2024 Conservation Writing and Jim Claypool Art Contest

Sponsors: Kentucky Farm Bureau Federation ■ Kentucky Association of Conservation Districts ■ Kentucky Division of Conservation

START AN ENVIROTHON TEAM

ARE YOU A HIGH-SCHOOL STUDENT WHO IS 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 2025 current issue is "Roots and Resiliency: Fostering Forest Stewardship in a Canopy of Change." 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.**

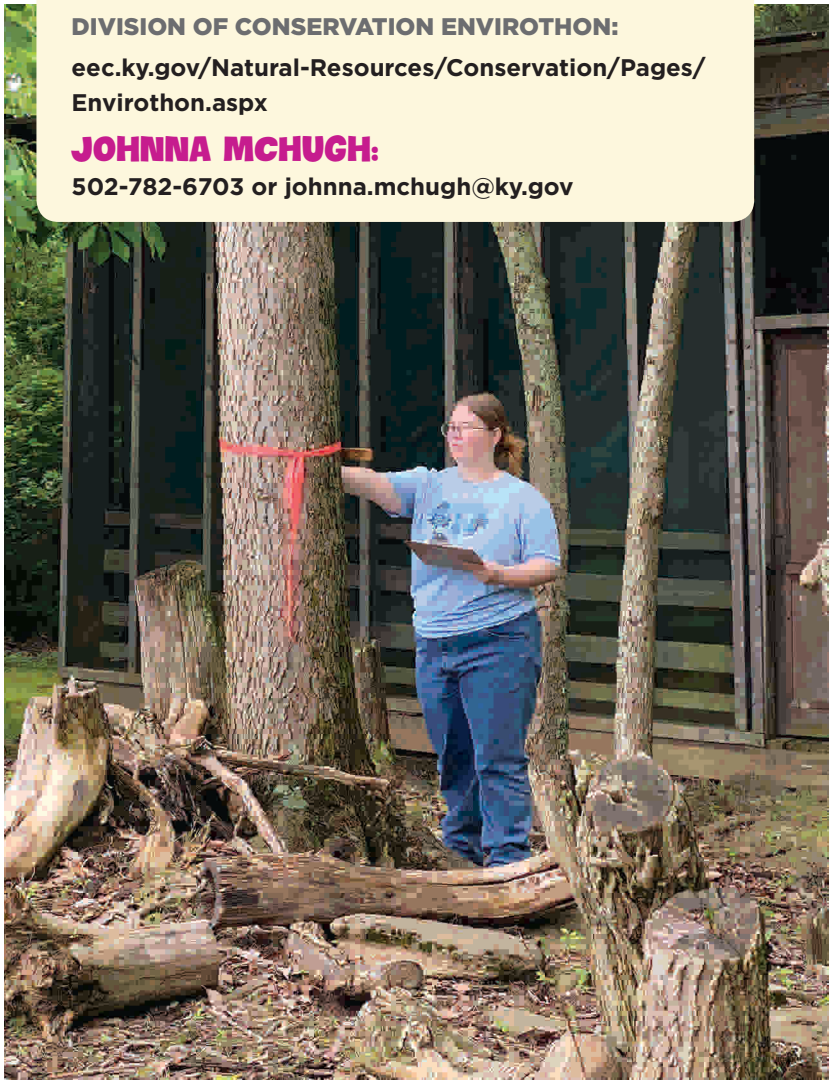
CONTACT INFORMATION:

YOUR LOCAL CONSERVATION DISTRICT:
eec.ky.gov/Natural-Resources/Conservation/Pages/Conservation-Districts.aspx

DIVISION OF CONSERVATION ENVIROTHON:
eec.ky.gov/Natural-Resources/Conservation/Pages/Envirothon.aspx

JOHNNA MCHUGH:

502-782-6703 or johnna.mchugh@ky.gov



RIPARIAN FOREST BUFFERS

Have you ever heard of a Riparian Forest Buffer?

A Riparian Forest Buffer is an area that is next to a stream, lake, or wetland that contains a combination of trees, shrubs and/or other perennial (meaning they come back every year) plants. These buffer areas are managed differently than how you would take care of your yard. You would avoid mowing, raking, using herbicides, and any other landscaping practices commonly used. To maintain a healthy Forest Buffer, you would want to make sure that there are no invasive species (invasive species are non-native plants, animals, and diseases that cause harm to the environment, human health, and the economy) and then you would plant native flowers, shrubs and tree seedlings. The idea is to let native vegetation that's made for a riparian area grow, while minimizing or eliminating non-native invasives.

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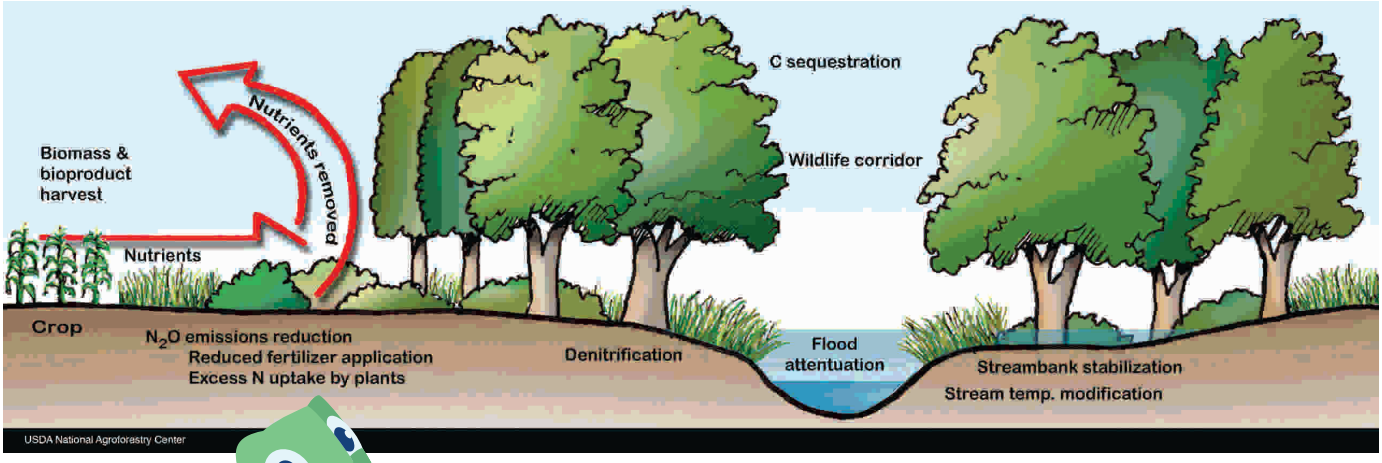
What does a Riparian Forest Buffer do?

- They help control the speed and amount of water flowing into our streams and rivers. The water is caught by the canopy, plants, trees, and leaf litter, then slowly is absorbed into the soil and the plants deep root system. This helps filter out pollutants before it reaches the creek.
- Leaf litter found on the forest floor acts as a filtration system by catching dirt from the upland stormwater runoff. This keeps the water from becoming so cloudy.
- The forest floor helps remove nutrients (phosphorous and nitrogen), pesticides, and fertilizers by storing them in the soil or in the plant tissue. This helps protect fish that can be sensitive to pollution.
- The forest soils act as an area for water storage. The plants take up water into their tissues and release it into the atmosphere.
- The canopy created by the riparian forest provides shade and helps keep the water temperature cooler. This is very important to aquatic life, including trout and the invertebrate (invertebrates are cold-blooded animals with no backbone) food source they depend on. Also, the leaf litter and woody debris from the canopy creates food and habitat for the aquatic food web.
- Riparian forests provide food and habitat for terrestrial wildlife and allow the animals to safely travel from one habitat to another. The tree roots and leaf litter from the forest buffer help stabilize stream banks from erosion (the process of carrying away dirt and rock from natural processes like wind or water).
- They offer recreation! The forest offers the perfect place for fisherman, birders, hikers, picnickers to visit to see a diverse land and aquatic wildlife.

What are Riparian Forest Buffers used for?

All creeks in Kentucky would benefit greatly from using a riparian buffer. Riparian buffers are a great way to use best management practices to help reduce runoff pollution (like dirt, fertilizers, animal waste, and oils) and stormwater problems (too much water in a short amount of time) in both urban and agricultural areas.



REFERENCES:

"Riparian Forest Buffers." USDA Forest Services. June 24, 2024. *fs.usda.gov/nac/practi ces/riparian-forest-buffers.php*

"Riparian Forest Buffers" Virginia Department of Conservation and Recreation. June 24, 2024. *dcr.virginia.gov/natural- heritage/riparian*

HOW DO TREES USE WATER?

By: Lindsey Purcell, lapurcel@purdue.edu

Water covers approximately 71% of Earth's surface, yet only 3% of the 326 million cubic miles of water on the planet is suitable for growing crops, such as trees. It can be said that water is the single most limiting ecological factor in tree growth and survival. It is a vital "nutrient" that must be available in adequate supply or plants decline and eventually die.

TREES RELEASE NEARLY 95% OF THE WATER THEY ABSORB.

Trees use or lose water by two separate processes. First, water is taken up by tree roots from the soil and evaporated through the pores or stomata on the surface of leaves. Transpiration is a physiological process responding to soil and atmospheric factors. It is a passive movement of water through the tree system which allows columns of water to move great heights. Water movement through a tree is controlled by the tug-of-war between water availability and water movement in soil versus water loss from leaves. For

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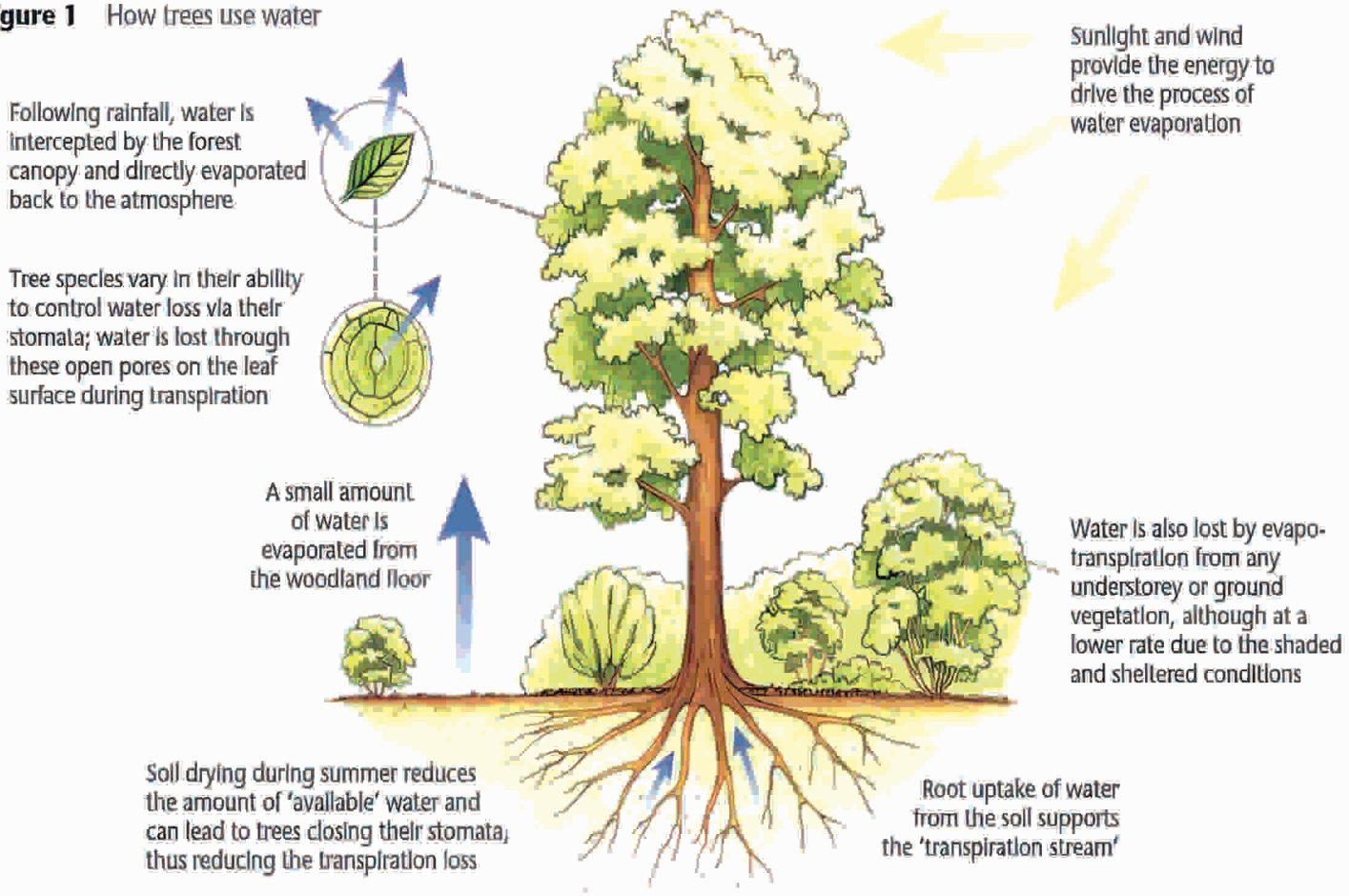
Figure 1 How trees use water



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example, water movement in a ring porous tree like a red oak is 92 ft/hr, in a diffuse porous tree like a basswood is 11 ft/hr, and for a pine tree is 6 ft/hr. Trees can absorb between 10 and 150 gallons of water daily, yet of all the water absorbed by plants, less than 5% remains in the plant for growth. They rely on available water in the soil to "rehydrate" during the nighttime hours, replacing the water loss during the daytime hours.

Leaves intercept water to help with stormwater management and cooling.

The second process is the interception of water by the surfaces of leaves, branches and trunks during rainfall, and its following evaporation. Together, these two processes are often referred to as evapotranspiration. Both transpiration and evaporation are strongly affected by the amount of sunlight, the temperature and humidity of the air, as well as wind speed as trees turn water into mist when it releases nearly 95% of the water it absorbs.

Just why does a tree need water? Well, nearly every plant process such as photosynthesis, respiration and transpiration rely on water to function properly. Water is an essential element as important if not more than other nutrients because it is required to put all our other elements into a form usable by the plant. Almost all essential elements are ionic forms dissolved in water, giving them the ability to move to stems, branches, and leaves for energy.

The goal of proper tree management is to prevent or reduce the impacts of water loss. If adequate soil moisture is available, water loss will go unnoticed as it is replaced naturally. Typically, we experience prolonged dry periods without rain, resulting in drought. Drought conditions are the result of long periods of time without natural rainfall. During dry conditions, soil moisture content is reduced to the point where tree roots can no longer pull the water molecules from the soil. This results in responses from the plant such as wilting, early fall color, scorching and other symptoms. Anytime there is a week without significant rainfall of at least one inch, most likely trees will need some assistance from us to supply the much-needed water for a healthy tree.

FORESTRY FUN FACTS!

There are approximately 73,000 different tree species known to science globally.

THE KENTUCKY COFFEE TREE

is a unique native tree to the central part of the country. It grows large pods that contain toxic seeds when raw, but when roasted can serve as a coffee bean alternative!

Our Urban Forests

Cicadas hum in the trees over a busy city street. Cars passing by flit in and out of the shade of the tall oaks and maples. Along the sidewalk pedestrians go about their business enjoying the sound and cooling shade on the hot summer day. This is a common scene in many cities and towns across the Commonwealth. Street trees providing shelter and shade for animals, drivers, and people as they walk by, but our communities' trees provide so many more benefits.

From street trees along roadways, to the trees in our park and yards, our cities' trees form a vast connected block of forest right where we live and play. All the trees in our communities are part of an 'urban forest'. It's easy to see a large group of trees in the wild and say, "that group of trees is a forest," but when we move into our towns and cities, we sometimes have to take a bird's eye view to see the forest for our many separate trees. From the air we can see the mosaic of our urban landscape; buildings, roads, parking lots, and many blocks and strips of trees interspersed among them. If we think of all those trees together in our built human environments, they are our 'urban forests.'

As we zoom in from our bird's eye view, we can notice that many of the trees in our urban forests are in the yards of homes and apartment buildings. They're our trees to sit and hangout under. They provide us shade in the summer, cooling our yards and homes. In the winter they block cold winds and help reduce our heating needs. Living around trees not only helps regulate our environmental temperatures, but they also help keep us healthier too. Being around trees reduces stress and increases our sense of wellbeing. In heavy rains, trees help reduce excessive ground water by acting as living pumps, moving water back into the atmosphere. Our city trees are also an important source of shelter and habitat for a number of wild critters that call our communities home. Cicadas, songbirds, hawks, and squirrels all depend on trees in our urban areas.

So, who helps us take care of these trees that provide so many benefits? Urban foresters and arborists specialize in taking care of both the urban forest and individual trees. An urban forester is someone who looks at the community's trees as a whole forest. They make management and policy decisions to help ensure we have access to trees and their benefits in our urban environments for years to come. Arborists focus on the care of individual or small groups of trees, and act as tree doctors; pruning, assessing, and treating injuries, and helping recommend courses of action if trees become dangerous. Arborists also train in climbing and working high in the leafy green canopy of trees.

But urban foresters and arborists need our help too. Unlike in the forest floors of the wild, many of our communities' trees don't naturally reproduce well into our densely grassed yards and compacted street verges. We can help maintain and grow our cities' forests by participating in tree planting efforts. Community tree planting events provide much needed replacement trees and help expand our urban forests across the Commonwealth. It's up to each of us to lend a hand in caring for our shared forest resources be they wild or urban.

THINGS TO DO AS A CLASS

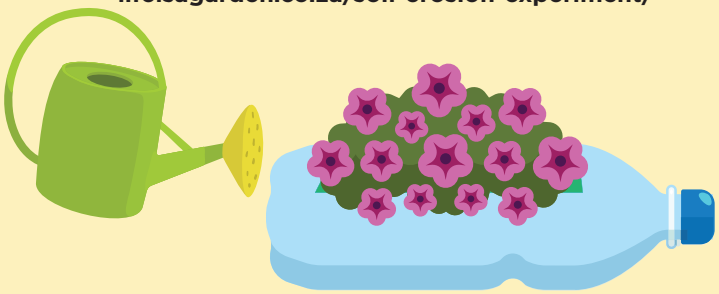
1. Cut out magazine pictures of products made from trees. Collect pictures that fit equally into these categories: wood products, food products, and paper products. Put up three large pieces of paper and label each: paper, wood, food. Have each student pick a picture and put it where they think it belongs. 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. It takes time, but it is well worth the effort.
youtu.be/RR_218EtLJU?si=nv9Uipg-gOwLTxdb

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
lifeisagarden.co.za/soil-erosion-experiment/



FORESTRY FUN FACTS!

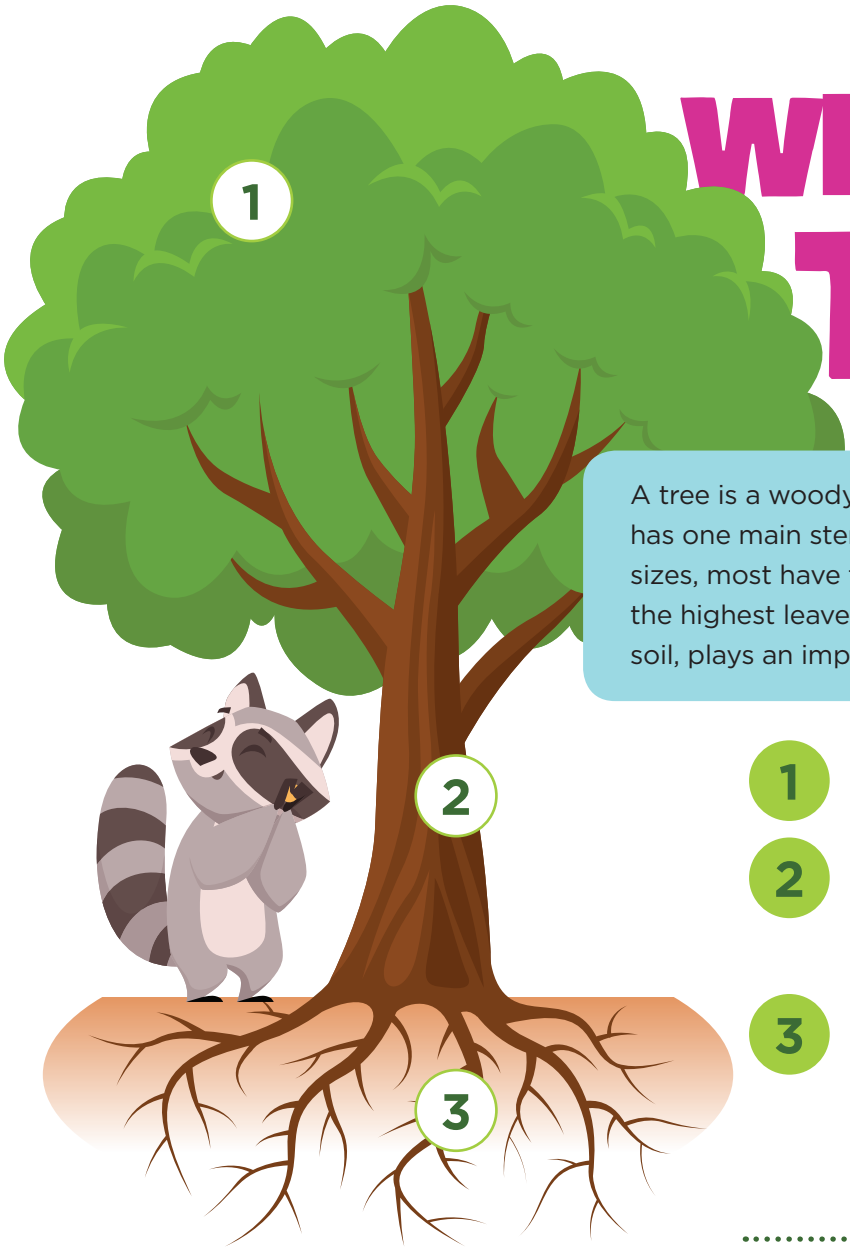
Why do the leaves of most trees turn color in the fall?

Leaves have a green pigment called chlorophyll that is responsible for their color and absorbing sunlight! As days get shorter and the leaves get less sunlight, the pigment breaks down revealing yellow, orange, and red pigments.

The largest known Sassafras tree in the world, approximately 300 years old, is located on one of the main streets of Owensboro.

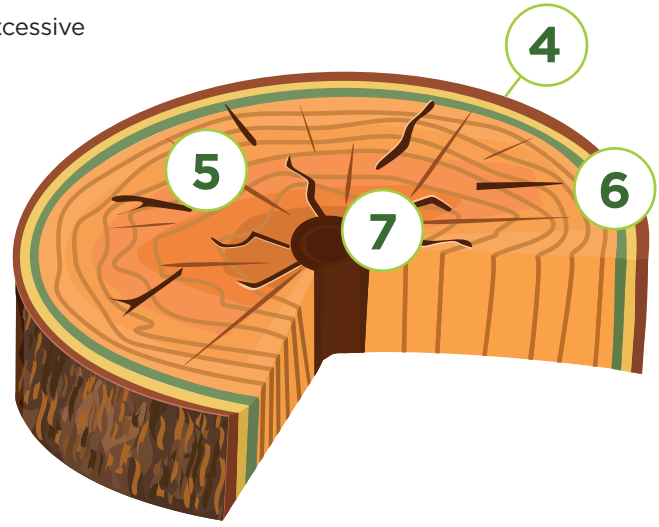
The tree measures over 100 feet tall and 21 feet in circumference.

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.

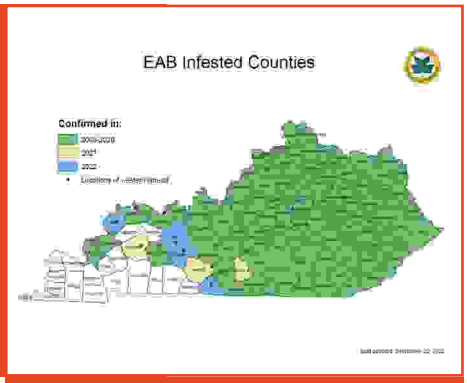
1. The ***crown*** of the tree is made up of the leaves and branches.
2. The ***trunk*** of the tree supports the crown and serves as a highway for food made in the leaves to travel to the roots and for water and nutrients from the roots to travel to the leaves.
3. The ***roots*** of the tree support 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. It's old sapwood that no longer carries sap and gives the trunk support and stiffness. In many kinds of trees, the heartwood is a darker color than the sapwood since its water-carrying tubes get clogged up.

INVASIVE FOREST PESTS OF KENTUCKY:

Bad Bugs that eat *Good Trees*



(Figure 1)

Kentucky is home to nearly 13 million acres of some of the nation's most diverse woodlands. Yet, this valuable resource is under attack! Did you know that the most severe threats to our forests are insects, diseases, and invasive plants? Read on to learn more about Kentucky's least wanted insects - invasive forest pests. Invasive means they're not from here and aren't supposed to be here. The following bad bugs are unlucky for Kentucky because they kill our native tree species. They feast upon our precious trees until there's nothing left, leaving millions of dead trees upon the landscape.

Emerald Ash Borer:

The emerald ash borer (EAB) is a beautiful jewel beetle, but it's deadly! Since its discovery within US borders in 2002, this pest has continued to cover new ground throughout the country and can now be detected in 36 states. These expansions in territory are often aided by humans through the movement of firewood or other infested material. EAB has been confirmed in 103 Kentucky counties to date *(Figure 1).* Ever since its arrival, EAB activity has led to mass mortality of green and white ash throughout our northeastern counties and decline continues to spread westward. In 2022, EAB was confirmed in four new counties: Allen, Butler, Ohio, and Union, and will eventually impact ash resources across the entire state as the infestation continues to spread into western Kentucky.

Hemlock Woolly Adelgid:

The eastern hemlock is under attack from the hemlock woolly adelgid (HWA). These insects appear as tiny cotton balls attached to the base of hemlock needles during the winter. This pest is an exotic species with origins from Japan and was first detected in the eastern United States during the 1950s. It wasn't until 2006 when this insect invader was first discovered in Kentucky. Infestations currently occur in 32 counties resulting in decline and mortality of the foundational native tree species.

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Figure 1 image credit: Abe Nielsen, Kentucky Division of Forestry

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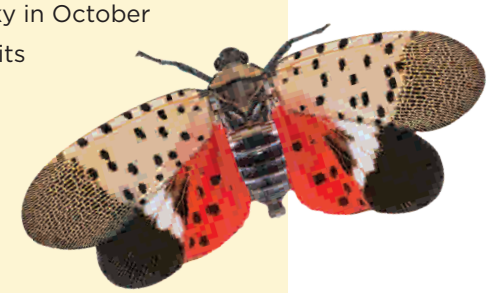
The Kentucky Division of Forestry's Forest Health Program has a field crew responsible for treating hemlocks to prolong the survival of this ecologically significant tree. Chemical insecticide treatments are employed to suppress HWA populations. Since chemical treatments began in 2009, KDF has chemically treated approximately 250,000 hemlock trees! KDF also uses biological control to keep HWA at bay. This is where you use one organism to control another. Two species of predatory beetles that feed especially on HWA have been released in the Daniel Boone National Forest, and in 2020, KDF made their first recovery of one of these species.

Spotted Lanternfly:

Kentucky's newest invasive threat is the spotted lanternfly (SLF) with origins from Asia. It was only first discovered in Pennsylvania in 2014 and arrived in northern Kentucky in October 2023. It can be described as beautiful, but it is also dangerous. Don't be fooled by its name, this insect isn't a fly at all. It uses its piercing and sucking mouthpart to steal nutrients right out of its host plant. It is thought that the tree of heaven (another invasive species) is their primary host species, but they also attack red maple, black walnut, and various other fruiting trees and vines. Damage from this insect's feeding behavior can weaken the plants, leaving it susceptible to other stress agents. These insects also produce large amounts of honeydew, or liquid excrement, that transforms into black sooty mold. KDF is working with various agencies to educate the public on SLF identification and signs of infestation.



Asian Longhorned Beetle:

The Asian longhorned beetle (ALB) continues to be a potential pest of concern for Kentucky. Although ALB has not been found within the Commonwealth, here are the common signs of ALB activity. The females chew pits on host trees, most commonly maple, and lay a single egg beneath the bark. Then the larvae hatch and feed on the sapwood for a short period of time before moving into the heartwood. When adults emerge, they create noticeably round exit holes that can be as large as a dime. KDF continues to work with various agencies to educate the public on ALB identification and signs of infestation.

WITH THE GROWING NUMBER OF INVASIVE FOREST PESTS TO KENTUCKY, WE NEED YOUR HELP! Please contact the Kentucky Division of Forestry if you believe you have spotted one of these bad bugs. Pictures and precise locations will help us in the fight to keep our forests healthy for many years to come!

FORESTRY FUN FACTS & WEBSITES!

A full-grown oak tree can have as many as **1 million leaves!**

Visit the Arbor Day Foundation's Tree Education Hub for online forestry activities!

arborday.org/kids/

MANAGING LAND FOR FOREST HEALTH

ADDRESSING INVASIVE SPECIES

Forests, like humans, can be healthy or unhealthy. Unlike humans, there are no doctors or medicines for forests that can fix most problems within a few days or weeks. Today's forests face a lot of threats and issues that can harm them in major ways. People can work together using the right management techniques to strengthen the health of our forests. This will make Kentucky a better place for everyone to live.

Forest health is important to Kentucky because so much of the state is forested and forests play a big role in the state's economy. Hardwood forests cover 12.4 million acres across Kentucky (50% of the state's land). Forest-related industries contribute $13 billion dollars a year to the state's economy. Individuals own 88% of that forested land. Creating a healthy forest for the whole state starts with getting those individual landowners to want to improve their land.

Since woodland owners may not know how to best manage their forests on their own, the Kentucky Division of Forestry (KDF) offers a free service called the Forest Stewardship Program. KDF works with landowners to figure out if they want to focus on having their woods

produce quality timber, managing for fish and wildlife habitat, improving the soil and water on their land, providing recreational opportunities/making it more beautiful, or increasing forest health. A lot of these goals are related. Focusing primarily on forest health can have a large impact on the other objectives as well.

Landowners trying to improve forest health are mainly worried about invasive insects, diseases, and invasive plants on their property. Invasive species are organisms that are nonnative to a particular region but can survive here and cause environmental or economic harm by spreading. While invasive insects and diseases are huge

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problems that can kill trees, one of the most direct ways forest management plans in the stewardship program help forest health is by limiting invasive plants.

Invasive plants in Kentucky range from grasses to vines to shrubs to trees. They can also be herbs or weeds. These plants damage ecosystems in a variety of different ways. A few examples show how harmful these nonnative plants can be.

One invasive species of plant found throughout Kentucky is **Amur Honeysuckle** (also called Bush Honeysuckle). This shrub is often 3-5 feet tall but can get as high as 15-20 feet. Like many invasive plants, it does so well because its leaves come out earlier in the spring and stay on their branches longer in the fall. This allows them more time to grow and ultimately outcompete other, native species for resources. Bush honeysuckle also produces chemicals that keep other plants from growing. This can lead to the plant choking out native plants and taking over areas within a forest.

Another invasive plant that can thrive and drive out native competition if not addressed is **kudzu**. Kudzu is a fast-growing vine native to Asia. It can grow very quickly, up to two inches a day in good conditions. It can also grow in many different areas. These include steep hillsides, forest edges, streambanks, and more. It can be such a threat to forests because control methods like mowing, removal by hand, burning, and even herbicides usually do not work to remove the vine.

It's not just vines and shrubs that can be considered invasive. Trees can be invasive, too. One nonnative tree that is hurting Kentucky's forests is **tree-of-heaven**. It is a fast-growing tree that can be found in forest understories. It does well in open areas like roadsides or disturbed areas in forests. Because it grows faster than many native species, fewer native trees will survive. This will change entire forest ecosystems. This negative effect on how forests work is true of all the invasive species we have looked at and many others as well.

The stewardship plan helps manage for these forest health threats by coming up with ways to remove the invasive species. These methods can include hand removal, using different types of tools, herbicides, and even prescribed burning or grazing animals. KDF does more than develop a plan for removing invasives as part of the stewardship program. It also takes other steps to improve forest health like arranging for natural resource professionals and vendors to help carry out the plan. The stewardship program can also guide woodland owners through the process of getting funding from the federal government for removing invasive species and taking other steps to improve forest health.

Stronger, healthier forests benefit more than just the landowners of the forested land. Wildlife, the soil, waterways, and neighbors are also enhanced when another piece of land is improved. Everything is connected. We are all stronger and healthier when Kentuckians work hard to manage their land to improve forest health.

FORESTRY FUN FACTS & WEBSITES!

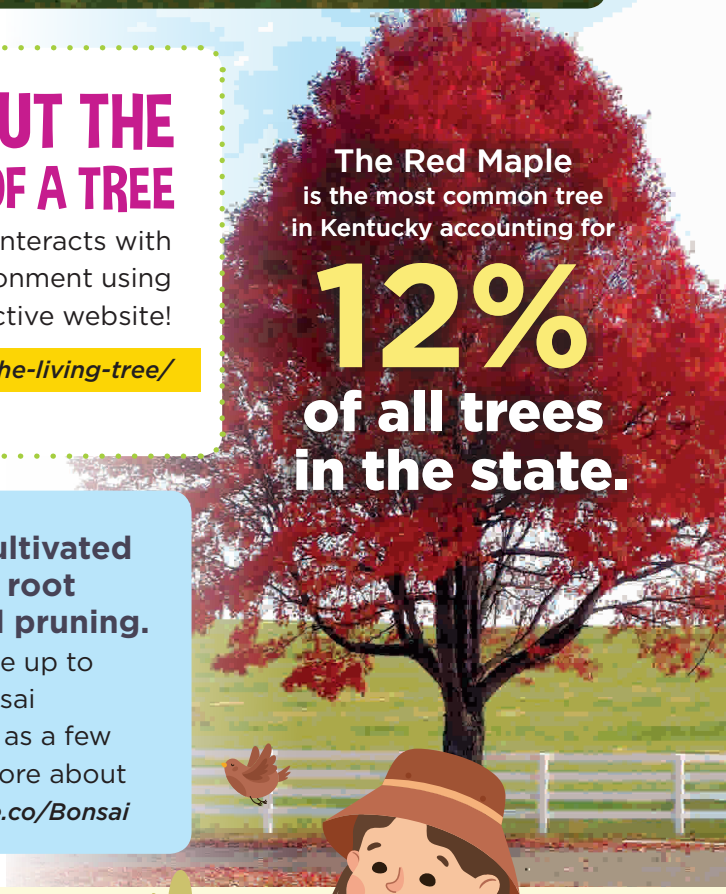
The Kentucky State Tree is the Tulip Poplar.

Kentucky has more than **120 native tree species!** Learn more about some of the most common here: *horticulture.ca.uky.edu/*

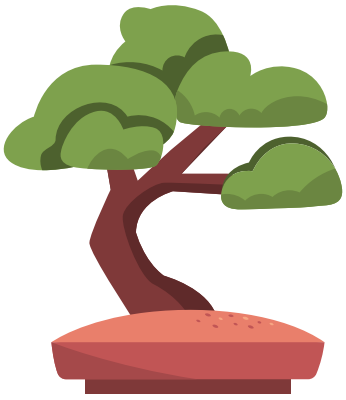
LEARN ABOUT THE DIFFERENT PARTS OF A TREE

and how it interacts with the environment using this interactive website!

aucoeurdelarbre.ca/en/the-living-tree/



The Red Maple is the most common tree in Kentucky accounting for **12% of all trees in the state.**



BONSAI TREES are cultivated to remain small through root confinement and careful pruning. Giant Sequoias can grow to be up to 279 feet tall, but through Bonsai practices can remain as small as a few inches. If you want to learn more about Bonsai, check here: ***kids.kiddle.co/Bonsai***

START A WILDERNESS JOURNAL!

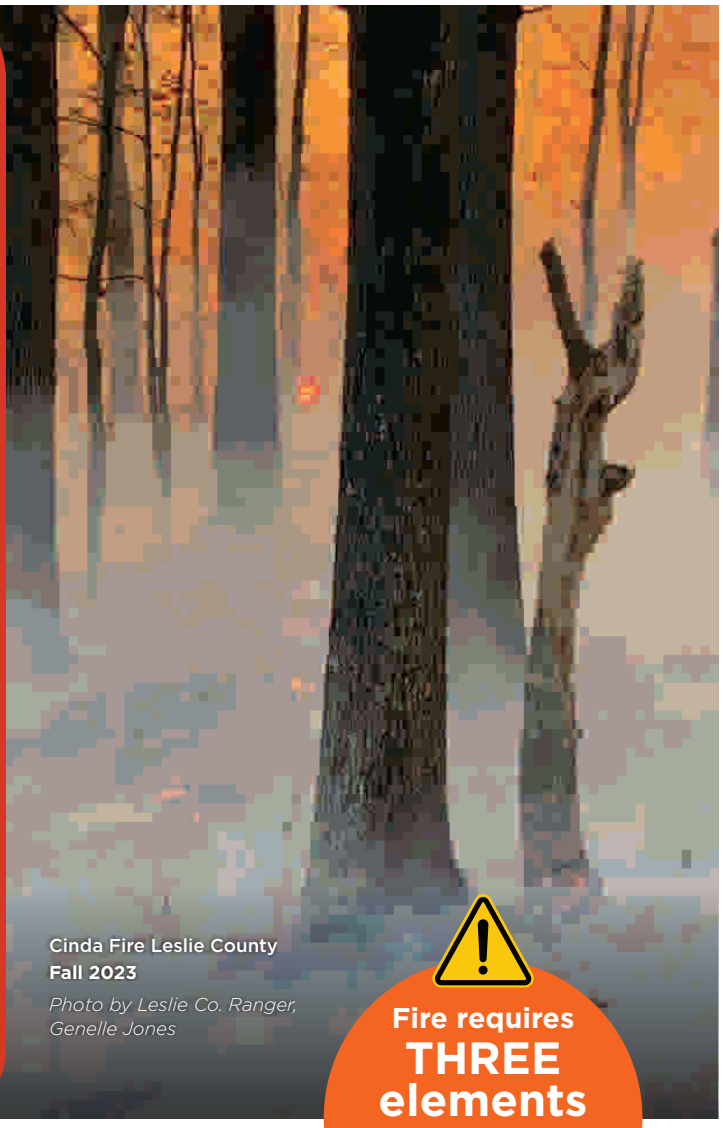
Add leaf tracings, drawings of plants and animals, or any observations you make along the way! You can create your own page ideas or use a premade journal with prompts!

Free Printable Kids Nature Journal:

mysimplewild.com/2020/04/17/free-printable-kids-nature-journal/

NOT ALL THINGS IN THE FOREST SHOULD BE WILD!

Nature needs to be wild to thrive. However, fire is one thing that should not be running wild across the landscape. Wildfires are uncontrolled, unplanned fires burning in woodlands or grasses. Humans cause the majority of wildfires through activities such as camping, burning yard waste, or simply being careless. Although sometimes fire can be beneficial to environments, problems arise when humans build homes and develop land near forests and natural areas.



Cinda Fire Leslie County Fall 2023
Photo by Leslie Co. Ranger, Genelle Jones

Fire requires THREE elements to burn and grow heat, oxygen, and fuel.

Fire requires three elements to burn and grow: heat, oxygen, and fuel. Heat can come from many things such as campfires, sparks from equipment, or even the sun. Structural firefighters remove heat from flames by dousing them with water. Like humans, fire also needs oxygen to survive. Have you ever put the top back on a candle, and it stopped burning? That is because you have blocked off its oxygen. Lastly, fire needs fuel to burn. Wildfires mostly burn leaves, trees, and grasses. However, it will not distinguish between wood from a tree and wood from a house. Wildland firefighters use control lines that surround the fire to stop it spreading. They create a large ring around the fire, free of vegetation and flammable items, so the fire does not have any fuel to burn. If not controlled, wildfires can destroy homes, property, and lives.

Town Mountain Fire – Fall 2023 *Photo by KDF Personnel*

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The weather plays a big role in the spread of wildfires. Fires tend to occur on dry days when the humidity is low. There is little moisture in the air for vegetation to absorb, so leaves and other dead vegetation burn more readily. Wind also increases wildfire danger. The wind feeds the fire more oxygen and helps it spread. If planning to make a campfire or other outdoor fire, always check the weather first. If it is supposed to be dry or windy, plan those activities another day.

People who enjoy outdoor recreation or live near natural areas have a responsibility to prevent and prepare for wildfires. Remember, fire can be a dangerous tool. Do not be careless or play with fire. Be responsible and help protect your community. You can also protect your home by creating defensible space and removing flammable materials from your property. This decreases the likelihood that a fire or its embers reach your home.

Protect your home and the homes of the wildlife around you by being responsible with fire, preventing wildfires, and being prepared in case a fire does become wild.

KENTUCKY FOREST FIRE SEASONS:

- ***October 1st – December 15th***
- ***February 15th –April 30th***

Yocum Creek Fire
Fall 2023
Photo by KDF Personnel

Crew Leader James Madden on Ash Lick Fire
Fall 2023
Photo by KDF Personnel

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Preventing Wildfires:

- Check the weather before doing any outdoor burning
- Do not burn within 150 feet of woodlands
- Have at least 10 feet of clearance around the fire from any vegetation.
- Do not leave your outdoor fire unattended
- Ensure there is plenty of water available
- Make sure the fire is out cold and no heat is felt from the embers.

Creating Defensible Space Around Your Home:

- Make sure your address is marked and fully visible from the road for emergency personnel
- Remove anything within 30 feet of your home that could burn easily, such as firewood, leaves, and other dead vegetation
- Clean roof and gutters
- Remove flammable materials on and from under decks and porches
- Keep plant bed watered and prune dead vegetation
- Mow grass regularly

FORESTRY FUN FACTS & WEBSITES!

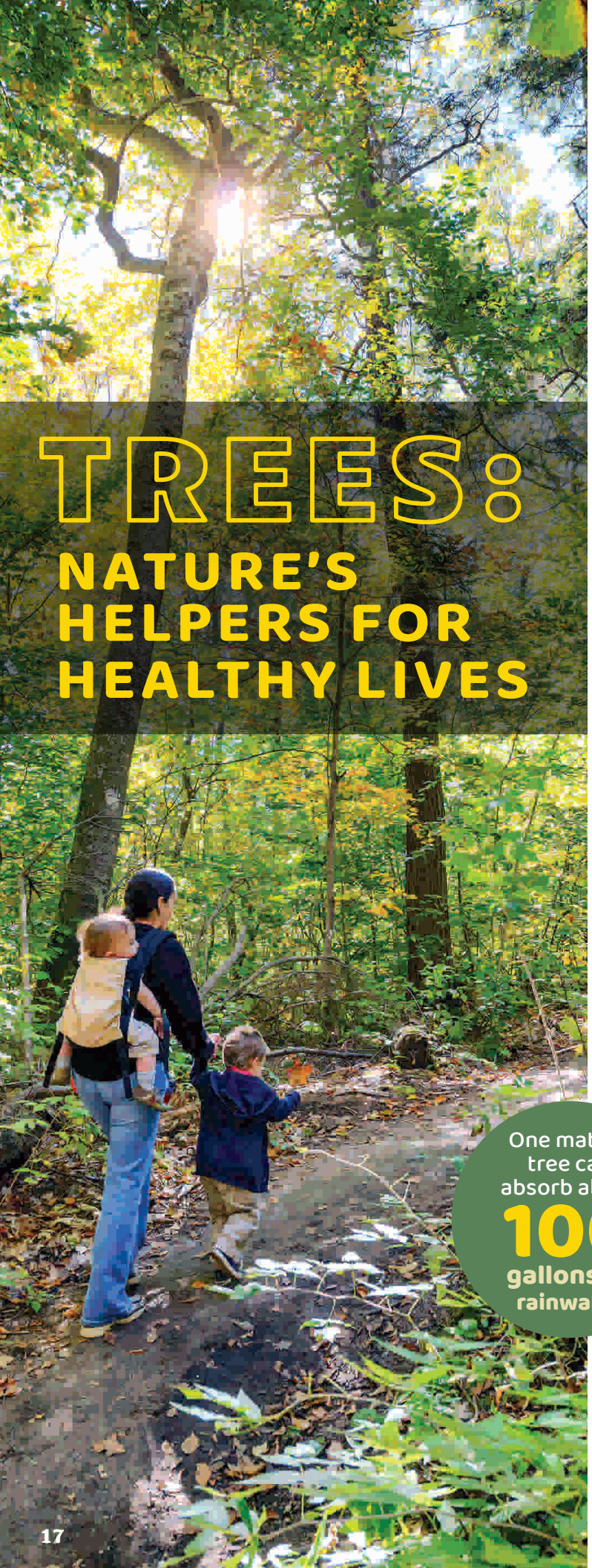
DID YOU KNOW that the latex used to make rubber gloves is harvested from a rubber tree by making slits in its bark?

PLAY FOREST BINGO!

Before you go exploring make or print a bingo card with things you want to see along the way and check them off as you go!

kidsandtheoutdoors.com/forest-bingo-free-printable/

During growing season, oak trees can drink up to 100 GALLONS of water per day!



TREES:
NATURE'S HELPERS FOR HEALTHY LIVES

Trees are magnificent and beautiful parts of our world with stunning trunks, leaves, and branches reaching the sky. Who doesn't love a tree!? The poet Kahlil Gibran said that "Trees are poems that the earth writes." But trees are more than just beautiful features of our world. They play an important role in our overall wellbeing. Let's explore how they do this.

Trees are essential for cleaning the air which directly impacts our health. They act as natural air filters. Through photosynthesis, tree leaves and green stems absorb and store carbon dioxide from the air. This is crucial because carbon dioxide levels have been increasing over the past hundred years, contributing to global warming/climate change. Besides absorbing carbon dioxide, trees also produce clean oxygen for us to breathe. Scientific studies show that one mature tree can produce enough oxygen for four people every day! Additionally, trees absorb harmful pollutants like sulfur dioxide, ammonia, and nitrogen oxides, which can come from cars, factories, and other human-made sources. Breathing cleaner air reduces the risk of respiratory problems and other health issues.

On a hot day, you might notice that it feels much cooler under the shade of a tree. Studies have shown that tree shade can reduce city temperatures by as much as 9°F. Areas without trees absorb more heat from the sun, making them uncomfortable and creating "heat islands." Cities and towns plant trees to cool these areas. Trees can also reduce the need for air conditioning, which cuts down on air pollution. Through a process called transpiration, trees release tiny amounts of water vapor, which cools the surrounding air as it evaporates, similar to how sweating cools our skin, helping to prevent heat stress and related health issues.

One mature tree can absorb about **100** gallons of rainwater

Trees serve as important natural managers of storm water as their roots absorb and store rainwater. This reduces the amount of excessive storm runoff that cities and towns need to manage. Studies have shown that one mature tree can absorb about 100 gallons

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Tree shade can reduce city temperatures by as much as **9°F**

of rainwater, and areas without trees are far more prone to flash floods. But trees do more than just absorb rainwater, they are critical in preventing soil erosion. Sediment from urban soils may contain pollutants that are harmful to our overall health. Through a process called (warning big word ahead!!) “phytoremediation” trees absorb heavy metals, pesticides, excessive fertilizer (that harms aquatic creatures), and organic compounds. By keeping these pollutants out of our water, trees help protect our health and ensure we have clean water to drink.

Tree fruits and nuts are incredibly healthy and beneficial for our bodies. Fruits like apples, oranges, and berries are packed with vitamins, minerals, and antioxidants that help boost our immune system, keep our skin glowing, and protect us from illnesses. They are also high in fiber, which aids digestion and helps us feel full longer. Nuts like almonds, walnuts, and cashews provide healthy fats, proteins, and important nutrients like vitamin E and magnesium. These nutrients support brain function, heart health, and strong bones. Eating a variety of tree fruits and nuts as part of a balanced diet can help us stay energized, maintain a healthy weight, and reduce the risk of chronic diseases.

Trees play a big role in helping people stay active and improve their mental health. When neighborhoods have plenty of trees, people are more likely to go outside for walks, runs, or bike rides because the environment feels more inviting and comfortable. The shade from trees keeps areas cooler, making outdoor exercise more enjoyable, especially in hot weather. Additionally, being around trees and nature can reduce stress, improve mood, and boost overall mental well-being. Just spending time in green spaces can help people feel more relaxed and happier, showing how important trees are for both our physical and mental health.

We learned that trees are not only beautiful but provide us with numerous health benefits. They give us oxygen, filter the air, absorb water, prevent soil erosion, cool the atmosphere, provide food, and help us stay physically and mentally healthy. However, trees face constant threats from overlogging, development, wildfires, and invasive species. Every day, the world loses about 60,000 football fields worth of trees due to these pressures.

SO, WHAT CAN YOU DO TO HELP TREES?

Planting trees at home, school, and in your community is a great place to start. There are many organizations dedicated to planting and preserving trees. Volunteering with one of these groups is a fantastic way to help trees help us.

The next time you walk past a tree, take a moment, and thank it for all the healthy things they do for us!

2024 / PROTECTING THE FOREST TOGETHER

FORESTRY AND FOREST HEALTH

Conservation Writing and Jim Claypool Art Contest I 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 year.
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, 2024.
6. ARTWORK: Student entries shall be 8 ½" X 11". Entries may be digital or 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. All entries must convey at a glance an accurate understanding of the information provided in the tabloid, the theme of the competition, and persuade the viewers of the need for good forest conservation practices. All entries must be the original work of the student.
7. WRITING: Entry may not exceed 1,000 words and must be written in ink or typed on one side of paper only. No photographs or artwork may be included with the written work. The written entry should demonstrate an accurate understanding of the information provided in the tabloid and inform the reader about forest conservation. 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. The work should be from the student author and avoid plagiarism from this source or other sources. ALL sources should be reputable and cited appropriately.
8. The entry form to the right must be completed and attached to your entry.

HELPFUL HINTS

- Keep entry simple and sincere.
- Be creative and original. Avoid plagiarism by using original words and ideas. Plagiarism is defined as the act of stealing and passing off the words of another as your own without crediting the source.
- Consider an area of forest conservation that is important to you, your family and your community.
- Draw from your personal interests or experiences.
- Writing entry should take the form of informational.
- Think about forestry issues in your community, farm, subdivision or city.
- DO NOT use this tabloid as your only source.
- Interview people in your community about changes in forestry issues.
- Find ways to improve forestry issues in your community. TAKE ACTION!

POINT SYSTEM FOR ART

- **50 points** - Purpose/Audience. (Appropriate communication style to reach audience, establishes and maintains a purpose; and holds to subject in community. Theme clearly conveyed at a glance.)
- **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, sources are cited)
- **30 points:** Correctness (spelling, punctuation, capitalization), Language (word choice, usage), Sentences (varied in structure and length, constructed effectively, complete and correct)

ENTRY FORM

Conservation Writing and Jim Claypool Art Contest

Name (Miss, Mr) _____

Parent's Name _____

Home Address _____

City _____ Zip _____

Home Phone ( ) _____

Age _____ Grade _____ Teacher _____

County _____

School _____

School Phone ( ) _____

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

_____
Student Signature

_____
Parent/Guardian Signature (required)

_____
Teacher or Principal Signature (required)