Forestry

*Lesson Plan for Grade 2 , Science*

*Prepared by The Department of Ecosystem Science and Management -*

*Penn State University*

*Modified by Mississippi State University, School of Human Science*

*for Mississippi Farm Bureau Federation - AITC*

# OVERVIEW & PURPOSE

In this lesson students will be able to visually observe a tree grow from start to finish and analyze how forestry is important in Mississippi.

# EDUCATION STANDARDS

**Mississippi College-and-Career Readiness Standards:**

L.2.2 Students will demonstrate an understanding of how living things change in form as they go through the general stages of a life cycle.

ELA-W.2.8– Recall information from experiences or gather information from provided sources to answer a question.

**NALOs:**

T2.K-2 a Explain how farmers/ranchers work with the lifecycle of plants and animals to harvest a crop.

# OBJECTIVES

* Students will understand the growing requirements of a tree
* Students will begin to grow a tree from seed

# MATERIALS NEEDED

* Tree seeds (acorns, maple, etc.)
* Potting soil (1 large bag)
* Empty 2 liter soda bottles (1 per student)
* Science notebooks ( 1 per student)
* Pencils (1 per student)
* Rulers (1 per student)
* Masking tape (1 per 4 students)
* Markers (1 per student)
* Paper cup (1 per student)
* Large butter dishes (one for each student)

# Lesson Set Up:

1. Obtain 2 liter bottles (1 for each student)
2. Poke four or five holes in the bottom of the bottles.
3. Set aside a strip of tape and a marker for each student.

# Vocabulary

**Endosperm**: a nutritive tissue in seed plants formed within the embryo sac by division of the endosperm nucleus

**Embryo**: the young sporophyte of a seed plant usually comprising a rudimentary plant with plumule, radicle, and cotyledons

**Seed coat**: an outer protective covering of a seed

**Dormant**: marked by a suspension of activity: such astemporarily devoid of external activity

renewable resource, capable of being replaced by natural ecological cycles or sound management practices

**Germinate**: to cause to sprout or develop

# Ag Facts:

In Mississippi in 2019 there was:

* 19,700,000 acres in 2019.
* 125,000 forest landowners in 2019.
* $1.15 billion industry in 2019.

# Background Information for Teacher:

Forestry is the art, science, and practice of studying and managing forests and plantations, and related natural resources.

Silviculture, a related science, involves the growing and tending of trees and forests.

Modern forestry generally concerns itself with assisting forests to provide timber as raw material for wood products; wildlife habitat; natural water quality regulation; recreation; landscape and community protection; employment; aesthetically appealing landscapes; and a 'sink' for atmospheric carbon dioxide.

A practitioner of forestry is known as a forester.

Forests have come to be seen as one of the most important components of the biosphere, and forestry has emerged as a vital field of science, applied art, and technology.

Foresters may be employed by industry, government agencies, conservation groups, urban parks boards, citizens' associations, or private landowners.

Industrial foresters are predominantly involved in planning the timber harvests and forest regeneration. (<https://www.sciencedaily.com/terms/forestry.htm>).

LEARNING PROCEDURES

Interest Approach:

1. Introduce the beginning of a tree and explain that trees do not need people to plant them and that they are a renewable resource. Write vocabulary words on the board and review each one. Ask students if they know the definition. If they answer correctly, write it on the board; if not, give the definition and write it on the board. Leave on the board because you will be using them later in their science journals.
2. Inform students of the following:

* A tree seed contains an embryo (baby) tree. This embryo already has tiny leaves, a stem, and a point that will become a root. The embryo is surrounded by endosperm--the food supply for the developing tree.
* Once the seed falls from the tree to the ground, it is covered by leaves and soil. When the ground is warm enough and other conditions are just right, the seed begins to grow, using the endosperm for food. Because the seed is able to grow without the help of people, it is a renewable resource.
* Eventually, the endosperm is consumed. The seed then must seek other sources of nutrients by sending out a root. The seed anchors itself to the ground and draws water and nutrients from the soil.
* Finally, the tiny tree emerges from the ground and the leaves appear. The leaves enable the growing tree to produce its own food. The shell, or seed coat, the embryo tree then falls off. Some seeds, such as acorns, have tough, protective coats. Other seeds, such as maple, have light coverings.
* Show the students the different seeds as you are explaining the coverings.
* Tell them that seeds are scattered in many different ways. Animals eat seed-bearing fruits and deposit the seeds in the soil in their waste.
* Wind carries winged and others light seeds.
* Sticky seeds often cling to animal's fur or your sweater and ride along to new locations.
* Lakes and streams give some seeds a boat ride to new areas.
* And, of course, gravity pulls seeds from the trees, giving them a long ride downhill to a new home.
* The maple drops seeds onto the soil in early summer. These seeds are already mature. They start to germinate shortly after hitting the ground.
* The nut-bearing trees drop their seeds in the fall.
* These seeds are dormant and will not germinate until the spring.
* Dormant seeds must go through a cold spell before they germinate. In nature, winter provides these cold treatments.
* For what we will be doing with this lesson we will be using seeds with light coverings.

1. Review with the class the vocabulary from board and have them write vocabulary in their notebooks.
2. Next,

* Pass out 2 liter bottles to each student.
* Have the students poke four or five holes in the bottom of their bottles.
* Give each student a large butter bowl.
* Give each student a strip of tape and a marker.
* Have students put tape around the bottom of their bottles and write their names.
* Have students take turns coming to the front of the room and filling their bottle ¾ full with potting soil.
* After all students have done this, pass out two seeds per student.
* Have students plant their seed about ½ way down into the soil.
* Have students water the seeds through the bottom of the bottle by placing the bottle into the butter bowl and fill it up with water.
* Sit the bottles on the windowsill for light.
* Have each student record the date, time, and type of seed planted in their journals.
* Inform students that they must keep their plants moist and in the sunlight and that the dates and amount of water are to be recorded in their journals every time they water.
* After the trees emerge from the ground, students are to record the size of their new tree in their journals.
* After trees are sturdy enough to be replanted they can be taken home and planted outdoors. So, you will want to plan this activity to correspond with the climate in your area.

1. Remind students that some seeds must be softened or go through a cold spell before they will germinate, so this experiment will not work with all seeds.

**Concept Elaboration and Evaluation**

* Check the students' journals for the correct dates, amounts, and measurements throughout the experiment.

# Additional Learning Procedures

To help students review and elaborate more about forestry try using the [“I used to think…Now I think…”](https://drive.google.com/file/d/1223g65JH1bawAL9uGpoOfgEWat7OvgJ6/view?usp=drive_link) method to allow students to think deeper and make new connections.

In addition to the lesson, including new texts about forestry can encourage students to want to know more. Reading aloud [“Forestry”](https://www.agfoundation.org/recommended-pubs/forestry) to students can promote these connections.



Source: <https://ecosystems.psu.edu/youth/sftrc/lesson-plans>

*For more information and additional lessons visit*

*https://msfb.org/ag-in-the-classroom/lesson-plans/.*