

Florida's Trees



Florida Ag in the Classroom

Science, Language Arts

Agricultural Products of Florida - Lesson #9

Brief Description: Florida has more native trees than any other state in the United States, except for Hawaii. In this lesson the students will explore 30 of Florida's native tree species.

Objectives: The students will:

1. Define the term native.
2. Identify various native trees of Florida.
3. Collect and analyze data.

Life Skills:

1. Acquiring, Analyzing, and Using Information.
2. Communicates Newly Gained Information.
3. Drawing Conclusions

Materials:

- Books or other tree reference materials
- Dictionary (one per student)
- Copies of *Native Trees* activity sheet (a different sheet per group)
- Copies of the *Tree Puzzler* activity sheets for each student
- Overhead projector
- Blank transparencies for students to use
- Erasable water soluble overhead pens
- Chalkboard/chalk
- Pencils/pens
- Paper

Sunshine State Standards:

SC.G.1.3.3 - understands that living

LA.A.1.3.4	-	things are sorted for convenience and identification.
LA.A.1.3.4	-	uses strategies to clarify meaning, such as rereading, note taking, summarizing, outlining, and writing a grade level-appropriate report.
LA.A.2.3.5	-	locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real world task.
LA.A.2.3.6	-	evaluates and uses information from a variety of sources when researching content area topics.
LA.A.2.3.7	-	synthesizes collected information using a matrix or other graphic organizer.
LA.C.3.3.3	-	uses appropriate grammar, word choice, and pacing.
LA.C.3.3.3	-	uses language which is clear, audible, and suitable.
LA.C.3.3.3	-	delivers an effective informational, persuasive, or technical speech.
LA.D.2.3.5	-	incorporates audio-visual aids in presentations.

Preparation:

- Make copies of the *Native Trees* activity sheet, one for each group.
- Obtain and make available copies of Forest Trees of Florida or other tree identification references.
- Have the students bring leaves from trees in their yards, if possible.

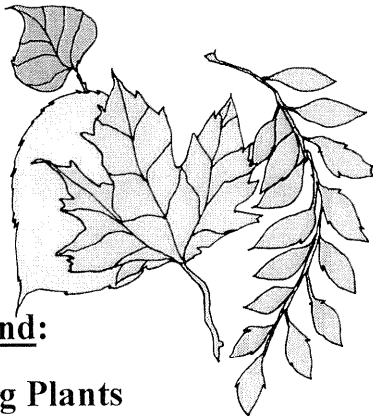
Time: Activity One

45 min. for research and development of overheads
45 min - 1 hr for presentations

Activity Two

20 min. for discussion and activity

Vocabulary: aromatic, classification, hammocks, indigenous, levees, 3-lobed, native, scientific names, sickle-shaped



Background:

Classifying Plants

One of the goals of naming or classifying organisms is to provide each species with a unique name, thereby, permitting easy and effective communication about organisms. The two basic types of plant categorization are known as artificial and natural classification systems. Artificial systems are used for basic plant identification while natural systems attempt to classify organisms according

to their genetic and evolutionary relationships.

The **natural** system of classification attempts to categorize organisms according to their evolutionary relationships. **Taxonomists**, scientists who specialize in natural classification systems, have described over 400,000 different species of plants. Taxonomic groupings are devices that enable one to identify a specific organism. The largest groupings are called kingdoms, and the smallest are species (or, in some cases, subspecies or varieties). As we proceed from kingdoms into smaller categories, the plants in each category have more and more traits in common until they are so much alike that they can interbreed (these are species). The taxonomic hierarchy or taxon for classifying plants is: kingdom, division, class, order, family, genus, and species.

Another fundamental type of classification system is referred to as an **artificial** categorization system. The goal of an artificial system is easy plant identification from observable plant characteristics such as flower color or plant growth habit. Artificial systems may also be used to group plants by economic or scientific features. From a practical standpoint, home gardeners may be more interested in grouping plants by their ability to tolerate shade or full sun rather than their evolution. Likewise, farmers classify crops according to their optimal growing temperature, which can be broken

down into warm and cool seasons plants. Examples of cool season crops are: asparagus, broccoli, cabbage, celery, garlic, leek, kale, onion, carrot, mustard, and white potato. Warm season crops include: cucumber, eggplant, melon, sweet potato, and tomato.

The classification of plants as annuals, biennials, or perennials is an example of an artificial system used by gardeners to identify plants. Gardeners know that once a seed germinates, its growth and development depends on its life cycle, as well as surrounding environmental factors (temperature, nutrients, light, oxygen and carbon dioxide, and parasites or herbivores). In this system, plants are grouped into three kinds of life cycles: (1) **annuals** grow for one season only, producing seed then dying; (2) **biennials** grow vegetatively during the first season and do not produce seeds until the second year, after which they die; and (3) **perennials** grow for several to many years, producing a new crop of seeds each year.

Scientific Names

Scientific names are important plant identification tools. Scientific names consist of two words, much like the first and last names of people. The first word is the genus name, and it is always capitalized. The species name is the second word, and it is always lower case. The species



name is a very specific adjective or noun, which narrows down an entire genus to just one plant. Some plants have many common names that can be very confusing. Knowing the scientific name of plants is a sure way of identifying the plant correctly.

The following are some examples of scientific names for common plants and trees:

Red Maple - *Acer* (maple) *rubrum* (red)

Pink Pinxter Azalea - *Rhododendron* (rose tree) *canescens* (off-white hairs)

Spider Plant - *Chlorophytum* (green plant) *comosum* (tufted)

Trees Native to Florida

Florida has more native trees than any other state in the nation, except Hawaii. North Florida, particularly the panhandle, is the southern limit for many trees that grow in the eastern United States. South Florida is the northern limit for many tropical and subtropical plants that grow in the Caribbean. Throughout the state, many different kinds of pines, oaks, and gum trees grow. Forestry is one of north Florida's major agricultural industries. Here are some facts about Florida's forestry industry.

- Private landowners own seven million acres or 47 percent of Florida's woodlands.
- Florida timberland owners grow nearly one-third more trees than they harvest.
- The forest community employs over 115,000 Floridians either



directly or indirectly through forest-products manufacturing businesses.

- Ten new trees are planted by forest landowners for each Floridian each year.
- Arbor Day is a special day when people learn about, plant, and care for trees. In Florida, Arbor Day is celebrated on the third Friday each January to coincide with optimal tree-planting weather.

Introduction:

1. Ask the class:

Can you imagine what the world would be like without trees? (*No! Trees provide us with so many products we use daily.*)

2. Brainstorm with the class and list responses on the board by asking the students:

Can you name some of the things trees provide us?" (*shade, oxygen, fruit, paper, nuts, spices, lumber*)

3. Explain that Florida has a great variety of native trees. In fact, Florida has more native trees than any other state in the US, except for Hawaii. Today, we are going to

take a look at just 30 of Florida's vast number of native trees.

4. If any students have brought leaves to class have the class try to identify them. Save these, if possible, for presentations.



Activity One:

1. Make sure the students have paper and pencils/pens.
 - a. Either ask the class:
What does native mean? Have you heard the term indigenous? (*Answers will vary*)
Write down students' opinions of what native means on the chalkboard.
 - b. or discuss the term "native" and "indigenous."
2. Explain to students if they are to study native trees of Florida, they need to understand what native and indigenous means. Have each student look up the words native and indigenous in a dictionary and write the definition on a piece of paper.
3. Divide the class into

six groups. Provide each group with a different *Native Trees* activity sheet. Have the students research and complete the information on these activity sheets as a group.

4. Once each group has finished their research, instruct them to prepare their findings to present the information to the class. Encourage students to use artwork and overhead transparencies to teach class. Therefore, have transparency supplies readily available for students to hand write or computer-generate their overheads. **(Note: if you want computer-generated overheads you might need to arrange some time with your school's computer lab.)**
5. Before the groups make their presentation, you may wish to create a rubric to evaluate their presentations. See Evaluation Option #1. As groups present their information, instruct students to take notes on each tree presented.



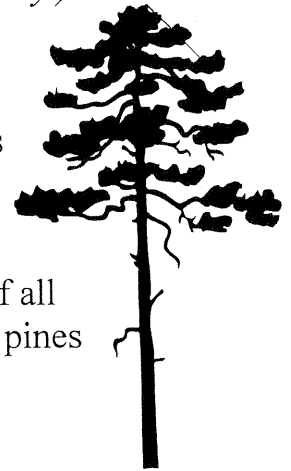
could you name before today's activity? (*Sweet Gum, Southern Magnolia, Bald Cypress, Cabbage Palm, Live Oak, answers will vary.*)

Were there any trees that you had never heard of before? Which ones? (*Answers will vary.*)

Were you aware that there were so many different types of oaks and pines? (*Answers will vary.*)

Have them make a list of all the types of oaks and pines they found.

What was the most interesting thing you learned today? (*Answers will vary.*)



Note: Neither banana nor palm trees are true trees from a botanical perspective.



Summary:

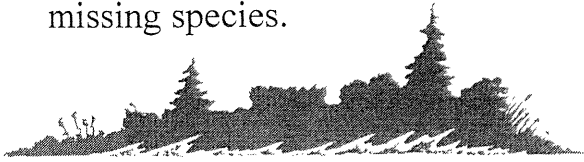
1. Ask the students the following questions:

How many native trees of Florida

Activity Two:

1. Review what the students learned in the previous lesson about classifying plants.
2. Hand out the *Tree Puzzler* activity sheet and have the students complete it.

3. When the majority of the class is finished (10 minutes), read the clues aloud and ask them to fill in the missing species.



Summary:

1. Ask the class:

Can you see the manner in which scientific names really describe a species? (*Answers will vary.*)

Does a common name really describe the species? (*infrequently*)

How is this helpful to scientists world-wide? (*They are all able to communicate accurately about a species knowing they are speaking about the same tree. Common names may differ from country to country or even within regions of a country.*)

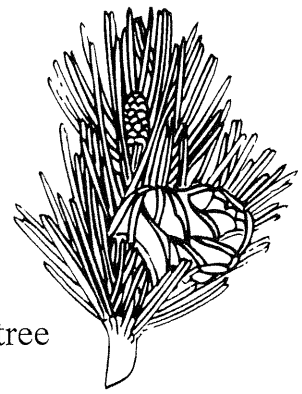
2. Ask the students:

Why is it important to learn the scientific names of plants and animals? (*Answers will vary.*)

Extensions or Alternatives:

1. Instruct students to find at least three native trees at home or in their community. Have them identify the trees and bring in a leaf or one of its fruit to share with the class.
2. As a class, take a trip around the school, or to a nearby park, and identify the trees growing in the area.

3. As a class project, make plant labels for trees/plants around your school.



4. Invite an arborist, tree surgeon, nursery producer, landscaper, or logger to speak to the class about their career area, expertise and schooling.

Evaluation Options:

1. Have the class assist in the evaluation of each group.
 - a. Ask the students to help design the rubric for evaluating the presentations. Hints: What are the areas most important to a presenting a clear concise report? Did they use audio-visu-als? Did they use any artwork? Were the audio-visu-als appropriate and improve the presentation? Etc.
 - b. Use a self-evaluation model for each group and the class as a whole.
 - c. Have the students set the criteria but evaluate each group yourself.
2. Provide the students with actual samples of the trees in the tree puzzler activity and have them use the clues to identify real trees.
3. Have each student select a tree species and research and write a

report about it. Have them include its economic importance, history and uses.

Notes:

Resources:

1. Forest Trees of Florida. Florida Division of Forestry. Florida Department of Agriculture and Consumer Services. (17th edition). (1997).
2. Fun Facts about Trees. Florida Forest Forever. <http://www.fl-ag.com/forest>
3. Florida Forests Forever. Florida Forestry Association, Post Office Box 1696, Tallahassee, FL 32302-1696. (850) 414-9974.
4. Project Learning Tree. Florida Forestry Association, Post Office Box 10078, Tallahassee, FL 32302. (850) 222-5646.
5. Arbor Day Program, Florida Nursery, Growers and Landscape Association (FNGLA), 1533 Park Center Drive, Orlando, FL 32835. (407) 295-7994. email: jmarkowitz@fngla.org
6. Chestnut Hill Nursery, Field Trip Site, NW 94th & SR 241, Alachua, FL 32615. (904) 462-2820.



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Florida's Native Trees - 1

Tree	Height	Diameter	Leaf Characteristics	Locations in Florida	Flowers	Fruit	Wood
Florida Royal Palm							
Longleaf Pine							
Flowering Dogwood							
Laurel Oak							
Sweet Bay							

Florida's Native Trees - 2

Tree	Height	Diameter	Leaf Characteristics	Locations in Florida	Flowers	Fruit	Wood
Cabbage Palm							
Bald Cypress							
Persimmon							
Live Oak							
Strangler Fig							

Florida's Native Trees - 3

Tree	Height	Diameter	Leaf Characteristics	Locations in Florida	Flowers	Fruit	Wood
Southern Red Cedar							
Florida Maple							
American Beech							
Sweet Gum							
Wax Myrtle							

Florida's Native Trees - 4

Tree	Height	Diameter	Leaf Characteristics	Locations in Florida	Flowers	Fruit	Wood
Shortleaf Pine							
Pond Apple							
White Oak							
Bitternut Hickory							
Sycamore							

Florida's Native Trees - 5

Tree	Height	Diameter	Leaf Characteristics	Locations in Florida	Flowers	Fruit	Wood
North Florida Slash Pine							
American Holly							
Post Oak							
Sassafras							
Sea Grape							

Florida's Native Trees - 6

Tree	Height	Diameter	Leaf Characteristics	Locations in Florida	Flowers	Fruit	Wood
Sand Pine							
American Hornbeam							
Turkey Oak							
Southern Magnolia							
Loblolly Bay							

Name _____

Tree Puzzler

Use the clues on the right and the definitions of the Latin terms at the bottom of the page to match the species name with the genus listed on the left.

Clues

- 1. *Pinus* _____ The bark on the twigs of the short leafed pine is rough and prickly.
- 2. *Carya* _____ The water hickory occurs mainly in drained river hammocks, flood plains, and natural levees.
- 3. *Pinus* _____ The spruce pine is found in mixed hardwoods and in hammocks. The bark on young trees and small branches is smooth and dark gray.
- 4. *Magnolia* _____ The southern magnolia is a large, handsome evergreen tree that grows in moist hammocks throughout northern Florida.
- 5. *Quercus* _____ The leaves on the young southern red oak are characteristically 3-lobed at the top and sickle-shaped at the base.
- 6. *Myrica* _____ The southern bayberry is known for its aromatic leaves and waxy fruit on the twigs.
- 7. *Quercus* _____ The leaves of this oak are distinguished by their light gray or white lower surface.
- 8. *Ulmus* _____ The cork elm is a medium sized tree whose name is due to the wing-like shapes on either side of the twigs.

Species

- alata* - winged
- alba* - white
- aquatica* - of the water
- ceifera* - wax-bearing

- echinata* - prickly
- falcata* - sickle-shaped
- glabra* - smooth
- grandiflora* - large, grand



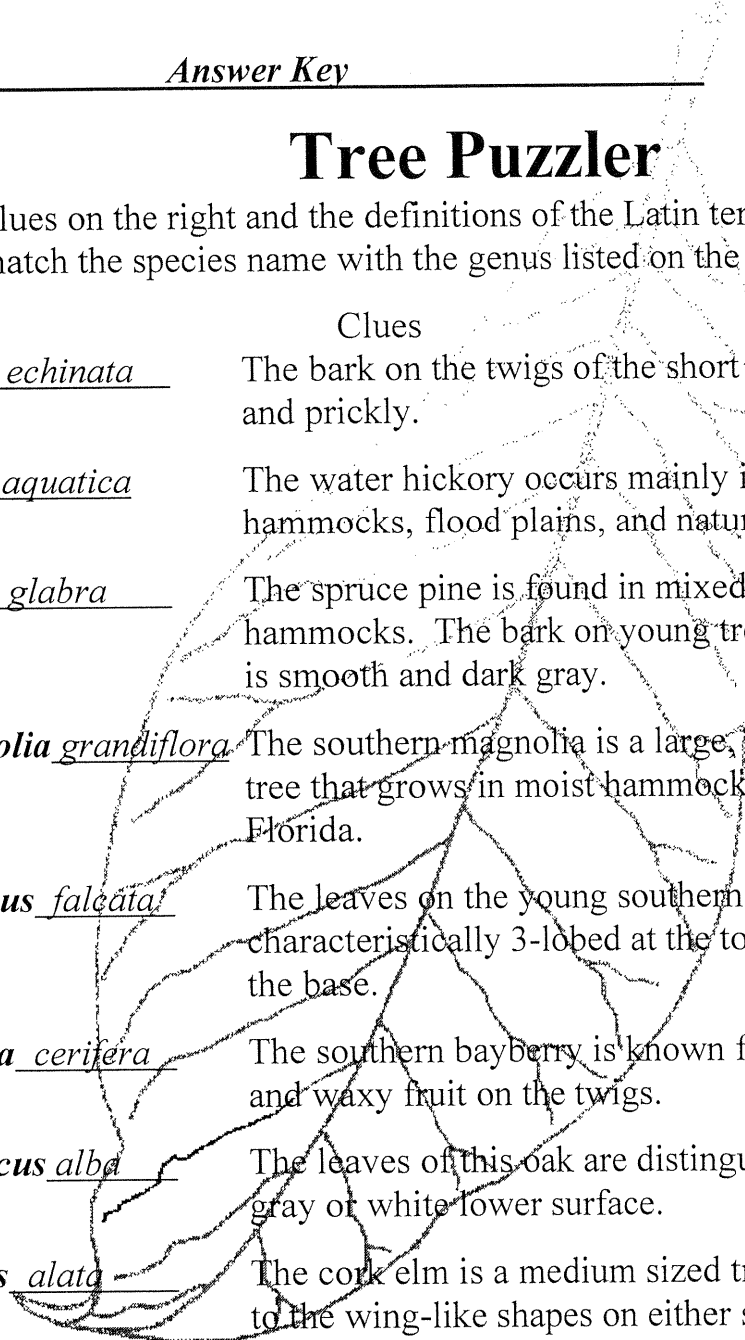
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Name: _____ *Answer Key*

Tree Puzzler

Use the clues on the right and the definitions of the Latin terms at the bottom of the page to match the species name with the genus listed on the left.

Clues

- 
1. *Pinus echinata* The bark on the twigs of the short leaved pine is rough and prickly.
 2. *Carya aquatica* The water hickory occurs mainly in drained river hammocks, flood plains, and natural levees.
 3. *Pinus glabra* The spruce pine is found in mixed hardwoods and in hammocks. The bark on young trees and small branches is smooth and dark gray.
 4. *Magnolia grandiflora* The southern magnolia is a large, handsome evergreen tree that grows in moist hammocks throughout northern Florida.
 5. *Quercus falcata* The leaves on the young southern red oak are characteristically 3-lobed at the top and sickle-shaped at the base.
 6. *Myrica cerifera* The southern bayberry is known for its aromatic leaves and waxy fruit on the twigs.
 7. *Quercus alba* The leaves of this oak are distinguished by their light gray or white lower surface.
 8. *Ulmus alata* The cork elm is a medium sized tree whose name is due to the wing-like shapes on either side of the twigs.

Species

alata - winged

alba - white

aquatica - of the water

ceifera - wax-bearing

echinata - prickly

falcata - sickle-shaped

glabra - smooth

grandiflora - large, grand

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Adapted with permission from Florida 4-H publication *Plant Connections*. (1997). University of Florida, Institute of Food and Agricultural Sciences: Department of Family, Youth and Community Service.