

Created by



Tree Poster Activity Series

Trees are vital to the health and balance of our ecosystem.

Without them, neither humans nor animals would be able to survive on earth. Trees provide the oxygen animals and humans use to breathe, absorb carbon dioxide from the atmosphere, and provide people with many natural resources. We are fortunate to have so many forests to enjoy in Kentucky, and we often take for granted just how much trees do for us. Even the trees in your front yard act as shelter for wildlife and provide shade for you on sunny days.

This project will further explain why trees are so important as well as how you can help them thrive by making small changes in your everyday life.

Materials

- Poster for each student
- Colored markers
- Pencil or pen

Optional Items

- Small thermometer
- Glue or tape
- Ruler

Preparing the Poster

Write “A Friend in Trees” along with your name at the top of the poster. Each activity will add new information to the poster, so make sure you save room for all six activities.

Part A: Choosing a Tree

Key Terms:

- Species
- Native
- Family

1. Go to <https://www.uky.edu/hort/Native-Trees-of-Kentucky> and read through a few descriptions of the various tree species that are **native** to Kentucky.
2. Your teacher will assign you a tree or allow you to choose one from a list. Make sure to write it down so you will remember which species is yours.
3. On your poster, write the **species** of tree, both the common and scientific name, average size of the tree, growth shape, what the fruit/flowers look like, and any other interesting facts you find. This information can be found in the description of the tree species. You can also name your tree if you wish to do so. This will be the tree you will use to build your project.

Part B: Drawing and Identifying Parts of a Tree

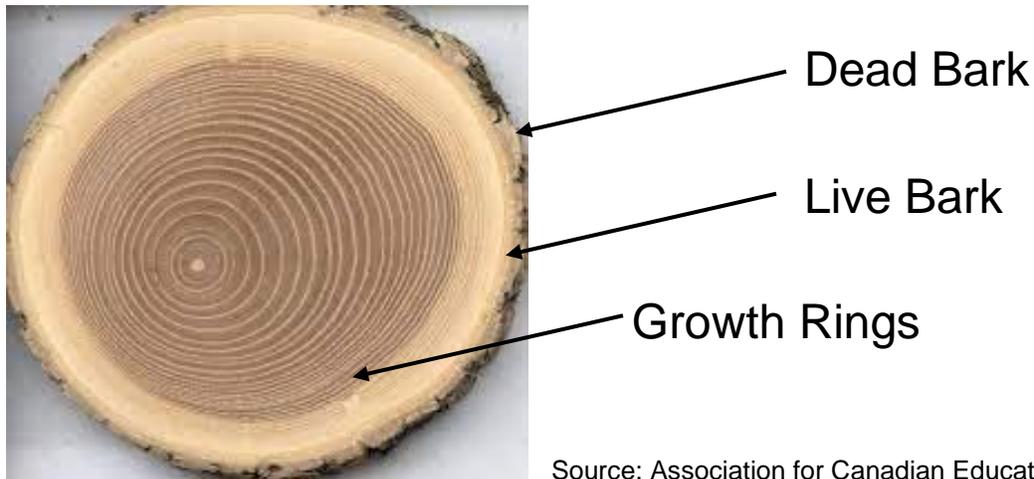
Key Terms:

- Photosynthesis
- Carbon Dioxide
- Byproduct
- Capillary Action (Video Resource Available)

Trees are a system composed of many different parts that each have their own job, just like the organs in our body. These individual parts take resources from the Earth and work together to help the tree grow. Let's take a look at the basic parts of a tree and their functions:

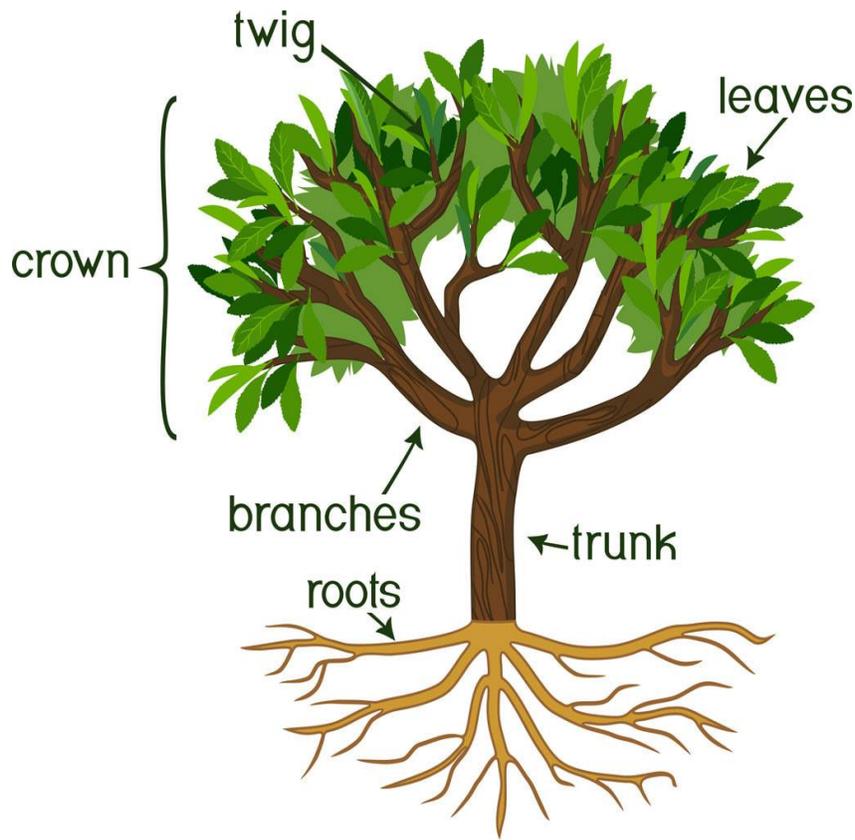
1. **Crown:** The crown of a tree consists of its leaves, twigs, and branches. The leaves are responsible for producing food for the tree. They do this through a process called **photosynthesis** in which the leaves absorb **carbon dioxide** and sunlight to make sugar. The leaves also release oxygen as a **byproduct** of photosynthesis, which is essential for humans to survive. The twigs and branches are responsible for transporting sugar down to the trunk and water up to the leaves. They also support the leaves, fruit, and seeds of the tree.
2. **Trunk:** The trunk is responsible for moving water and sugar up and down the tree. Water is transported from the roots, through the trunk, and to the leaves by **capillary action**. The trunk is incredibly strong so it can support the weight of the crown and hold it upright. The outer layer of the trunk is

called bark, and it protects the tree from insects and storm damage as well as prevents water from escaping.



As you can see on the tree cross-section above, some parts of the tree are dead, and some are alive. The outer layer of bark is dead, but the bark just below that is alive. When pieces of the outer bark are chipped off over time, the exposed inner layer will die and become a part of the outer bark. The growth rings in the middle of the tree can be used to determine how old the tree is - each ring indicates a year of growth.

3. **Roots:** The roots are located in the upper layer of the ground where they can absorb water and transport it to the trunk. Most roots can be found within the first 2-3 feet in the soil and can extend well past the crown of the tree. Roots also support the tree and prevent it from being knocked down by wind or bad weather.



Source: Snohomish Tree Company

Outdoor Activity

In the spring or summer, **go outside and find a tree with green foliage and no broken branches.** See if you can identify the different parts and their functions on a real tree without looking at your packet!

Using your tree's webpage or information page, draw a clear image of your tree in the center of your poster. Pay attention to the shape of your tree and remember to include the roots in your drawing. You can also include the flower or fruit in your drawing. Now, label your drawing by identifying the leaves, branches, trunk, roots, and crown.

Part C: Why Are Trees Important?

Key Terms:

- Sustain
- Erosion
- Atmosphere

Trees perform many actions and play a major role in both the carbon and water cycles which help to **sustain** life on earth. Below are a few more specific reasons that trees are so important to our planet:

- Tree roots hold the soil in place and prevent **erosion**
- They absorb carbon dioxide from our **atmosphere**
- They provide shelter for many animals



- They produce oxygen for us to breathe through the process of photosynthesis
- They help filter pollution and prevent flooding in cities

- They provide food like nuts and berries for us to eat



Outdoor Activity

Another reason trees are important, especially in the summer, is because they provide shade on hot, sunny days. **Go outside and find a tree on your school's campus or in your yard. Stand in the sun for about a minute and then stand under the tree.**

- What do you notice first? You should be able to feel a difference in temperature between the two locations.
- Which spot was cooler? In the shade or in the sun?
- What about the size of the tree? Do bigger or smaller trees provide a better cooling effect?

Bonus Activity

This will require two thermometers and should be done on a hot, sunny day.

- Lay the first thermometer under a shady tree and the second one in the sun for about five minutes. Then, record both temperatures.
- Subtract the temperature of the thermometer in the shade from the temperature of the one in the sun to find the overall temperature difference that a tree provides.
- On your poster, shade in some space below your tree drawing to represent the shady area and write your first temperature there. Write the second temperature next to the tree where the sun would be directly shining.

Now, it's your turn! Determine at least five reasons that you believe trees are important and write each reason under the labeled part of the tree to which it relates. For example, if you wanted to say that trees are important because they absorb carbon dioxide, you would write it below the leaf because that is the part of the tree in which photosynthesis takes place. Use the internet to research the importance of trees.

Part D: Finding a Leaf

Key Terms:

- Tree Shape

Using the leaf description and image on your information page, write four key words which describe your tree's leaf at the top of Section 4. (Example: pointy leaves or rounded; dark green or light green)

Outdoor Activity

Go outside and see if you can identify your tree in a local park or neighborhood using what you know about the tree height, shape, bark and leaves. Ask a parent, teacher, or friend to help you in your search.

If you find and identify your tree, **find one of its leaves to glue or tape onto your poster next to your drawing.**

If you are unable to find your tree's leaf, you can either draw a picture of the leaf on your poster or find another tree's leaf to include on your board. If you choose to use another tree's leaf, you can use

<https://www.arboday.org/trees/whatTree/> to identify the species of tree it came from by following the step-by-step instructions on the website. Make sure you label the leaf with the correct tree species on your poster.



Part E: Tree Inventories and Mapping

Key Terms:

- Tree Density
- Analyze
- Data
- Tree Canopy
- Bar Graph

Tree inventories are generally used to monitor the health and growth of a tree canopy. They almost always include the location and species of trees, but they can be made to include many other data points including a tree's condition or size. Once collected, professionals can analyze this data to determine how many trees are in a particular place and whether the tree canopy has grown over time. Tree inventories can be created using special computer applications or with a traditional map and pencil.



Outdoor Activity

Using a map of your school provided by your teacher, walk around the area your map covers and mark about where each tree is on it using an x. If possible, find a leaf from that tree, and determine what species of tree it is using an app or <https://www.arboday.org/trees/whatTree/> by following the provided instructions.

If you can determine the species of tree, write it below or next to that tree's mark on your map. Then, determine the size of the tree (small, medium, or large) using surrounding trees as reference points. If you found the tree species, you can also refer to its information page to find the tree species size. Repeat this process for each tree in your assigned area.

While mapping, see if you can find any trees of your species, and keep count of how many you find.

Congratulations!

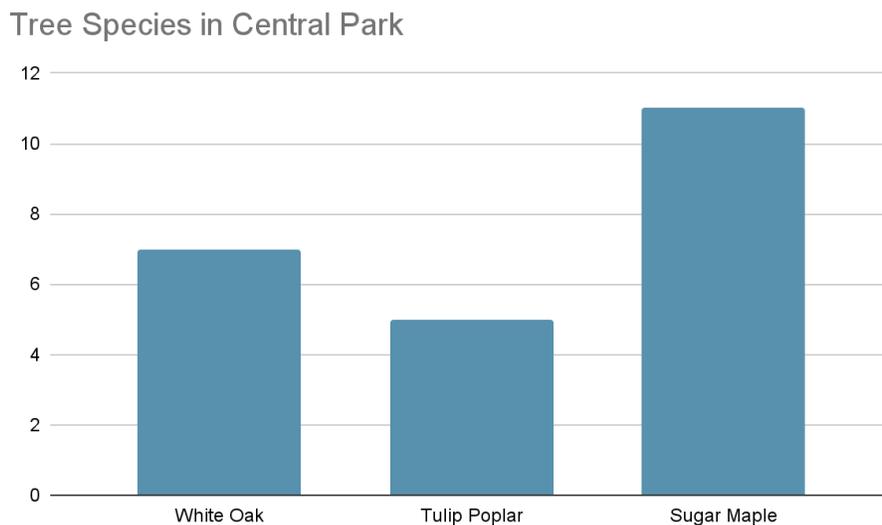
You have just created a tree map! Now, it's time to analyze and graph your data.

First, use your map to create a raw data chart at the bottom of your poster. This can include tree species or tree size and the number of each. Your chart should look similar to this:

Tree Species	Number of Trees
White Oak	7
Tulip Poplar	5
Sugar Maple	11

Make a graph for each category on your map (e.g. species, size, condition, etc.).

Now, create a bar graph (or pie chart) for each of your raw data charts on your poster using colored pencils/markers (you can combine multiple data charts into one graph if desired).



Bonus Activity

Divide the total number of trees mapped in your area by the area value given to you by your teacher. The area value should be in square feet, so your answer should be the number of trees per square foot, also known as your area's tree density.

Using what you know about tree canopies, make an educated guess as to what grade you would give your area's canopy coverage from A to D. You can write the tree density and grade next to your graphs.

Bonus Activity (Part II)

To take your map a step further, determine how many more medium-sized trees could be planted in your area. You can do this using a scale bar provided by your teacher and a ruler.

Each medium-size tree should be planted at least 35 feet away from other large plants and 15 feet away from any buildings.

Determine how large 35 and 15 feet are on your ruler using your scale bar and use it to mark where other trees could be planted. After filling the empty space on your map, write how many more medium-sized trees could be planted in your area on your poster.

Part F: How Can We Help Trees?

Key Terms:

- Conserve

Trees do a lot for humans and our environment. Without them, we would not be able to survive, so it might be surprising to learn that more than 3.5 billion trees are cut down every year!

Fortunately, there are things that you can do to help our leafy friends. You are already making a difference by completing this packet because you are educating yourself on the importance of trees.

Here are some other ways you can help:

- Share your knowledge with others to ensure that as many people as possible are aware of the importance of trees and how we can protect them
- Print double sided to conserve paper
- Volunteer with organizations like TreesLouisville that are working to expand our tree canopy and educate others

Come up with a few more ways we might be able to help trees and share them with your class. Write five ways you plan to help trees on your poster.

Bonus Activity

Now that you have explored the role of trees and why they are so important to the environment, **write a letter to your parents, city councilperson, or school principal explaining why they should also be advocating for tree conservation.**

You can include information such as what you learned about the function of trees, what role trees play in the carbon cycle, and what resources they provide for people, cities, and animals. You can also list the ways you learned to help trees, encourage the reader to volunteer with organizations such as TreesLouisville, and remind them to think of the environment when voting.