68 NAME THAT TREE

Overview

Tree species can be identified by looking at several different features: leaves, bark, twigs, flowers, fruits, and seeds. Even the overall shape of a tree can give clues to the tree's identity. In this activity, your students will learn more about trees by identifying, features. Afterward, they can play an active game that tests their knowledge of different types of trees.

LEVELS
Grades 2-8

CONCEPTS
- Populations of organisms exhibit variations in size and structure as a result of their adaptation to their habitats. (10.1)
- Biological diversity results from the interaction of living and non-living environmental components such as air, water, climate, and geologic features. (1.1)

SKILLS
Comparing and Contrasting, Classifying and Categorizing, Identifying Attributes and Components.

OBJECTIVE
Students will identify several trees using various structural characteristics.

MATERIALS
Part A: identification sheets (see Getting Ready), pencils, clipboards (optional)

Part B: leaves, slips of paper and paper sacks (optional)

TIME CONSIDERATIONS
Preparation: 60 minutes or more

Activity: 50 minutes (Part A), 30 minutes (Part B)

Background

Here is a rundown of characteristics people use to identify trees.

Needles or Broad Leaves

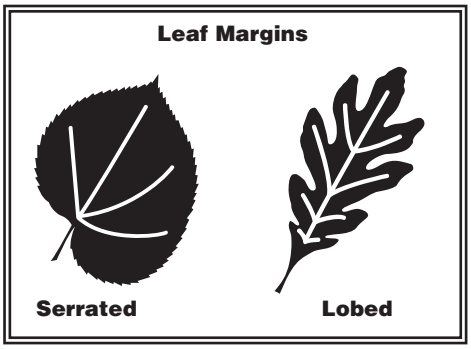
In the simplest sense, there are two kinds of trees in the world: ***conifers***, or ***coniferous*** trees, and ***broad-leaf*** or ***deciduous*** trees. Conifers have seeds that develop inside cones. Pines, spruces, hemlocks, and firs are all examples of conifers. For the most part, conifers also have needle-shaped leaves and they're ***evergreens.*** That means they don't lose all their leaves each year but instead stay green all year-round. Deciduous trees such as oaks, maples, beeches, and aspens have broad, flat leaves. They lose all of their leaves each year. Some trees, however, aren't typical conifers or deciduous trees. For example, larches have cones and needles but lose their leaves every year, yew trees have needle-shaped leaves and are evergreen but have berries and not cones, and holly is a broad-leaf tree that's evergreen.

The Shape of Things

The overall shape of a leaf gives clues to the tree's identity. For example, willows have long, slender leaves; cherry trees and swamp magnolias have oval-shaped leaves; and cottonwoods have triangular- shaped leaves. Similarly, fire needles tend to be flat, pine needles are rounded, and spruce needles are squarish. The shape of the leaves differ in many ways. For example, the tips of leaves may be notched, pointed, rounded, tapered, and so on. And the bases of the leaves may be squared, rounded, heart-shaped, and so on.

Margins

The edges or margins of leaves can also provide clues to the tree's identity. For example, some leaves have teeth (serrated) along their margins, some leaves are lobed, and some leaf margins are smooth (entire).

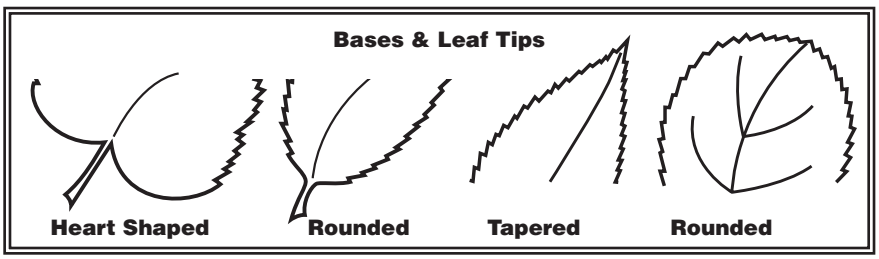


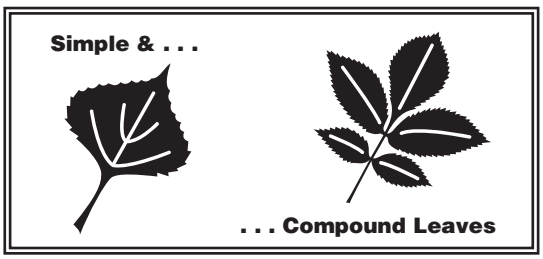
Textures

Some leaves are completely hairy, others have hairs on only one side, and others are completely smooth. Leaves may also be thick or thin, rough or waxy.

Simple and Compound

When most people think of leaves, they think of simple leaves. Simple leaves have only one piece to them (see diagram). Maple, oak, aspen, sycamore, and many other trees have simple leaves. Compound leaves, on the other hand, are made up of several





leaflets (see diagram). Ash, walnut, and sumac trees all have compound leaves.

Leaf Arrangements

Another characteristic to identify a tree is the way its leaves are arranged on the twigs. Many trees have alternate leaves that are staggered along the twig (see diagram). Other trees have opposite leaves that grow in pairs along the twig (see diagram). And some leaves grow in whorls, or are whorled (see diagram). The leaves on pines, spruces, firs, and other needle-leaved trees also grow in patterns. For example, leaves on pines may grow in clusters of two, three, or more.

Twiggy Clues

If you know what to look for, even leafless twigs on a tree can tell you the tree's identity (this is especially helpful when identifying deciduous trees in the winter). By looking at where the leaf scars or buds are on the twig, people can tell if the leaves grow in an alternate, opposite, or whorled pattern. (Leaf scars are the places on the twigs where leaves used to be attached.) The size, color, and shape of buds can be used to identify a tree. Spines and thorns on twigs can also help identify a tree.

Fruit and Flowers

Different trees produce different kinds of fruit, such as berries, winged seeds, nuts, pods, or some other type of fruit. Different conifers produce different kinds of cones. Different trees also have different flowers. The shape, color, texture, size, and other characteristics of both the fruit, cones, and flowers can be used to identify trees.

Bark Basics

Many people can identify trees just by looking at the color and texture of tree bark. For instance, bark may be shaggy, smooth, or rough; it may have deep furrows or markings. Paper birch is an example of a tree easily identified by its white, paper-like bark. However, when using bark to identify a tree, it's best to look at bark growing on the trunk rather than on branches and twigs (because the bark on a branch is thinner and newer, it may look quite different from the trunk). Bark also looks different as a tree gets older.

Shaping Up

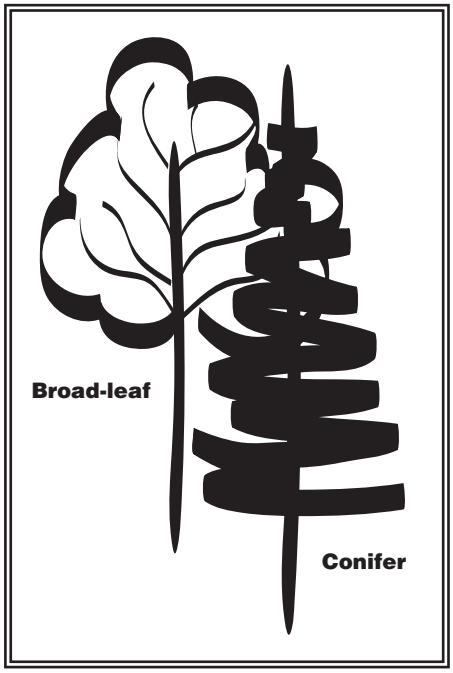
Many trees have characteristic shapes that can be used to identify them. In fact, just by glancing at the shape of a distant tree (and the color of its leaves), some people can tell what kind of tree it is. See diagram.

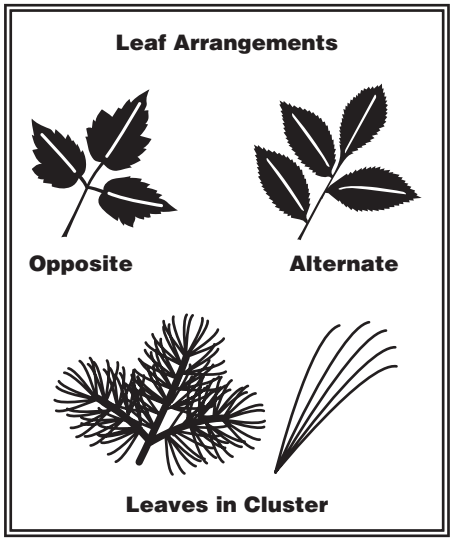
Getting Ready

Before doing this activity, you should identify 7-10 trees in your vicinity. If you don't have trees where you are, you can use shrubs instead. To identify the trees, you may use field guides; ask a groundskeeper or fellow educator to help; or enlist the help of a ***forester, naturalist, arborist,*** or other tree specialist. After identifying the trees, you will need to create tree identification sheets for the students to use. On one sheet, copy drawings of leaves from the different trees you identified. Under each leaf, write the tree's name.

On the second sheet, create clue "blocks" about each tree. The clues might describe the tree's bark and the shape of the tree. These clues should not, however, include phrases that tell the students where to look for that tree. For example, you should not include clues such as, "It grows near the gym." Under each set of clues, draw a line for the students to fill in the name of the tree after they've identified it.

Finally, collect twigs or small branches from two to four different trees, The twigs should be long enough to show several leaves. If possible, use twigs that have already fallen to the ground or have been pruned. Try to collect twigs from both needle and broad-leaf trees.





Reprinted; adapted with permission, American Forest Foundation, Copyright 1993, 1994 Project Learning Tree Environmental Education Activity Guide Pre K-8. The complete Activity Guide can be obtained by attending a PLT workshop. For more information call the National PLT office at 202/463-2462.

PART A
MYSTERY TREES

Doing the Activity

1. Ask students what characteristics they might use to identify trees. As they give their ideas, ask how they could use these characteristics to identify trees. List their ideas on a chalkboard.

2. Hold up the branches you collected earlier, or pass them around the room. Have students examine and compare them. Can students suggest any other ways they might be able to tell trees apart?

3. Use the background information to discuss ways people identify trees. Be sure to go over leaf characteristics such as leaf bases and tips, leaf margins (edges), simple and compound leaves, and alternate and opposite branching patterns, especially if students in Steps 1 and 2 did not suggest characteristics like these to differentiate between trees.

4. Divide the group into teams of three, and give each student a copy of both sheets you made earlier (see Getting Ready). Tell teams that they will use trees on the school property to match the drawings and names on sheet 1 with the tree descriptions on Sheet 2. Explain that first the students must find a tree whose leaves match the leaves on Sheet 1. Then, by examining the tree closely and comparing their observations with the clues on Sheet 2, they should be able to find a match. As they match tree characteristics with tree leaves and names, they should write the tree's name on the line below the clues.

5. Invite students outside, and let them get to work. Don't forget to set parameters for how far students may wander and how much time they have to work.

6. When back inside, go over the sheets as a group. Which team made the most correct identifications?

Part B
LEAF HUNT RELAY

Doing the Activity

1. Divide the group into teams and have each team collect three leaves from each of the trees identified in Part A.

Note—Encourage students to collect leaves that have fallen to the ground beneath the trees, rather than taking live leaves off the trees. They could also cut the proper leaf shapes out of paper and laminate them between two pieces of clear contact paper.

2. Take the students to an open area and explain that they will have a relay race. Line them up in their teams, and place each team's leaf pile a set distance in front of each team. Tell the students that you're going to call out the name of a tree and then say, "Go."

3. At the signal to go, the first student in each team should run to the pile of leaves, find the leaf that comes from the tree you named, and hold it up. Each team gets one point for each leaf correctly identified. The team with the most points wins.

Note—Depending on the level of the group, you may want to hold up a leaf shape rather than call out the tree's name.

4. After each round, put the leaves back in the piles, and ask players to go to the end of their team's line.

VARIATION-SPEEDY RELAY

1. Prepare a bag for each team, which contains slips of paper with names of the leaves they collected and sorted in steps 1 and 2 above.

2. Have students line up in their teams with their leaf piles a set distance away (Step 2 above), but this time put their bag of names at the front of each line.

3. When you give the signal, the first member of each team will reach in the bag and pull out a name. Then he or she should run to the pile of leaves, grab the leaf that matches the name, and run back to tag the next person in line. Each player does the same.

4. The team that finishes the race first and has correctly matched the names with the leaves, is the winner.

END NOTES . . .

ASSESSMENT OPPORTUNITY

Have the students create their own field guides to the trees they learned about during this activity. Explain that they should design their guides so that other students can use them to identify the trees. Their guides should include the characteristics they learned about, such as leaf shape, bark color and texture, and the branching pattern of leaves. They might want to include tree drawings, bark rubbings, or leaf prints in their guides.

RELATED ACTIVITIES

The Closer You Look, Looking at Leaves, Bursting Buds, Adopt a Tree, How Big is Your Tree?

REFERENCES

Elias, Thomas S. The Complete Trees of North America. Van Nostrand, Reinhold Co., 1980

Symonds, George W.D. The Tree Identification Book. Quill, 1958.

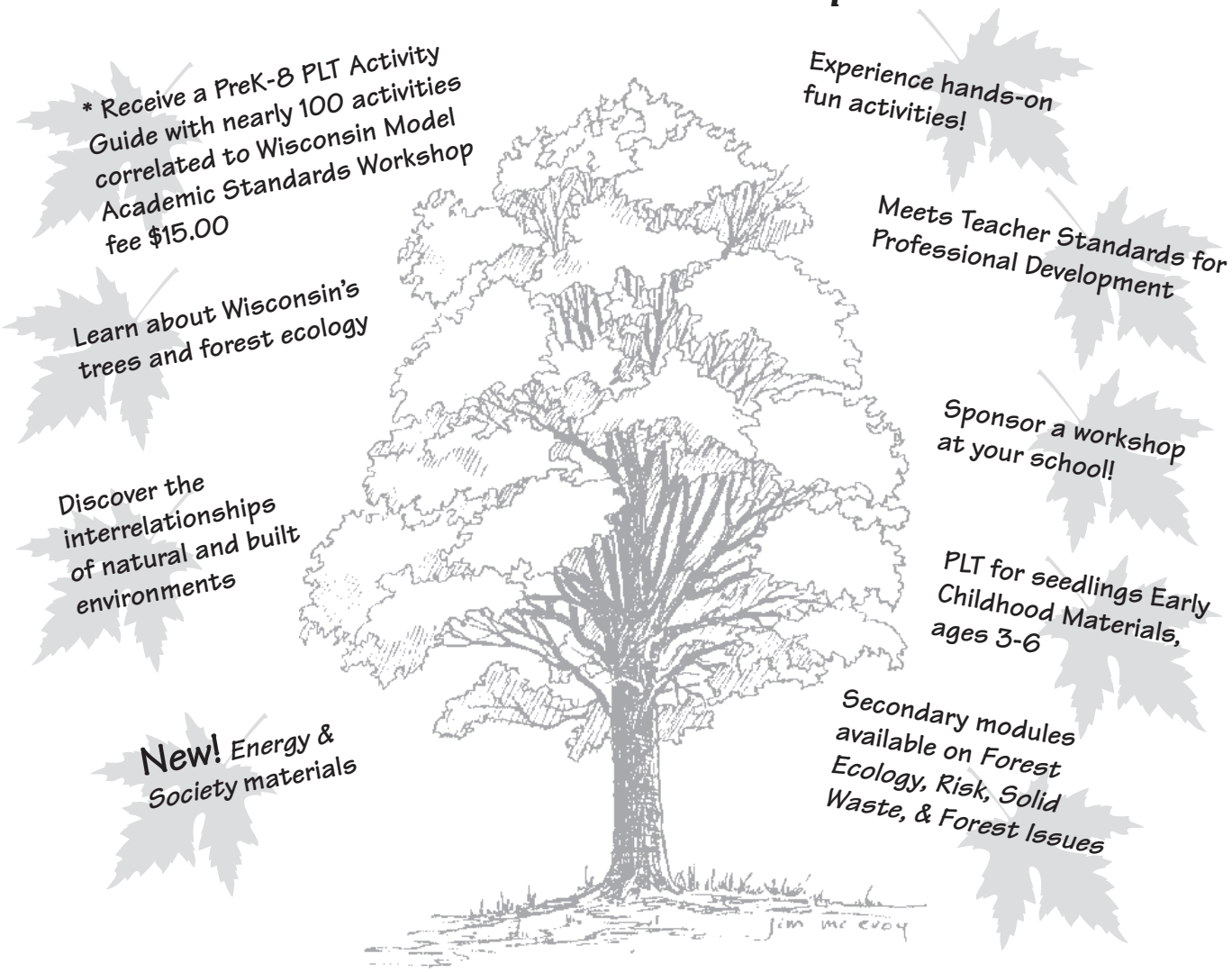
Petrides, George A. Peterson Field Guide to Trees and Shrubs. Boston, MA: Houghton Mifflin, 1972

Randall, W.R., R.F. Keniston, and D.N. Bever. Manual of Oregon Trees and Shrubs. Corvalis, or: OSU Bookstores, Inc., 1978

* Most state Natural Resource Departments have booklets and posters, that identify trees native to each state. Consider developing a classroom library about local trees.

Project Learning Tree (PLT)

An award-winning environmental education program for PreK-8 formal and non-formal educators. Go out on a limb . . . attend a workshop!



**Correlations available on the DNR website at http://www.dnr.wi.gov*
Click on Education and Training, a Activities and Projects, Project Learning Tree, then Educational Resources

---

Please send Project Learning Tree information and a workshop schedule to:

Name _____

Address _____

City/State/Zip _____

Daytime phone _____

E-mail _____

Questions? Call 608/264-6280 or e-mail betty.prescott@dnr.state.wi.us

Mail to: DNR – Project WILD/PLT
PO Box 7921
Madison, WI 53707

WISCONSIN DEPT. OF NATURAL RESOURCES

PLT

"I Know a Tree"

Grades: *K-6*

Subject: *Art, Language Arts*

Objective: *Students will write and illustrate a story or poem about a tree.*

Materials: **books about trees * paper * art supplies*

Background: *Nature has been a source of inspiration for writers and artists throughout history. In this activity students will listen to stories about trees, then write and illustrate a story or poem about a tree based on their personal experiences.*

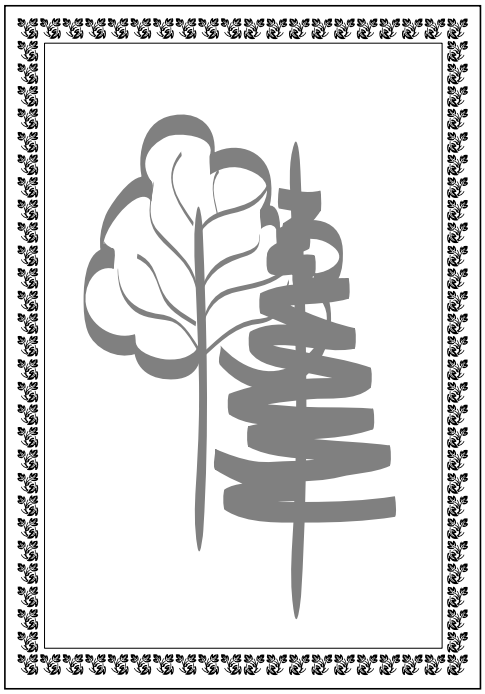
Procedure: *Read or let your students read a story or stories about trees. (A list of books for children and young adults is included in this content packet on page 13.) Ask them if they have any special memories about a tree or if there's a tree in their yard, neighborhood, on their school grounds or on the farmstead that they particularly like. Ask them "Why"? Have them write and illustrate a story or poem about the tree they've picked.*

Portrait Of A Tree

Grades: *4-6*

Subject: *Art, Language Arts, Visual Arts, Math*

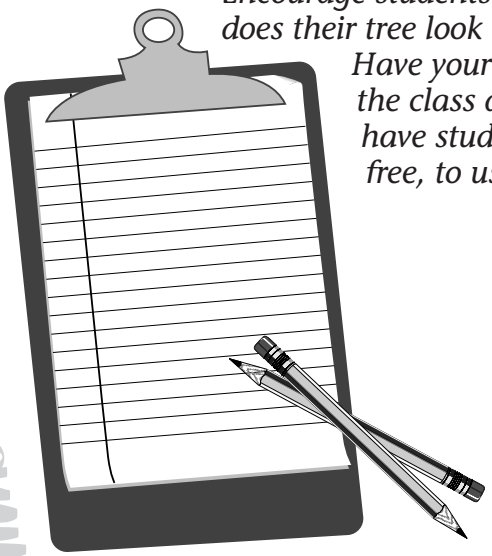
Objective: *Students will use personal observation and investigation to organize information about a tree and increase their awareness about the role of trees in the landscape.*



Materials: *paper, pencil, activity notebook, art supplies, clipboard, and ruler, tape measure.*

Background: *The blossoming in spring of Wisconsin's trees is welcome after the grayness of winter. As we watch trees daily throughout the spring, we notice that tree buds swell, that green leaves emerge on branches and that many trees flower.*

Procedure: *A good way for students to become more aware of spring, Earth Day and Arbor Day is for each one to adopt a tree. Have your students select a tree at school or home to observe and to study. Research about this tree's characteristics and contributions aides the adoption process. Recording all observations will help the student understand changes that occur over time. Encourage students to observe their tree in different ways, for example how does their tree look from a sitting position or when lying on their backs. Have your students share their experiences and data with the rest of the class and with other schools in their school district. If possible have students observe their tree during a three-week period. Feel free, to use or adapt the activity on the next page.*



Portrait of a Tree

*Name:*_____

Today is _____

_____

(enter date and weather)

You are going to find out more about all trees by observing and researching one special tree. Select a tree at school or home to study. Answer the questions below about your special tree. Try to use complete sentences and include as many interesting details as possible. Observe your tree over a three-week period.

1. What is the common name of your tree?

   _____

2. What is the scientific name of your tree?

   _____

3. My tree measures _____ feet and _____ inches around its trunk when I measure it at a point about 3 feet above the ground. It also measures _____ hands around and _____ footsteps around.

4. My tree's leaves or needles are _____ inches long. Its branches look like this. *(Draw what a branch from your tree looks like with budding leaves or growth of needles).*

5. The twigs on my tree's branches are arranged in an _____ *(opposite or alternate)* pattern.

6. Its first flowers or new cones appeared on _____ *(date)*.

7. Its bark feels: *(check one)*

   ☐ *rough* ☐ *smooth* ☐ *flaky* ☐ *bumpy*

8. People use my tree for: _____

   _____

   _____

   _____

9. Animals use my tree for: _____

   _____

   _____

   _____

10. What things does my tree depend on to grow healthy and strong? _____

    _____

    _____

11. How is my tree different from the other trees that live around here?

    _____

    _____

    _____

LEAF is a partnership program between
Wisconsin Department of Natural Resources - Division of Forestry
and
Wisconsin Center for Environmental Education
College of Natural Resources
University of Wisconsin-Stevens Point.

Learning, Experiences, & Activities in Forestry

WCEE/CNR, UW-Stevens Point, Stevens Point, WI 54481 ✦ 715/346-4956 ✦ leaf@uwsp.edu ✦ www.uwsp.edu/cnr/leaf

LEAF is Wisconsin's K-12 forestry education program.

We offer:

- A *Wisconsin K-12 Forestry Education Lesson Guide.* Unit based: K-1, 2-3, 4, 5-6, 7-8, 9-12; contains classroom lessons and field enhancements; and is correlated with Wisconsin Model Academic Standards.
- School forest assistance with education plans, management plans, resources, etc.
- Graduate level courses through UW-Stevens Point.
- Curriculum consulting.
- Connections to nature centers and private landowners offering forestry field trip experiences.

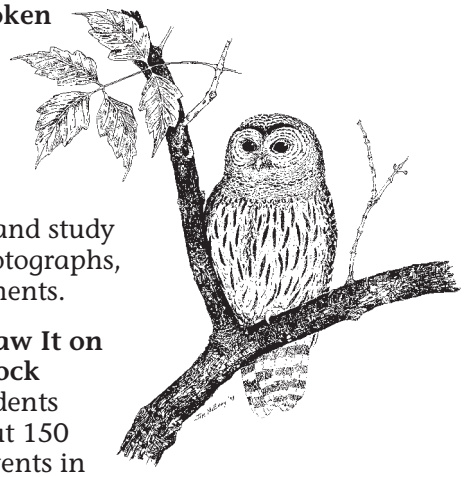
To receive a free LEAF lesson guide, background on forests and forestry in Wisconsin, and a free graduate credit sign up for a LEAF course today. Visit: www.uwsp.edu/cnr/leaf, call (715) 346-4956, or email leaf@uwsp.edu for a complete list of dates and locations around Wisconsin.

Overview of the LEAF 4th grade unit that you receive when taking a LEAF course:

Lesson 1 - Native Americans and the Forest. Students learn how Native Americans used the forests by reading the journal of an early explorer.

Lesson 2 - Forests Built Our State. Students explore the importance of forests to early settlers and learn how forests played a role in settling Wisconsin through a mapping activity.

Lesson 3 - Help Wanted-Lumberjacks. Students examine the steps involved in an 1800s logging process by following a tree from Wisconsin to Iowa.



Lesson 4 - Broken Dreams. Students role play farmers in Wisconsin during the "cutover" and study letters, photographs, and documents.

Lesson 5 - I Saw It on the 6 O'clock News. Students learn about 150 years of events in Wisconsin that have led to the forests of today by participating in a live newscast.

Lesson 6 - Forests are Important to You and Me. Students discover reasons why Wisconsin forests are important to our quality of life through guided imagery and an interactive media presentation.

Lesson 7 - Sustaining Our Forests. Students are introduced to the sustainability and stewardship of forests by listening to a fable, brainstorming, reading situation cards, and creating an art project.

Forestry Careers. Students learn about professionals in Wisconsin with forestry-related careers, skills used in each profession, and imagine themselves in a career.

Field Enhancement 1 - Unlocking a Forest's Past. Students uncover a forest's history, collect data, and make predictions about a forest.

Field Enhancement 2 - Are Forests Important Today? Students find out why forests are ecologically, economically, and socially valuable by exploring a forest.

Field Enhancement 3 - Caring for the Future of Forests. Students learn about tree growth and site selection by planting a tree in their schoolyard.