which to carry out the activity.
2. Duplicate cards as necessary and give one card to each student. (http://www.nacdnet.org/education/resources/forestry)
32 Cards include: human activity, cyclist, hiker, forest logging, plants; ferns, moss, animals, ant, bald eagle, brown bear, cardinal, caterpillar, cricket, fawn, elk, fox, sparrow, porcupine, raccoon, rabbit, squirrel, hawk, scorpion, owl, rodent, spider, turkey, trees; maple tree, oak tree, birch tree, poplar tree, chestnut tree, and rotting log.
3. Instruct the trees and the fallen log to stand throughout your "forest" space. Remaining students will place themselves around and move within the forest during step #4.
4. Ask the following questions/read the following statements and ask students with responding cards to move into or out of place within the forest. A. What types of animals make their homes within the trunks of trees? B. Which animals live on the forest floor? C. It is fun to ride a bicycle on forest trails. D. What animals might live in a rotting log that has fallen to the forest floor? E. Where do insects like to live within the forest? G. It is good exercise to hike along forest trails. H. What animals make their homes in the uppermost branches of the trees? I. Where do birds find food? J. Where would animals live if half of the trees in the forest were logged to manufacture items that we use every day?
5. Conclude the activity by discussing the questions above with the students.
Forests for People
More Than You Can Imagine
Level 3 Designed for grade 4-5

Booklet Objectives
Students will:
♦ Recognize trees as a necessity to current lifestyles.
♦ Comprehend the interdependence of organisms within an ecosystem.
♦ Distinguish between renewable/non-renewable resources.
♦ Acknowledge affect of their behavior upon local habitats.
♦ Identify micro-structures within a tree.

Vocabulary words:
Biomass - The mass of living organisms within a particular environment, measured in terms of weight per unit of area.
Cellulose - The main constituent of the cell walls of plants and algae.
Decomposer - To break down organic matter from a complex to a simpler form, mainly through the action of fungi and bacteria.
Fungus - A single-celled or multicellular organism without chlorophyll that reproduces by spores and lives by absorbing nutrients from organic matter.
Fungi – Include mildews, molds, mushrooms, rusts, smuts, and yeasts.
Glucose - A six-carbon monosaccharide produced in plants by photosynthesis and in animals by the metabolism of carbohydrates.
Organic - Relating to, derived from, or characteristic of living things.
Lignin - The complex polymer in plant cell walls that gives the plant rigidity and strength, and is the major component of wood.
Pulp - Crushed wood or other materials that are used to make marketable products.
Renewable - Able to be sustained or renewed indefinitely, either because of inexhaustible supplies or because of new growth.

Science Standards
1) Unifying Concepts and Processes
   Systems, Order, and Organization
   Evidence, Models, and Explanation
2) Science as Inquiry
   Abilities Necessary to do Scientific inquiry
   Understanding about Scientific Inquiry
3) Evidence, Models and Explanation
   Diversity, Interrelationships, and Systems
4) Physical Science
   Light, Heat, Electricity, and Magnetism
5) Life Science
   The Characteristics of Organisms
   Life Cycles of Organism
   Organisms and their Environments
6) Earth and Space
   Properties of Earth Materials
   Changes in the Earth and Sky
7) Science & Technology
   Abilities to Distinguish Between Natural Objects and Objects Made by Humans
8) Science in Personal and Social Perspectives
   Types of Resources
   Personal Health
   Characteristics and Changes in Populations
   Changes in Environments
   Science and Technology in Local Challenges
Cones: More than Meets the Eye

Examine the life cycle, structures and scale activity of cones.

Objectives:
Students will examine a variety of cones.
Students will learn the difference between male and female pine cones.
Students will identify cone structures.
Students will explore the actions of cone scales in relationship to humidity.

Materials:
One or more cones per group of 2-4 students (real if available, photos or conifer tree ID book or internet source)
One ruler per group of students
One Ziploc bag per group of students (If access to real tree cones)
One sponge per group of students (If access to real tree cones)
Student worksheet (Page 22-23)

Discussion:
Discuss the physical characteristics of cones:
-A cone contains the reproductive structures of conifer trees.
-Cone-bearing trees include pines, cedars, firs, cypresses, spruces, larches and redwoods.
-Cone-bearing trees include pines, cedars, firs, cypresses, spruces, larches and redwoods.
-Male and female pine cones differ from each other in appearance. The woody, scaled structure we commonly think of as a
pcone is actually the female cone and can live for several years. Female cones are covered with woody scales that
overlap like fish scales and are usually in a spiral pattern. Male cones are smaller, tend to be herbaceous (fleshy) rather
than woody and usually only live for one growing season.
-Male tree cones rarely exceed a length of two inches (5cm) in length. They are covered with pollen sacks and fall off the tree
once they have released their pollen. The pollen travels by wind, birds or insects to the female cone.
-Female tree cones can range in size from one to twenty-four inches. The female cone can take up to three years to mature
after pollination. Fertilization occurs one year after pollination. There are two seeds on each fertilized scale of the female
pine cone.
-Female cones usually open to release their seeds when they reach maturity. Some seeds have "wings" and are dispersed
by wind, other seeds are dispersed by birds.
- Female cones usually open when they are dry and close when they are wet. They open when they are dry so that seeds
can be carried by the wind.
-A female cone can go through many cycles of opening and closing during its life cycle, even after seed dispersal is com-
plete. Opening and closing of the scales continues even after cones have fallen to the forest floor. The scales of fallen
cones can be an indication of the forest floor's moisture content; closed cones indicate damp conditions while open cones
indicate that the forest floor is dry. In areas prone to wildfires these fallen cones can be an important indication of risky con-
ditions.

Vocabulary Words:
Pollination- to transfer pollen grains from the male structure of a plant to the female structure of a plant and fertilize it.
Fertilization- the fusion of the sperm in the pollen from the male cone with the ovary in the female cone seed.

Instructions:
1. After the class discussion on cone structure ask students why cones are important (example: seed dispersal leading to
growth of new trees, how we use trees in our daily lives).
2. Divide the class into groups of 2-4 and distribute materials and worksheets to each group.
3. Instruct students to examine their cone and complete the worksheet. (Page 22-23)
4. Follow up discussion:
-The scales on a pinecone can indicate the amount of moisture in the air.
-If there is a lot of moisture in the air, the cones soak it up and the dampness causes the scales to close by curling inward.
This is an important environmental adaptation as it protects cone seeds from being released into damp conditions where
they could mold and rot.
- In dry conditions the scales open by curling outward. This allows the seeds to be carried by warm breezes to a new loca-
tion where they can fall to the soil and a new tree can grow.

Optional Extension:
Conclude this activity by allowing students to spread peanut butter on the cones, roll them in bird seed and place outside.
Enjoy watching local birds as they snack! (NOTE: Verify no peanut allergies with students & school)
Forests for People
More Than You Can Imagine
Level 4 Designed for grade 6 and up

Students will:
♦ Distinguish between native and invasive species.
♦ Recognize importance of drought in relationship to wildfires.
♦ Increase their awareness of the variety of organisms within a single ecosystem.
♦ Realize the interdependence of organisms and ecosystems and how change affects it.
♦ Comprehend the consequences of human activity related to wildfires.

Science Standards

1) Unifying Concepts and Processes
   Systems, Order, and Organization
   Evidence, Models, and Explanation
   Constancy, Change, and Measurement
   Evolution and Equilibrium

2) Science as Inquiry
   Abilities Necessary to do Scientific Inquiry
   Understanding about Scientific Inquiry

3) Evidence, Models and Explanation
   Diversity, Interrelationships, and Systems

4) Physical Science
   Properties of Objects and Materials
   Light, Heat, Electricity, and Magnetism

5) Life Science
   The Characteristics of Organisms
   Life Cycles of Organism
   Organisms and their Environments

6) Earth and Space
   Properties of Earth Materials
   Changes in the Earth and Sky

7) Science & Technology
   Abilities of Technological Design
   Understanding about Science and Technology
   Abilities to Distinguish Between Natural Objects and Objects Made by Humans

8) Science in Personal and Social Perspectives
   Types of Resources
   Personal Health
   Characteristics and Changes in Populations
   Changes in Environments
   Science and Technology in Local Challenges

Vocabulary Words:

Abiotic - The non-living components of an ecosystem such as sunlight, soil, or water.

Biomass - the living organisms within a particular ecosystem, measured in terms of weight per unit of area OR plant and animal material used as a source of fuel.

Biotic - Relating to life and living organisms, or caused by living organisms.

Decomposition - To break down organic matter from a complex to a simpler form, mainly through the action of fungi and bacteria, or be broken down in this way.

Ecosystem - A localized group of interdependent organisms together with the environment that they inhabit and depend on.

Micro-organisms - A tiny organism such as a virus, protozoan, or bacterium that can only be seen under a microscope.

Organic - Relating to, derived from, or characteristic of living things.

Wildfire - Uncontrolled fires that burn surface vegetation (grass, weeds, grain fields, brush, chaparral, tundra and forest and woodland). Most wildfires are caused by human beings.

http://www.nacdnet.org/
Working in the Woods: Careers in Forestry
Explore careers in forestry.

Objectives:
Students will evaluate the role of technological systems, political systems and population needs on forest management.
Students will explore the many careers in forestry and resource utilization.
Students will prepare resumes highlighting skills and interests.
Students will research and role play government and industry representatives as well as potential employees.

Materials:
Working in the Woods: Careers in Forestry student worksheet (Page 21)
Paper for printing resumes
Location in which to hold a career fair
Internet access for research

Instructions:
1. As a class discuss the role of America's forests in our daily lives.
2. As a class compose a list of possible careers in forestry.
3. Divide the class into groups of 3-5 and assign each group one or more careers to investigate.
4. Hold a "Career Fair".
   a. Divide the class in half. 50% of the class will represent employers, 50% will represent job seekers.
   b. Employers (groups of 2-4 students) should create a display promoting their company. Encourage "employers" to contact actual companies/organizations for brochures, handouts and freebies. Many are more than willing to donate materials for educational projects. Employers should be prepared to interview job seekers on the spot.
   c. Job Seekers (groups of 2-3 students) should prepare a resume and be prepared to be interviewed on the spot for employment.

Optional Extension: Assign each group the task of interviewing one individual with a career in forestry either in person or on-line. Share interview results or invite individuals into the classroom as a guest speaker.

Discussion:
Discuss a wide variety of forestry related careers in terms of their environmental impact, societal impact, private/public/government organization, skills, interests and required education.

Examples:
Botanist: If you love spending time in the woods and the laboratory you should consider a career in botany. We can be grateful to botanists for many of the medicines we depend on, foods we eat, fibers in the clothes we wear and building materials we sleep under. Forester: If you have strong organizational skills and you enjoy spending time in the woods you would probably enjoy a career as a forester. Foresters supervise the forests of the United States by directing forest activities related to economic, recreational, conservational, and environmental functions. Foresters provide expert guidance to individual landowners, the general public, and industry in an effort to keep the forests healthy and sustainable. We depend on foresters to come up with ways to make forests profitable but still protect them for future generations. Urban foresters manage urban trees. They are vital to our quality of life by dealing with issues such as air quality, storm water runoff, and property values. Rangeland Management Specialist: If you have good leadership skills, love the outdoors, like to work with people, have an interest in ecology and how both wild and domestic grazing animals affect ecosystems a career as a rangeland management specialist with the Forest Service may be for you. These specialists play an important role in all our lives as they manage public resources. Resource Conservationist: If you love all things outdoors then a career in natural resource management and conservation could provide you with a paycheck just for enjoying yourself! Resource managers help balance the needs of their community with the health and sustainability of local ecosystems in relationship to soil, water, forests, wildlife, fish, and recreational resources. We depend upon conservationists to develop programs that make the most productive use of our natural resources without damaging them. Wildland Fire Investigator: If you notice details that others miss and have a talent for solving puzzles a career in fire investigation may be for you. Determining the cause of a fire is essential for many reasons; identifying who/what is responsible for the fire, who may be responsible for suppression costs and property damage, documenting evidence if criminal acts are involved, and finally for the success of future fire prevention programs.

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Website Assistance: http://forestrycareers.org/
Literature Connections—Ages 4-8

Tell Me, Tree: All About Trees for Kids
by Gail Gibbons (Author)
Reading level: Ages 4-8

A Forest Habitat (Introducing Habitats)
by Bobbie Kalman (Author)
Reading level: Ages 4-8

Tell Me, Tree:

All About Trees for Kids
by Gail Gibbons (Author)
Reading level: Ages 4-8

We Planted a Tree
Diane Muldrow
Reading level: Ages 4-8

Literature Connections—Ages 9-12

Take a Tree Walk (Take a Walk series)
by Jane Kirkland (Author)
Reading level: Ages 9-12

Tree of Life: The Incredible Biodiversity of Life on Earth
(Aspca Henry Bergh Children’s Book Awards)
by Rochelle Strauss (Author), Margot Thompson (Illustrator)
Reading level: Ages 9-12

Wood (True Books: Natural Resources)
by Christin Ditchfield (Author)
Reading level: Ages 9-12

The Tree Book for Kids and Their Grown Ups
Gina Ingoglia (Author)
Reading level: Ages 9-12

• Trees, Leaves & Bark (Take-Along Guide)
  Diane Burns (Author)
  Reading level: Ages 9-12

Check at your local library for additional titles or at your favorite bookstore
NACD Forestry Education Activity

Great for any age!

Forestry BINGO!

FUN ACTIVITY!!!

Great for any age.

Participants will learn that trees are a renewable resource.

Trees play a role in our everyday lives.

Trees are an important component of keeping our water clean and more!

You can easily add in your local information and make up additional cards with photos from your community.

Download 30 Forestry Bingo cards and instructions at:

http://www.nacdnet.org/education/resources/forestry

Forestry Resources and Activities

Arbor Day tree guide offers detailed information on dozens of commonly planted landscape trees that grow throughout the United States. Here you will find information on height and spread, soil and sun requirements, leaves and fruit, history, wildlife habitat, and more.

http://www.arborday.org/trees/treeguide/index.cfm

Nature Explore is a collaborative program of the Arbor Day Foundation and Dimensions Educational Research Foundation. The goal of this comprehensive, research-based initiative is to help children and families develop a profound engagement with the natural world, where nature is an integral, joyful part of children’s daily learning.

http://www.natureexplore.com

http://www.arborday.org/explore/

Connection Children with Nature
Family Activities
Outdoor Classrooms
Family Toolkit
Learning with Nature Idea Book
And more!
US Forest Service
Conservation Education

http://fs.usda.gov/conservationeducation

Finding my Forest
Teachers Guide
For Grade 3-8
Lessons for students, family activity and a checklist for accomplishments on outdoor activities and more.

Teachers Guide available in PDF format at:
www.findingmyforest.org

Discover the Forest
http://www.discovertheforest.org/
Games, Activities and find a forest near you!

Natural Inquirer
A middle school science education journal
http://www.naturalinquirer.org/
To order or download PDF copies visit:
http://www.naturalinquirer.org/all-issues.html

The Natural Inquirer is a middle school science education journal! Scientists report their research in journals, which enable scientists to share information with one another. This journal, The Natural Inquirer, was created so that scientists can share their research with middle school students. Each article tells you about scientific research conducted by scientists in the USDA Forest Service.
A collection of activities for families to use in the outdoors. Great field day activities as well!

Visit http://learnoutside.org/familyactivities.html

These activities are modified from Project Learning Tree’s PreK-8 Environmental Education Activity Guide. The PreK-8 Guide can be obtained by attending a Project Learning Workshop. For more information on how to attend a PLT workshop please contact your state PLT coordinator. Visit http://www.plt.org/cms/pages/25_120_0.html for a listing.

Project Learning Tree helps young people gain an awareness of the world around them and their place within it. Blending a walk in the outdoors with a fun and engaging PLT activity creates a powerful learning experience for children of all ages. Take your children, grandchildren, neighbors’ or friends’ children outside and try one of these activities.

Below are examples of the great and fun activities. There are 12 different activities on the site.

Activity 2: Get in Touch With Trees
By way of our neighborhood trees and a mystery box, children will explore their sense of touch and discover different shapes and textures in nature.

Activity 12: Invasive Species
Throughout history, people have intentionally and unintentionally moved plants and animal species to new environments. Some of these species have proved beneficial, but others invade natural habitats causing environmental and economic harm.

Activity 23: The Fallen Log
It’s amazing how many things live in and on rotting logs. In this activity, kids become familiar with some of those organisms by observing fallen logs. They’ll gain an understanding of how decomposition takes place and a better appreciation for microhabitats and communities.

Activity 64: Looking at Leaves
In this activity, children will take a closer look at leaves and find out more about leaf characteristics and how leaves can be used to identify plants.

Activity 76: Tree Cookies
One way to learn about tree growth is to look at annual rings. Tree rings show patterns of change in a tree’s life as well as changes in the area where it grows. In this activity, you can trace environmental and historical changes using a cross section of a tree, or “tree cookie.”

Check out PLT’s Forestry Exchange Box program and see how you can exchange your local forestry information with another school!
http://plt.org/curriculum/PLTPreK-8_Activity%2020_Environmental%20Exchange%20Box.pdf
Forestry Resources & Activities

**Forestry Notes**
http://www.nacdnet.org/news/publications/forestrynotes/

Forestry information from around the country! NACD publication in partnership with the US Forest Service.

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**Dr. Arbor Talks Trees**
Lesson Plans and resources

http://urbanext.illinois.edu/trees3/guide.html

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**The “Celebrate Forests. Celebrate Life.” Campaign**

Campaign is the official U.S. celebration of the 2011 International Year of Forests. Coordinated by the National Association of State Foresters in partnership with the U.S. Forest Service, the U.S. celebration aims to elevate awareness and understanding of the value of America’s forests and showcase the connections between healthy forests, people, ecosystems and economies.

http://celebrateforests.com/

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**i-Tree**

http://www.itreetools.org/

i-Tree is a state-of-the-art, peer-reviewed software suite from the USDA Forest Service that provides urban forestry analysis and benefits assessment tools. The i-Tree Tools help communities of all sizes to strengthen their urban forest management and advocacy efforts by quantifying the structure of community trees and the environmental services that trees provide.

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**Printable Forestry Information page.**

4 total pages From NACD’s winter resource newsletter

www.nacdnet.org/news/publications/

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**Backyard Woods**

US Forest Service, NACD, National Arbor Day Foundation

www.arborday.org/backyardwoods

Backyard Woods provides a guide and tip sheets on how small acreage owners can enhance the scenery in their backyard woods, provide habitat for wildlife and utilize the land as an extra source of income.
Forestry Resources & Activities

**Forestry Scout Badge Information**

**Boy Scouts**
http://www.boyscouttrail.com/boy-scouts/meritbadges/forestry.asp

**Girl Scouts**
http://www.girlscouts.org/program/gs_central/insignia/

**Forests to Faucets**
http://www.forest-to-faucet.org/

This site offers presentations, software and answers to a variety of questions such as:

Why Forests Provide the Best Protection for Water Resources.

What are the Ecosystem Services of Forests?

What Are Forestry Best Management Practices?

And more!

**The United States National Arboretum**

The US National Arboretum has collected online resources on the science of fall foliage. The resources include “The Science of Color in Autumn Leaves,” a document describing the how’s and whys of color change in leaves; an extensive photo gallery of trees in fall color; and a list of “Selected Plants Providing Colorful Autumn Foliage.”

http://www.usna.usda.gov/PhotoGallery/FallFoliage/ScienceFallColor.html

**Find A Forest by State**

http://www.fs.fed.us/recreation/map/state_list.shtml

Find a forest in your state. USDA Forest Service

**4-H**

Check you local 4-H Extension office for information on their Forestry projects. You have a forestry classroom project and then the students could exhibit it at your local 4-H fair.

http://new.4-hcurriculum.org/projects/forestry/

**4-H Virtual Forest**

4-H Virtual Forest provides youth with an interactive Web-based learning experience that introduces the concepts of forest management to young people ages 9 -13. Learning modules complement 4-H experiential techniques and are consistent with the Standards of Learning for Virginia public schools. On this page you can find user’s guides, activity sheets, additional resources and SOL links for each module.

http://www.ext.vt.edu/resources/4h/virtualforest

**Canon Envirothon**

Competition for Middle and High School students

(depends on state program)

www.envirothon.org

Resources:
www.envirothon.org/resources/119.html

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Leaves and Me

Name ___________________________ Date ______________________

Leaves come in many different shapes, sizes and colors. Draw a line from the color word to the leaf it matches.

red  green  orange  yellow

Leaves Work Hard!

Fill in the blanks with the number of the picture that should be used in the sentence.
Leaves make food for trees. They get energy from the _________. Leaves use the energy to change carbon dioxide and water into oxygen and sugar. The sugar is food for the _________. We use our ________ to breathe in the oxygen the leaves make. Leaves help keep our ________ clean so that we can drink it. The leaves on trees give us shade so that we have a cool place to sit on a hot day!
Working in the Woods: Careers in Forestry

1. Career being researched:

2. Write a job description for this position:

3. What skills are necessary to succeed in this career?

4. What conservation/environmental concerns would this career address?

5. What political/social issues would this career address?

6. If you are interested in or enjoy ____________________________ this would be a good career for you.

7. What type of education is required to pursue this career?

8. What areas of the country would you most likely find employment?

9. What are some positive aspects of this career?

10. Are there any negative aspects to this career?

11. List of resources used for this career. ____________________________
Cones: More than Meets the Eye

Name __________________________________________     Date ______________________

What does “conifer” mean?
___________________________________________________________________________________

Examine your cone from a tree or photo. Place the answer to each question about your cone in the table.

<table>
<thead>
<tr>
<th>Is the cone woody or herbaceous?</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the length of the cone?</td>
</tr>
<tr>
<td>Are pollen sacs present?</td>
</tr>
<tr>
<td>Are the scales open or closed?</td>
</tr>
<tr>
<td>Are there seeds present in the cone?</td>
</tr>
</tbody>
</table>

What species of tree did your cone come from?
___________________________________________________________________________________

How are a trees cone’s seeds dispersed?
___________________________________________________________________________________

How can cones that have fallen to the forest floor be used to indicate the risk of a possible wildfire?
___________________________________________________________________________________

___________________________________________________________________________________

___________________________________________________________________________________
OPTIONAL ACTIVITY: Exploring cone scale action in relationship to wet/dry conditions:
1. Wet the sponge thoroughly with water and place it, along with your cone, into the plastic bag.

2. Seal the bag and examine the cone the next day. Are the scales open or closed?

3. Remove the cone from the bag and place it in a sunny window sill or on top of a heat register. Examine the cone the next day. Are the scales open or closed?

4. What caused the cone scales to open?

5. What caused the cone scales to close?

6. How does the opening/closing of the scales protect the seeds in the cone?