

Tree Identification and Appreciation Unit
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7th Grade Science Classes

Target Grade & Subject: This project is designed for middle school science students.

Unit Overview: The goal of the unit is to provide students with a background in tree identification and use these skills to improve the appreciation of forest and ecosystems. The student will be taught how to use dichotomous keys to identify trees. The keys will be from books as well as computer programs. The students will also learn to measure the height and diameters of trees. This skill will enhance their note taking as well as math skills.

Books and resources:

What Tree Is That?

<http://treelink.org/whattree/index.htm>

What Tree Is It?

<http://www.oplin.lib.oh.us/products/tree/index.html>

Basics of the Tree ID

<http://www.fw.vt.edu/dendro/forsite/key/intro.htm>

ID It

<http://www.fw.vt.edu/dendro/dendrology/ident.htm>

Tree Identification of Michigan Trees

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

Upper Peninsula Tree Identification

<http://forestry.msu.edu/uptreeid/>

Natural Resources Test

<http://gaia.flemingc.on.ca/~dhendry/nrlfid.htm>

Illinois Virtual Forest

A Listing of Tree Identification Sites

<http://ilvirtualforest.nres.uiuc.edu/id/treeplantid.htm>

Life Science. Grades 5-8. Instructional Fair, Inc. Grands Rapids, MI
ISBN # 0-88012-828-3

Objectives:

- Students will learn to follow procedures in step-by-step form.
- The students will gain skills needed to work in teams to solve problems.
- The students will learn to use flow diagrams and sketches.
- The students will gain skills in using technology.
- The students will develop an understanding of how parts of an ecosystem are related.

Michigan Contents and Standards For Middle School Science:

Strand I: Construct New Scientific Knowledge

Content Standard 1: All students will ask questions to help them learn about the world.
Strand III: Organization of Living Things
Content Standard 2: All students will use classification systems to describe groups of living things.

Strand III: Ecosystems

Content Standard 5: All students will explain how parts of an ecosystem are related and how they interact.

Strand IV: Matter and Energy

Content Standard 1: All students will measure and describe the things around us.

Content and Standards For Middle School

Classroom Activities:

Day One: The students will learn the characteristics needed to identify trees (using the attached worksheet). Students will be introduced to dichotomous keys. The students will use a small sample key (attached) to identify trees. The students will become familiar with the identification checklist (attached) which will be used in the field.

Day Two: The class will be shown the various tools they will be using in the field to gather information. The teacher will demonstrate the use of the dichotomous keys on the internet as well as the various books they will be using. The students will be shown how to use a digital & video cameras for informational gathering.

Day Three: Students will hike around the schools 40 acres to gather the needed information on trees. The class will hike as a group for safety. You should check for allergies or other health related problems which may come up. I would inform the office of your plans and carry a cell phone so you can be reached if needed.

Day Four: The students will spend the day in the computer lab identifying the school's trees from the information checklist they collected earlier. They will also be reminded to bring in information from trees found in their neighborhood.

Day Five: The students will return to the woods to use book keys to identify trees and will then finish the day identifying the trees from their neighborhoods.

Assessment:

- Students will turn in information checklist and must have all required information.
 - leaf description (leaf-like, needle-like, scale-like, etc)
 - leaf arrangement (opposite or alternate)
 - leaf type (compound or alternate)
 - leaf edges (smooth, lobed, toothed, etc)
- Students will be individually assessed on how well they worked in groups.
- Students will need to measure the diameter and height of a tree (outside my door) with a biltmor stick.

- . The major assessment for this unit will be a power point presentation done by each individual students (rubric attached).

Backyard Tree ID PowerPoint Presentation

Students: You will be required to create a tree/leaf collection and identification power-point presentation for the class. You must have at least 12 different species of trees in your presentation. You may either bring in the actual leaf with appropriate identifying information or you may check out one of the school’s digital cameras to take pictures for identifying (the best method). You will be assessed by the following rubric.

Grading Rubric For Tree Identification Power Point

Cover Page (Must include name, classroom hour, date).	1-4 pts	_____
Name the County and habitat of each tree.	1-3 pts	_____

Tree Page must include the following photographs and information for 12 trees.

- | | | |
|---|----------|-----------|
| • Leaf Margin pictured and identified | 2 pts | _____ |
| • Leaf Venetian pictured and identified | 2 pts | _____ |
| • Leaf Arrangement on stem | 2 pts | _____ |
| • Leaf Division | 2 pts | _____ |
| • Leaf Shape at base | 2 pts | _____ |
| • Needle vs Broad Leaf | 2 pts | _____ |
| • Picture of whole tree | 2pts | _____ |
|
Common and Scientific Name of Tree |
5pts |
_____ |

Total out of a possible 235 pts

TREE ID # _____

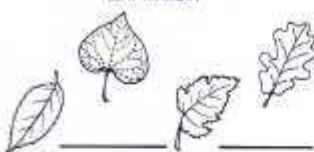
- **Leaf or Needle**
If needle than
:scale-like or needle like
:number of needles
:shape of needles
- **Simple or Compound=**
If compound than
: number of leaflets
: size comparison of leaflets
: arrangement of leaflets
- **Margin=**
- **Lobed=**
- **Arrangement on Stem=**
- **Leaf Base Shape=**
- **Venation**
- **Description of bark**
- **Description of any fruit or cones**
- **Other**

Leaf Shapes

Name _____

Label the different characteristics of each group of leaves.

LEAF MARGIN



VENATION



LEAF ARRANGEMENT ON THE STEM



LEAF DIVISION



SHAPE OF THE LEAF BASE



WORD BANK

alternate
parallel
pinnate
saw-toothed
heart
v-shaped

opposite
palmate
smooth
lobed
uneven
rounded

simple
palmately compound
pinnately compound
double saw-toothed
flat

A Key to Trees

Name _____

A scientist may use a key to identify a tree by its leaves.

Use the following key to identify the leaves pictured on this page. The first one is done for you.

 white pine	<p>1. a. The tree has needles go to 2 b. The tree has leaves go to 5 2. a. The needles are in bundles go to 3 b. The needles are scale-like white cedar 3. a. There are 5 needles white pine b. There are 2 needles go to 4</p>	 _____
 _____	<p>4. a. The needles are thick and spread away from each other jack pine b. The needles are long and thin red pine 5. a. The leaves are simple go to 8 b. The leaves are compound go to 6 6. a. The leaflets radiate from one point go to 7 b. The leaflets do not radiate from one point white ash</p>	 _____
 _____	<p>7. a. There are 5 leaflets buckeye b. There are 7 leaflets horse chestnut 8. a. The leaf has notches go to 9 b. The leaf does not have notches go to 10 9. a. The notches are pointed silver maple b. The notches are rounded sugar maple 10. a. The leaf is tapered at both ends dogwood b. The leaf is heart-shaped catalpa</p>	 _____
 _____	 _____	 _____
 _____	 _____	 _____