Local Tree Identification Guide

Standards Addressed

Environmental Education Standards:

A. Questioning and Analysis: A.4.1, A.4.2, A.4.3, and A.4.4.

B. Knowledge of Environmental Processes and Systems: B.4.4 and B.4.6.

Key Concepts/ Content

- To build students' background knowledge of the different types of trees that grow in their local environment.
- To gain a basic understanding of how to classify trees based upon their leaf characteristics.

Teacher Background

A wealth of information about native trees for Wisconsin exists on the Department of Natural Resources website and in libraries or at your local arboretum. Before taking the students on a leaf-collecting trip, locate and identify several trees near the school or field trip area that are examples of typical Wisconsin trees. The very beginning of the school year would be the best time to undertake this project to ensure the availability of leaves to collect.

Getting Ready

Walk around outside to determine the types of tree leaves your students might collect. Obtain all the materials for the activity.

Safety Issues

You will need to obtain permission for the field trip and follow all district guidelines.

Materials Needed

- Trees to take samples from (it is suggested that for trees on private property, permission be obtained from the owner before samples of leaves are taken)
- Folders or large plastic bags to hold leaves
- *Forest Trees of Wisconsin*, poster and booklet (see references at the end of the activity)
- Supplies for constructing the final product

Procedures

1. Individually, in small groups, or even as a whole-class group, students should brainstorm the names of trees that they think are found in their local area. After these lists have been completed, the trees can be investigated using tree identification guides for Wisconsin to determine if they belong on the list.

2. After checking the trees on their lists against the tree identification guides, students should be encouraged to look through the guides to find any other trees they recognize and could add to their lists.

3. A field trip is then taken for the collection of leaf samples. The trip could be a walking tour around the school grounds or perhaps a nearby park. The students could be taken to the school forest or other natural area to collect samples.

4. Once the leaves are collected, and the students are back in the classroom, have the students sort the leaves, using their own sorting or classifying methods.

5. Then have the students use the tree identification guides to compare their sorting/classification systems with those used in the guides. An activity sheet is included that could be used by the students to help in the classification of their samples. Have the students reclassify the leaves according to the system listed in the reference guide *Forest Trees of Wisconsin, How To Know Them*.

6. Optional leaf collection activities:
    - Books can be created containing all of the information gathered about the local tree populations. These publications can be presented to other classes, perhaps younger grades studying similar topics.
    - Arranging similar leaves in a radial pattern can make leaf kaleidoscopes (see activity sheet). This pattern can then be moved onto the sticky side of one piece of clear contact paper. A second piece of clear contact paper can then be placed on top of the first piece, sandwiching the leaves inside the contact paper. The contact paper can then be trimmed around the contours of the leaf kaleidoscope. The kaleidoscopes look best when hung in direct sunlight.

Helpful Hint

Why Do Leaves Change Color In Autumn?

Trees such as oaks and maples change color in the fall. Cool fall temperatures and less daylight result in a tree producing less green pigment called chlorophyll. The other pigments in the leaf become more prominent: yellow (xanthophyll), orange (carotene), and red (anthocyanin). The brown pigment (tanin) remains after all other pigments have disappeared. The brilliance of the color depends on the amount of sugar stored in the leaf and the amount of autumn sunlight it receives. On average, a healthy mature tree will shed 200,000 leaves each year.

Evidence of Student Understanding

Develop a rubric that assesses student knowledge of sorting and classification, as well as understanding of the term classification and how leaf shapes are used to classify trees. You can develop this rubric with or without the students' participation. You can also conduct individual conferences where the students explain to you what they have learned from this activity. The students may also want to conduct conferences with each other discussing the essential knowledge they gained from doing the activity.

References/ Resources

- *Forest Trees Of Wisconsin How to Know Them*, DNR, Madison, Wisconsin, Bureau of Forestry, 1990. http://www.dnr.state.wi.us/org/land/forestry/treeid/index.htm

- *Urban Forestry Laboratory Exercises*, USDA Forest Service North Central Research Station, 1992 Folwell Avenue, St. Paul, MN 55108, and the USDA Forest Service National Resource Conservation and Education Program.

- Sohi, Morteza E., *Look What I Did With A Leaf!*, Walker and Company, New York, 1993.

- Gile, John, *The First Forest*, Worzalla, Stevens Point, WI, 1989.

- http://www.millenniumtree.org

Activity Sheet

Local Tree Identification Guide

Name: _____ Date: _____

Common Name: _____ Scientific Name: _____

CHECK OFF THE IDENTIFIED CHARACTERISTICS:

Is it?...

☐ Evergreen (the leaves stay on for more than one season)

☐ Deciduous (the leaves fall off at the end of a season and regrow in the spring)

EVERGREEN: Number of needles in a bundle _____

Length of needles _____

☐ Needles look scalelike

Description of Cones: _____

Color of Needles: _____

☐ Needles are grouped (2–5) with a wrapping (sheath) at the base = bundles 

☐ Needles are in a cluster right at the branch with no wrapping = clustered 

Leaf Types and Arrangement:

☐ Simple 

☐ Opposite 

☐ Alternate 

☐ Compound 

☐ Palmate 

☐ Pinnate 

Leaf Margins:

☐ Entire 

☐ Lobed 
Number of Lobes

☐ Serrated 

☐ Wavy 

Leaf Venations:

☐ Palmate 

☐ Pinnate 

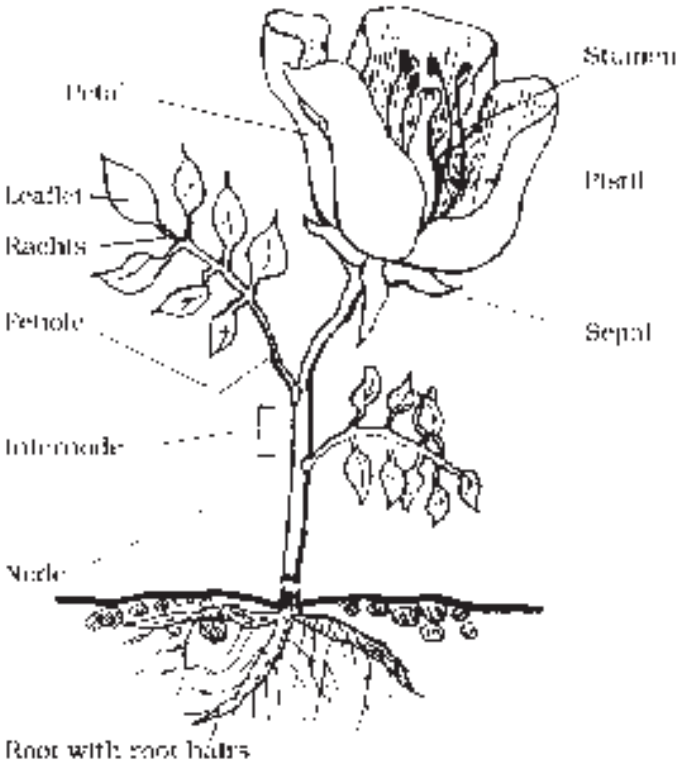
☐ Parallel 

Activity Sheet

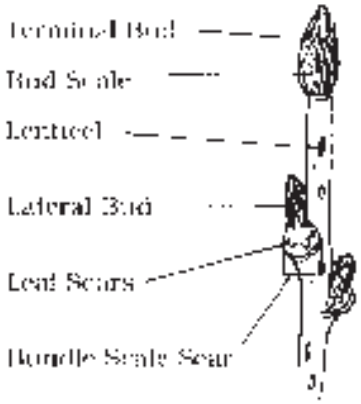
Local Tree Identification Guide continued

Some other common leaf shapes:

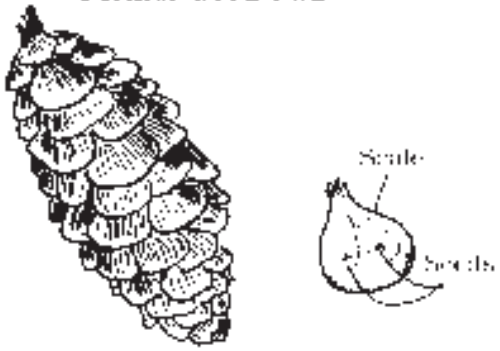
Inflorescence (flower) and plant parts



Buds are fun to look at in the winter.



Conifer Seed Pod

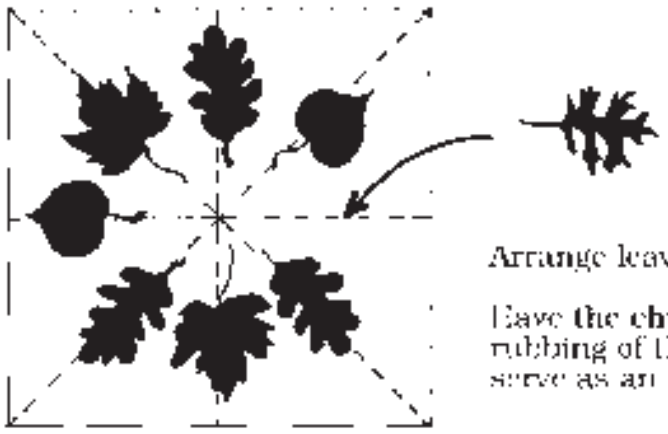


Some other root types:

Fruit and Seed Types:
Pome (apple)
Drupe (cherry)
Nut (acorn)
Cone with seeds (conifers)
Capsule (cottonwood)
Legume (black locust)
Compound fruits with small drupelets (raspberry)

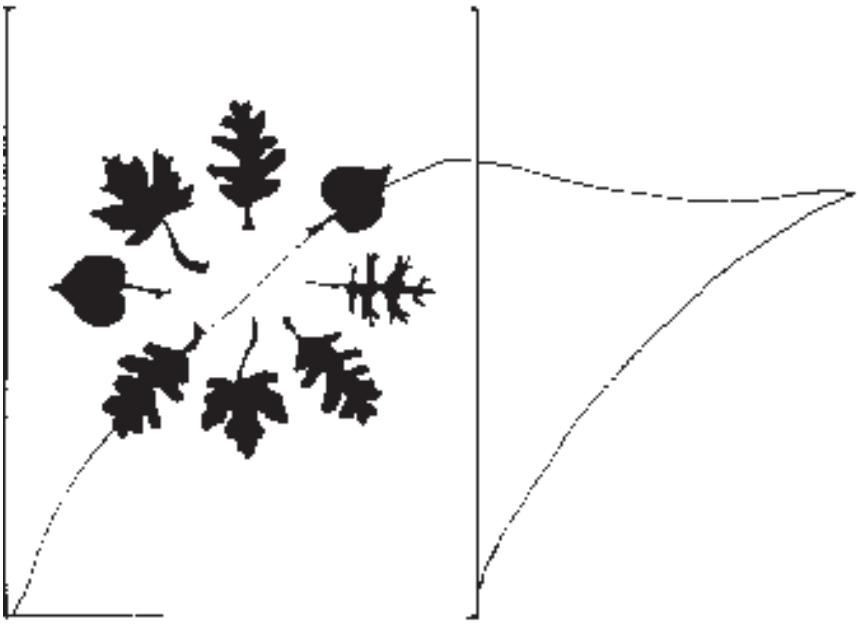
Activity Sheet — Leaf Kaleidoscopes

You can make pressed leaves last by ironing fall or partially dried leaves.



Arrange leaves in a radial pattern.

Have the children make a quick pencil rubbing of the arrangement. This will serve as an positioning guide



Slip the rubbing drawing under the sticky contact paper. Place the leaves in position and put the second piece on top, sandwiching the leaves inside.

Trim around the contours to create the leaf kaleidoscope. Add string and hang in a bright sunny window.