Forest Trees Of Wisconsin

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Illustrations by Amy Beyer.
For additional information on forest trees, see DNR Publication FR-053 2003.

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Division of Forestry
Wisconsin Department of Natural Resources
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Branch out and get wild . . . get involved!

"Project WILD" and "Project Learning Tree" are interdisciplinary, supplementary environmental education programs emphasizing wildlife and forestry. Get involved by attending a workshop in your area; participate in hands-on activities and receive a "Project WILD" and/ or "Learning Tree" environmental education activity guide. To find out how you can branch out and get wild, call (608) 264-6280, or write to Wisconsin Department of Natural Resources-Project WILD/PLT, PO Box 7921, Madison, WI 53707-7921.

"Project WILD" and "Project Learning Tree" guides include over 100 activities for PreK through 12th grade. Below is an example of an activity from the "Project Learning Tree" guide.

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

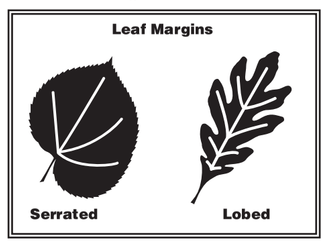
Activity: 50 minutes (Part A), 30 minutes (Part B)

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.

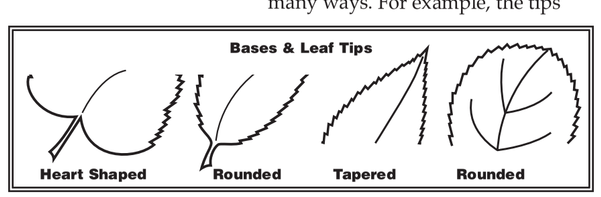
The Shape of Things
The overall shape of a leaf gives clues to the tree's identity. For example, willows have long, slender leaves; cherry trees and swamp magnolias have oval-shaped leaves; and cottonwoods have triangular- shaped leaves. Similarly, fire needles tend to be flat, pine needles are rounded, 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.

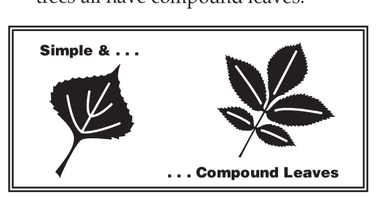
Margins
The edges or margins of leaves can also provide clues to the tree's identity. For example, some leaves have teeth (serrated) along their margins, some leaves are lobed, and some leaf margins are smooth (entire).



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.

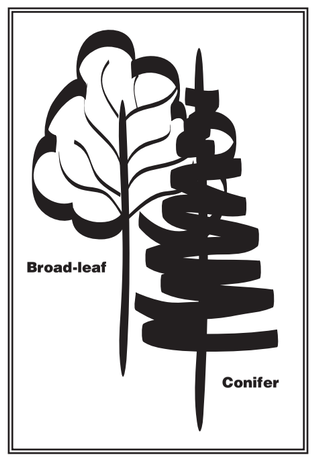
Bark Basics
Many people can identify trees just by looking at the color and texture of tree bark. For instance, bark may be shaggy, smooth, or rough; it may have deep furrows or markings. Paper birch is an example of a tree easily identified by its white, paper-like bark. However, when using bark to 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.

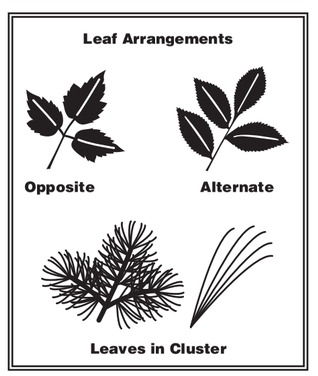
Shaping Up
Many trees have characteristic shapes that can be used to identify them. In fact, just by glancing at the shape of a distant tree (and the color of its leaves), some people can tell what kind of tree it is. See diagram.

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.

For additional information about Wisconsin's forests, contact the following:

WI Dept. of Natural Resources
Division of Forestry
P.O. Box 7921
Madison,WI 53707
(608) 267-7494

US Forest Service
Chequamegon-Nicolet National Forest
Rhinelander, WI
(715) 362-1300

Many WI communities have an urban or city forester. Contact your local government for information.

Contact your County Forest Administrator or County Cooperative Extension office.

L Pickel