

# 4-H Forestry Project No. 6

## Collecting and Identifying Tree Seeds

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Trees make up forests, which are an abundant, natural resource in Mississippi. The “job” of every tree is to make more trees to keep the forests alive. If a tree species cannot reproduce, it will disappear over time. Like many other plants, trees form seeds to reproduce. Studying seeds is fun and also helps you understand the concept of “ecology,” which is the relationship between living organisms and their environment.

### Why Study Tree Seeds?

Collecting, identifying, and showing tree seeds in an exhibit are great ways to learn about reproduction of different tree species. Several events must happen in the right order at the right time for trees to produce healthy seeds. Factors that can affect a tree’s ability to make seeds include:

- Health – If the tree is not healthy, it may not produce enough or any seeds.
- Age – Some trees take 30 years to reach reproductive age while others produce seeds in 3 or 4 years.
- Weather – When tree flowers are open, sudden changes in weather can destroy young seeds before they can mature.
- Pests – Outbreaks of insects and disease can damage seeds or prevent them from developing.

Many tree seeds come in a variety of shapes, sizes, and colors. Maple and pine seeds, for example, have papery wings to catch the wind and scatter over long distances. Willow and cottonwood seeds have long, hair-like fibers for floating on water and sailing through the air. Some tree seeds rely on animals to help them get around. Squirrels and mice hide acorns, walnuts, and hickory nuts in the ground, old logs, and tree stumps, which are ideal for these tree species. Cherries, dogwood berries, and holly berries have bright color to attract birds. Once the birds finish eating the fruit, they fly away and spread the seeds wherever they perch. Some trees always “seem” to grow along fences because birds and other animals continually drop seeds there.

Let’s get started on your exhibit!

### References to Check

1. *Know Your Trees*, Mississippi State University Extension Service Publication 146. Obtain this publication by contacting your local Extension office.
2. *Woody Plant Seed Manual*, USDA Forest Service Agricultural Handbook No. 450, 1974. To view this material online, visit <http://www.nsl.fs.fed.us/wpsm/>.

3. *Silvics of Forest Trees of the United States*, USDA Forest Service Agricultural Handbook No. 271, 1965. To view this material online, visit [http://www.na.fs.fed.us/spfo/pubs/silvics\\_manual/table\\_of\\_contents.html](http://www.na.fs.fed.us/spfo/pubs/silvics_manual/table_of_contents.html).
4. Visit the 4-H Youth Development section on the MSU Extension Service Web site at [http://www.msucare.com/4h\\_Youth/4hforestry](http://www.msucare.com/4h_Youth/4hforestry).
5. Industry foresters with local paper or wood manufacturing industries.
6. Self-employed consulting foresters.
7. Garden clubs and conservation groups.

## Steps to Follow

1. Choose five tree species you would like to study. Find one of each species with low branches to make seed collection easier. You may want to choose from the trees you have in your yard, near your house, or at school. Always ask the landowner's permission before collecting your samples.
2. Learn the common and scientific names of each tree you have selected, and list what type of fruit, berry, or nut it produces. The seeds may be large and easy to recognize, like acorns, or they may be contained inside a cone or fruit, like pine cones or persimmons. Find out which habitat each tree prefers.
3. Once you make a choice and find the trees, wait until seeds mature before you collect them. Plan your exhibit while the seeds are growing.
4. Collect one to three leaves from each tree that will be exhibited. Refer to Mississippi State University Extension Service Publication 146 *Know Your Trees* to be sure you have collected a sample that represents the leaf of the tree. Some trees have simple leaves (a single blade) and others have compound leaves (several separated segments).

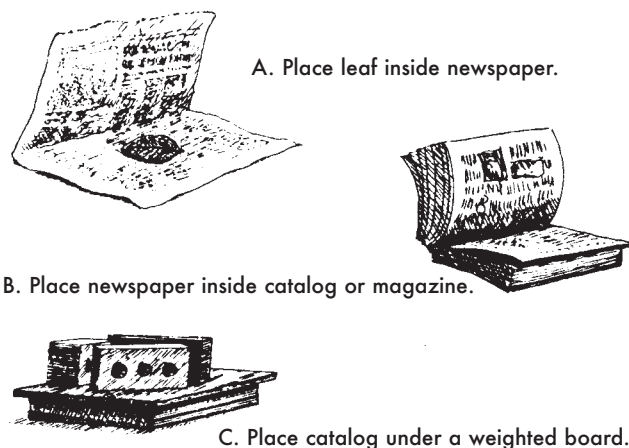
## Materials You Need

1. A 32-inch x 40-inch piece of poster board.
2. A 32-inch x 40-inch piece of stiff cardboard or 1/4-inch plywood.
3. A felt-tipped marker.
4. Wood glue.
5. An old magazine or catalog and newspaper.
6. 12 feet of 3/4-inch molding.
7. Leaves, fruits, and seeds of five major tree species in Mississippi.
8. Five 3-inch x 5-inch index cards.
9. Typewriter or black pen.
10. Sharp knife or small saw.

## People with Answers

1. County director, 4-H youth agent, or forestry specialist, Mississippi State University Extension Service.
2. Service forester, Mississippi Forestry Commission.
3. District conservationist, Natural Resource Conservation Service, U. S. Department of Agriculture.
4. Project forester or district ranger, U.S. Forest Service, USDA.

**Figure 1. Preparing a leaf sample for mounting.**



**Figure 2. Index card sample.**

**AMERICAN SWEETGUM**  
(*Liquidambar styraciflua*)

American Sweetgum is a medium- to large-sized bottomland tree that inhabits a wide variety of soils from the East Coast to the Southeast and Mexico. It is an important commercial hardwood used for veneer and pulpwood. The wood itself is very compact and fine-grained. In spring the male and female flowers appear in clusters on different branches of the same tree. The fruit looks like a "gumball" and is hard and dry. The fruit mature in the fall and each gumball is made up of capsules that have terminal spikes and contain one to two small seeds. Tree leaves are a rich, dark, glossy green and turn brilliant colors in the fall. This species of sweetgum grows best in moist, acidic loam or clay soil. The trees can tolerate land that does not drain well.

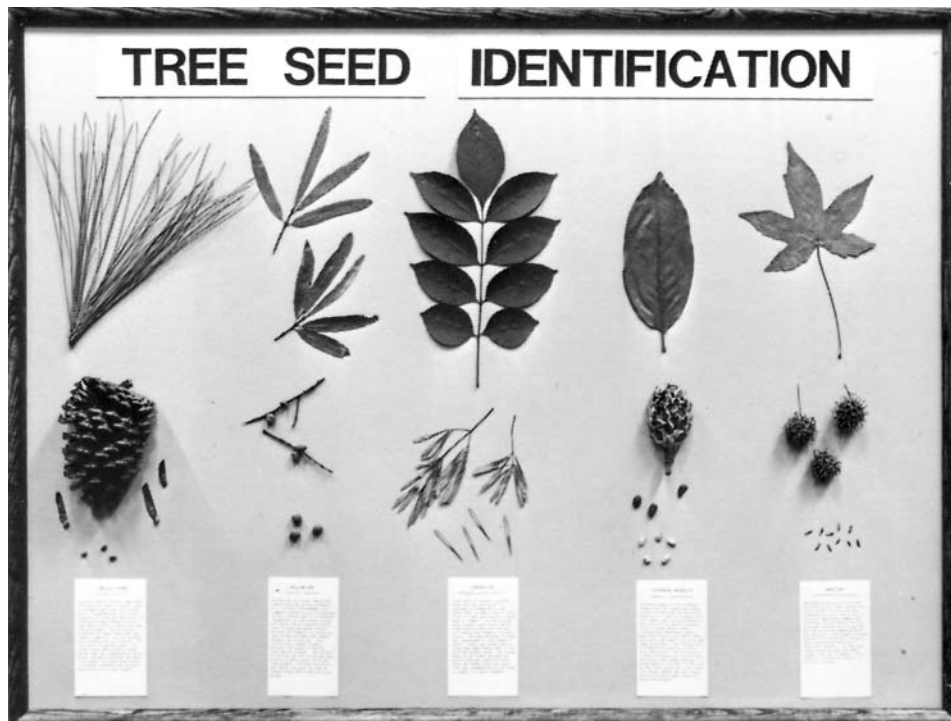
5. Dry and press the leaves in preparation for mounting on your exhibit. Flatten the leaves between two newspaper pages or paper towels. Place the paper containing the leaves between the pages of an old magazine or catalog. You can press several leaves in one magazine.
6. Place a flat board on top of the magazine. Then place a heavy weight (about 10 pounds) on top of the board. The weight forces the leaves to dry smoothly and evenly.
7. Make your exhibit board by gluing white poster board (32 inches x 40 inches) on one side of a piece of heavy cardboard or a piece of 1/4-inch plywood or fiberboard. This gives an exhibit enough strength to hold its shape.
8. Frame the exhibit with 3/4-inch molding.
9. Gather your reference materials. Prepare a 3-inch x 5-inch index card for each species (Figure 2). Type or print clearly the common name, scientific name, and a brief description of the habitat in which each species grows. Describe how the seeds grow. List when the tree flowers, what type fruit is formed, when the seeds mature, and how the seeds are dispersed. Store your cards in a clean, safe place until you are ready to put the exhibit together.
10. Title your exhibit "Tree Seed Identification." Write the title in block letters 1½ inches high and about 1 inch from the top of the board.
11. When the seeds are ready, collect the fruit and separate the seeds from it. For example, dry the pine cones so they open and the seeds fall out. Save the fruit and the seeds. If you choose persimmon (or other soft-fruited tree), crush some of the persimmons to get the clean seeds and dry the other whole persimmons for the fruit portion of your exhibit. You can air-dry fleshy fruits by placing them on a rack in the sun and wind. If you don't want to dry the fruit, take a photo and use it on your exhibit.
12. Now you have all the materials you need to make your tree seed exhibit. However, the fruits are not quite ready to mount. Preparing the fruit for mounting requires that you cut it lengthwise. Figure 3 shows the proper way to cut the fruit. Use a knife or a small saw to make your cuts.

**Figure 3. Cutting a fruit sample for mounting.**



13. First, place your leaves, fruit (or photograph), seeds, and completed index cards on the board without glue. Check to be sure all materials fit on your exhibit properly before gluing.
14. Start at the bottom and work your way up. Mount your index card first by gluing it 1 inch above the molding at the bottom of your exhibit. Next, glue several seeds 1 inch above the index card; use about a 4-inch space for your seeds.
15. Mount the fruit or the picture of the fruit about 1 inch above your seeds. Allow about 6 inches for the fruit display.
16. Mount the leaf sample. Glue your leaf in the space above the fruit sample and below the exhibit title. Now repeat steps 12 through 15 for each of the other species you want to include in your exhibit. When you are finished, your project should look like the exhibit in Figure 4.
17. Now that your exhibit is complete, use it for a visual presentation at a club meeting or at school. You may want to use the exhibit as a window display or at a county fair.
18. If you enjoyed learning about tree seeds and the way trees produce, you may want to make another exhibit with another five tree species, or try planting some of the extra seeds you collected for the Forest Nurseries Project No. 5. Ask your 4-H leader for information.
19. If possible, have someone take a picture of you and your finished exhibit. You may want to include a photograph in your 4-H member's record.
20. If possible, get a local forester to check your exhibit and sign your record sheet when your project has been completed. Clip the record sheet and include it in your current year's record book.
21. Save this project sheet and other materials for future reference as you participate in other 4-H forestry projects.

**Figure 4. Finished display with leaf, fruit samples, and seeds mounted on board and framed with molding.**



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Your full name \_\_\_\_\_ Age \_\_\_\_\_  
 Grade in school \_\_\_\_\_ No. years in 4-H \_\_\_\_\_ Date of birth \_\_\_\_\_  
 Name of parent/guardian \_\_\_\_\_  
 Your address \_\_\_\_\_  
 Name of 4-H club \_\_\_\_\_ Adult leader's name \_\_\_\_\_

- List the forest tree species you have studied. Give common name, scientific name, and type of fruit it produces.

Common name	Scientific name	Type of fruit
Example: Southern magnolia	<i>Magnolia grandiflora</i>	Cone
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

- List each tree species in your exhibit, and tell when the fruit ripens and how the seeds are spread.

Common name	Time seeds ripen and method of dispersal
Example: Black willow	Seeds ripen in early summer and are spread by wind and water.
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

3. Write the common name of a tree species that has its seeds spread by the following methods:

a. Wind \_\_\_\_\_

b. Water \_\_\_\_\_

c. Animals and birds \_\_\_\_\_

4. List the tree species in your exhibit and describe the habitat in which it grows.

<b>Common name</b>	<b>Habitat</b>
Examples: Blackjack oak Eastern cottonwood	Dry hills On riverbanks or near streams and water
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

5. What was the most interesting tree species you studied? Why? \_\_\_\_\_

6. What did you like most about collecting tree seeds? \_\_\_\_\_

7. Do you have a photograph of your exhibit? \_\_\_\_\_

8. What sources of information did you consult for help? \_\_\_\_\_

9. How have you used your exhibit since you completed it? (Example: visual presentation, wall poster, county fair, or other.) \_\_\_\_\_

10. Write down any suggestions you have on how this project can be improved. \_\_\_\_\_

As a forester, I have checked this exhibit and found the specimens to be correct.

\_\_\_\_\_  
Forester

As an adult 4-H leader, I have checked this exhibit and found it to be completed satisfactorily.

\_\_\_\_\_  
4-H Leader

Revised by **Dr. Andrew J. Londo**, associate Extension professor, Forestry, from an earlier edition by **Dr. Robert A. Daniels**, retired Extension professor, Forestry.

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