

Oak or Maple? Tree Identification



OSU EXTENSION
4-H YOUTH DEVELOPMENT

Objectives

- Participants will learn to identify trees
- Participants will learn to use a tree identification key
- Participants will be able to identify 20 trees common to Oklahoma

Background

Learning to identify trees is necessary if you are to be successful in the 4-H Forestry Project. Although there are several parts of a tree which provide clues as to its identity, the part used most often is the leaf. Regardless of where a particular kind of tree is found, its leaves will look like all the rest of its kind. You will find that your enjoyment of the out-of-doors will steadily increase as you learn to recognize the different kinds of trees.

Learn Trees By Their Leaves

Trees may be recognized on sight when one learns to know them by their leaves. Trees of the same kind (species) always have leaves of the same shape, color, veining, arrangement on the twig, etc. Sometimes the size will be different because of the amount of water, plant food and sunshine available to the tree or part of the tree where the leaf grew.

Books that are available to identify different trees usually use the leaves as the most common way to recognize the different species. It will be necessary that you have available to you one or more manuals used in identifying trees. Most manuals have drawings or pictures that help in recognizing the leaves. The greatest secret in using any manual is to pay close attention to the details in the printed description.

The purpose of this lesson is to learn about leaves. First you must learn the different shapes, edges and arrangement of leaves. You can then use a book to learn one kind of tree from another by comparing the leaves. This is called leaf identification. When the leaf is correctly identified, then the name of the tree from which it was taken can be determined.

Materials:

- Identification key for trees
- Tree identification activity sheet
- Pencil

Life Skills:

- Keeping Records
- Critical Thinking
- Problem Solving
- Decision Making
- Learning to Learn

Oklahoma State University, in compliance with Title VI and VII of the Civil Rights Act of 1964, Executive Order 11246 as amended, Title IX of the Education Amendments of 1972, Americans with Disabilities Act of 1990, and other federal laws and regulations, does not discriminate on the basis of race, color, national origin, gender, age, religion, disability, or status as a veteran in any of its policies, practices or procedures. This includes but is not limited to admissions, employment, financial aid, and educational services.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Robert E. Whitson, Director of Oklahoma Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Vice President, Dean, and Director of the Division of Agricultural Sciences and Natural Resources and has been prepared at no cost to the taxpayer.

Five Types of Leaves and their Parts

When you begin to look carefully at the leaves from trees found in Oklahoma, or any place in North America, you will discover that there are only five different types. When you have learned to recognize these five types, you are well on your way to learning how to identify trees by their leaves.

A very important step is to learn how to recognize a complete leaf. What is sometimes called a leaf is in reality only a leaflet (part of a whole leaf). By following a simple system you can always tell whether you are dealing with a whole leaf, a part of a leaf or more than one leaf.

Start at the very tip of what you believe is a leaf (Figure 1). Follow the leaf to its stem and down the stem until it becomes fastened to the twig. A complete leaf is everything from the very tip until it becomes fastened to the bark-covered twig. In most cases there is also a bud at the point where the leaf grows from the stem. This will become clear as we take a closer look at the five types of leaves.

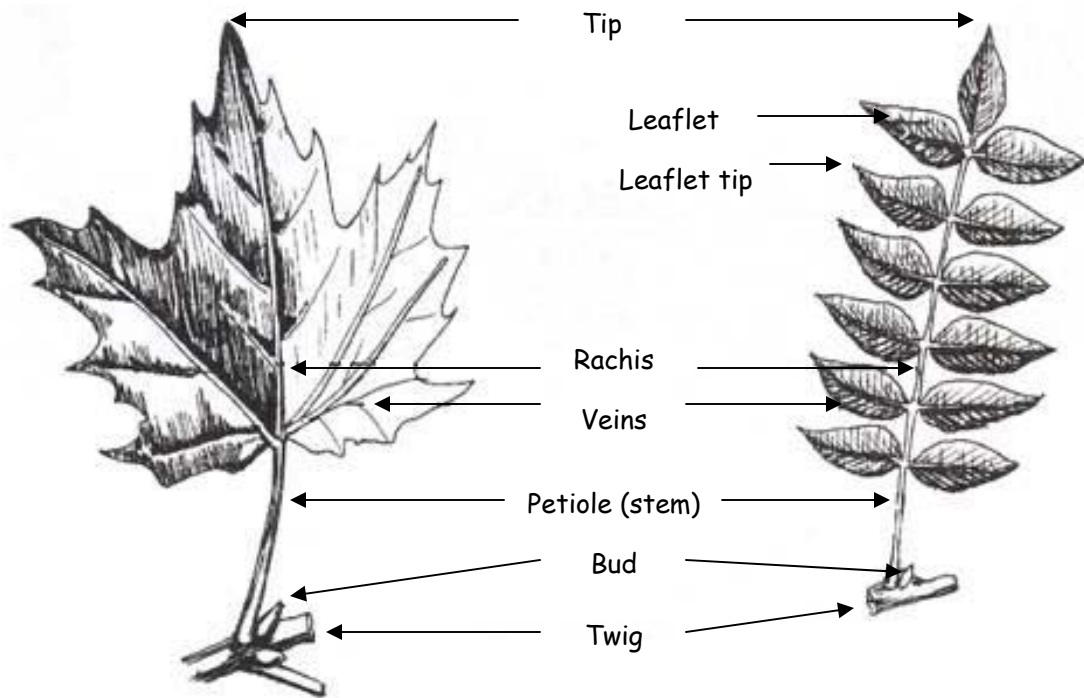


Figure 1: Parts of a Leaf

Simple Leaf (Figure 2)

This is the most common type of leaf and is the type found on oaks, elms, maples, willows, redbuds, dogwoods and many other kinds of trees.

Look carefully at the parts of the leaf. All simple leaves will have the same parts.

The size, shape and color of the leaf will be different from one tree to another and the margin (edge) may be smooth or rough (serrated) in others. The shape of the base and the length of the petiole (stem) will vary with different kinds of trees.

A simple leaf has only one complete leaf blade from the apex (tip) to where the petiole is fastened to the twig.

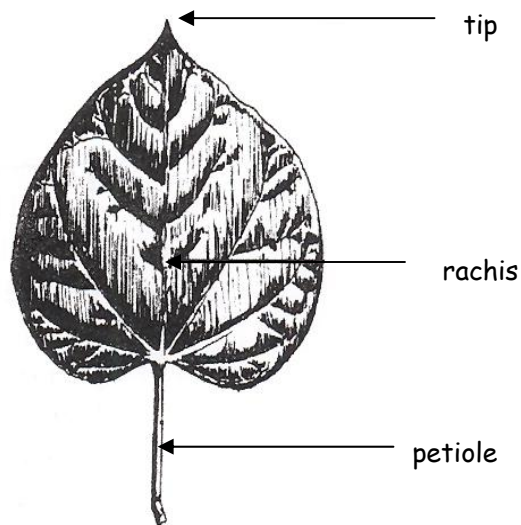


Figure 2: Simple Leaf

Pinnately-Compound Leaf (Figure 3)

Many kinds of trees found in Oklahoma have pinnately compound leaves such as: hickory, walnut, ash, black locust, honey locust and others.

Look carefully at the parts of this leaf. All compound leaves will have the same parts.

Start at the tip of a leaflet and trace to its base. You will not find a twig or a bud at this point so trace on down to the rachis and then to the petiole where it is attached to the twig. All of the parts are fastened to the rachis is one leaf.

You must look at the whole leaf before you can identify it. Often, the number of leaflets fastened to the rachis will separate one kind from another.

Trying to identify a tree by using only a part of the leaf, such as a leaflet, will only prove confusing.

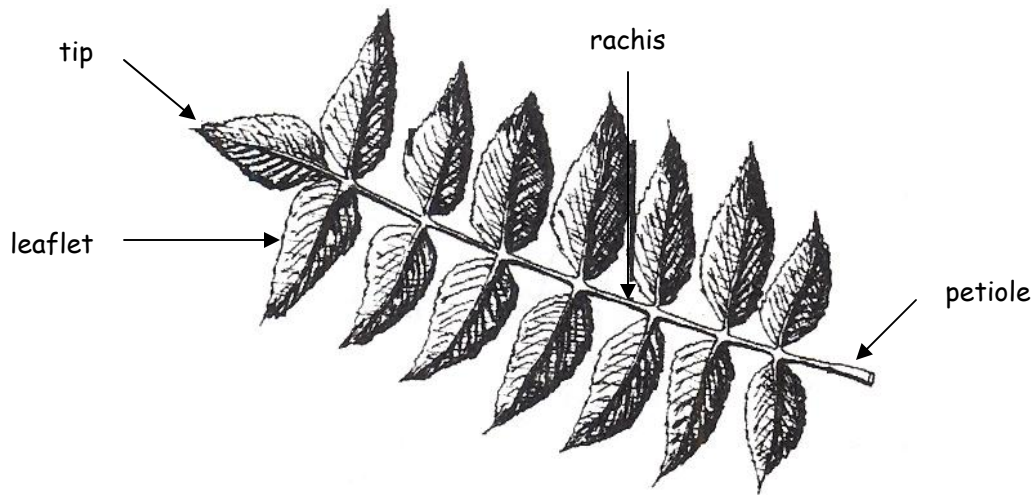


Figure 3: Pinnately-Compound Leaf

Bi-pinnately Compound Leaf (Figure 4)

Bi-pinnately compound type leaves, sometimes called twice-pinnate compound, form another tree group. There are fewer of these trees than in other groups. Kentucky coffeetree and mesquite are examples of this leaf type. Honey locust may have both pinnately and bi-pinnately compound leaves on the same tree. You will note that the leaflets are attached to lateral veins branching from the rachis thus resulting in a leaf which is two times (bi-pinnately) compound.

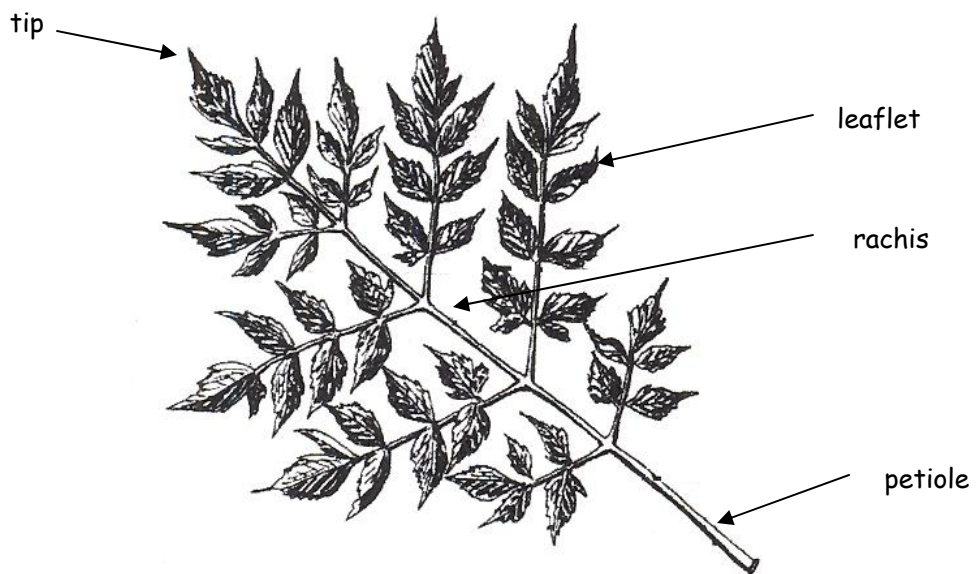


Figure 4: Bi-pinnately Compound Leaf

Palmately Compound Leaf (Figure 5)

Buckeye is the only native Oklahoma tree that has this type of leaf. The shape of this leaf can be easily remembered since the leaflets are attached at a common point much like the fingers are fastened to the palm of the hand.

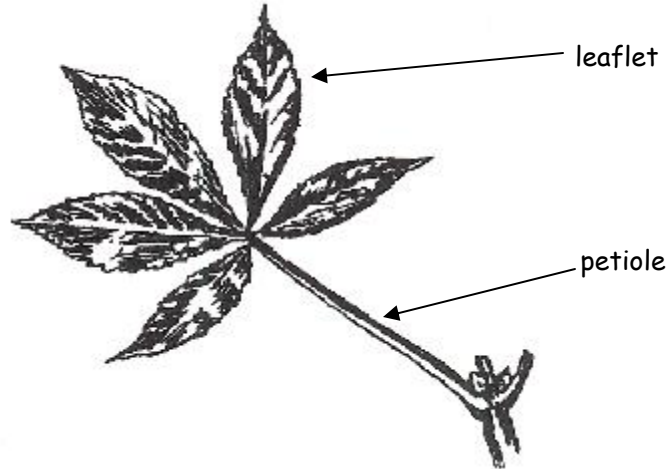


Figure 5: Palmately Compound Leaf

Trees with the four types of leaves discussed to this point are referred to as **BROADLEAF TREES**. This term simply describes the general appearance of the leaves. That is, they are more nearly wide and flat than narrow and round. This type of tree also loses its leaves in the winter. **EVERGREEN TREES**, discussed next, get their name from the fact that they remain green all year round (they do not lose their leaves).

Needle, Awl or Scalelike Leaf (Figure 6)

These leaf shapes are those found on Oklahoma evergreens. Only the native Oklahoma holly has a broad leaf which remains on the tree and stays green during the winter. Other broadleaf evergreens such as magnolia are not native to Oklahoma.

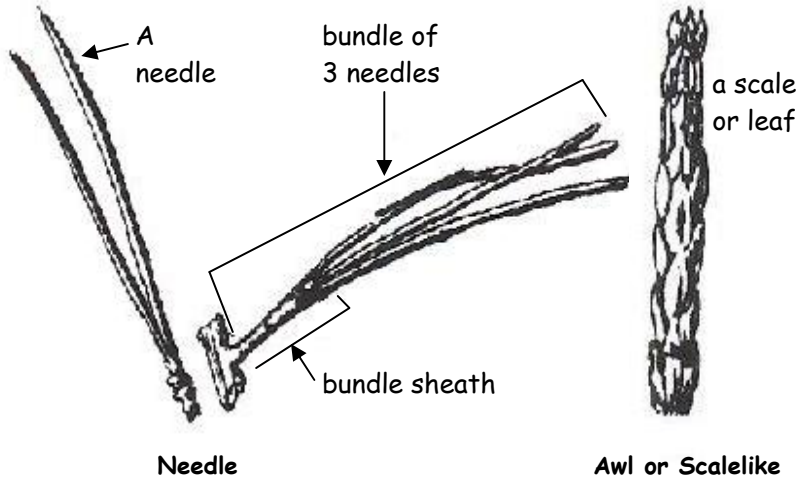


Figure 6

The leaves of the pine and cedar (juniper) are easy to recognize in either the summer or winter for their shapes are different from all other trees.

All pines native to Oklahoma have bundles which contain two or more needles and may even have bundles of both 2 and 3 needles on the same tree.

Other Things Used to Identify Leaves

Now that you have learned about the five types of leaves you are ready to look at some of the other things that make it possible to tell one kind of leaf from another.

Leaf Shape (Figure 7)

Some trees can be recognized easily by the shape of their leaves. You should carefully study the shapes of the leaves described in the identification manual you are using. The redbud, Oklahoma's official state tree, has a leaf which is heart-shaped. Other examples are sweetgum which is star-shaped and the post oak whose leaves resemble a cross.

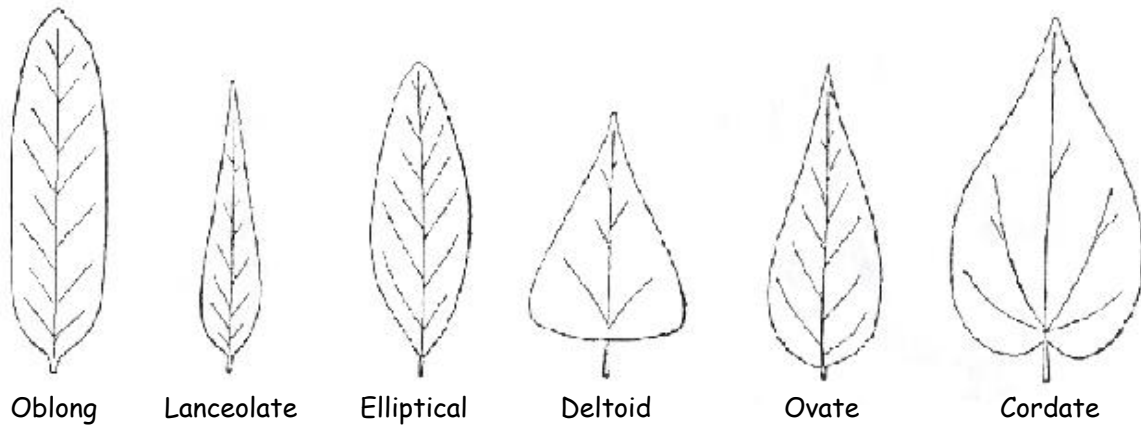


Figure 7: Leaf Shapes

Leaf Margins (Figure 8)

The margin is the edge of the leaf and is an important characteristic. Most manuals separate the margins into five types.

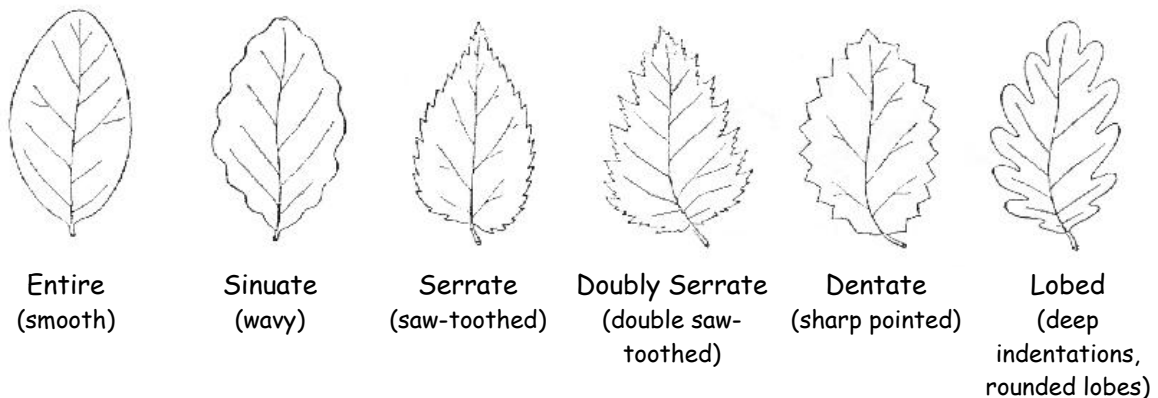


Figure 8: Leaf Margins

Leaf Surfaces

Most leaves are smooth and green, but some have a whitish "bloom" (which can be rubbed off with the finger) on the undersurface. Other leaves are hairy or velvety. A few, like the slippery elm, have an upper surface which is very rough and feels like a piece of sandpaper.

Learning to identify trees can become a fun and educational project if you first learn the basic characteristics of leaves. You have the opportunity to increase your awareness of the world around you. By developing an appreciation for trees through learning tree identification, you can be of help to your friends and others who are interested in learning about trees.

**Instructor Guidelines
for
Tree Identification Activity**

For this activity:

1. Determine which trees you would like for the participants to identify.
2. Number the trees 1, 2, 3, etc..
3. Using a tree identification key or field guide, determine the species of tree selected.
4. Once identified, write the common name of that tree in the appropriate box.

Note: If you are not familiar with trees or know how to identify them, you will need to involve another individual who can help in this process.

Tree Number	Common Name
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Activity Sheet

Tree Identification

For this activity:

1. Locate tree #1, #2, #3, etc...
2. Once located, using your tree identification key or field guide, identify the tree species.
3. Write the common name of the identified tree in the corresponding numbered box.

Tree Number	Common Name
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Contributing Authors

Kevin Allen, Ph.D.

State Extension Specialist — 4-H Environmental and Natural Resources
Department of Natural Resource Ecology and Management

Craig McKinley, Ph.D.

State Extension Specialist — Forestry
Department of Natural Resource Ecology and Management

Suggested Oklahoma Guides

A recommended study guide for Tree Identification is the 2002 revision of: *Forest Trees of Oklahoma* by Elbert L. Little, Jr.

A second resource with color photographs is the *Audubon Society Field Guide to North American Trees - Eastern Region*. This book is more expensive, with a cost of approximately \$20.00 at most retail bookstores; however, it may also be available at libraries or book stores.

Additional Resources

Oklahoma 4-H at <http://oklahoma4h.okstate.edu/index.htm>

Oklahoma 4-H Forestry Judging website at <http://nrem.okstate.edu/Extension/judging.html>

Oklahoma 4-H Forestry Judging Manual. 2007 revision.

4-H Forestry Program—Unit A: Trees

4-H Forestry program—Unit B: Forests

Oklahoma Forestry and Wildlife Camp website at <http://whatisforestry.org/youth-camp.php>

Oklahoma Cooperative Extension Forestry at <http://nrem.okstate.edu/Extension/pubs.html>

On-line Tree Identification Sites

<http://www.arborday.org/trees/treeID.cfm>

<http://www.dnr.state.wi.us/org/caer/ce/ee/veg/treekey/index.htm>

<http://www.uwsp.edu/cnr/leaf/Treekey/tkframe.htm>

<http://www.extension.iastate.edu/Pages/tree/key.html>

<http://www.cnr.vt.edu/DENDRO/DENDROLOGY/ident.htm>

http://forestry.about.com/library/treekey/bltree_key_id_start.htm

<http://www.cas.vanderbilt.edu/bioimages/tree-key/simple-leaf-trees.htm>

<http://forestry.msu.edu/extension/extdocs/Identkey/opening.htm>

<http://oregonstate.edu/trees/dk/start.html>

References Cited

The information included in this lesson was copied from *Learning About Tree Leaves* which was an Oklahoma 4-H Member's Guide written by Max R. Craighead, Oklahoma State University Extension Forester with the Oklahoma Cooperative Extension Service (1985).