EXPLORING KENTUCKY'S

MIGHTY OAKS

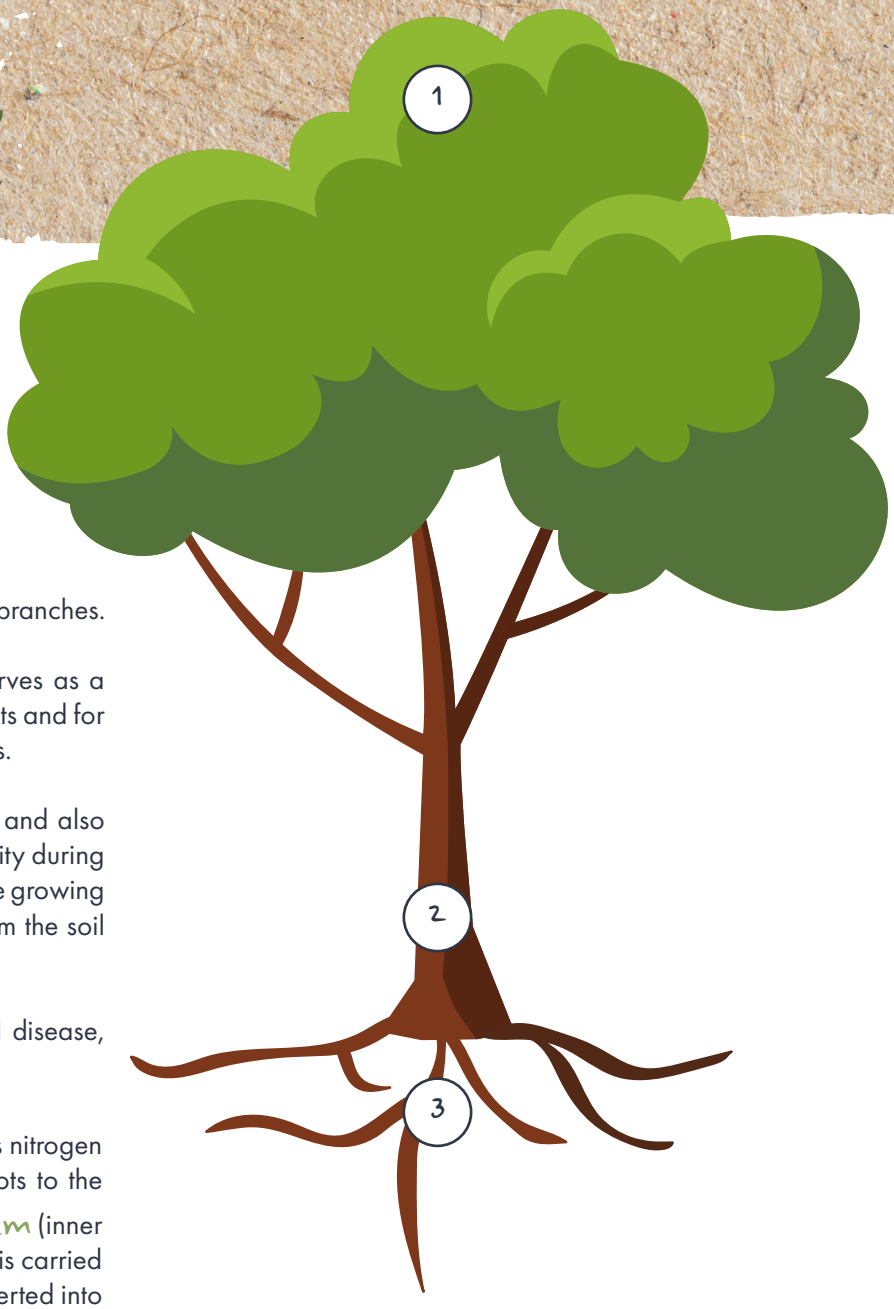
Jim Claypool Art & Conservation Writing Contest

Kentucky Farm Bureau Federation

Kentucky Association of Conservation Districts

WHAT IS A TREE?

A **tree** is a woody plant that's usually more than 10-feet tall and has one main stem. Although trees come in different shapes and sizes, most have the same basic parts. Each of these parts, from the highest leaves in the crown to the tiny root hairs buried in the soil, plays an important role in the tree's function and survival.



1) The **crown** of the tree is made up of the leaves and branches.

2) The **trunk** of the tree supports the crown and serves as a highway for food made in the leaves to travel to the roots and for water and nutrients from the roots to travel to the leaves.

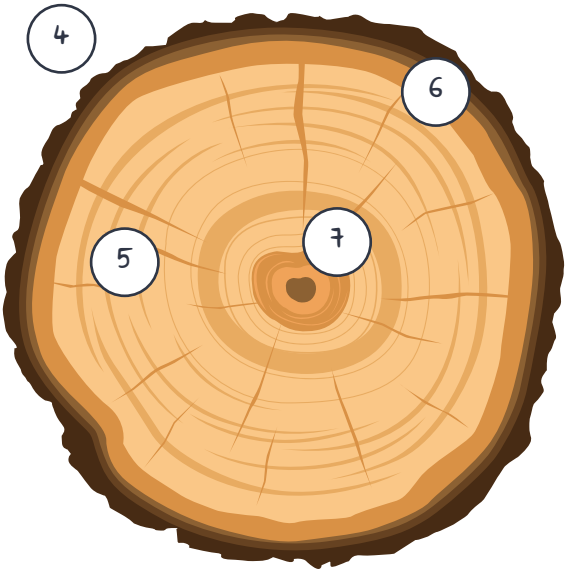
3) The **roots** of the tree support the trunk and crown and also anchor the tree in the soil. They serve as a storage facility during the winter for the food produced by the leaves during the growing season. The roots also absorb water and nutrients from the soil for use by the tree.

4) The **bark** layer protects the tree from insects and disease, excessive heat and cold and other injuries.

5) In the **xylem** (sapwood) layer, tree sap (water plus nitrogen and mineral nutrients) is carried back up from the roots to the leaves. Sapwood gives a tree its strength. In the **phloem** (inner bark) layer, sugar that's made in the leaves or needles is carried down to the branches, trunks and roots, where it's converted into the food (starch) the tree needs for growth.

6) The **cambium** is a layer or zone of cells, one cell thick, inside the inner bark. The cambium produces both the xylem and phloem cells. This is where diameter growth occurs and where rings and inner bark are formed.

7) The **heartwood** of the tree develops as the tree gets older. Its old sapwood that no longer carries sap gives the trunk support and stiffness. In many kinds of trees, the heartwood is darker color than the sapwood, since its water-carrying tubes get clogged up.



whether you look at a tree for its beauty and versatility or more closely at its parts, it's truly a wonder to use and enjoy.

KENTUCKY FARM BUREAU'S TREE-MENDOUSLY FUN THINGS TO DO

Make a tree treat!
This recipe is made from wood products. Yes, ice cream has thickening made from trees. Fix one for your friends and see if they can guess what all of the ingredients have in common.

1 cup vanilla ice cream
¼ cup orange juice
1 tsp. cinnamon
¼ cup almonds or pecans
1 banana

Mix the ice cream, orange juice, cinnamon and banana in a blender. (Make sure an adult is there to help.) Top with nuts for a tasty tree treat.

TREE TRIVIA

Kentucky's tallest recorded tree is a yellow poplar located in the Beaver Creek area of McCreary County. It is 178-feet high. The largest recorded tree in Kentucky is a sycamore on Grassy Creek in Montgomery County. It is 422 inches (over 35 feet) in circumference.

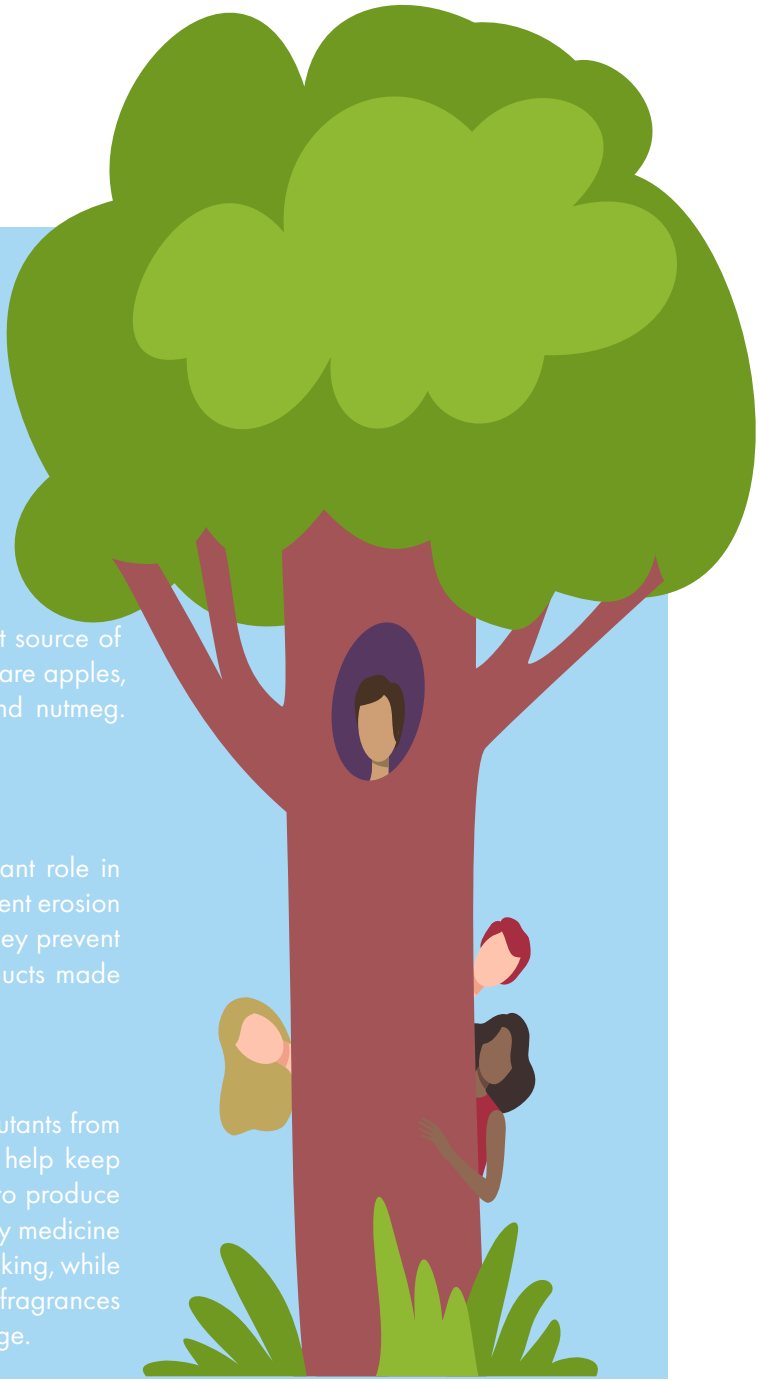
WE ALL NEED TREES

Trees supply thousands of products for our daily lives. We eat fruits and nuts from trees, use decorative woods for jewelry and art projects, and make practical items like books and fences from wood.

Wood is used as a fuel for cooking and heating in stoves, fireplaces and barbecue grills. Houses, paper and boxes are made from trees, and the fibers and chemicals from wood are used to make products such as rayon fabric and rubber balls.
How can so many different products come from trees? It's because of their structure. Trees are made up of cellulose that are held together with lignin. This makes the tree strong enough to use for building houses and furniture.

When wood is cooked, the cellulose is separated from the lignin to make wood pulp. This pulp is made into paper. The lignin can be used to make different chemicals that go into products like cosmetics, medicines and some foods.

Since so many products are made from wood and wood fiber, the average American uses the equivalent of a 100-foot tree every year!



Where does it all come from...

Stumps

Pine stumps provide the wood rosin and liquid terpenes used in making many products, including orange flavored soft drinks, pine cleaners and laundry detergents. Hardwood stumps readily produce sprouts that grow into new trees, assuring that we have plentiful hardwood forests for our future. Other products made from stumps: sports drinks.

Fruits & Nuts

The fruits, nuts, berries and seeds of many trees are an important source of food for wildlife and people. Some of the most common of these are apples, peaches, pecans, walnuts, coffee and spices such as mace and nutmeg. Other fruits and nuts: oranges, pears, chestnuts.

Roots

In addition to providing food for the tree, roots play an important role in keeping our waters free of pollutants. They stabilize the soil to prevent erosion and sedimentation, and by absorbing nutrients to feed the tree, they prevent these nutrients from entering our rivers and streams. Other products made from roots: sassafras tea, root beer.

Foliage

While growing on a tree, leaves produce oxygen, help filter pollutants from the air, provide shelter for many wildlife species and shade to help keep us cool. When harvested, leaves of the carnauba tree are used to produce furniture polish, car wax, crayons, lipstick and the coating on many medicine tablets. Whole leaves from some trees, such as bay, are used in cooking, while the oils of other leaves, such as the eucalyptus, are extracted for fragrances and flavorings. Garden mulch is another product made from foliage.

Trunk

The trunks of trees are primarily used to make solid wood products such as furniture, musical instruments, lumber and handles for tools and sporting equipment. Trunks are also peeled into thin sheets and used as veneer for plywood and furniture. Other products made from trunks: baseball bats, charcoal, canoe paddles, guitars, swing sets, birdhouses, crutches, fences, sleds.

Branches

Branches of large trees and trunks of smaller trees are used to make thousands of paper products, including paper, tissues and boxes. Chemical by-products of the paper making process are used in producing cleaning compounds, skin lotions, artificial vanilla flavoring, photographic film and molded plastic products such as eyeglass frames, football helmets, toothbrushes and buttons. Other products made from branches: carpeting, rayon, plastic twines, computer casings, luggage, newspapers, baby food, cereal, colognes.

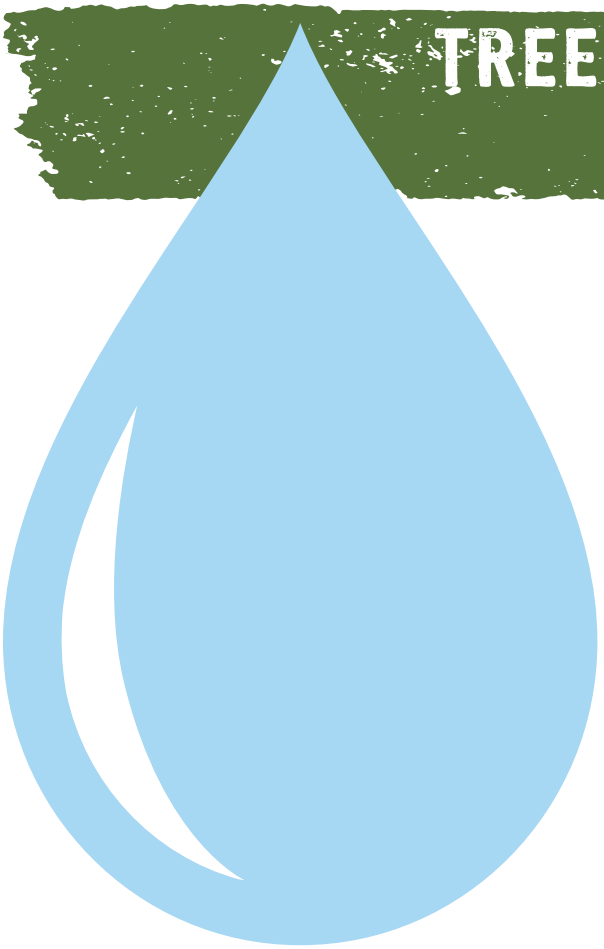
Gums

Gums, which are found in the sap of trees, are used in the manufacture of a variety of products including food, adhesives, paints and medicines. In foods, gums serve as thickening agents, provide a creamy texture, act as binders to keep ingredients from separating and help retain moisture. In ice cream and other frozen desserts, gums prevent the formation of crystals. The gums of some trees are used to make adhesives such as glue and hair spray, and act as drying agents in paint and printing ink. Other gums have antiseptic properties and are used in making soaps and cough syrups. Other products made from gums: cough drops, shampoo, dish washing liquid, adhesive bandages.

Bark

Bark is used for a variety of purposes ranging from medicine to garden mulch to seasoning for foods. The willow tree, for example, provides the essential elements of aspirin, while the laurel tree provides cinnamon used to flavor many foods. Cork for wine bottles and fishing tackle comes from the cork oak tree. Bark also is burned to produce energy and used as a dye for fabrics, shoe polishes and other products. Other products made from bark: cosmetics, poultry bedding, oil spill control agents, the cancer-fighting drug Taxol.

TREES CLEAN THE WATER THAT WE DRINK



The majority of your drinking water starts as surface water. As you may have guessed, surface water is located on the surface of the earth in waterbodies such as rivers, streams, and lakes. Surface water is most often replenished by rain. As rain hits the ground, it runs quickly across the earth where it picks up and carries pollutants into our waterways. The cleaner we keep our streams, the cleaner and healthier the drinking water is in our communities.

How do trees clean the water you drink? Trees use their canopies to protect the earth's surface by slowing the speed of rain before it hits the ground. Slowing the water speed helps reduce the amount of pollutants that are carried into streams. Trees also use their roots as anchors to keep soil in place and stop it from rushing in and muddying our streams. Trees planted along waterways provide shade to keep our waters cool and help filter out pollutants before rain goes back into our waterways. Planting trees along a stream can help keep the drinking water in your community healthy and clean.

FOREST SOILS

Forest soils have been studied for generations by soil scientists. Scientists have analyzed fertility, water holding capacity, depth, mineral makeup, organic matter content, and soil organism levels. Forest soils differ in all these areas depending on where they are located, the climate in which they were formed, and the amount of human disturbance throughout history.

Because humans have always used the "best" soils and topography for agriculture production, forest soils are usually not well suited for food production as a primary purpose. We think of a lot of Kentucky forest soils as usually steep sloped, shallow to bedrock, and even too rocky for use other than tree production, wildlife, and/or recreational purposes.

This certainly does not mean that forest soils are not very important to humans. The planet needs sustainably managed forests to control erosion and to conserve soil. Tree roots serve to stabilize hillsides as well as narrow ridge tops. Roots also provide the soil with the necessary mechanical structural support to prevent shallow movements of land mass; in other words landslides. Landslides rarely occur in areas with high forest cover.

Sound forest management practices, including measures to introduce or maintain forest cover on erosion-prone soils and run-off pathways, will help control or reduce the risk of soil erosion and shallow landslides. Forest restoration in dryland areas is vital for soil protection.

By reducing soil erosion and the risk of landslides, sustainably managed forests contribute significantly to the systems providing and maintaining Kentucky's supplies of clean water while also ensuring a balanced water cycle. Forests are also a key component of watershed management. Watershed management is a very sound way to protect and rehabilitate areas prone to soil degradation and erosion in upland and mountain areas.

Steep slopes and thin soil make mountain ecosystems extremely vulnerable to erosion. In short, the challenges that mountain farmers must overcome are many. That is why mountain farming is done on very small plots of land with limited acreages and these areas are better suited for wildlife production and recreational opportunities.

In summary, in order to protect our soils, we need to protect trees and forests. There are more than 120 native tree species in Kentucky; including 20 different oak species and 10 different hickory species. The importance of protecting our forest soils have been ignored in the past. With the clearing of tree vegetation and the subsequent loss of millions of acres of productive land, the effects of these actions have been very damaging. Furthermore, as forests continue to be cleared-exposing the land to direct attack from wind and rain-soil erosion and land degradation are still undermining agriculture's resource base. In order to protect our forest soils, we need to protect our trees and forests. Both of these vital resources play pivotal roles in food security, a clean water supply, and a health environment.

McGwire wilson enjoying a mountain trout stream in the Daniel Boone National Forest in Jackson County.

THE MIGHTY BUR OAK

The bur oak tree is an iconic tree in the Bluegrass Region of Kentucky, where it grows wide and stately in farm pastures and in our towns and cities. This tree species has lived for millennia in eastern North America, where it grows north into eastern Canada, and south into Texas. Bur oak has been important both to our culture and in our ecosystems, which we will explore further. We will learn a bit more about how the tree was named, where it likes to grow, and why it is important to us.

Bur oak's Latin name, Quercus macrocarpa, comes from two Greek words: macros = large, and carpos = fruit. We call it a bur oak, because its acorns have fringes on the cap and look like the American chestnut fruit. The bur oak has the largest acorns of all of the oaks worldwide, where some acorns grow larger than a lime! Bur oak's leathery leaves can grow to be over a foot long, and have large, rounded lobes rather than pointy tips like other oak trees. The tree can grow to be 80-100 feet tall, with a trunk over eight feet around and a sprawling crown that can reach over 100 feet wide. This tree can live for hundreds of years. Some of the largest bur oaks in the country grow right here in the Bluegrass. One of these mighty bur oaks grows on former Governor Brereton Jones' farm in Woodford County. This tree's trunk is over 8 feet wide, and it stands over 100 feet tall!

The large root system of the bur oak has allowed this tree to survive in prairie ecosystems with long periods of drought. Mature bur oaks also have thick, wrinkly bark that can help the tree survive prairie and grassland fires. In Kentucky, bur oak is found most commonly in a savannah ecosystem, which is made up of large, scattered trees, native prairie grasses, and shrubs. You can find bur oak trees in wild areas, but also in pastures, on manicured horse farms, and in our cities and towns.

Bur oak grows quite well in towns if it has adequate space to grow. This tree is tough and adaptable, and tolerates cold weather, poor soils, drought, and hot, sunny conditions. You can find bur oaks scattered along the edges of cities and towns, as well is in parks, cemeteries, along streams, and in old, well-established sprawling lawns and yards. It makes an excellent park tree because of its enormous crown. In our towns, this tree is important for wildlife, to help prevent flooding, to improve air quality, for shade, and for its natural beauty.

Bur oak is not only important as a living tree, but for wood products as well. Native Americans used the roots, bark, and acorns to treat heart and digestive problems, broken bones, and as a remedy to help close bleeding wounds. Its wood has been used for hundreds of years by native peoples, settlers, and in our present-day wood industry. The wood's strong, hard, rot-resistant properties allow it to be used for building materials, flooring, boats, fencing, furniture, and bourbon barrels.

The oak is a common symbol of strength and endurance, and has been chosen as the national tree of many countries of the world. In 2004, the oak tree was designated as the official national tree of the United States of America, and in 2018, people who live in Lexington voted the bur oak as the city's official tree. They chose this tree because it represents longevity, strength, natural history and the culture of the Bluegrass Region. The people of Lexington are proud to call bur oak their city's official tree.

Pictured above from left to right: (Top Row) Bur Oak Tree in Lexington- Photo Credit Dave Leonard, Bur Oak Acorn- Photo Credit UK Horticulture, Bur Oak woodford County- Photo credit Brereton Jones, Bur Oak Trunk- Photo Credit Dave Leonard, (Bottom Row) Bur Oak Leaf, Acorn, Twig- Photo Credit Ohio DNR

OAKS IN KENTUCKY

In the fall you might hear the soft pitter patter as acorns fall on the roof of your house. You might have even had the unpleasant experience of being hit by one! These little assailants are the future generations of oak trees and are just looking for a spot to call their own. Remember, from tiny acorns do mighty oak trees grow!

These tiny acorns not only create the mighty oak, but serve as food for over 100 wildlife species including deer, wild turkeys, blue jays, and other such critters. In autumn and winter, acorns are a much sought after food source for these animals. Acorns are one of the most vital food sources for wildlife.

Acorns come in two basic types: red and white, which is dependent on the type of oak tree they come from. There are about 20 different oak species that are native to Kentucky including the white oak, southern red oak, black oak, and chestnut oak. White oak trees have leaves with rounded lobes and drop acorns every year. Red oak trees have pointed lobes and drop acorns every other year.

Different oak trees mean different types of acorns. Red acorns will have higher carbohydrate content, more tannin, higher fat, and higher fiber than white oak trees. However, even though red acorns have higher nutritional value, they also have a bitter taste which makes them less palatable to wildlife. So just like humans would rather have an apple than a lemon, wildlife will prefer white oak acorns to red oak acorns. Red acorns also take longer to germinate in the soil, so when white acorns are no longer available as a food source, wildlife can turn to the red acorns that can persist in the soil bed for months. White acorns may be the preferred food source, but because red acorns can survive in the soil for months, red acorns are just as vital to the survival of wildlife in the winter months.

DID YOU KNOW?

A single oak tree can produce thousands of acorns in a season!

Plants and animals typically have two strategies to make sure they produce enough offspring to keep the species going: mature fast or mature slowly. Maturing fast means producing a lot of offspring fast and die soon much like rabbits. Maturing slowly means producing fewer offspring, but living long. Long life does normally mean fewer offspring. Oak trees can live for centuries and even though they can produce thousands of acorns in a season, oaks don't have a high reproductive success rate. This is related to all those animals feeding on the acorns

Oaks are not the only nut producing tree. Pecans, walnuts, and other nuts belong to the mast food group. Studies of mast abundance in wildlife can help predict how well species such as deer will do in a year. Of course, acorns are not the only benefit oaks give to wildlife survival. Oaks also offer shade and shelter. The leaves and twigs can be used for building nests and even for eating. Oaks also provide us with oxygen and help absorb carbon dioxide from the atmosphere. Here in Kentucky oaks are also an important part of our economy, contributing over $160 million in exports and thousands of jobs in forestry. So the next time you pass a mighty oak, you might just want to give it a hug for all the hard work that it does for our wildlife and for us.

Pictured Above: Magnificent oak trees found throughout Kentucky

HOW BOURBON BARRELS ARE MADE

1

Bourbon barrels begin as an acorn from a white oak tree. After growing an average of 100 years, they have matured to the point of harvest. Only the very best trees are selected for barrel construction.

2

White oak has a much tighter cell structure than other woods, which allows the barrels to hold up for years without leaking and creating a slow, gentle interaction with the bourbon. Barrels are charred on the insides of each barrel to provide the distinctive color and taste for some of the best-known bourbons in the world. It's this char, the details of which are a closely-guarded secret, which gives bourbon its distinctive amber color and woodsy flavor. Kentucky is known as the best place to age bourbon because its cold winters and hot summers allow the charred oak barrels to alternately absorb and release the whiskey. When the warehouse is hot, the whiskey expands and is forced into the porous oak where it meets natural sugars and tannins from the caramelized wood. When the warehouse cools, the whiskey is expelled. This process reoccurs year after year—the length of time determined by each distillery and brand—until the whiskey turns into bourbon ready to meet the awaiting palettes of consumers.

3

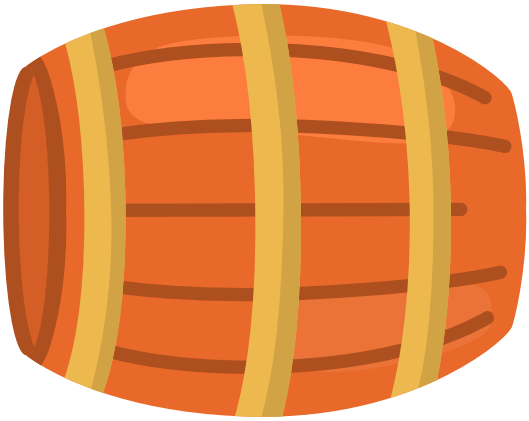
Skilled craftsmen de-bark and quarter-saw the raw logs, cut them into staves and stack them so that air can move freely between them. The staves dry in the yards from six to eight months or longer. The drier the staves the more they soak up liquid. When it's time for processing, processors finish drying the staves in a kiln for seven to nine days. A target specific moisture content in the barrel to soak up the optimum amount of bourbon is then reached. From there they go to the cooperage where they are planed, shaped and jointed to be made ready for assembly into beautifully-crafted Kentucky bourbon barrels.

4

The process of charring barrels is no more than burning the inside of the white oak barrel to varying degrees of burning. Toasting is a light burn whereas charring is a deeper burning into the wood. This step is necessary to help release the tannic acids and flavors into the bourbon as it ages in the barrels. The different levels of toasting and charring is similar to roasting marshmallows over a fire. Some people like them lightly toasted and some people want them burnt. Distillers are exactly the same. Some makers want the wood toasted, some want the wood burnt, and others may want different levels between the two extremes. Varying degrees of the charring process directly effects the flavor and color of the finished product.

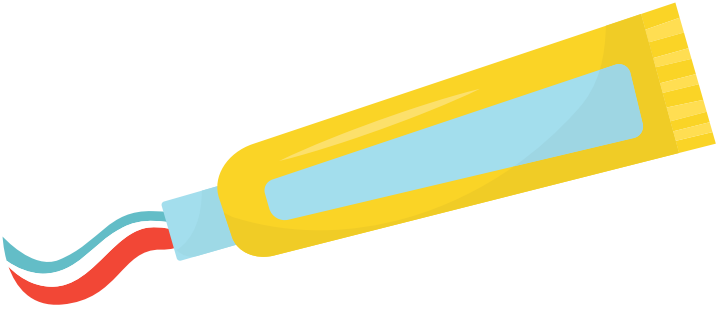
5

Instead of discarding any waste (surplus wood, dust, chips, etc.) the cooperages send them to other industries such as charcoal plants. 100% of the white oak is used in some recycled form.



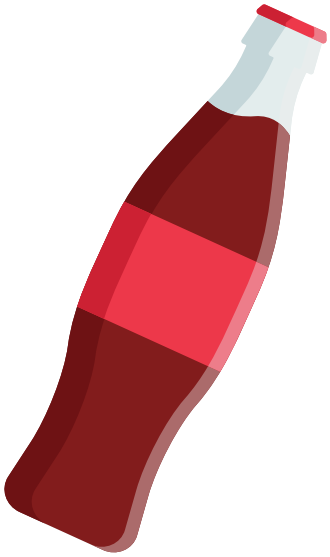
It takes approximately 16 board feet of white oak lumber to make a bourbon barrel (28-33 staves plus the lids). Only the best of the logs are used for this process. They must be free of knots and defects. Kentucky white oak is some of the best trees for this process. These barrels are used in Kentucky for bourbon and bourbon barrel ale, in Tennessee for whiskey, and in Mexico for tequila. Some barrels are also used to age wine.

The American mixed temperate forests where white oak trees grow cover 53.8 million hectares, the largest contiguous forest in the world, according to the U.S. Forest Service. American oak forest area has steadily increased since 1980 and is currently at pre-1947 levels. Regrowth is an important sustainability measure for both public and private land owners. White oaks are bountiful mast producers — some trees can produce between 2,000-7,000 acorns per year — serving as a substantial food source for wildlife such as blue jay, black bear and wild turkey. The tree's bark is very flaky and has a lot of surface area. In fact, a study of the species in the Mid-Atlantic found that white oaks provide habitat for more than 500 species of moths and butterflies — more than any other woody plant in the region. Bourbon barrel companies support white oak sustainable logging practices and white oak reforestation efforts to ensure this valuable economic resource can be enjoyed by succeeding generations.



TOOTHPASTE

Toothpaste contains cellulose gum (Xanthum gum), a natural product derived from wood. The gum acts as a binder and provides a creamy texture. Toothpaste may also contain terpenes, a chemical derived from wood that is used to sweeten the spearmint or peppermint flavor of many toothpastes and mouthwashes.



SOFT DRINKS

Many citrus flavored soft drinks contain chemicals from trees called esters. Esters, which are derivatives of wood rosin, act as a weighing agent and assure a uniform distribution of the citrus flavor throughout the drink.

COOKIES

Many baked goods contain cocoa from the seeds of the cacao tree, and vanillin, an artificial flavoring made from wood.

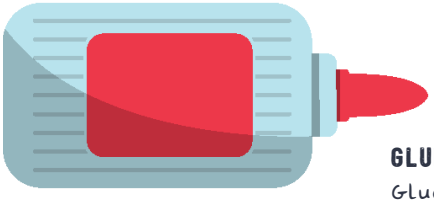
GOODS FROM THE WOODS

Through research and advances in technology, we have learned to convert tree fibers and paper-pulping residues into a wealth of products. In fact, there are more than 5,000 wood and paper products that we use and enjoy each day – everything from baby food and ice cream, to rayon and paint, to toothpaste, cosmetics, medicine, and household cleaners. But what makes all of these products special is that they come from a renewable resource – trees.

Unlike fossil fuels, metals, and plastics, wood can be harvested again and again in a never-ending cycle. With proper forest management, we can enjoy thousands of products and still have plenty of trees for wildlife habitat, clean air and water, recreation and aesthetic beauty today and in the future.

CELLOPHANE TAPE

Cellophanes are derived from the sugar components of wood during the pulping process and are used in making such products as wrap and tape.

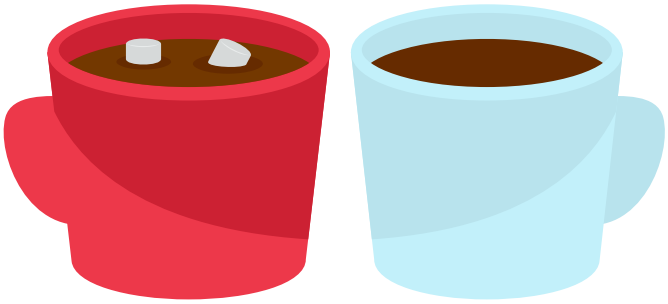


GLUE

Glues and adhesives can be made from hard resins, a natural substance that comes from trees.

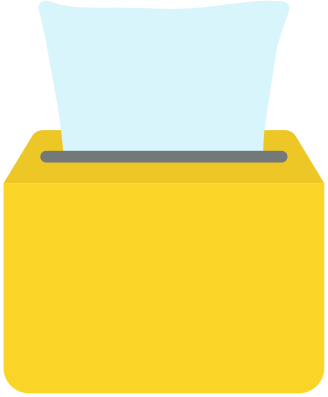
INSTANT HOT CHOCOLATE

Instant hot chocolate contains cellulose or methylcellulose, the main building block of wood. This form of cellulose acts as a thickening and binding agent. If It says cellulose, it probably comes from trees.



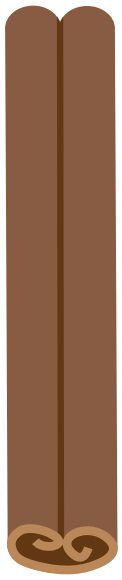
COFFEE

The nuts and seeds of many trees provide food for both humans and animals. Most of the world's coffee is obtained from the berries of the Arabica coffee tree. Other edible nuts and seeds include pine kernals, walnuts, and pecans.



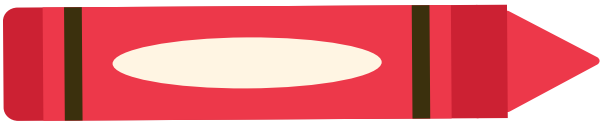
FACIAL TISSUE

Cellulose is the structural component of the primary cell wall of green plants. Cellulose is the most common organic compound on Earth. The cellulose content of wood is 50 percent.
For industrial use, cellulose is mainly obtained from wood pulp and cotton. It is mainly used to produce paperboard and paper; to a smaller extent it is converted into a wide variety of derivative products such as cellophane and rayon.



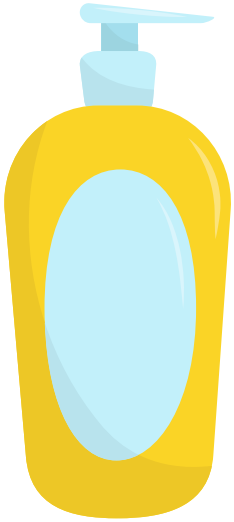
CINNAMON

Many spices used in cooking – such as nutmed, bay leaves, and cinnamon – come from trees. Cinnamon is made from the bark of the laurel tree which grows in India and Sri Lanka. Nutmeg is the seed of several species of trees in genus Myristica. They grow in the Banda Islands in the Moluccas of Indonesia.



CRAYONS

Carnauba wax, a resin produced by the leaves of the carnauba tree, is the waxy component of crayons. Carnauba wax is also used in car wax, and as a finish coating on furniture, produce (such as apples and pears) and a wide variety of other products. The pharmaceutical industry uses it to coat pills, and it is a major ingredient in lipstick and other cosmetics.

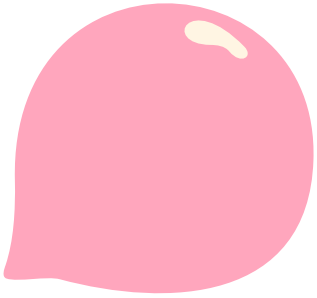


LOTION

Many beauty products, including lotions, contain Vitamins A and E, which come from wood extracts. Many skin lotions also contain stearic acids that are derivatives of fatty acids produced during the papermaking process.

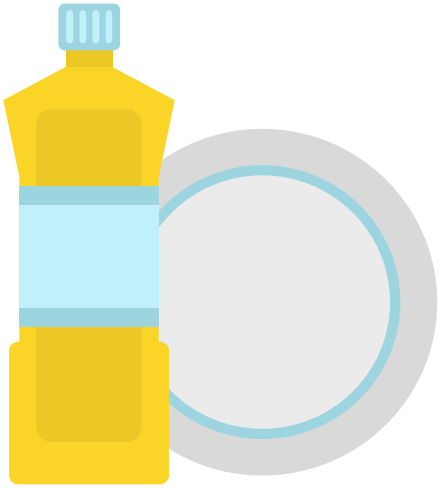
MEDICINE

Aspirin tablets and other medicines in tablet form are held together with lignin, which is the natural glue in wood. The essential elements of aspirin come from the bark of willow trees. Many other medicines used in treating diseases such as high blood pressure and Parkinson's disease also contain various wood derivatives.



CHEWING GUM

Chewing gum is made by using the rosin or storax of trees such as spruce. Chewing gum may also contain terpenes, a group of pine derivatives used to sweeten peppermint and spearmint oils used as flavorings.



DISH WASHING LIQUID

Detergents, soaps and shampoos, are made from crude fatty acids derived from wood. The lemon scent of some dishwashing liquids and furniture polishes comes from trees during pine turpentine processing.

KENTUCKY'S CHAMPION OAKS

Every year skilled hunters head into the woods, cities, parks, cemeteries, any place where trees grow. They aren't tracking game. They're for something that can't run or hide - big trees... really big trees. Kentucky's champion tree hunters find and measure trees in hopes of finding new state champions and maybe even national champions. Champion trees can be found almost anywhere.

These champion trees are the largest members of their species. Blessed by superb growing conditions, resilience to hazards, an opportunity to grow and a little luck, these VITs (Very Important Trees) show what's possible when everything goes just right in nature.

Big trees also have big values. Compared to younger, smaller trees, big trees provide greater ecosystem services such as carbon storage, cooling, water and air filtration.

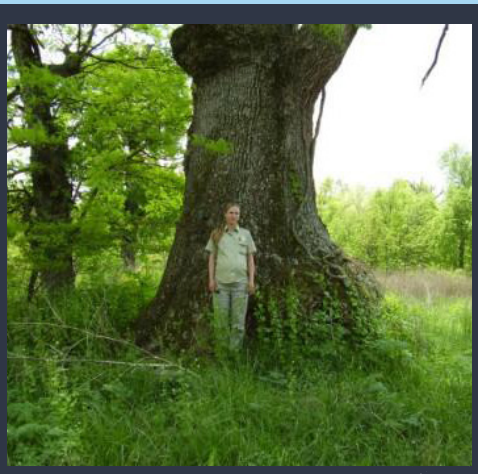
It may sound like work reserved for experts, but tracking down Kentucky's biggest trees is actually a collective effort that anyone can join. Amateur tree buffs, citizen scientists and school kids alike are invited to locate and nominate potential champions to help honor the branchy giants among us.

Big tree hunters have been looking for champions since 1940 when the American Forests organization began a search of the largest specimen of each species of American trees. Their mission was to locate and protect them. The Division of Forestry (KDF) began compiling a list of state champion trees in 1968. A tree earns points based upon its circumference (the measurement around the tree), height (how tall it is) and crown spread (the total amount of leaves and branches in every direction). The tree with the most points for its species is declared champion. If trees are within five points of each other they may share the title of co-champions.

Once established as state champions, they are then nominated for national champion status if they are bigger than the one currently listed. Some of the largest trees on Kentucky's registry are the oaks.

There are 22 champion oak species recognized in Kentucky: black, blackjack, bur, cherrybark, chestnut, chinkapin, northern red, nuttall, overcup, pin, post, scarlet, shingle, shumard, southern red, swamp chestnut, swamp white, water, white, and willow. Of these, a shumard oak in Powell County, a shingle oak in Jefferson County and a chinkapin oak in Harrison County are national champions... the largest tree of that species in the United States.

So get out there and measure some trees...you may find the next champion.



Check out all the champion trees at: https://eec.ky.gov/Natural-Resources/Forestry/ky-champion-trees/Pages/default.aspx

THINGS TO DO AS A CLASS

1) Cut out magazine pictures of products made from trees. Collect pictures that fit equally into the categories: wood products, food products, and paper products. Put up three large pieces of paper with a label (paper, wood, food). Have each student pick a picture and put it where they think it belongs. After everyone has put their pictures under a label, discuss what is in each category.

2) Make new paper from old, used paper. This is a messy project and it takes time, but well worth the effort. http://youtu.be/RR_218EtLJU [youtu.be]

3) Make a treasure tree for the classroom. Bring in a dead tree limb with lots of branches. Have the students decorate the limb (prop it up in a large coffee can or bucket filled with sand) with pictures of tree products or small actual products, such as pencils, nuts, fruit, cellophane, etc.

4) Tape a picture of a tree product to each student's back. Tell students they must figure out the product on their back by asking each other "yes" or "no" questions. For example, "Is this product used in our school?"

5) Learn how trees and other plants affect soil erosion by carrying out an experiment (https://www.lifeisagarden.co.za/soil-erosion-experiment/ [lifeisagarden.co.za])

START AN ENVIROTHON TEAM

Are you interested in environmental issues? If so, then you and your friends should form an Envirothon team. The statewide competition allows high school students to team up on a series of hands-on outdoor contests to solve environmental problems and test their knowledge of natural resources.

The event is made up of teams of five high school students competing in five different areas: aquatics, forestry, soils, wildlife and a current issue. The 2021 current issue is "Climate Change and Natural Resource Dependent Communities." At each site, students will use their knowledge to participate in hands-on activities to complete a test.

The Kentucky Envirothon consists of two regional competitions. Top scoring teams from each regional competition will move on to the state competition. Regional competitions are held each year in April, and the state competition is held in May. Registration for next year's competition will begin in December.

Contact Information:
Your local conservation district:
https://eec.ky.gov/Natural-Resources/Conservation/Pages/Conservation-Districts.aspx

Division of Conservation Envirothon:
https://eec.ky.gov/Natural-Resources/Conservation/Pages/Envirothon.aspx

Johnna McHugh: 502-564-2320
or johnna.mchugh@ky.gov

2020 Conservation Writing and Jim Claypool Art Contest | Rules

STATE WINNERS: First: $250; Second: $150; Third: $50
REGIONAL WINNERS: $50
COUNTY LEVEL WINNERS: $25
* State/Regional winners will receive a personalized certificate. County winners that win regional or state awards will only receive one check for the top prize.

RULES
1. Kentucky students grades 6-12 are eligible to compete in the writing contest. Students up to grade 5 may compete in the art contest.
2. A student may not enter both the art contest and the writing contest during the same contest.
3. An entry must be created by one and only one student. Any entry submitted by more than one student will be disqualified.
4. All entries become the property of the contest sponsors. The decisions of the judges at all levels of competition are final.
5. Top three writing entries and/or artworks from your school must be submitted to your local county conservation district by Dec. 1, 2020.
6. The entry form below must be completed and secured to the back of your entry.

Artwork: Student entries shall be 8 ½" X 11". Entries may be submitted on any color or thickness of art board (poster board, mat board, etc.) or may be on art paper, which is firmly affixed to art board. All artwork must be two-dimensional (2-D). Three-dimensional (3-D) artwork will not be accepted. Artwork may be rendered in any medium: pencil, ink, charcoal, pastel, crayon, paint, photography, etc. Mixed media and collage work is acceptable as long as all pieces are securely glued to the surface of the work. Entries should not be laminated. All entries must convey at a glance the theme of the competition to persuade the viewer to take action toward good forestry conservation practices. All entries must be the original work of the student.

Writing: Entry may not exceed 1,000 words printed single sided. No photographs or artwork may be included with the written work. It is suggested that the written entry take the form of persuasive or informative/explanatory. Students should write from the perspective of an informed writer to a less informed reader and may be in the form of a letter, article, editorial or speech. It should persuade the reader to take action toward good wildlife conservation practices. The work should be from the student author and avoid plagiarism from this source or other sources. Sources should be cited. Do not use the Conservation Writing and Jim Claypool Art tabloid as your only source.

POINT SYSTEM FOR ART
- 50 points: Purpose/Audience (appropriate communicate style, establishes and maintains a purpose, hold to subject in community, theme is clearly conveyed)
- 30 points: Composition/Creativity/Craftsmanship (layout, originality, and quality of work, such as neatness)
- 20 points: Language/Correctness (word choice, usage, spelling, punctuation, capitalization)

POINT SYSTEM FOR WRITING
- 30 points: Purpose/Audience (establishes and maintains a purpose, communicates with audience, employs a suitable tone)
- 20 points: Organization (logical order, coherence, transition organizational signals)
- 20 points: Idea Development/Support and Evidence of Research (student's original work shows sources of research)
- 30 points: Language/Correctness/Sentences (word choice, usage, spelling, punctuation, capitalization, sentences varied in structure and length and constructed effectively)

Conservation Writing and Jim Claypool Art Contest Entry

Student Name (Miss, Mr) _____

Home Address _____

City _____ Zip _____

Home Phone ( ) _____

Age ____ Grade _____ Teacher _____

County _____

School _____

School Phone ( ) _____

Parent(s) Name _____

☐ I hereby certify that I have read the rules and this entry is the original work of:

_____
Student Signature

_____
Parent/Guardian Signature (required)

_____
Teacher or Principal's Signature (required)