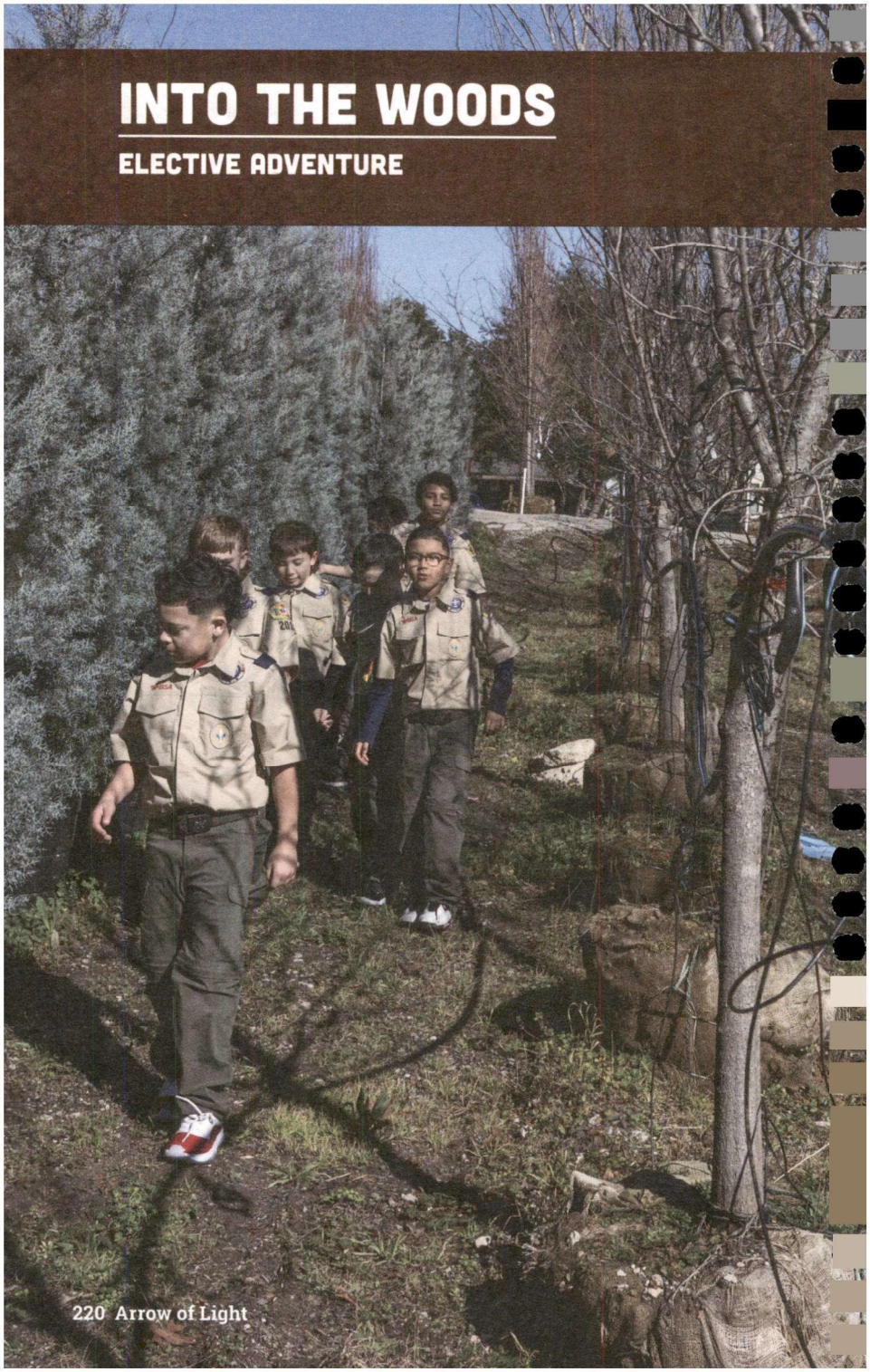
INTO THE WOODS

ELECTIVE ADVENTURE



SNAPSHOT OF ADVENTURE

Trees and plants play important roles in nature. In this Adventure, you will get to learn about the plants and trees in your community by exploring your area on a walk or visit to a local nature center, tree farm, or park.

If you have ever stood beneath a towering redwood, enjoyed the colors of fall leaves, or watched pine trees swaying in the wind, you know that trees and plants are beautiful. But they are also important to life on Earth. As you go into the woods, you will learn what trees and plants do for us and for animals, and why taking care of them is important to our planet's well-being.

REQUIREMENTS

Approved by

1. Visit an area with trees and plants and conduct a tree inventory. Select one tree and complete the remaining requirements based on that tree. _____
2. Determine if your tree is deciduous or evergreen. _____
3. Determine if your tree is native or was introduced to your area. _____
4. Find out how your tree deals with wildfire. _____
5. Learn how wildlife uses your tree. _____

- **Elective Adventure**
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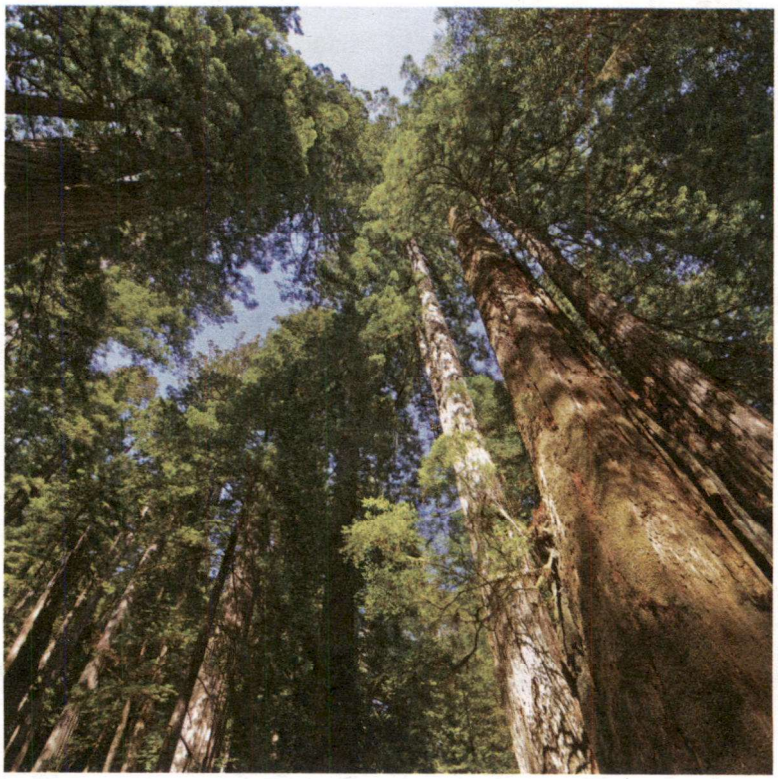
REQUIREMENT 1

Visit an area with trees and plants and conduct a tree inventory. Select one tree and complete the remaining requirements based on that tree.



A tree inventory is a record of the location and the types of trees in a defined geographic area. For a town or city, a tree inventory will typically include trees on streets and roads, parks, and other properties owned by the town. Conducting a tree inventory is the first step when developing a plan to manage the care of the trees.

There are three main types of tree inventories:

- A *sample* inventory is conducted on a random sample of street segments, blocks, road miles, or area to provide an estimate for the urban forest. Typically, the sample is 3-10% of the area.
- A *partial* inventory is conducted on a specific nonrandom area. It may be a geographic area, such as a city park. A survey collects a few attributes over a large area, even the entire municipality.
- A *complete* inventory includes all trees. Those on city streets, in local parks, on municipal properties. It may even include places where trees may be planted in the future.

For the area you're visiting, identify an area that is around 1,000 square feet. (A square that is 31 feet, 6 inches on each side is about 1,000 square feet.) If your location doesn't have many trees, increase the area of your inventory to make sure it includes at least two types of trees and at least four trees total.

Make a rough drawing of your area or use an existing map to identify where each tree is and what type of tree it is. From your tree inventory, pick one of those trees to complete the remaining requirements.

REQUIREMENT 2

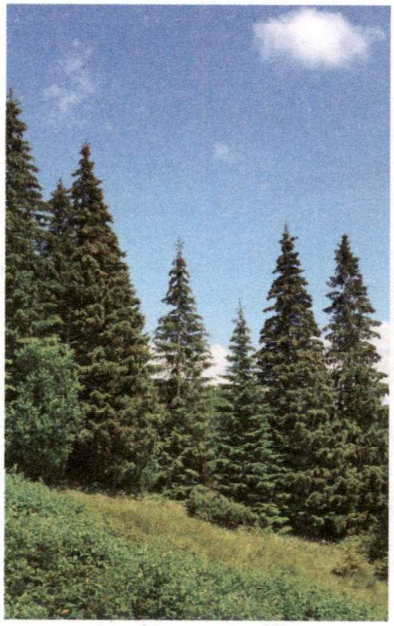
Determine if your tree is deciduous or evergreen.

Unless you live in the desert, on the tundra, or at the top of a very tall mountain, there are trees around you — even in the middle of a city. But what kind of trees are they? If you look closely, you'll discover that different trees have distinctive characteristics. Some grow very tall, while others grow out as much as they grow up. Some keep their foliage all year round, while others lose their leaves in the fall (often after those leaves have turned brilliant shades of yellow, red, and orange).

Scientists divide most trees into two main groups: coniferous trees and deciduous trees.

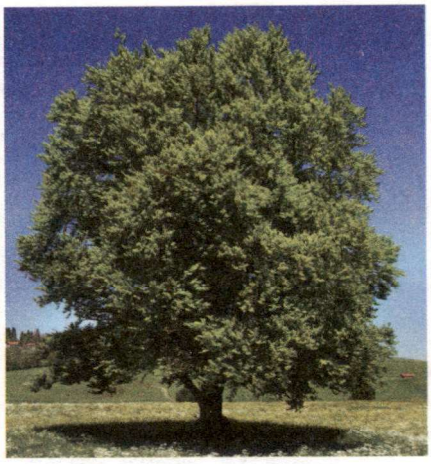
Coniferous Trees

The seeds in coniferous trees grow in cones, which is where the word "coniferous" comes from. When a cone's scales open up, the seeds fall out, and new trees can take root. Coniferous trees tend to grow tall rather than wide; they have a triangular shape like a Christmas tree. Pines, cedars, firs, and spruces are examples of coniferous trees. Coniferous trees do lose their needles, but the majority don't lose them all at the same time.



Most coniferous trees are evergreen, meaning they don't lose their needles in the fall. Some coniferous trees, however, like the bald cypress and larch, do lose their leaves as winter approaches.

Deciduous Trees



Instead of having needles, deciduous trees have wide, flat leaves that are good at capturing sunlight. They are called deciduous because most of them lose their leaves each year. These trees spread out as they grow, and they are often bigger at the top than they are at the bottom.

Deciduous trees do not produce cones. Instead, their seeds are contained in nutshells or fruit. Oaks, maples, poplars, beeches, sycamores, and ashes are examples of deciduous trees. Maple trees have special seeds that "fly" to the ground like little helicopters. A few deciduous trees are actually evergreens. The live oak is an example.

What About Palm Trees?

There are several different types of palm trees. Some types of palms look more like a bush or shrub than a tree. The name "palm tree" makes it sound like everyone agrees that it's a tree. According to the botanical definition,

palms are woody herbs. The definition of a tree by the Society of American Foresters would include palm trees.

Palm trees are missing some of the characteristics of a tree. For example, as a tree grows, a growth ring is created each year. Counting growth rings is how we know the age of a tree. Palm trees don't have growth rings. Palm trees have circular vessels throughout. These are vascular tissues called xylem and phloem, and they allow the tree to thicken up its trunk until it reaches the maximum diameter.

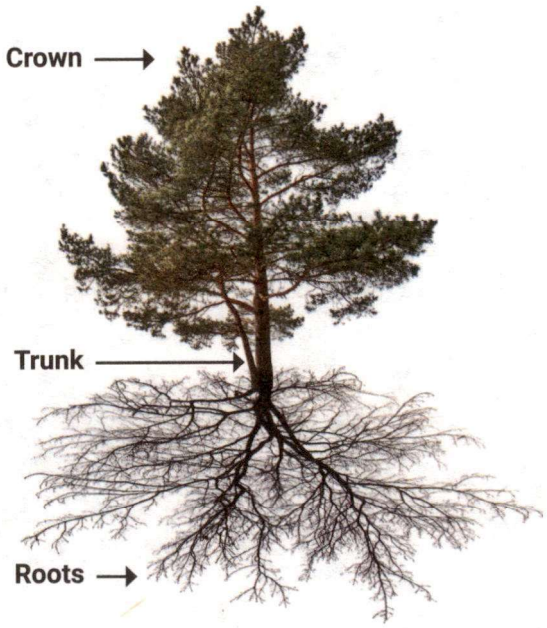
Trees have bark, the outside layer on a tree. Bark minimizes water loss from the stems, deters insect and fungal attack, and can be a very effective protector against fire damage. The "bark" of the palm tree isn't bark at all; it's made of "sclerified" (hardened) cells left over from the bases of previously shed fronds.

Palm trees are very flexible and more likely to bend instead of breaking. This special ability to bend is why the palm tree is on the state flag of South Carolina. In 1776, during the American Revolutionary War against the British, American patriots built a fort on Sullivan Island to defend Charleston Harbor from British warships. The fort, now called Fort Moultrie, was constructed using local palm trees. The trees were so flexible that they absorbed most of the shock of the cannon balls fired from British ships. This was a factor in the British assault on the city of Charleston being unsuccessful.

How a Tree Grows

A tree grows in its roots, trunk, and crown (its top, where all the branches and leaves are). The tree needs food to grow, and its roots and leaves play a part in the process of making food.

How far do a tree's roots stretch? A tree's root ball is usually as wide as its branches.



Roots — Roots anchor the tree in the earth and help slow erosion by holding soil in place. They soak up the water, minerals, and nitrogen from the soil and send it up the trunk to the leaves to make food for the tree. A layer of growth cells at the root tips makes new roots each year. Even when a tree is cut down, the roots may sprout new growth to revive and bring the tree back to life.

Trunk — The trunk is a pathway for water and minerals (food) to move from the soil up through the trunk to the leaves. It grows outward and upward each year. As the trunk grows taller, the crown of the tree grows higher in search of more sunlight. In trees used for lumber, the trunk produces most of the useful wood.

Crown — The crown is the upper part of the tree, including the branches and leaves. The leaves take in sunlight and use it to make food for the tree in a process called photosynthesis.

REQUIREMENT 3

Determine if your tree is native or was introduced to your area.

Some trees are native to your part of the country and have been growing there for thousands of years. Others, especially those planted in parks and around buildings, may have been introduced from another area.

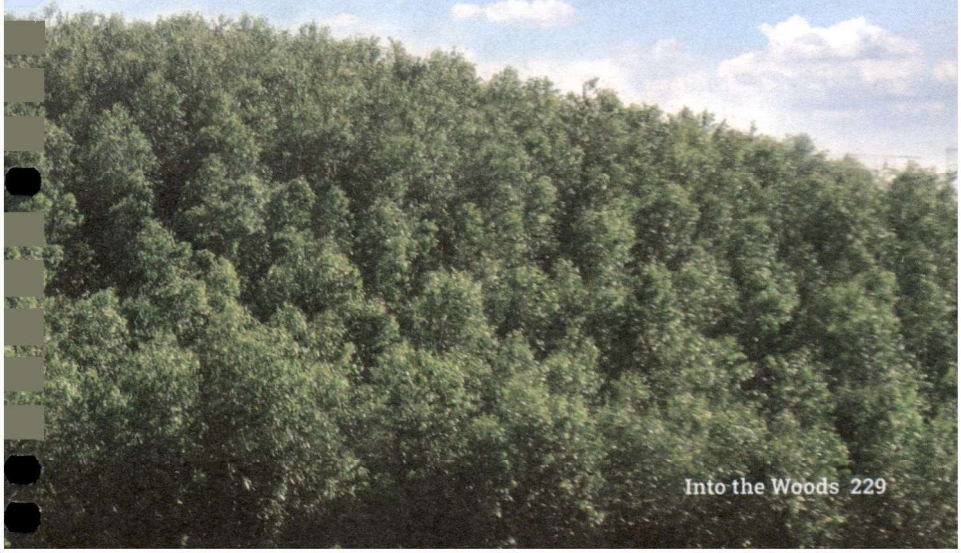
A field guide to trees can help you identify trees in your area. It will show you characteristics that make it easy to tell one kind of tree from another. When you're looking at trees, take time to look closely at everything. Use a magnifying glass to study tiny details.

Check for:

- Type of leaf. Feel it. Is it smooth or rough? Notice the shape.
- Leaf edges. Are they smooth or toothed?
- Type of bark. Is it smooth, rough, peeling, light, or dark?

- Unusual features like thorns, flowers, or berries. Some trees have more than one leaf shape. The sassafras tree has three leaf shapes.
- With coniferous trees, notice the length, shape, and grouping of the needles. Spruce needles are sharp and short, with four sides, and they grow separately on the twigs. Pine needles grow in bundles.
- Count the number in a bundle for a clue to the kind of pine it is. Needles of a longleaf pine could be 18 inches long, but jack pine needles are only about 1 inch long.
- The size and type of cone or fruit will also provide clues to the identity of the tree. The acorns on most oak trees have small, fairly smooth caps, but bur oak acorns have fringed caps that nearly cover the whole acorn.

How do the trees smell? Some trees, like pines and eucalyptus, give off scents, especially when the air is moist.



REQUIREMENT 4

Find out how your tree deals with wildfire.

Wildfires are important to the balance of a forest. Natural wildfires can be caused by lightning strikes when conditions are dry and ground cover is combustible. Ecosystems that are dependent on fire to thin the forest canopy and cultivate the forest floor are slowly transformed without enough natural fire. Sunlight-dependent native plant species are overtaken by those that like shade, and the whole ecosystem becomes less diverse, denser from undergrowth, and littered with dead plant material.

Some trees that are in areas that are likely to have wildfires develop a thicker bark. The bark can resist some fires. Some trees will also naturally drop their lower branches, which prevents a fire from catching lower branches and climbing up the tree to the crown (top of the tree). When this happens, it's called a crown fire. Fire can also help trees and forests grow by activating seeds.

REQUIREMENT 5

Learn how wildlife uses your tree.

An ecosystem is a community of plants and animals living in an environment that supplies what they need for life. Within an ecosystem, trees and plants produce leaves, bark, fruits, nuts, and seeds that many animals eat or use. They also produce oxygen, which animals need to breathe.

In fact, plants and trees produce most of the oxygen on Earth. Through a process called photosynthesis, plants turn sunlight, water, and carbon dioxide into energy. A byproduct of photosynthesis is oxygen.

You know where sunlight and water come from, but where does carbon dioxide come from? It comes from animals and humans every time we breathe out! That is why scientists talk about the oxygen cycle that connects plants and animals.

By trapping carbon dioxide, plants and trees keep it out of the atmosphere. That is important because too much carbon dioxide in the atmosphere contributes to climate change.

Plants and trees do some other important things. They stabilize the soil, which prevents erosion, and they provide shade and shelter for animals and humans. They can be harvested to create furniture, building materials, clothing, paper, food, and many other things we use every day.

If you look closely, you'll see how trees support other forms of life. Look for woodpecker holes, insects hiding under the bark, mistletoe rooted in the branches, fungi growing on the bark, and the nests of birds and squirrels. Larger animals use trees, too. Bears mark their territory by clawing and biting tree trunks. Beavers eat tree bark and cut down trees to build dams and homes for themselves. Mountain lions sharpen their claws on trees. Moose, elk, and deer use tree trunks or flexible saplings to rub the velvet off their antlers. They also eat tree bark, leaves, and stems.