

## **WEBELOS: FORESTER PIN: REQUIREMENTS**

1. Draw a picture to show the plant and tree layers of a forest in your area. Label the different layers. (If you don't live in an area that has forests, choose an area that does and draw a picture of that forest.)
2. Identify six forest trees common to the area where you live. Tell how both wildlife and humans use them. (If you don't live in a region that has forests, read about one type of forest and name six of its trees and their uses.)
3. Identify six forest plants (other than trees) that are useful to wildlife. Tell which animals use them and for what purposes.
4. Make a poster showing how a tree's growth rings tell its life history.
5. Describe the harm wildfires can cause. Tell how you can help prevent wildfires.

Trees and other forest plants are important parts of the interconnected life on earth. A forester's work, taking care of trees and managing forestland is important to the well being of the planet.

Most trees grow best in certain kinds of places. Each type of tree needs a certain range of climate, rainfall, and soil. The United States has several different kinds of forests.

### **WEST COAST FOREST**

Mild climate, lots of rain. Some of the trees are Douglas fir, Ponderosa Pine, Redwood and Giant Sequoia.

### **WESTERN FOREST**

Chiefly on mountain slopes. Cold winters, short summers, dryness in summer in the southern part. Typical trees are Ponderosa Pine, Blue Spruce, Western Larch and Quaking Aspen. Pinyon Pine in the Southwest.

### **NORTHERN FOREST**

Low temperatures, short growing season. Common trees are Eastern White Pine, Northern White Cedar, White and Black Spruces, Paper Birch, Sugar Maple and Northern Red Oak.

### **CENTRAL HARDWOOD FOREST**

Climate varies from north to south. Rich soils good rainfall usually. Some of the trees are Red, White, and Black Oak, Black Walnut, Sycamore, Sweet Gum, Silver Maple, Poplar, and Hickory. Hardwood trees lose their leaves in the fall. Some conifers (trees that have cones) also grow in this region.

### **SOUTHERN FOREST**

Drier soils, but usually enough rainfall. Typical trees are Shortleaf and Longleaf Pines, Magnolia, Red and White Oak, Pecan, Poplar, Overcup Oak, and Holly. In swamps, bald Cypress and Gum trees.

### **SUBTROPICAL FOREST**

Warm climate and humid (damp). Common trees are West Indies Mahogany, Mangroves and Palms.

## WEBELOS FORESTER INFORMATION

**FOREST STRUCTURE:** Here are the 5 basic forest layers, from top to bottom.

1. **THE CANOPY:** The canopy of a forest is made up of the tallest trees. It's like the **roof** of the forest. This layer gets the most sunlight, so it often produces the most food for wildlife. Birds, squirrels, and insects live here.
2. **THE UNDERSTORY:** Shorter trees grow in the understory of the forest. They get less sunlight, but they also produce food and habitats for animals, birds and insects.
3. **THE SHRUB LAYER:** Shrubs are woody plants, smaller than trees that have more than one stem. Mammals, birds, and insects live and feed in the shrub layer.
4. **THE HERB LAYER:** These plants are small and have softer stems that are not woody. Depending on the type of forest and the amount of sunlight at this level, you'd find ferns, grasses, and wildflowers here. Insects, mice and other small animals and snakes live here.
5. **THE FOREST FLOOR:** This **bottom** layer collects dead leaves and plants, fallen trees, animal droppings, dead animals....and returns them to the soil in a process called **decomposition**. Earthworms, fungi and insects along with bacteria and other microscopic organisms gradually break down the materials. The plants of the forest absorb the nutrient released by decomposition.

Large animals like deer and bears depend on the food in the under-story, shrub layer and herb layer.

## ANIMALS AND HUMANS DEPEND ON FORESTS

Many kinds of trees are used for building materials, making furniture and making paper. Trees like Walnut and Pecan supply nuts to use in baking and cooking. Wild Plums and other fruits grow on forest trees. People often pick wild Blackberries, Huckleberries and Gooseberries that grow on shrubs in the shrub layer. Animals find even more to eat in the forest than humans do.

## WILDLIFE USES

- Bluebirds, catbirds and mockingbirds eat the red berries of the Hollytree.
- Deer eat tree bark, leaving marks. Deer also eat tree leaves, stems and other green plants.
- Bears mark their territory by clawing and biting tree trunks.
- Mountain lions sharpen their claws on trees.
- Moose, elk, and deer use tree trunks or flexible saplings to rub the velvet off their antlers.
- Beavers eat the bark and cut down trees to build dams and home for themselves.

## HUMAN USES

- Hickory and White Ash are used to make baseball bats and tool handles.
- Western Red Cedar is used to make porches, decks and shingles for roofs.
- Mesquite and Hickory chips on cooking fires flavor food.
- Candles are made from the waxy coverings of the Southern Bayberry fruit.
- Maple syrup is made from the sap of Sugar Maples harvested in the early spring.

## IDENTIFYING FOREST TREES AND PLANTS

A forest is a community of plants, from the tallest trees down to the smallest mosses and lichens that you have to kneel on the ground to see.

### WHEN YOU ARE LOOKING AT TREES CHECK FOR:

- Type of leaf. Feel it. Is it smooth or rough? Notice the shape.
- Leaf edges...smooth or toothed?
- Type of bark...smooth or rough, peeling, light or dark?
- Unusual features...thorns, flowers and berries. Some trees will have more than one leaf shape. The sassafras has three leaf shapes.
- With conifers, notice the length, shape and grouping of the needles.
- Spruce needles are sharp and short, with four sides, they grow separately on the twigs.
- Pine needles grow in bundles, so count the number in a bundle for a clue to the type of pine it is.
- Longleaf pine needles could be as long as 18 inches.
- Jack pine needles are only about 1 inch long.
- The size and type of cone will also provide clues to the identity of the tree.

## HOW A TREE GROWS

The 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 its food.

**ROOTS:** Roots **anchor** the tree in the earth. They **soak** up the water, minerals, and nitrogen from the soil that the leaves need to make food for the tree. A layer of growth cells at root tips makes new roots each year. Tree roots help slow **erosion** by holding soil in place.

**TRUNK:** The trunk is a **pathway** for water and minerals to move from the soil upward to the leaves. It **grows** outward 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 sunlight and use it to make food for the tree in a process called **photosynthesis**. The crown of the tree grows each year by adding a new **growth** of leaves and twigs. This growth comes from young cells in buds on the twigs.

## PHOTOSYNTHESIS

Trees, like all plants with green leaves, use sunlight to make food from air and water, in a chemical process called photosynthesis.

1. The **food** (carbohydrate) is made in the leaves.
2. **Carbon dioxide** from the **air** comes through pores in the leaves.
3. **Water and minerals** come up through the roots in tube like pathways in the tree to the veins in the leaves.
4. **Chlorophyll** is what makes a leaf green. It also captures the sun's energy and uses it to process carbon dioxide and water, making liquid sugar. This flows to every living part of the tree, nourishing it and helping it to grow.
5. Some of the **oxygen** taken from the water is left over. The tree doesn't need all the leftover oxygen, so the leaves release excess oxygen and also water, keeping the air around the tree damp and cool.

## THE INSIDE STORY OF A TREE

**OUTER BARK:** Protects the tree from injuries.

**INNER BARK:** Carries food made in the leaves down to the branches, trunk, and roots. It consists of hollow tubes.

**FIRE SCAR:** A tree can be damaged by fire even if it is not burned down. Disease and insects can enter through the fire scars.

**SAPWOOD:** Carries sap from roots to leaves.

**HEARTWOOD:** Originally sapwood, inactive; gives strength to a tree.

**CAMBIUM:** This thin layer of cells between bark and wood is where the trunk grows. Each year it forms a ring of new wood toward the inside of the trunk and new inner bark toward the outside of the trunk.

## FIRE IN THE FOREST

Fire can both benefit and destroy a forest. A cool fire burning slowly along the ground does not hurt the trees. By burning away excess brush, the fire provides nutrients and space for new trees to grow. A new, young forest then provides habitat for many animals and birds.

But a hot wildfire burns high into the tree crowns and can injure and kill many trees.

A wildfire in a forest can do much more than destroy trees. It also destroys food and cover for wildlife. Sometimes it destroys the animals themselves. And, as more people build their homes in or near forest, more and more homes are at risk of being destroyed by wildfire.

Wildfire can burn the plant cover that protects the soil and sometimes might cause erosion. When soil and ashes wash into streams and lakes, good fishing may be spoiled. Campsites and other recreation areas may be destroyed by fire.

## **YOU CAN PREVENT WILDFIRE IN THESE WAYS:**

- Be extremely careful with any fire you build outdoors.
- Always build your fire in a safe place and watch it at all times.
- Don't leave a fire until it is out and cold. If you can still feel heat through the ashes, the fire is not completely out. (Be careful not to burn your hands!)
- If you see a fire, report it immediately to the nearest fire warden or fire department.
- **Because some kinds of fires can help the forest, foresters sometimes intentionally set controlled fires (called prescribed fires) or allow a "natural fire" caused by lightening to burn in order to reduce the buildup of deadwood or leaves on the forest floor. If this material gets too deep, a wildfire will burn hotter, increasing the destruction.**

## FOREST TREES

### **DOUGLAS FIR:**

Pacific Northwest Coast and Rocky Mountains

Height: 100 – 120 feet

Uses: lumber, plywood, and paper

### **SWEET GUM:**

Southeastern States, and North to Connecticut, New York, Ohio, Illinois, Missouri and Oklahoma.

Height: 80 – 120 feet

Uses: veneer (it is a thin layer of wood used to make furniture surfaces), cabinets, furniture and woodwork.

### **EASTERN WHITE PINE:**

Northeastern States

Height: 50 – 100 feet

Uses: cabinets, interior lumber and woodware.

### **PONDEROSA PINE:**

All Western States into Southern Canada and Northern New Mexico

Height: 60 – 200 feet

Uses: lumber, fences, railroad ties and very important millwork.

### **SHAGBARK HICKORY:**

Eastern half of the United States

Height: 60 – 80 feet

Uses: furniture, wall-paneling, tool handles, cooking fuel and it provides nuts for wildlife.

### **WALNUT:**

Eastern half of the United States

Height: 80 – 100 feet

Uses: furniture, gunstocks, doors and cabinets and the wildlife eat the nuts.

### **WHITE OAK:**

Eastern half of the United States

Height: 60 – 120 feet

Uses: lumber, furniture, boats, fuel wood and the acorns are important food for the wildlife.

### **HEMLOCK:**

Northeast (Eastern Hemlock), Far West (Western and Mountain Hemlocks)

Height: 60 – 100 feet (Mountain Hemlock) – 125 – 200 feet (Western Hemlock).

Uses: lumber, pulpwood for paper and railroad ties.

### **LONGLEAF PINE:**

Southeastern Coastal States

Height: 100 – 200 feet

Uses: Once used for turpentine and resins, now used for lumber and framing.

## WEBELOS FORESTER INFORMATION

### DO FIVE OF THESE:

1. Make a map of the United States. Show the types of forests growing in different parts of the country. Name some kinds of trees that grow in these forests. For each type of forest, give one or more examples of uses for the wood of its trees.
2. **Draw a picture to show the plant and tree layers of a forest in your area. Label the different layers. (If you don't live in an area that has forests, choose an area that does and draw a picture of that forest.**
3. **Identify six forest trees common to the area where you live. Tell how both wildlife and humans use them. (If you don't live in a region that has forest, read about one type of forest and name six of its trees and their uses.)**
4. **Identify six forest plants (other than trees that are useful to wildlife. Tell which animals use them and for what purposes.**
5. Draw a picture showing:
  - How water and minerals in the soil help a tree grow.
  - How the tree uses sunlight to help it grow.
6. **Make a poster showing how a tree's growth rings tell its life history.**
7. Collect pieces of three kinds of wood used for building houses.
8. Plant 20 forest tree seedlings. Tell how you planted them and what you did to take care of them after planting.
9. **Describe the harm wildfires can cause. Tell how you can help prevent wildfires.**
10. **Draw** your own urban forestry plan for adding trees to a street, yard, or park, near your home. Show what types of trees you would like to see planted.

**REQUIREMENT #1:** Draw a picture to show the plant and tree layers of a forest in your area. Label the different layers. (If you don't live in an area that has forest, choose an area that does and draw a picture of that forest.)

## FOREST STRUCTURE MIX AND MATCH

1. The Canopy: \_\_\_\_\_

2. The Understory: \_\_\_\_\_

3. The Shrub Layer: \_\_\_\_\_

4. The Herb Layer: \_\_\_\_\_

5. The Forest Floor: \_\_\_\_\_

- a. Woody plants, smaller than trees, that have more than one stem.
- b. Made up of the tops of the tallest trees. It's like the roof of the forest. This layer gets the most sunlight, so it often produces the most food for wildlife.
- c. These plants are small and have softer stems that are not woody. Depending on the type of forest and the amount of sunlight at this level, you may find ferns, grasses and wildflowers.
- d. This level collects dead leaves and plants, fallen trees, animal droppings, dead animals-and returns them to soil in a process called decomposition.
- e. Shorter trees grow in this layer of the forest. They get less sunlight, but they also produce food and habitats for all types of wildlife.

**REQUIREMENT #2:** Identify six forest trees common to the area where you live. Tell how both wildlife and humans use them. (If you don't live in a region that has forests, read about one type of forest and name six of its trees and their uses.)

**REQUIREMENT #4:** Make a poster showing how a tree's growth rings tell its life history.

## INSIDE STORY OF A TREE: MIX AND MATCH

1. **Outer Bark:** \_\_\_\_\_
2. **Inner Bark:** \_\_\_\_\_
3. **Sap Wood:** \_\_\_\_\_
4. **Heartwood:** \_\_\_\_\_
5. **Cambium:** \_\_\_\_\_

- a. The innermost layer of hardened, dead cells supports the tree and provides us with wood products.
- b. Moves food made in the tree's leaves to the other growing parts of the tree, or to the roots for storage.
- c. New wood moves water and nutrients from the tree's roots to its leaves. It gradually becomes heartwood as old cells die and harden.
- d. Protects the tree against weather, fire, disease, insects and animals.
- e. A very thin layer of living cells produces both new sapwood, and inner bark.

**REQUIREMENT #5:** Describe the harm wildfires can cause. Tell how you can help prevent a wildfire.

1. What harm can wildfires cause? \_\_\_\_\_

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2. How can you help prevent wildfires? \_\_\_\_\_

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