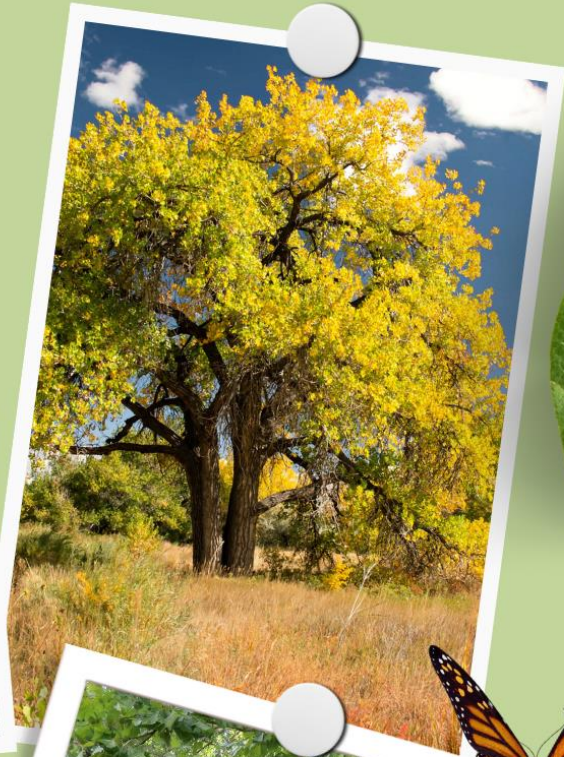


WE ALL NEED KANSAS TREES FOR THRIVING FOREST HABITATS!



ABOUT THIS PROGRAM

The Kansas Arbor Day Poster Contest lesson plan supports Kansas College and Career Ready Standards for English Language Arts, Science and Social Studies, as well as multiple Science crosscutting concepts including Patterns, Cause and Effect, Systems and Systems Models and Structure and Function.

This plan also supplements science units on plants, ecosystems, and biomes.

The hands-on activities included in this program teach your students to collect and analyze forest data and the importance of forest ecosystems in Kansas.

Poster contest information, rules, and School Winner Report Form are found on pages 31-32.

Local-winning posters *must* be submitted to your Kansas Forest Service District/Community Forester by *February 3, 2023*.

Posters submitted elsewhere will be disqualified. You can find contact information for your local forester on our website:

<https://bit.ly/3PVFM7H>



WELCOME



Dear Fifth Grade Educator,

Did you know that in our traditionally defined prairie state there are actually 5.2 million acres of forests, woodlands, and trees in Kansas that account for 10% of the state's total land area? These community, rural and agroforests provide shelter and food for wildlife, absorb air pollutants and carbon dioxide, protect water quality and quantity, prevent soil erosion and make our communities more enjoyable and livable, to name a few of their many benefits to us.

Kansas forests support diverse ecosystems of trees, plants, and wildlife. A variety of trees grow in rural and community forests and many offer edible, social and economic benefits, to boot. By participating in the Kansas Arbor Day Poster Contest, students will be able to identify the pattern of forest cover in Kansas, identify factors that influence our forests and identify threats to our forestlands.

A special thanks is extended to Laura Downey, Executive Director of Kansas Association for Conservation and Environmental Education. Laura contributed to the educational content that follows and shared her expertise and classroom experience to design the hands-on activities in the lesson plan.

The use of part or all of the activities in this lesson plan is encouraged but not mandatory for participation in the state contest. You may adapt, alter, or supplement these activities to meet the needs of your classroom but only posters drawn by **5th grade students** are eligible for competition.

Posters should strictly follow the contest rules on page 31. Remember to not laminate, mat, mount, frame or fold posters. Only one local-winning poster should be submitted to district competition from a school or from a local contest supported by a Tree City USA community. On the back of the local-winning poster, please attach a completed School Winner Report Form (page 32). If you are not partnering with your local tree board or forestry staff (see page 30 for Tree City USA communities) be sure to reach out to them. **Local-winning posters are due to the office of your KFS Community Forester (page 34) by February 3, 2023.**

I encourage you to join the Kansas Forest Service and our contest partners, below, in teaching the youth of our state that **We All Need Kansas Trees** for all that we gain when there are thriving forest habitats around us!



Kim Bomberger

Kansas Arbor Day Poster Contest Coordinator and
NC/NE District Community Forester



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Step 3

Celebrate Arbor Day33

Concept #1: A forest is more than trees.

Concept #2: Many different kinds of forests exist.

Concept #3: Every forest contains a variety of habitats that support diverse, interdependent communities of plants and animals.

Concept #4: A forest provides many benefits.

Concept #5: Altering a forest environment affects all living things and interrelationships in an ecosystem.

Step 1

Exploring Kansas Forests

BASIC ACTIVITY

Objectives:

Students will be able to:

- Collect and analyze data about trees found in their communities
- Describe the pattern of forest cover and identify the factors that influence forests in Kansas.

Time Recommended:

- One 90 minute or three 30-minute periods

Materials Needed:

- Map with numbered trees
- Tree Inventory Data Collection sheets (1 per tree, pages 12-14)
- Clip board
- Pencil
- Tape measure
- Tree Identification Book or access to: <https://bit.ly/3pfY74g>
- Handout of *Rubric/Vocabulary* on page 20

Kansas College and Career Ready Standards

SPEAKING AND LISTENING: SL 5.1, SL 5.2, SL 5.8

READING INFORMATIONAL: RI.5.1-5.4

SCIENCE STANDARDS: 5-ESS3-1. **DISCIPLINARY CORE IDEAS:** LS2.A, ESS2.A and ESS3.C

SCIENCE AND ENGINEERING PRACTICES: Asking Questions and Defining Problems and Planning and Carrying Out Investigations

KANSAS, HISTORY, GOVERNMENT AND SOCIAL STUDIES STANDARDS:
Standard 5 - Relationships among people, places, ideas, and environments are dynamic

Teacher Background Information:

In broad terms, there are three different forest types in the world (page 18).

Boreal forests (taiga) are in cold regions of the world. The growing season is short, and winters are long. Conditions are tough and a tree must be hardy to survive. Boreal forests are mostly coniferous forests. The characteristic pyramidal (triangular) shape of conifers helps the tree resist damage by heavy snow. Few understory plants grow in boreal forests. Animal life must be adapted for the cold.

Tropical forests are generally found near the equator, between the Tropic of Cancer and the Tropic of Capricorn. Temperatures are warm year-round. Long periods of daylight and lots of rain let plants grow quickly and animal life flourish.

Temperate forests are in areas with moderate average temperatures that change with the seasons. These forest areas have less severe winters and have precipitation usually spread evenly throughout the year. Temperate forests often have a mix of broadleaf (deciduous) trees and conifers. Understory plants are common. Animal life is diverse. A typical temperate forest in the United States may contain from 5 to 12 different types of trees.

In North America, there are 11 biome regions (page 19). Kansas contains transitioning boundaries where the central hardwood (deciduous) forests meet the grasslands of the Great Plains. This transitioning landscape can cause debate regarding the appropriate location of forests, woodlands, and windbreaks.

In Kansas, one kind of tree that spurs debate about where it grows is the eastern redcedar. Eastern redcedar is an evergreen tree that does not shed its leaves annually and is a native Kansas tree. Female trees produce seeds that are easily spread by birds and other wildlife. It is increasingly found growing in the grasslands of the state, such as the tall and shortgrass prairie and pastures where animals graze.



One reason eastern redcedar grows in grasslands is that fire does not occur in those areas as it once did. The primary reason for this is that cities continue to expand, and people build homes out into the prairie, or the grassland is not used for grazing or agricultural use anymore. Where a natural or prescribed fire is allowed to burn through a pasture or other grassland, the fire will kill young eastern redcedar trees. Land managers can also remove eastern redcedar through mechanical practices. Mechanical practices include using a tree shearer, a machine that cuts the tree trunk near the soil surface or cutting the tree trunk with a chainsaw.



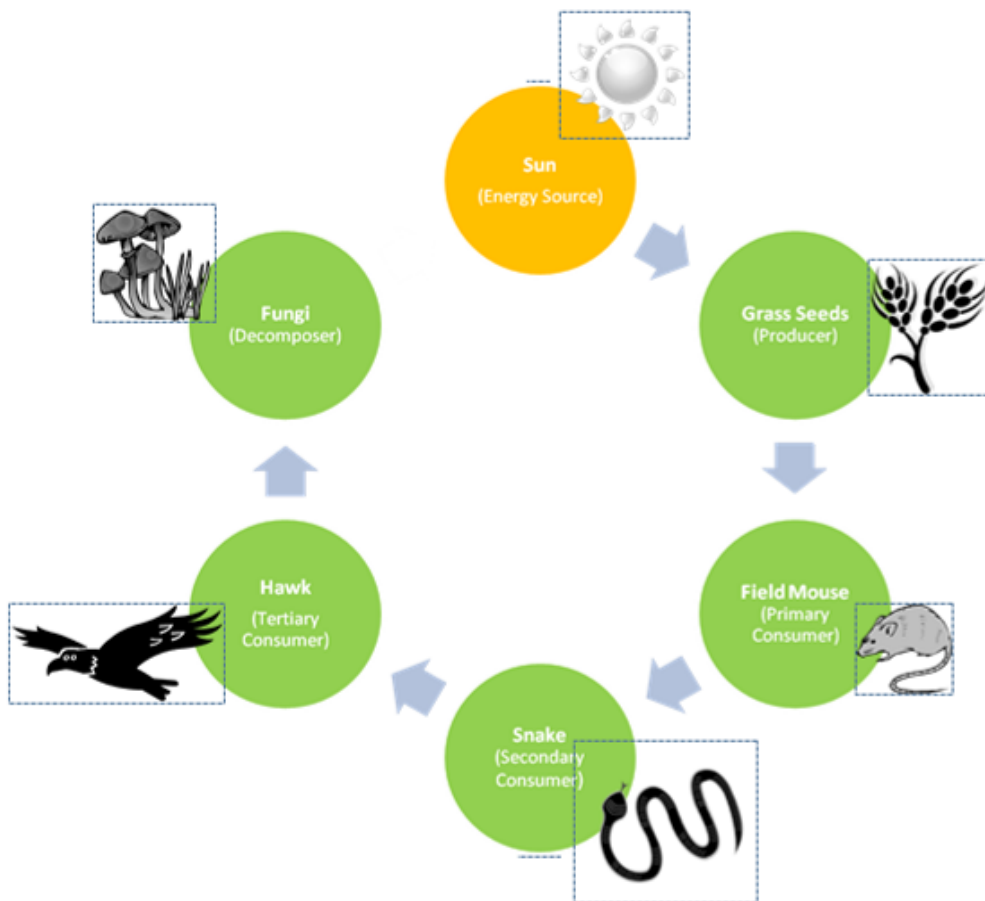
Fire is an effective tool to control the spread of eastern redcedar in grasslands.

Getting Started: Assess Prior Knowledge

Ask students to quickly draw a picture of a tree. (Allow no more than 10 seconds). Have students hold up their tree sketches and make comparisons. Ask students what they would add to the sketch if they had time to draw a forest. (Responses may include: more trees, different kinds of trees, animals in trees, etc.) Encourage students to mentally identify the sounds, smells, sights and feelings associated with forests. Record responses without comment on the board.

Divide students into small groups. Explain that their task is to list as many forest plants and animals in just three minutes. **Remind students that examples of animals (or wildlife) include mammals, amphibians, reptiles, birds, insects, worms, spiders, etc.** Students should use specific plant and animal names. For example: list “oak” or “spruce” rather than just a “tree”. After three minutes take turns asking each team to read items on their list. Record each new plant or animal mentioned on the board. Student responses will provide insight as to their understanding of forests as more than tree covered tracts of land.

Briefly review the basic concept of food chains (Example below). Explain that plants and animals in an ecosystem are linked by what they eat or what gives them energy. This food energy link is called a **food chain or web**. A food web starts when a plant captures energy from the sun and turns it into a sugar food that helps the plant grow. Animals that eat plants are called **herbivores**. An herbivore eats a plant to get energy so it can move and grow. Ask students to identify an herbivore from the list on the board. Animals that eat other animals are called **carnivores**. Ask students to identify a carnivore from the list on the board. Animals, like humans, that eat both plants and animals are called **omnivores**. Ask students to identify an omnivore from the list on the board. Also important in food chains are **decomposers**, which break down dead things and return the nutrients to the soil.



Activity 1: Exploring Kansas Forests



Building from student comments, lead students to understand that forests are more than just trees, they are diverse ecosystems that support many different plants and animals. *Ask students to name some ways that forest animals and plants interact.* (Examples might include trees and other plants provide food and shelter for animals, animals bury seeds that may grow into plants, insects pollinate flowers, fungi and other decomposers break down dead material which enriches the soil so new plants can grow.)

At left: Wild turkey use forests to hide from predators and to roost at night.

Tell students they have one minute for each group to identify a forest food web from the plants and animals listed on the board. Have groups share their forest food webs with the class. Based on student responses, determine if you need to change or broaden any perceptions about food webs and the role plants play in food webs before starting the instructional sequence.

Ask students if all forests are the same. Responses will vary. Explain to students that, while all forests have much in common, different kinds of forests exist. Different kinds of forest have different kinds of trees. Hand out copies of the **Vocabulary/Rubric** and **World Forests Map** (pages 18 and 20).

Looking at the **World Forests Map**, *ask students to make observations about where forests are located in the world. Explore the three different types of forests found in the world and ask students to make observations about where the forest types are located. Ask students what they think might impact the locations of the different forest types* (climate, for example). Point out to students that Kansas is not shown to be an area of forests on the World Forests Map. This is because the percentage of land covered by trees is lower than a traditionally defined forest. However, there are 5.2 **million** acres of forests, woodlands, and other treed areas that occupy 10 percent of the Kansas' total land area.

Hand out the maps of **North American Biomes** and **Kansas Percent Forest Cover in Kansas** (pages 17 and 18). *Ask students to find Kansas on the North American map and make observations* (eastern part of state is covered by temperate deciduous forest, while as you go west you move into tall and short grasslands or prairies). In Kansas, these temperate deciduous forests can be described as agroforests, rural forests, and community forests. **Agroforests** include windbreaks, riparian forests, and isolated trees that do not meet minimum USDA Forest Service Forest Inventory and Analysis definition of forestland. **Rural forests** are forests that are not included within city boundaries. Direct students to the maps **Kansas Forest Cover** and **Woodland Distribution** maps (page 17). *Ask students to make observations about forest cover in Kansas and woodland distribution.*

Have students refer to their quick-sketch tree. Ask: *Does your tree look more like a conifer or broadleaf tree? In what type of forests would you be most likely to find a tree like the one you drew?*

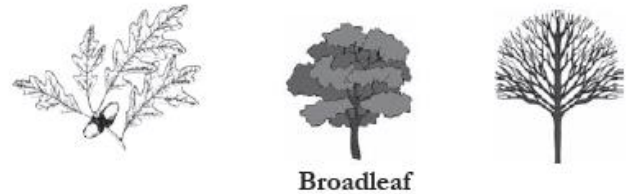
By looking at where forests and woodlands exist in Kansas, what factors do you think influence where certain forests and trees will grow? Answers could include type of soil, proximity to water, elevation, climate (amount of moisture and temperature range), disease or presence of pollinators. In cities, other factors that could influence whether a tree will grow successfully are soil compaction, disturbance of the soil profile due to construction of homes or businesses, pollution and other man-influenced factors.

Climate is an important factor to the growth of forests in Kansas. Kansas is represented by three climate types: **humid continental** (eastern third), the **humid subtropical** (south-central and south-eastern) and **semi-arid steppe** (western High Plains).

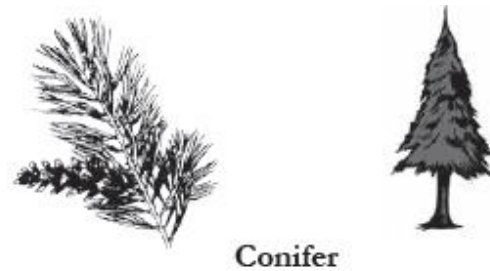
The **humid continental** areas are characterized by cool to cold winters and hot, often humid summers where most of the precipitation tends to fall in the spring and summer, with moderate amounts of winter snowfall (15 to 25 inches). Those **humid subtropical** areas of Kansas tend to experience hotter, more humid summers, milder winters, and more precipitation than the rest of the state. However, they are not immune to snowfall, averaging around 10 to 15 inches per year. The **semi-arid steppe** regions that tend to cover the western third of Kansas can be characterized as having summers that are hot and generally less humid than the rest of the state, in some areas receiving as little as 16 inches of rainfall per year. Naturally, rainfall totals throughout the state can be altered by sporadic and intense natures of rainfall events that occur during the spring and summer months.

Briefly remind students that trees are divided into two main types – broadleaf trees and conifers.

Broadleaf trees have thin and flat leaves that are usually shed annually (deciduous). Broadleaf trees bear a variety of fruit and flowers.



Conifers are cone-bearing trees. Most are evergreen. Conifers have needle-shaped or scale-like leaves.



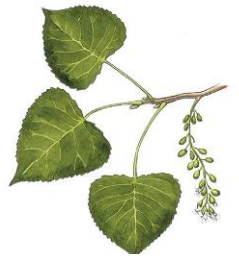
Images courtesy Arbor Day Foundation

The Forest Around You

Ask students the following question: *What kind of forest is closest to their home? Their school? What kinds of trees do you think are found in that forest?*

(NOTE: If children in your classroom do not have an opportunity to experience forests in rural areas, explain that many communities have planted **community forests** to bring the benefits of trees to their cities and towns. Ask students to think about the types of trees that grow best in their area in determining the type of forest closest to them.)

In Kansas' rural forests, ten trees that might be found are the eastern cottonwood (the Kansas state tree), hackberry, green ash, American elm, Osage-orange, black walnut, bur oak, mulberry, American sycamore and honeylocust. Many of these are also found in Kansas communities.



Eastern Cottonwood



Hackberry



Green Ash



American Elm



Osage-Orange



Black Walnut



Bur Oak



Red Mulberry



American Sycamore



Honeylocust

Forests Are Valuable

Forests are great providers. They are a source of energy, influence water quality and quantity, preserve soil, absorb and store carbon dioxide, conserve energy and create oxygen. Forests provide shelter and food for a variety of living things, they provide raw materials for many of the products used by humans, and they offer opportunities for recreation. Imagine what your community would be like without trees! Trees provide economic benefits to business districts, shade hot city streets and parking lots, capture soil contaminants from yards and industrial sites, and make our communities more pleasing to visitors and those who live there.

In particular, the tropical rainforest provides many products that we use in our everyday lives, such as bananas, avocados, pepper, ginger, vanilla, shade-grown coffee, and cashews. The temperate deciduous forest that exists in Kansas provides raw wood for furniture-making and for woodworkers to create bowls, utensils, tables, chairs, bed frames and other items for daily living. Kansas trees are also used for trim, cabinets, and flooring. Black walnut veneer (a thin layer of wood of superior value or excellent grain that is glued to an inferior wood) is a valuable commercial product. Cottonwood, the Kansas state tree, is very important to the pallet and crate industry in the state. Eastern redcedar is increasingly being used to make furniture and for landscaping mulch. Kansas wood is being used for wood pellets, wood energy and even for caskets. Lastly, wildlife and people depend on the edible products produced by the state's trees!



Persimmon is a native Kansas forest tree that produces a sweet and edible fruit in the fall.

Images courtesy Arbor Day Foundation

Forest habitats support diverse, interdependent communities of plants and wildlife

Direct students attention back to the location of forests and woodlands in Kansas. Remind students that forests, woodlands and trees occupy 10 percent of the state's total land area. Within that 10 percent of land area, Kansas forests are home to plants, animals, birds, reptiles and amphibians that are dependent on a forest ecosystem.

Review the layers of the forest with your students as they look at the **Kansas Forest Information Worksheets** (pages 21-28). A forest is made up of many layers. Starting at the bottom and working up, the primary forest layers are:

Forest floor layer is comprised of decomposing leaves, animal droppings, and dead trees and animals. All of these decay on the forest floor and create new soil and provide nutrients for the plants. Growing out of the forest floor are grasses, perennials, mushrooms, and tree seedlings.

Understory layer is made up of bushes, shrubs and young trees that have adapted to living in the shade of the canopy.

Canopy is formed by the mass of intertwined branches, twigs, and leaves of the tall, mature trees. The crowns of the dominant trees receive most of the sunlight. This is where most of the tree's food is produced. The canopy forms a shady, protective "umbrella" over the rest of the forest.

An emergent layer exists in tropical rain forests and is composed of a few scattered trees that tower over the canopy.

Explain that in any forest ecosystem, each layer in the forest offers a different habitat site for forest inhabitants. Each layer has its own climate, based on differences in light, temperature, humidity and wind. Each layer provides a home and food source for specific plants and animals.

Remind students that examples of animals (or wildlife) include mammals, amphibians, reptiles, birds, insects, worms, spiders, etc.

Ask students to name an animal or plant that lives in or uses the canopy. Examples could be: red-tailed hawk, bald eagle, American crow, eastern screech owl, barred owl, wild turkey, fox squirrel, eastern gray squirrel, big brown bat, eastern red bat, woodpecker, porcupine, sycamore, oak, hickory, and maple.

Ask students to name an animal or plant that lives in or uses the understory. Examples could be: Opossum, raccoon, blue jay, cardinal, chickadee, nuthatch, wren, brown creeper, eastern redbud, pawpaw, wild rose, coralberry, or bush honeysuckle.

What animal lives on or uses the forest floor? Examples could be: white-tailed deer, red or gray fox, Virginia opossum, eastern cottontail, woodchuck, eastern woodrat, bobcat, snakes, various mice and rats, and box turtle.

Now have students look again at the **Kansas Forest Information Sheets**. *Explain that these show just a few of the many different kinds of trees, plants, and animals that may exist in a forest here in Kansas, some that they may have never heard of. Several are Kansas threatened or endangered species.*

For more information concerning wildlife conservation in Kansas, The ***Kansas State Wildlife Action Plan*** can be found at <https://ksoutdoors.com/Services/Kansas-SWAP>

Altering a forest environment affects all living things and interrelationships in an ecosystem

*Explain that as the world and state's population increases, the number of people living near or in forests is increasing. The demand for farmland and other natural resources is also increasing. Rain forests are being cut and burned. Kansas forestland is increasingly being converted into additional cropland or to urban use. Refer back to the **Kansas Forest Information Sheets** (pages 21-28). Ask students to list human activities that can positively and negatively impact the forest ecosystem and the life that inhabits it. .*

In Kansas, three major threat categories that could alter its woodlands, forests, agroforests and their ecosystems are: 1) diseases, insects and exotic invasive plants; 2) wildfire risks; 3) loss of forestland.



Within the past 60 years, insects and diseases have taken a toll on rural and community forests in Kansas. Dutch elm disease has killed thousands of American elms. Pine wilt has killed thousands of pines and continues to move westward through Kansas and other insect and disease threats currently exist outside our state boundaries. All can be moved into and throughout Kansas in firewood and other raw wood products. Exotic invasive plants like tamarisk, Russian olive, and Amur honeysuckle could destroy the biodiversity of Kansas forests, woodlands, and riparian areas.

Above: Pine wilt has killed many Scotch and Austrian pines in eastern Kansas and is progressing westward through the state.

When fire is removed from the forest ecosystem, other species of trees and shrubs creep into the deciduous forest ecosystem, such as eastern redcedar and Amur honeysuckle. Lack of fire occurrence in Kansas prairies is largely responsible for the 23,000 percent increase in eastern redcedar volume and other woody invasives over the last 45 years, which is indirectly responsible for population declines of “species of greatest conservation need” as identified in the Kansas Comprehensive Wildlife Conservation Plan.

The conversion of forestland to development and other cropping systems is a significant factor contributing to forest ecosystem loss. Since 1992, urban areas in Kansas have expanded by 170,000 acres. The Kansas City metropolitan area is projected to consume 400,000 acres of land by 2030 for developmental purposes. Riparian forests generally are located in areas where the most valuable agricultural crops are grown and often where prime urban development opportunities exist. Removal of riparian forests will have adverse effects to water quality, aquatic and terrestrial species, and other benefits that they provide.

Become A Forester! Inventory the Trees and Forests Around You

Now that students have explored some of the background on Kansas forests and woodlands, *ask students how they think we have gathered this information about our forests and tree types.* Explain that the Kansas Forest Service conducts inventories to determine the exact location and amount of forested land, the types and diversity of trees in the forest, forest health, and any potential threats that might damage or decrease forested land in Kansas. Forest inventories provide important information to businesses and industry that rely on forest products, to people working to insure the environmental health of their communities and to wildlife managers watching critical habitats, to name just a few. The health and conservation of our Kansas forests and woodlands impacts us all in ways we might not even realize.

Forest inventories can be done for rural forests, agroforests and community forests. The people who conduct these forest inventories are called foresters. *Tell students that they're going to become foresters and will conduct a mini-forest inventory.* Select an area where there are trees - this can be a rural or agroforest that is close to the school, in the school yard or in the school neighborhood (community forest). You will need a map of the area that your students will inventory. You can obtain a satellite image of the inventory area by going to <http://maps.google.com/maps> and typing an address in the area you wish to study. Print off the map, circle and number the trees you wish your students to study within your chosen area. Divide students into groups of 2-4 and assign each group trees that they will inventory. Provide each group with the following materials:

- Map with numbered trees
- Tree Inventory Data Collection sheets
(1 per tree, pages 13-14)
- Clip board
- Pencil
- Tape measure
- Tree Identification Book or access to:
<https://www.arborday.org/trees/whattree/graphics/wtit09.pdf>



As a class, conduct the first couple tree assessments so that students can become familiar with data collection procedures.

Then have the small groups complete the Tree Inventory Data Collection Sheets for their assigned trees. Once all the tree inventory data has been collected, combine the data to look at the overall tree inventory for the area you've selected. Discuss with students the following questions:

1. *What was the overall land use for the area we surveyed? How do you think that might impact the number and type of trees we found?*
2. *How would you describe the overall diversity of the trees found in our survey area? Why do you think that is?*
3. *How would you describe the overall health of the trees found in our survey area? Why do you think that is?*
4. *How would you characterize the overall size/age of the trees in our survey area? How might that impact future planning?*
5. *What benefits do the trees in our survey area provide?*
6. *What could we do to improve our data collection?*

Tree Inventory Data Collection Sheet

Complete the following data collection on each tree your team is assigned:

Tree Number:

Land Use at Tree Location: _____ Rural Forest _____ Agroforest _____ Community Forest

Species of Tree:

Note: If you do not have a Tree ID Guide, collect a leaf sample or drawing to identify the tree. Identification keys may be found at: <https://bit.ly/3pfY74g>

Diameter at Breast Height (DBH): Measure the trunk diameter at 4.5 feet above the ground using a regular tape measure. If the tree is located on a slope, measure 4.5 feet from the uphill side. If the tree has a multi-stem trunk, measure the largest stem. Convert the circumference to diameter by using the formula: $Diameter = Circumference / \pi$ ($\pi = 3.14$)

Understory Cover: Take note of the ground cover under the tree canopy.

- 1 = Forest Litter Understory (leaves, twigs, flower, fruit and other natural tree droppings).
- 2 = Grass/Turf Understory (including other vegetative groundcover).
- 3 = Impervious Surfaces (including all paved and unpaved surfaces, concrete, asphalt, bare soil, and compacted gravel) and whether they drain to sewer or open ditches.

Estimated Tree Height:

- 1 = <20 feet (a two story building is about 20 feet tall)
- 2 = 20-40 feet
- 3 = >40 feet (taller than a four story building)

Overall Tree Health: To evaluate the condition of the tree, look at it carefully. Be sure to walk all the way around the tree and observe it from a distance when looking at the canopy. Make observations of the following and use the scale below to determine points for each criterion:

Trunk	Points	Roots	Points	Crown	Points
Missing bark		Visible decay		Dieback	
Decay		Wounds/injury		Insufficient crown	
Leaning				Broken branches	
Cracks				Lack of balance	
Holes/Pest Damage					
TOTAL POINTS					

Rating Scale:

- Not Evident = 0
- Very Little = 1
- Moderate = 2

More tree identification websites may be found at:

Virginia Tech Dendrology Factsheets:

<http://www.dendro.cnre.vt.edu/dendrology/factsheets.cfm>

Iowa State Extension: <http://www.extension.iastate.edu/pages/tree>

Oregon State University Horticulture Department:

<https://landscapeplants.oregonstate.edu>

Overall Tree Health Assessment:

Dead/Dying = Greater than 20 total points
Poor = 15-19
Fair = 10-14
Good = 5-9
Excellent = 0-4 total points

Additional Comments and Observations: Use this space to make any additional observations or comments about this tree:

[Empty box for additional comments and observations]

Adapted from City Green (www.americanforests.org)



*Left: Decay in a hackberry tree
Below: Dieback in the canopy
Right: Lean in a black walnut tree*



*Left: Decay in a wounded tree root
Right: Insufficient canopy in a storm damaged tree*

Step 1

The Tree Connection

EXTENSION ACTIVITY

Objectives:

Students will be able to:

- Identify animals and plants native to forested areas in Kansas and describe the interrelationships between them.
- Construct a food web and identify the energy relationship within the web.

Time Recommended: One 45-minute period

Materials Needed:

- Kansas Animals and Plants Cards (pages 21-28, one set cut apart for class activity and hole punches with string so it can be worn around the neck, and one set for each student)
- Yellow piece of construction paper to represent the sun
- Yarn
- Paper
- Pencils, markers, and/or crayons
- Construction paper
- Glue
- Scissors

Kansas College and Career Ready Standards

SPEAKING AND LISTENING: SL 5.1, SL 5.2, SL 5.4 and SL.5.8

READING INFORMATIONAL: RI.5.1-5.4

SCIENCE STANDARDS: 5-PS3-1, 5-LS1-1, 5-LS2-1, 5-ESS3-1. **DISCIPLINARY CORE IDEAS:** LS1.C, LS2.A, LS2.B, ESS2.A and ESS3.C

SCIENCE AND ENGINEERING PRACTICES: Asking Questions and Defining Problems, Developing and Using Models

KANSAS, HISTORY, GOVERNMENT AND SOCIAL STUDIES STANDARDS:
Standard 5- Relationships among people, places, ideas, and environments are dynamic

In the previous activity, students inventoried the trees in their community and explored some of the benefits of trees. In this activity, students will explore the connections between trees and animals. Trees play an important role for animals, providing food and shelter for many living things. To begin, *remind students that a food chain/web is an energy link—it describes how various organisms take in the energy they need to live. Ask students to name the broad categories of organisms in a food web: carnivores, herbivores, omnivores, and decomposers. Explain that in this activity, they are going to create a food web.*

Steps:

- Distribute the set of Kansas Animals and Plants cards that you have cut apart, giving each student an individual plant or animal. If necessary, make duplicates of those animals lower on the food web like insects.
- Provide one student with a yellow piece of construction paper that will represent the sun.
- Have students stand in a circle. Each student should take a turn to read their card information to the rest of the students.
- As each student is reading, have the remainder think about where they get energy to live and whether that plant or animal might be an energy source for them. Students should keep in mind that plants don't "consume" other living things, but they need energy to live. Guide students to understand that plants get their energy from the sun.
- When each student feels that they have at least one energy source in mind from those represented within the circle, ask for a volunteer to begin.
- Hand the volunteer the ball of yarn and have him/her begin by stating what organism they are and then name a source of energy for that organism. For instance, the whip-poor-will might eat Linda's Roadside Skipper.

- The student with Linda’s Roadside Skipper needs to confirm that indeed, she/he might be a source of energy and once confirmed, the whip-poor-will should hold onto the end of yarn and pass the ball.

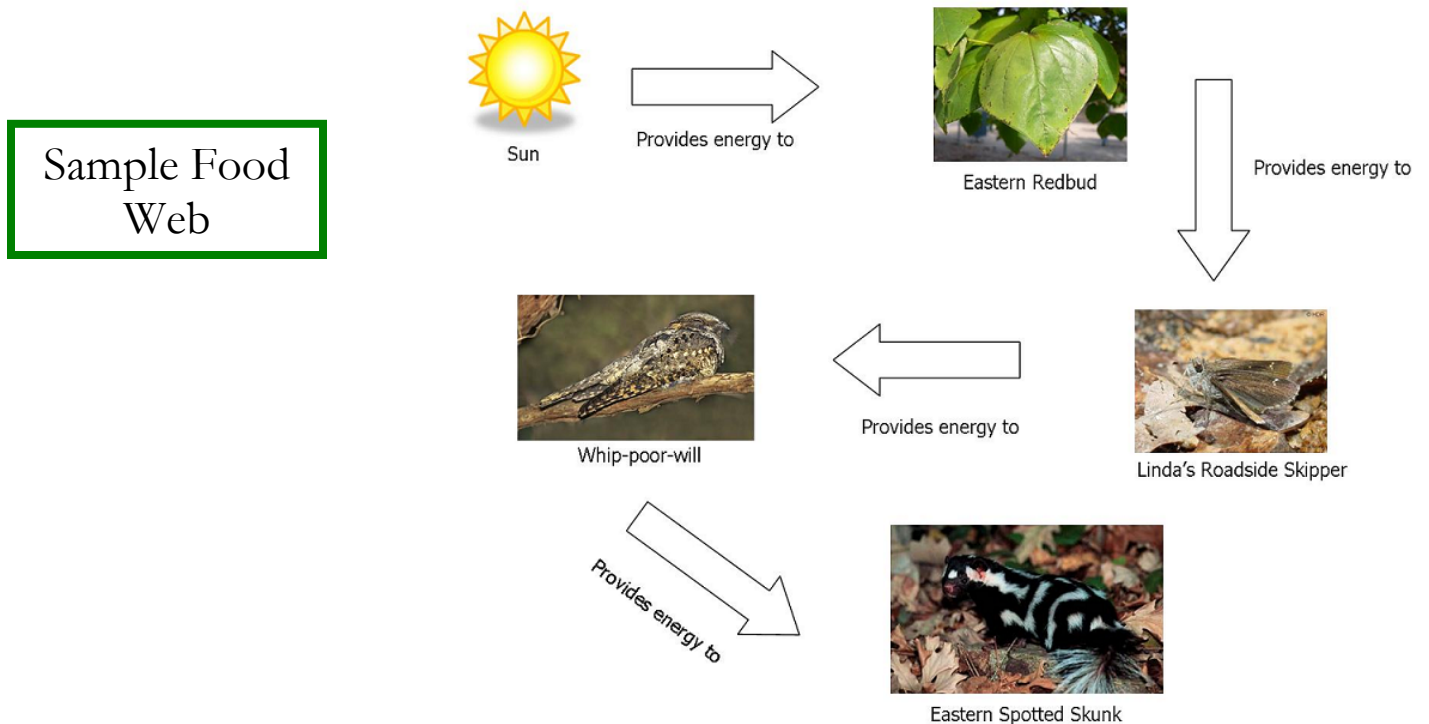
Once the food web has been constructed, ask students to predict what might happen if there was a disease that began killing off oak trees, such as oak wilt, a disease that kills many kinds of oaks in landscapes, woodlots and forests. *Ask the oak tree to gently tug on the string(s) they hold and ask other students who feel the tug to raise their hands. Ask students that raised their hands to identify how they might be directly or indirectly impacted if a large number of oak trees began to die.*

As time permits, here are a few more scenarios to explore with students:

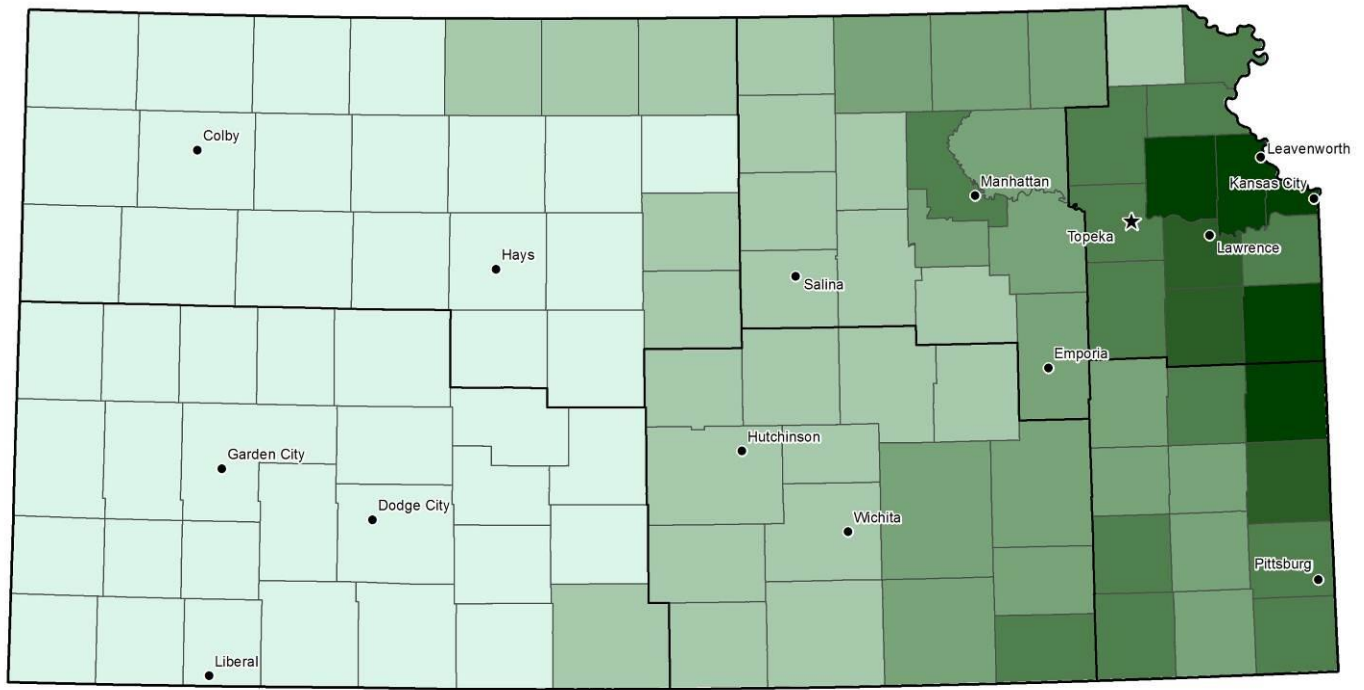
- A forested riparian area (near a river or stream) has been cleared for farm production.
- A wildfire occurs.
- The Eastern Spotted Skunk becomes extinct (have the skunk let go of his/her string completely).

Ask student to explain in their own words how food webs are interconnected and action/reaction that occurs when one component of a food web is stressed or eliminated. Discuss with students what might need to happen to restore balance in each of the scenarios that have been explored. And finally, have students identify potential threats to food webs existing in Kansas and discuss the distinction between natural and human causes.

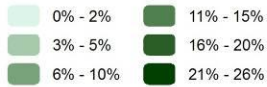
When students have completed their discussion, provide each student with a set of cards, a piece of construction paper, glue, scissors and pens or pencils. Have each student construct their own food webs, being sure to include the sun. Student should connect the organisms with arrows pointing in the direction of where the energy is given (e.g. arrow from the sun which provides energy to the hickory tree, arrow from the hickory tree to the southern flying squirrel, etc.). If time allows, have students share their webs.



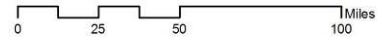
Percent Forest Cover in Kansas Counties



Percent of County Under Forest Cover

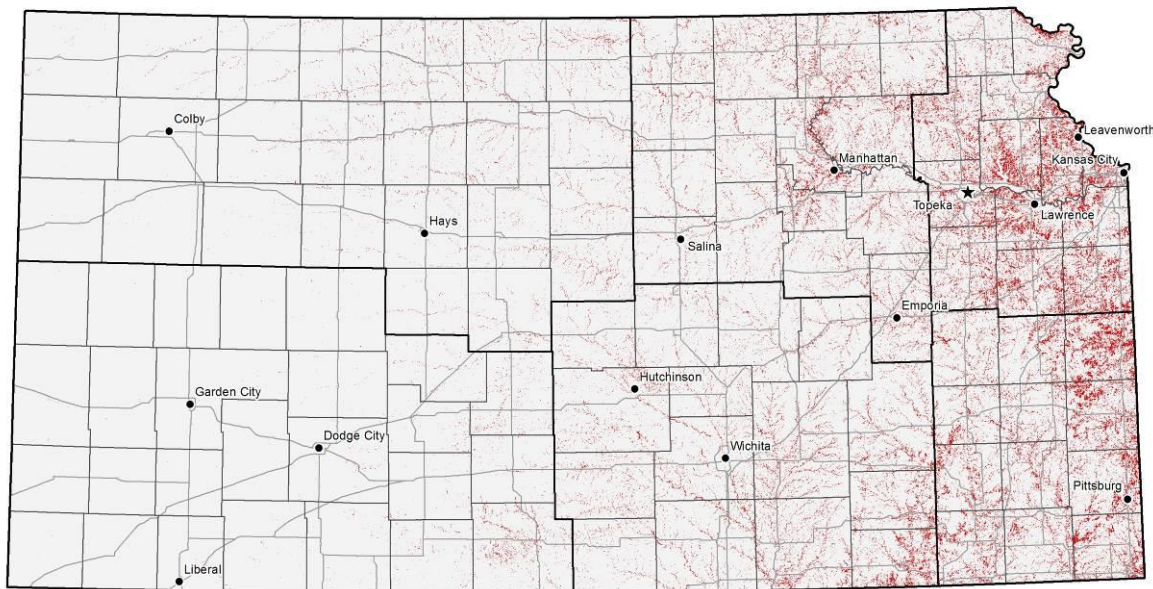


Forest Cover was Obtained from the Kansas Land Cover Project 2005 (cover type codes 14 and 40) and Normalized by County Area

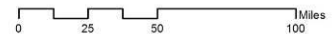
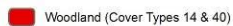


Data prepared by and obtained from the Kansas Applied Remote Sensing (KARS) Program Website: <http://kars.ku.edu>

Woodland Distribution in Kansas

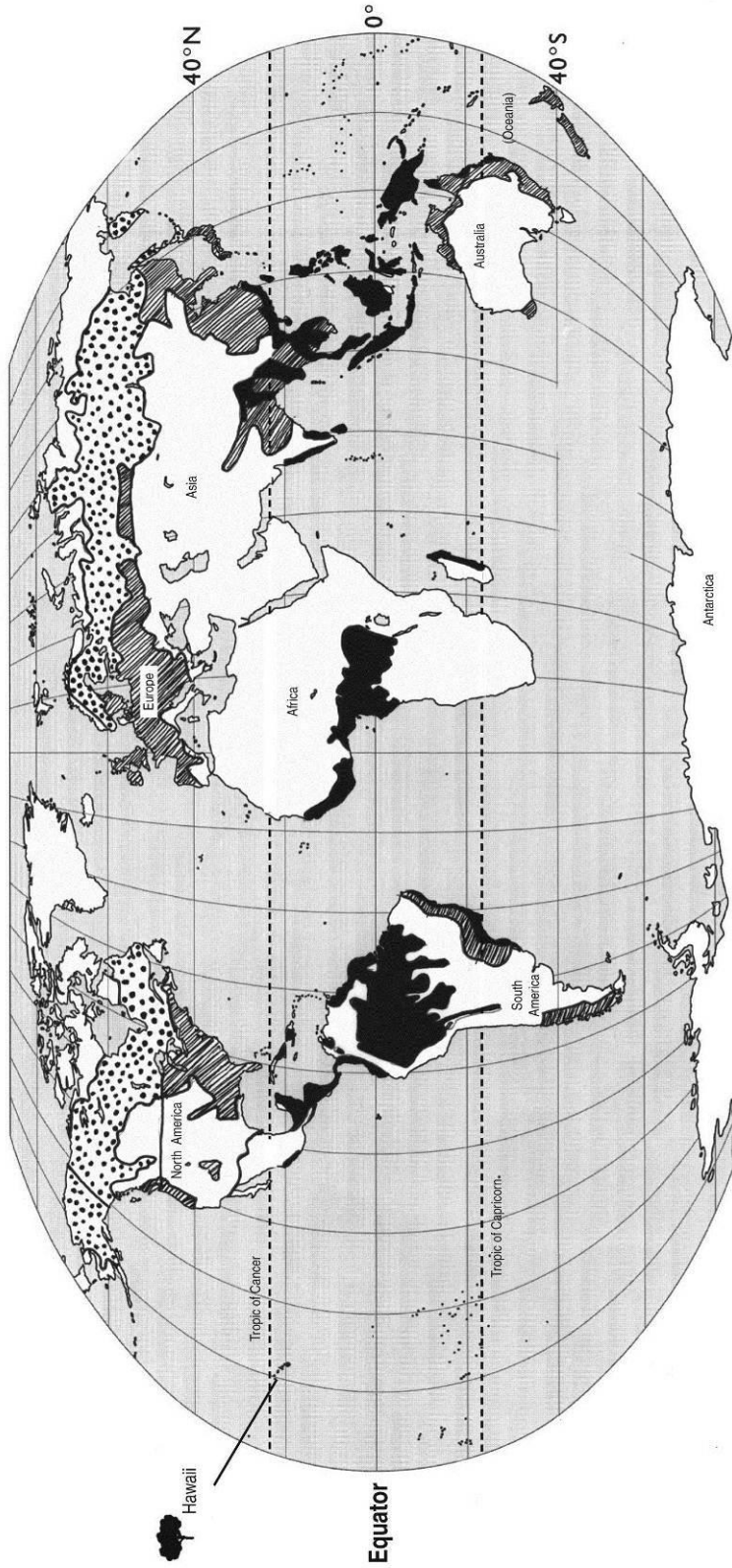


Kansas Land Cover Patterns (2005) - Level 1



Data prepared by and obtained from the Kansas Applied Remote Sensing (KARS) Program Website: <http://kars.ku.edu>

World Forests Map



Boreal Forest

Boreal forests (taiga) are located in cold regions of the world. The growing season is short; winters are long. Conditions are tough and a tree must be hardy to survive. Boreal forests are mostly coniferous forests. The characteristic pyramidal (triangular) shape of conifers helps the tree resist damage by heavy snow. Few understory plants grow in boreal forests. Animal life must be adapted for the cold.



Temperate Forest

Temperate forests are located in areas with moderate average temperatures that change with the seasons. These forests areas have less severe winters and have precipitation usually spread evenly throughout the year. Temperate forests often have a mix of broadleaf (deciduous) trees and conifers. Understory plants are common. Animal life is fairly diverse. A typical temperate forest in the United States may contain from 5-12 different types of trees.

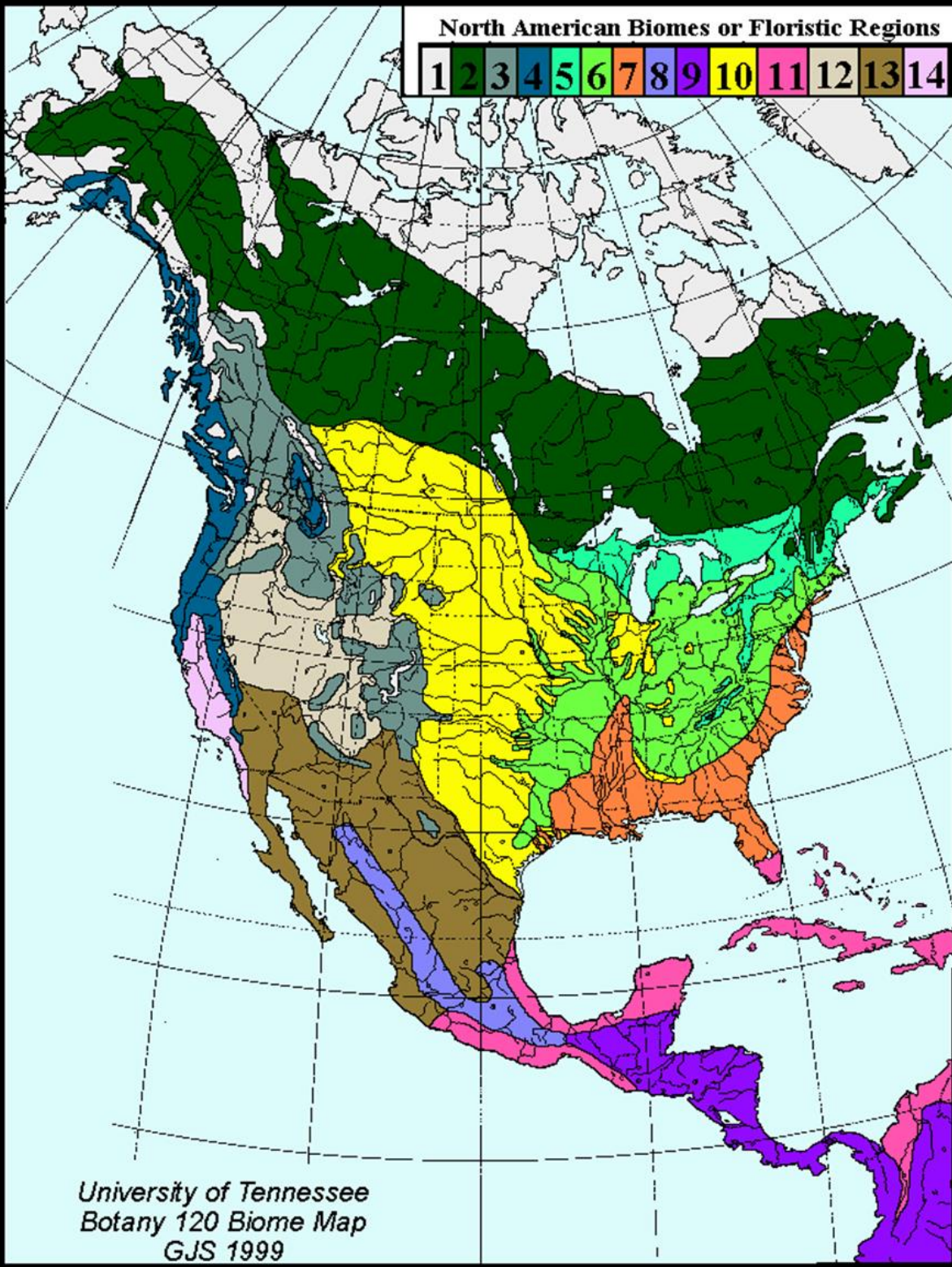


Tropical Forest

Tropical forests are generally found near the equator, between the Tropic of Cancer and the Tropic of Capricorn. Temperatures are warm year-round. Long periods of daylight and lots of rain lets plants grow quickly and animal life flourish. Tropical forests can be further subdivided into subgroups based on the amount of seasonal rainfall. Subgroups are **tropical season forests** and **tropical rain forests**, the most diverse ecosystems on earth.

North American Biomes or Floristic Regions

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Tundra	Taiga	Mountain Forest		Temperate Deciduous Forest		Mountain Forest	Tropical Rain Forest		Grasslands and Savannas		Deserts and Semideserts		Mediterranean scrub



Vocabulary Words

Agroforest – a land use system in which trees and shrubs are deliberately integrated with crops and/or animals on the same land management unit; examples are windbreaks, riparian forests, and other isolated trees.

Boreal forests – mostly conifer forests located in cold regions of the world.

Broadleaf – trees that bear fruit and flowers; with leaves that are flat, thin, and usually shed annually.

Canopy – a top forest layer made up of intertwined branches, twigs, and leaves of tall trees, which form a shady “umbrella” over the rest of the forest.

Carnivores – animals that eat other animals.

Carrion - carcass of a dead animal.

Community forest - trees found along city streets and roads, in parks and other publicly-owned locations and trees growing on private property within cities; contains buildings, parking lots, cars, and people.

Conifer – trees that bear cones and have needle-like or scale-like leaves. Most lose their leaves gradually and are evergreens.

Deciduous – trees that lose their leaves in the fall.

Decomposers – organisms that break down dead things and return the nutrients to the soil.

Detritivore – feeding organisms that obtain nutrients from consuming decomposing organic matter.

Ecotone - a transition area between two adjacent but different plant communities, such as forest and grassland.

Evergreen – trees with leaves that remain alive and on the tree through the winter into the next growing season.

Food chain – the way plants and animals in an ecosystem are connected by what they eat or what gives them energy.

Forest floor – bottom forest layer comprised of low grown plants, decomposing leaves, rotting logs, animal droppings, etc.

Herbivores – animals that eat only plants.

Insectivores - animals or plants that eat insects.

Native tree – a tree that originated in a given geographic area without human involvement or introduction. The arrival of Euro Americans is often used as a starting point for determining if something is native to Kansas or not.

Omnivores – animals that eat both plants and animals.

Riparian forests – forested areas of land adjacent to a body of water such as a river, stream, pond, lake, marshland, estuary, canal, playa or reservoir.

Rural forests – trees and forests growing outside of city boundaries which may be either deciduous or evergreen.

Temperate forests – are located in areas of the world with moderate average temperatures and less severe winters. Often have a mix of conifer and broadleaf trees.

Tropical forests – forests generally found near the equator where temperatures are warm year-round. Includes tropical rain forests and tropical seasonal forests.

Tropical rain forest – tropical forest with constant sun and rain year-round; contains mostly broadleaf trees that keep their leaves through the year.

Tropical seasonal forest – tropical forest with a dry season and a wet season; can have either evergreen or deciduous trees.

Understory – forest layer made up of bushes, shrubs, and young trees that have adapted to living in the shade.

Kansas Forest Information Sheet ---- Page 1

Cottonwood Borer (insect, herbivore)

Forest Habitat: Adults (Canopy layer and understory layer)
Larvae (Near forest floor)

Diet: Adult (Leaf stems and new twigs of the tree)
Larvae (Inner wood of tree)

Interesting Facts: The cottonwood borer prefers to spend its life cycle in a cottonwood. The bold colors of the adult insect are distinctive and due to masses of small white hairs. It is one of the largest insects in North America.



Termite (insect, detritivore)

Forest Habitat: Forest floor

Diet: Mostly dead plant material, such as wood, leaf litter, soil or animal dung.

Interesting Facts: Termite nests commonly are built underground, in large pieces of timber, inside fallen trees or atop living trees. Some species build nests above-ground that can become mounded.



Carpenter Ant (insect, omnivore)

Forest Habitat: Canopy, understory, forest floor

Diet: Animal and plant foods, such as scale insects, plant juices, fresh fruits, living or dead insects, honey, and most kinds of meat, grease and fat.

Interesting Facts: Carpenter ants are large black ants that prefer dead, damp wood to build nests in. They may be found in various locations in trees where decay (rotting wood) is present. They do not eat wood like termites.



Golden Garden Spider (insect, herbivore)

Forest Habitat: Understory layer

Diet: Other small insects,

Interesting Facts: Female spiders construct a large web and consume the circular interior part of the web before rebuilding it each morning with fresh new silk. After mating, the male spider dies and may be eaten by the female. When young spiders exit the egg sac they are so tiny that a cluster of young looks like dust gathered inside the silk mesh of the web.



Kansas Forest Information Sheet ---- Page 2

Cerulean Warbler (bird, omnivore)

Forest Habitat: Canopy layer and open understory layer

Diet: Mostly insects, with some plant material eaten in winter

Interesting Facts: The Cerulean warbler nests and feeds higher in the canopy than other warblers. Females “bungee-jump” from the nest by folding their wings next to their body as they leave the nest and do not open their wings until below the nest. Due to declining and small total populations, this species is under consideration for listing under the Endangered Species Act.



Whip-poor-will (bird, insectivore)

Forest habitat: Canopy and understory layer

Diet: Insects, especially moths and beetles

Interesting facts: The Whip-poor-will is infrequently seen because of its nocturnal habits. Its brown, black and gray coloring make it difficult to detect during the day. It claps its wings to defend its territory. Females lay their eggs in phase with the lunar cycle so that the eggs hatch approximately 10 days before a full moon. It prefers an open woodland habitat.



Yellow-throated Warbler (bird, omnivore)

Forest habitat: Canopy layer

Diet: Insects and spiders

Interesting facts: The yellow-throated warbler is a woodland species that prefers to place a nest high in trees. Its breeding range is more southerly and its wintering range more northerly. It forages by creeping along tree branches, probing into cracks and crevices and pine needles.



Eastern Spotted Skunk (mammal, omnivore)

Forest habitat: Canopy and Understory layers, forest floor

Diet: Rodents, fruits, berries, birds, bird eggs, insects, larvae, lizards, snakes and carrion

Interesting facts: The eastern spotted skunk is rarely seen in Kansas. Its black tail with a white tip, elongated white spots on its back and white spot on its forehead distinguish it from the common striped skunk. This skunk is adept at climbing trees. It seems to prefer forest edges and in Western Kansas, relies heavily on riparian corridors where woody shrubs and woodland edges are present. It is a threatened species in Kansas and protected by the Kansas Nongame and Endangered Species Conservation Act.



Kansas Forest Information Sheet ---- Page 3

Southern Flying Squirrel (mammal, omnivore)

Forest habitat: Canopy layer

Diet: Nuts, seeds, fruits, berries, mushrooms, buds, flower blossoms and tree bark; occasionally insects, bird eggs and nestlings, small nestling mammals, carrion, and adult shrews and mice

Interesting facts:

Adult southern flying squirrels are small - 9 to 10 inches long including the tail and with a weight between 2 and 4 ounces. They are nocturnal and can glide through tree canopies.



Spring Peeper (amphibian, carnivore)

Forest habitat: Forest floor

Diet: Beetles, ants, flies, and spiders

Interesting facts:

The spring peeper call is a short, high-pitched note repeated every second that rises at the end. A chorus of these frogs sound like sleigh bells. It lives primarily in forests and regenerating woodlands near wet areas. In Kansas, it is considered a rare species.



Fulvous Harvest Mouse (mammal, omnivore)

Forest habitat: Understory layer and forest floor

Diet: Primarily seeds and berries but will occasionally eat insects.

Interesting facts: The fulvous harvest mouse is the largest and most brightly colored harvest mouse in Kansas. Its nests are frequently placed in shrubs, vines, clumps of grasses, bird nests, cavities in trees or underground and are used throughout the year.



Eastern Newt (amphibian, carnivore)

Forest habitat: Forest floor

Diet: Insects, small mollusks and crustaceans, young amphibians, frog eggs and worms

Interesting facts: The eastern newt is a common salamander found in both coniferous and deciduous forests. They dwell in wet forests with small lakes or ponds and thrive best in a muddy environment. They can coexist in an aquatic environment with fish, however, their skin secretes a poisonous substance when the newt is threatened or injured.



Kansas Forest Information Sheet ---- Page 4

Eastern Narrowmouth Toad (amphibian, carnivore)

Forest habitat: Forest floor

Diet: Primarily ants but will also consume a variety of small insects

Interesting facts: Eastern narrowmouth toad is a Kansas threatened species that can be found near water, especially along the edge of ponds or ditches and under moist debris and decaying vegetative matter in woodlands. The call of the Eastern narrowmouth toad sounds similar to a bawling lamb.



Redbelly Snake (reptile, carnivore)

Forest habitat: Forest floor

Diet: Insects, earthworms, and slugs

Interesting facts: Redbelly snake is a Kansas threatened species that seems to prefer deeply wooded regions near rivers and lakes and other forested and moist habitats. They are usually discovered on damp ground beneath leaf litter, leaf mold, or pine needles mixed with dead leaves; equally as often they are found under flat rocks, logs, rotten logs, boards, and other surface debris. Redbelly snakes are protected by the Kansas Nongame and Endangered Species Conservation Act.



Smooth Earth Snake (reptile, carnivore)

Forest habitat: Forest floor

Diet: Earthworms and soft-bodied insects

Interesting facts: Smooth earth snakes are a threatened species in Kansas. It lives underground and is most often found hiding beneath logs, thick leaf litter, or other debris in open sandstone woods, rocky hillsides in moist woodlands, deciduous forests, wooded urban areas, woodland edge situations, and abandoned fields. This species gives live birth to as many as 14 young in late summer.



Timber Rattlesnake (reptile, carnivore)

Forest habitat: Forest floor

Diet: Warm-blooded animals; occasionally insects, amphibians and other snakes

Interesting facts: The timber rattlesnake is a large venomous snake generally found in deciduous forests in rugged terrain where it prefers a thick understory for foraging. A distinctive characteristic of the rattlesnake is the rattle, which are loosely attached horny segments which make a buzzing sound when vibrated. New rattle segments are added each time the snake sheds its skin.



Kansas Forest Information Sheet ---- Page 5

American Burying Beetle (insect, carnivore)

Forest habitat: Forest floor

Diet: Small dead animals

Interesting facts: The American burying beetle is a Kansas and U.S. Endangered Species. It has been frequently found in upland grasslands or near the edge of grasslands and forests. Sandy/clay loam soils and carrion availability are also important. Adult beetles remain underground to protect their young and regurgitate food directly to their larval offspring.



Linda's Roadside Skipper (insect, herbivore)

Forest habitat: Understory and Canopy layers

Diet: Leaves, Indian woodoats, grass and nectar

Interesting facts: Linda's roadside skipper, a butterfly, requires fairly undisturbed stream side habitat in deciduous forests. Its major threats are from forest management operations, especially logging and spraying.



Ozark Emerald Dragonfly (insect, carnivore)

Forest habitat: Understory and Canopy layers

Diet: Small insects

Interesting facts: The Ozark emerald dragonfly is a Kansas Species in Need of Conservation. It requires streams with good woodland canopy cover. Stream channelization and clearing of riparian woodlands along streams are major threats to the Ozark emerald dragonfly.



Kansas Forest Information Sheet ---- Page 6

Eastern redbud (small deciduous tree)

Forest habitat: Understory layer

Plant Use: Often used as a landscape tree; flowers can be put into salads or fried; food for wildlife.

Interesting facts: Eastern redbud grows along streams in good, rich soil or mixed with other trees on a rocky hillside bordering a stream. It is also called Judas tree because some believe that it was redbud wood that Judas Iscariot hanged himself. George Washington transplanted redbuds from the wild to his home at Mount Vernon.



Pawpaw (small deciduous tree)

Forest habitat: Understory layer

Plant Use: Human and wildlife food; natural compounds from twigs, bark and leaves are being used in the development of anti-cancer drugs and botanical pesticides

Interesting facts: Sometimes called the "Kansas banana", pawpaw produces an edible fruit with yellow flesh that is custard-like. At present, the primary use of pawpaw is for wildlife food and fresh eating by humans.



Oak (large and medium deciduous trees)

Forest habitat: Canopy layer

Plant Use: Food for wildlife

Interesting facts: There are many types of oak found in Kansas forests and woodlands. These trees are used for making barrels, shipbuilding, furniture, railroad ties, fence posts, lumber, and home siding. Acorns are a favored food source of squirrels and other small mammals. Bur oaks dated to the 1700s can be found in Council Grove.



At left: Bur oak
Below: Northern red oak



At left: Chinkapin oak

Kansas Forest Information Sheet ---- Page 7

Hickory (large deciduous trees)

Forest habitat: Canopy layer

Plant Use: Wildlife and human food

Interesting facts: Many types of hickory exist in Kansas woodlands and forests, primarily in the eastern third of the state. Hickory wood is valued for smoking meats and is used in cabinet making. Pioneers made boxes of shagbark hickory bark and used the wood for fencing and ramrods for guns. The nut is an important food source for wildlife.



*Top left: Bitternut hickory
Top right: Shagbark hickory
At left: Shellbark hickory*

Eastern cottonwood (large deciduous tree)

Forest habitat: Canopy layer

Plant Use: Pallets and crates, wildlife habitat, cabinet making, windbreaks.

Interesting facts: This state tree of Kansas is an important tree in riparian forests. Early pioneer structures west of the Missouri River were often made of green cottonwood and it was used for corncribs, ox yokes, coffins, ironing board and trunks.



Black Walnut (large deciduous tree)

Forest habitat: Canopy layer

Plant Use: Human and wildlife food, commercial markets

Interesting facts: The black walnut is the most important commercial timber species in Kansas. Its wood is popular for furniture and cabinet making, paneling, gunstocks, veneer and musical instruments. During pioneer times, walnut was used to make cradles, railroad ties and gunstocks.



Coralberry (small deciduous shrub)

Forest habitat: Understory layer

Plant Use: Cover for birds and mammals, wildlife food

Interesting facts: Also known as buckbrush, coralberry is commonly found in open pastures and woodlands in the eastern two-thirds of the state. Its red berries make it a noticeable shrub in winter woodlands.



Golden Currant (deciduous shrub)

Forest habitat: Edge of woodlands/Understory layer

Plant Use: Wildlife and bird cover, human consumption

Interesting facts: Golden currant may be found throughout Kansas and is offered by the Kansas Forest Service for conservation plantings. Fruits are used for jams, jellies and pies and a favorite food of birds and mammals.



Wild Gooseberry (deciduous shrub)

Forest habitat: Understory layer

Plant Use: Wildlife and bird cover, human consumption

Interesting facts: Wild gooseberry is found in the eastern half of Kansas in woodlands and wooded pastures. The cardinal and brown thrasher build nests in the dense bushes. Its fruit is used to make jams, jellies and pies.



Acknowledgments

Content:

American Forests. Found online at <http://americanforests.org>

Arbor Day Foundation. Found online at <http://www.arborday.org>

Great Plains Nature Center. Found online at <http://www.gpnc.org>

Kansas Department of Wildlife and Parks. *Threatened and Endangered Species*. Found online at <https://ksoutdoors.com/Services/Threatened-and-Endangered-Wildlife/Kansas-Threatened-and-Endangered-Species-Statewide>

Kansas Forest Service. *Kansas Forest Resource Assessment and Strategy*. Found online at <https://www.kansasforests.org/KSForestActionPlan.html>

Peattie, Donald C. *The Natural History of Trees of Eastern and Central North America*. Houghton Mifflin Company.

Stephens, H.A. *Trees, Shrubs, and Wood Vines in Kansas*. University Press of Kansas.

Wikipedia: The Free Encyclopedia. Found online at http://en.wikipedia.org/wiki/Main_Page.

Images:

Arbor Day Foundation

World Forests Map and others as indicated

Roger W. Barbour Collection, 92BP, Special Collections & Archives, Morehead State University.

Fulvous harvest mouse

Robert J. Bauernfeind, Kansas State University

Golden garden spider

Suzanne L. Collins, CNAH.

Eastern newt, eastern narrowmouth toad, spring peeper

Bob Gress, Great Plains Nature Center.

Cerulean warbler, yellow-throated warbler, spotted skunk, southern flying squirrel

Mike Haddock, K-State Libraries, www.kswildflower.org.

Wild gooseberry

Kansas Department of Agriculture Plant Protection and Weed Control - Insect Gallery

Cottonwood borer,

Kansas Department of Wildlife and Parks.

American burying beetle, smooth earth snake, redbelly snake, timber rattlesnake

Kansas Forest Service Staff:

Bob Atchison, Kim Bomberger, Jason Hartman, Thad Rhodes

Kevin Karlson, Kevin Karlson Photography.

Whip-poor-will

Dave Powell, USDA Forest Service, Bugwood.org.

Golden currant

Herschel Raney, Random Natural Acts: Photography and Writings.

Linda's roadside skipper and Ozark emerald damselfly

Step 2

Create a Poster

We All Need Kansas Trees for Thriving Forest Habitats!

Objectives:

Students will be able to:

- Collect and analyze data about trees found in their communities
- Describe the pattern of forest cover and identify the factors that influence forests in Kansas.

Deadline: February 3, 2023

Send local-winning posters to Kansas Forest Service District/ Community Foresters on page 34.

Kansas College and Career Ready Standards

SCIENCE STANDARDS: 5-PS3-1, 5-LS1-1, 5-LS2-1, 5-ESS3-1

DISCIPLINARY CORE IDEAS: LS1.C, LS2.A, LS2.B, ESS2.A and ESS3.C

**KANSAS, HISTORY, GOVERNMENT AND SOCIAL STUDIES STANDARDS:
Standard 1- Choices have consequences.**

To find out if your city is a Tree City USA community, visit the Kansas Forest Service website - <https://kansasforests.org>. Once at the home page map, click on the Community Forestry layer icon, then click the "Tree City" box to view that layer.

Create a Poster

Ask each student to create a poster that reflects his or her understanding of the components and benefits of a healthy, diverse forest ecosystem. Encourage students to think about the different type of forests and the variety of trees, plants, and animals that inhabit each type, especially the forests here in Kansas.

Student posters must follow the contest rules on page 31 for their poster to be eligible for competition. You may select the winner or have a judging panel for the classroom and school contest. Judges could include garden club members, tree board members, city forestry staff, teachers, PTA/PTO members or individuals with an interest in trees who are willing to volunteer some time.

Contest Administration and Selection

The Kansas Arbor Day Poster Contest is administered by the Kansas Forest Service. One local-winning poster is to be submitted to Kansas Forest Service Community Foresters for competition at the district level. A state winner is selected from the four district-winning entries. District winners and their teachers will receive robust recognition packages provided by contest partners. The Kansas winner will be recognized at the Tree City USA Recognition in the spring. A request is made each year for the state winner to meet with the governor and plant a tree on the Capitol grounds.

Poster Contest Rules

Follow the contest rules below to make certain all entries are eligible for judging. Entries not meeting these guidelines will be disqualified.

1. All entries must be original artwork created by a student who is currently in the **5th grade**. A student may enter the contest only once.
2. The student's first and last name must be **written** or **signed** in the lower right-hand corner on the front of the poster.
3. a) Entries may be done in marker, crayon, paint pens, watercolor, ink, acrylic, colored pencil, and/or tempera paint.
b) Collages are not acceptable. (Do not glue anything to your poster).
c) Computer or photo generated art and/or printing is not acceptable. The use of light tables and other professional equipment is prohibited.
4. Entries must be no smaller than 8 ½ x 11” and no larger than 14 x 18”.
5. Entries must be done on paper that will allow for duplication, display, and framing.
6. The poster must be related to the contest theme and content in some way. The theme **We All Need Kansas Trees for Thriving Forest Habitats!** must be on the poster. All words must be spelled correctly.
7. Entries should not be matted, mounted, laminated, framed, or folded.
8. **Submit local-winning entries to a Kansas Forest Service Community Forester by February 3, 2023 (page 34).**
Deadlines for local contests should be earlier than February 3, 2023, to ensure timely arrival to a KFS forester office.

School Winner Report Form

After selecting a school or local winner, copy and complete this form, attach to the back of the poster, and send to a Kansas Forest Service Community Forester by February 3, 2023 (page 34).

2023 School Winner Report Form

Send this form with the winning school or community poster to your KFS Community Forester. All information should be complete to expedite contact of winners.

Winner's Name _____

Winner's Home Address _____

City _____ Kansas Zip _____

Winner's parent or guardian name _____

Teacher's name _____

Teacher's email address _____

School name _____

School Address _____

City _____ Kansas Zip _____

School Phone (_____) _____

Important

Please indicate the number of posters entered or drawn in the school contest in the box to the left.

Number of teachers in school who participated.

*** All artwork becomes the property of contest sponsors.

Step 3

Celebrate Arbor Day!

Kansas Arbor Day is April 28, 2023

Since 1872, Arbor Day has been celebrated throughout the United States and Arbor Day celebrations in schools have always played an important role.

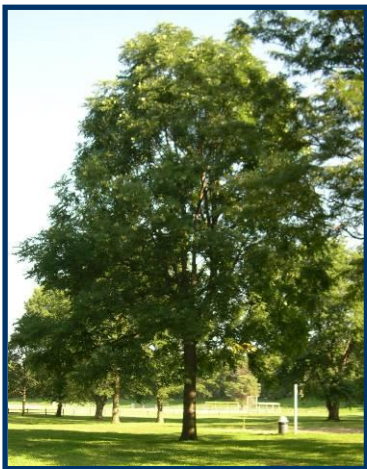
An Arbor Day celebration can be:

Simple: Plant a tree in honor of your school poster contest winner or to recognize an outstanding volunteer. Check to see if your city is a Tree City USA community and team up with a local tree board!

Inspiring: Have your graduating class plant a tree with younger students. This is a tradition that honors the students leaving and gives new students something to enjoy throughout their years!

Entertaining: Students could compose poems about trees or perform an Arbor Day play (<http://www.arborday.org/arborday/ADPlay.cfm>). Ask your music teacher if he or she knows songs about trees or Arbor Day and have a musical program dedicated to trees!

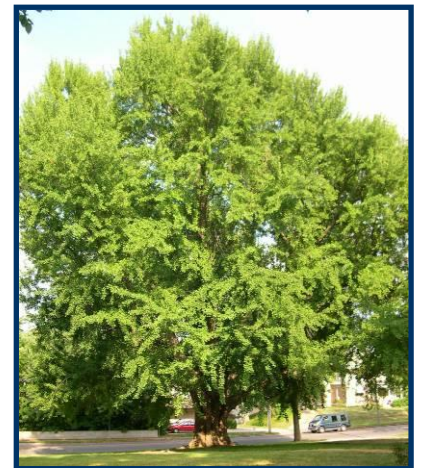
Whatever you choose for your celebration – go outside and enjoy the trees and environment that surround you!



*Kentucky coffeetree in
Fairgrounds park, Council Grove*

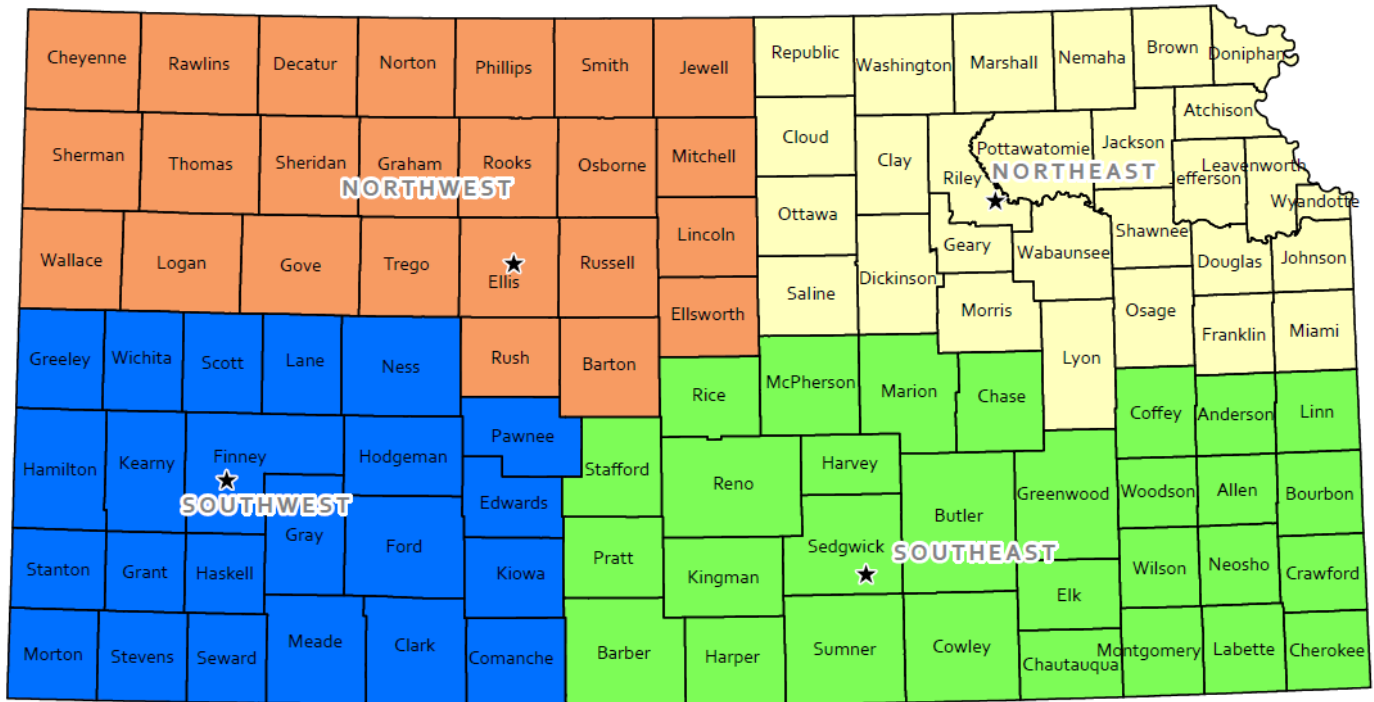


Bur oak in Shunga Park, Topeka



State Champion Ginkgo, Leavenworth

Community Forestry Districts



- | | | | |
|--|---|---|--|
| <p>■ Northwest District
Jami Richardson
jseirer@ksu.edu
785-624-3138</p> | <p>■ Southwest District
John Klempa
jdklempa@ksu.edu
620-805-3923</p> | <p>■ Northeast District
Kim Bomberger
kbomberg@ksu.edu
785-532-3315</p> | <p>■ Southeast District
Tim McDonnell
tmcdonne@ksu.edu
316-788-0492 x 202</p> |
|--|---|---|--|



Updated: 3/8/2022

