Horticulture

*Lesson Plan for Grade 2, Science*

*Prepared by NAITC*

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

*for Mississippi Farm Bureau Federation - AITC*

# OVERVIEW & PURPOSE

This lesson is composed of five learning activities to teach about the Christmas tree. Science, history, and geography topics are used to explore the history of the Christmas tree, life cycle of a conifer, types of trees and how they adapt, work on a Christmas tree farm, and the ecology of conifer trees.

# EDUCATIONAL STANDARDS

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

L.2.2.1 Use observations through informational texts and other media to observe the different stages of the life cycle of trees (i.e., pines, oaks) to construct explanations and compare how trees change and grow over time.

ELA-SL.2.1 Participate in collaborative conversations with diverse partners about grade 2 topics and text with peers and adults in small and larger groups.

**NALOs:**

T1.K-2 b Describe the importance of soil and water in raising crops and livestock.

T4. K-2 a. Explain what tools and materials farmers/ranchers use to reduce heating and cooling in plant and livestock structures.

# OBJECTIVES

* Students will analyze the history of the Christmas tree, it’s life cycle, how it adapts, and what a farmer does on a Christmas tree farm

# MATERIALS NEEDED

* *The Littlest Christmas Tree* by R.A. Herman

Activity 1: The History of the Christmas Tree

* Recording of [*O Tannenbaum*](https://www.youtube.com/watch?v=bPBke8bSeJA), sung by the Vienna Boys Choir (1)
* *O Tannenbaum Lyrics* handout (1 per student)

Activity 2: Getting a Sense of Conifers

* Pictures of a deciduous tree and a coniferous tree (1 set)
* *Tell me, Tree* by Gail Gibbons (1)
* Green construction paper (1-2 pieces per student)
* Scissors for students (1 per student)
* White paper for drawing (1 piece per student)
* Crayons or colored pencils (1 set per student)

Activity 3: Pines, Spruces, Firs, and More

* Picture of a fir or spruce tree (1)
* Clippings from a pine, spruce, and fir tree—enough for students to work in pairs to identify them.
  + If you cannot obtain these clippings from local trees, ask the local florist if they have any. Many Christmas floral arrangements include evergreens.
  + Note, You will not need a tree key for this activity, but if you would like to have one for your own reference, then a very good, simple one is *Tree Finder: A Manual for the Identification of Trees by their Leaves*, by May Theilgaard Watts.

Activity 4: Real or Artificial Christmas Trees?

* Shel Silverstein’s poem, *Peckin’*
  + This poem can be read from the book *A Light in the Attic* or accessed online through a Google search
* Poster paper, 3’ x 5-6’
* Paint for Christmas tree
* Art paper for students (1 piece per student)
* Art materials for student projects—very flexible (see activity directions), could be crayons, colored pencils, markers, and/or natural items like dried seeds, bits of cones, etc.

Activity 5: A Four-Season Job

* *Christmas Farm* by Mary Lyn Ray (1)
* *Christmas Tree Farm* by Sandra Jordan (1)
  + If you can get both books, do so. One is fiction, the other non-fiction, so it provides an opportunity for you to compare the two writing styles.
* 1-minute video, [Hurds Family Farm Christmas Trees](https://www.youtube.com/watch?v=nX_K470WL5I), narrated by a young boy whose family owns a NY Christmas tree farm

### Essential Files (maps, charts, pictures, or documents)

* [O Tannenbaum Lyrics handout](https://drive.google.com/file/d/19sobU6kNK9pMnP44x-Oowekjbem6BwUu/view?usp=drive_link)
* Recording of [*O Tannenbaum*](https://www.youtube.com/watch?v=bPBke8bSeJA), sung by the Vienna Boys Choir

# Lesson Set Up:

Activity 1:

1. Have the book The Littlest Christmas Tree by R.A. Herman ready to read to the students.
2. Pull up the O Tennenbaum song for the students to listen to.

Activity 2:

1. Have the book Tell Me, Tree by Gail Gibbons ready to read to your students.
2. Have pictures of some deciduous trees and coniferous trees pulled up to display to the students.
3. Have scissors, green construction paper, and crayons ready for your students to use.

Activity 3:

1. Pull up and display pictures of a fir and spruce tree.
2. Put your students into pairs.
3. Have the pine, spruce, and fir clippings ready for the students (1 set of each per pair of students).

Activity 4:

1. Have Shel Silverstein’s poem Peckin’ ready to read to your students.
2. Have a picture or life sized poster of a christmas tree to display to the students.
3. Have small 6”x 6” pieces of paper ready to give each of your students.
4. Have crayons, paint, markers etc ready for students to use.

Activity 5:

1. Have the books Christmas Farm by Mary Lyn Ray and Christmas Tree farm by Sandra Jordan ready to read the students.
2. Have the Hurds Family Farm ChristmasTrees video ready for the students to watch.

# VOCABULARY

**conifer:** a tree that bears cones and evergreen needlelike or scalelike leaves

# Ag Facts:

* Artificial Christmas trees were developed in Germany during the 19th century and later became popular in the United States.
* Helicopters help to lift harvested Christmas trees from farms.
* Live Christmas trees have been sold commercially in the United States since about 1850.
* Horticultural crops were a $106 million industry in the state of Mississippi in 2019.

# Background information for teachers:

This lesson contains multiple activities that can be completed in any order. You may also pick and choose which activities to complete to meet your classroom needs.

**Christmas Tree Farming**

Real Christmas trees are grown on farms just like any other agricultural crop. It takes 6-10 years for a farmer to grow a Christmas tree. Christmas trees are grown in most states. Oregon, Michigan, North Carolina, Pennsylvania, Wisconsin, and New York rank highest in production. Visit the [Interactive Map](http://www.nefbmap.org/map.php?P=23&PV=0) to see where your state ranks. Depending on your location, real Christmas trees can be obtained from natural forests where tree harvesting is allowed, directly from a local Christmas tree farm, or from local retail stores who market trees originally obtained from Christmas tree farms across the country.

**Science Behind the Christmas Tree**

Traditional Christmas trees in the United States can be one of several varieties of **conifers** including fir, pine, spruce, cypress, or cedar. To learn more about each of these varieties, visit the [Tree Varieties](http://www.realchristmastrees.org/dnn/Education/Tree-Varieties) webpage from the National Christmas Tree Association website. Each of these tree varieties have unique colors, sizes, shapes, and needles.

**History of the Christmas Tree**

Long before the advent of Christianity, plants and trees that remain green all year had a special meaning for people in the winter. Just as people today decorate their homes during the festive season with pine, spruce, and fir trees, ancient people hung evergreen boughs over their doors and windows. In many countries, it was believed that evergreens would keep away witches, ghosts, evil spirits, and illness.

In the Northern hemisphere, the shortest day and longest night of the year falls on December 21 or December 22 and is called the winter solstice. Many ancient people believed that the sun was a god and that winter came every year because the sun god had become sick and weak. They celebrated the solstice because it meant that at last the sun god would begin to get well. Evergreen boughs reminded them of all the green plants that would grow again when the sun god was strong and summer would return.

The ancient Egyptians worshipped a god called Ra, who had the head of a hawk and wore the sun as a blazing disk in his crown. At the solstice, when Ra began to recover from the illness, the Egyptians filled their homes with green palm rushes which symbolized for them the triumph of life over death.

Early Romans marked the solstice with a feast called the Saturnalia in honor of Saturn, the god of agriculture. The Romans knew that the solstice meant that soon farms and orchards would be green and fruitful. To mark the occasion, they decorated their homes and temples with evergreen boughs. In Northern Europe, the mysterious Druids, the priests of the ancient Celts, also decorated their temples with evergreen boughs as a symbol of everlasting life. The fierce Vikings in Scandinavia thought that evergreens were the special plant of the sun god, Balder.

Germany is credited with starting the Christmas tree tradition as we now know it in the 16th century when devout Christians brought decorated trees into their homes. Some built Christmas pyramids of wood and decorated them with evergreens and candles. It is a widely held belief that Martin Luther, the 16th-century Protestant reformer, first added lighted candles to a tree. Walking toward his home one winter evening, composing a sermon, he was awed by the brilliance of stars twinkling amidst evergreens. To recapture the scene for his family, he erected a tree in the main room and wired its branches with lighted candles.

Most 19th-century Americans found Christmas trees an oddity. The first record of one being on display was in the 1830s by the German settlers of Pennsylvania, although trees had been a tradition in many German homes much earlier. The Pennsylvania German settlements had community trees as early as 1747. But, as late as the 1840s, Christmas trees were seen as pagan symbols and not accepted by most Americans.

It is not surprising that, like many other festive Christmas customs, the tree was adopted so late in America. To the New England Puritans, Christmas was sacred. The pilgrims’ second governor, William Bradford, wrote that he tried hard to stamp out “pagan mockery” of the observance, penalizing any frivolity. The influential Oliver Cromwell preached against “the heathen traditions” of Christmas carols, decorated trees, and any joyful expression that desecrated “that sacred event.” In 1659, the General Court of Massachusetts enacted a law making any observance of December 25 (other than a church service) a penal offense; people were fined for hanging decorations. That stern solemnity continued until the 19th century, when the influx of German and Irish immigrants undermined the Puritan legacy.

In 1846, the popular royals, Queen Victoria and her German Prince, Albert, were sketched in the Illustrated London News standing with their children around a Christmas tree. Unlike the previous royal family, Victoria was very popular with her subjects, and what was done at court immediately became fashionable—not only in Britain, but with fashion-conscious East Coast American Society. The Christmas tree had arrived.

By the 1890s, Christmas ornaments were arriving from Germany, and Christmas tree popularity was on the rise around the U.S. It was noted that Europeans used small trees about four feet in height, while Americans liked their Christmas trees to reach from floor to ceiling.

The early 20th century saw Americans decorating their trees mainly with homemade ornaments, while the German-American sect continued to use apples, nuts, and marzipan cookies. Popcorn joined in after being dyed bright colors and interlaced with berries and nuts. Electricity brought about Christmas lights, making it possible for Christmas trees to glow for days on end. With this, Christmas trees began to appear in town squares across the country, and having a Christmas tree in the home became an American tradition.

# LEARNING PROCEDURES

Interest Approach:

1. Begin by asking students to describe what the world around them is like in winter time. They may come up with words like cold, dark, snowy, icy, dead, quiet, nothing growing, etc.
2. Read aloud the story *The Littlest Christmas Tree*, which introduces the lyrics to the historic song, “Oh Christmas Tree."
3. Building from the lyrics to the song, summarize with students some of the history of the Christmas tree (information found in the *Background Agricultural Connections* section of the lesson). Point out that people have, for centuries, seen the Christmas tree as a symbol of life and hope during this cold, dark, seemingly lifeless time of year—a reminder that spring will come again.

### Procedures

Activity 1: The History of the Christmas Tree

1. Explain to students that a good way to lift your spirits at any time of year is by singing and making music, and that musicians have written many pieces of music to celebrate the hopeful qualities of evergreen trees. In Germany, these songs date back to the 1500s, including the well-known *O Tannenbaum*, written by Ernst Anschütz in 1824. Your students may have heard of its English version, *O Christmas Tree*. The German word, Tannenbaum, translates into English as “fir tree” (die Tanne) or Christmas tree (der Weihnachtsbaum).
2. Listen to [*O Tannenbaum*](https://www.youtube.com/watch?v=bPBke8bSeJA)*,* sung by the Vienna Boys Choir, available on YouTube.
3. Using the attached *O Tannenbaum Lyrics* handout, read the literal English translation aloud to your students and discuss together the following questions:
   * Why does the poet describe the Christmas tree’s branches as “loyal?"
   * The lyricist, Ernst Anschütz, says that the Christmas tree, with its evergreen branches, gives him hope. Why might this be so?
   * What is the lesson that the poet thinks the Christmas tree can teach him?

Activity 2: Getting a Sense of Conifers

1. Talk with your students about what it must be like to live outside all the time in winter, exposed to cold and snow and ice. Ask, "How do animals adapt to winter? What about plants?"
2. Ask your students how trees in winter are different from trees in summer. What do trees do to survive the cold and snow and ice of winter? Chances are, they’ll say they lose their leaves. That’s right, but only for some trees.
3. Encourage them to think about other trees they know. Explain that many trees are “evergreen” and keep their leaves all year long. These kinds of trees have some very different characteristics compared to deciduous trees (trees that lose their leaves).
4. Read *Tell Me, Tree*, by Gail Gibbons, to your students. This picture book offers an excellent introduction to trees—their parts (buds, bark, seeds, leaves, fruit), functions (how they grow, photosynthesis), characteristics of conifers and deciduous trees, and more.
5. Show students the pictures of a deciduous tree and a coniferous tree, and ask them to name some of the traits of each kind of tree. This will help them incorporate the information you shared with them in *Tell me, Tree*.
6. Have your students cut out different shapes from green construction paper (circle, square, triangle, rectangle), and ask your students which shape might work best for a tree living in a climate that gets lots of snow, and why.
7. Have them draw and color a picture of a conifer in winter, along with the animals that might find food and shelter in the tree.

Activity 3: Pines, Spruces, Firs, and More

1. Show your students a picture of a fir or spruce tree, and ask them what it is. Chances are, they’ll call it a pine tree. You’d be amazed how many children’s books do the same! There are dozens of species of evergreen trees both native and introduced, and only a handful of those are actually pines. Welcome to the world of conifers—fir, spruce, juniper, cedar, cypress, larch, pine, and more!
2. Introduce your students to a simple, handy, alliterative phrase they can use to differentiate among conifer types. “Pine needles come in packets. Spruce needles are square. Fir needles are flat and friendly.” Or an even quicker way to remember it: “Pines come in packets, spruces are square, firs are flat and friendly.” This phrase relates to the shared characteristics of trees in each of these three main groupings of conifers. Pines share the characteristic that their needles grow in packets or bundles, called “fascicles.” Spruce needles are square in cross-section, so when you roll one in your fingers, you’ll notice the bump-bump-bump of the squared sides. Fir needles are flat, and when you grab a fir branch, it’s soft to the touch, not prickly like pines and spruces. This phrase over-simplifies the real-life story of diversity in the forest, since, for instance, there are conifer species like Eastern hemlock that have flat needles but aren’t firs, but it’s a great starting point.
3. Have students sit together in pairs, and give each pair a clipping of pine, spruce, and fir. Talk through the process of noticing the needle packets on the pine twig, the square needles on the spruce twig, and the flat, soft (not prickly) needles of the first.

Activity 4: Real or Artificial Christmas Trees?

1. Read Shel Silverstein’s poem, *Peckin’*, to your students. The poem offers a funny look at a not-so-funny notion, that artificial trees offer none of the life-giving functions and values of real trees. Some questions you might ponder with your students:
   * Why does the poet think that the bird pecking on the plastic tree is the saddest thing he’s ever seen?
   * What’s so sad about it?
   * What do woodpeckers get from real trees? (*Food (insects), nesting sites (woodpeckers make holes that they and many other animals nest in), and oxygen to breath. Plus, seeds that grow new trees that will support the great-great-great-offspring of today’s woodpeckers.*)
2. Make a big (life-size if possible) poster of a Christmas tree. Use a big sheet of poster paper. You can have students draw and paint the Christmas tree if time allows, or you can paint it and have it ready to go for the activity.
3. Have your students brainstorm together all of the living and nonliving parts of their world (specific animals, people, plants, soil, air, water, fungus, insects, etc) that benefit from a real Christmas tree—before it’s cut, after it’s cut, after it dies, and after it decays and becomes part of the soil.
4. Give each student a small (for example, 6”x6”) piece of paper on which to illustrate one of these living or non-living elements, with whatever artistic materials you’d like them to use. This could simply be traditional art materials like crayons, paint, cut-out paper, and so on, or it could be natural materials that they gather, like dried seeds, bits of cones, pebbles and so on, that they glue onto the paper.
5. Have them attach their creations to the Christmas tree, so that it is decorated with the community of life it supports.

Activity 5: A Four-Season Job

1. Ask your students when they think Christmas tree farmers are busy working on their farm. Explain that although December is the big sales month on a Christmas tree farm, caring for Christmas trees is a year-round job.
2. What work do your students think is involved in growing and selling Christmas trees?
   * Spring is the time to test and prepare the soil and carefully plant the seedlings. In spring and early summer, tree farmers shear the older trees, to promote bushier growth and the classic conical shape.
   * Throughout the warm-weather months of summer, they watch for insects and disease, and treat them as needed. In New York State, older trees rarely need watering, but seedlings might need irrigation during summer dry spells. Throughout the growing season, farmers mow and/or use herbicides to keep down grass and weeds between and under the trees, which compete for nutrients and can kill the lower branches of the trees.
   * In fall, farmers who plan to sell living conifers, which customers can plant after Christmas, dig up those trees and wrap their roots in burlap.
   * In late November, Christmas tree harvest begins.
3. Introduce your students to the year-round work involved in raising Christmas trees by reading them two great picture books:
   * *Christmas Farm*, is a fictional story by Mary Lyn Ray. This beautiful and engaging book tells the story of Wilma, who plants a Christmas tree farm—sixty-two dozen balsam fir seedlings, to be exact—with the help of Parker, her five-year-old neighbor. Year after year, Wilma and Parker carefully nurture the trees, weeding and trimming and keeping careful count of how many survive each year. Finally, the year comes when the trees are cut and sold, and the cycle begins again. The final page of the book offers a well-written background history of Christmas trees.
   * *Christmas Tree Farm*, by Sandra Jordan is a non-fiction book which tells, in words and photos, the true story of Janice and Leo Clark, who owns a Christmas tree farm in Rhode Island and describes how they tend the trees throughout the year.

**Concept Elaboration and Evaluation**

* Have students watch the [Hurds Family Farm Christmas Trees video](https://www.youtube.com/watch?v=nX_K470WL5I) narrated by a young boy whose family owns a Christmas tree farm in New York State. Have a discussion about the similarities between the information provided by the books compared to the video.

# Additional Learning Procedures

To help students review and elaborate more about horticulture try using the [“Carousel”](https://drive.google.com/file/d/1MJl2HSb-kakDBhGbMK3YQ0VrEiA41Oeq/view?usp=drive_link) method to allow students to think deeper and make new connections.

Additional texts to include:

[What’s Inside A Flower?](https://www.agfoundation.org/recommended-pubs/whats-inside-a-flower-and-other-questions-about-science-nature)

[Plants Feed Me](https://www.agfoundation.org/recommended-pubs/plants-feed-me)

[The Ugly Vegetables](https://www.agfoundation.org/recommended-pubs/the-ugly-vegetables)



Source: <https://www.agclassroom.org/teacher/matrix/>

*For more information and additional lessons visit*

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