



Forestry Fun

This Brownie try-it features an acorn from the Oregon White Oak tree. This deciduous hardwood tree is most commonly found in the interior valleys between the Cascades and the Coast range.

To earn this Try-It, complete *FOUR* of the following activities:

Forests are fascinating places that exist not just in Oregon, but all around the world. Forests are home to many plants and animals. They are also an important resource for humans. These activities will help you learn about the many interesting things that live and grow in the forest. Supplementary materials are available to help you follow the try-it requirements.

1. Tree Encounter

Most people think of trees when they think about forests. Trees are one of the most important, and because of their large size, most noticeable plants in the forest. Learn what the different parts of a tree are and what they do. You might also want to get to know some individual trees. What makes each tree unique? What differences are there between different species of trees?

2. What's in the Forest?

More than just trees make their home in the forest, and there's no better way to investigate what else lives in the forest than checking it out first hand. Visit a forest. Hike through the forest and make a list of all the things you experience. Use your senses to discover the texture of different types of tree bark, the smell of different patches of forest floor and so on.

3. Forest Ecosystems

An ecosystem is made up of living and non-living things. After completing Activity 2, determine which of the things you saw in the forest were living, dead, or never alive at all. Think about the relationships between them. To complete this requirement, you could play a game draw or paint a mural of the forest you visited.

4. Leaf Investigation

Leaves are a very important part of the tree, as they collect energy of the sun's rays and turn it into food for the tree. Examine leaves from at least 4 different kinds of trees. Have an adult help you identify what type of trees the leaves come from. Look at how the colors and shapes of the leaves are different. Discuss the meanings of the terms, broadleaved, needle-leaved, deciduous, and evergreen. Once you are finished investigating, you might want to make a collage of your leaves in the following way:

- a) Arrange the leaves on a sheet of wax paper.
- b) Add crayon shavings or glitter to the arrangement.
- c) Place a second sheet of wax paper on the top of the collage, and then have an adult cover the collage with a sheet of newspaper and use a hot iron to melt the two sheets of wax paper together (note: you must leave clear space along the edges of the wax paper and between the leaves in order for the pieces of wax paper to melt together).

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5. Plant a Tree

Trees can be an important resource in a community. Most people find trees and the birds and animals that make their homes in them interesting to look at. Trees can also clean the air, removing pollution from cars and factories. Choose an area of your community where you can plant and care for at least 3 trees. Choose a tree that is native to your area, and learn what things it needs to stay healthy, such as the amount of sun and water it needs, and what type of soil it likes to grow in. Some tree species live to be hundreds of years old, so you can visit your trees throughout your lifetime to see how they are doing.

6. Products of the Forests

Humans have found many ways to make the trees that grow in forests into products that we use every day. What types of products from the forest do you use? You might be surprised how many things actually come from forests. Do one of the following to learn more about forest products.

- a) Do a scavenger hunt to see how many forest products are used in your house.
- b) Learn about a single forest product by investigating how it is made or processed, what type of forest plant or animal it comes from, and who uses it.

7. Forest Animals

Many animals make their home in the forest, from tiny insects to big black bears. Learn about some of the animals that live in Oregon's forests. Find out about the things these animals need to live such as food and shelter. Learn about what animals do during different times of the year to survive, and how they make use of plants living in the forest.



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For each activity, additional information and resources are presented below to help your troop meet the requirements of the Fun in the Forest Try-It. You are not obligated to follow the suggested activities, but rather can use them in whatever manner best meets the needs of your troop.

Activity 1: Tree Encounter

A. Background Information

There are many kinds of trees that live in Oregon that can look very different from each other. Despite these differences, different tree species have many of the same important parts. This activity is intended to help Girl Scouts get to know the similarities and differences between trees.

The first step in getting to know trees is learning about their different parts. Just like people are made up of different parts that have specific jobs (legs for walking, ears for hearing, nose for smelling), trees are also made up of different parts that have specific jobs. In order to complete this activity; learn the function and location of the following tree parts:

Tree Part	Function
Roots	There are a couple of types of roots – deep, thick roots that anchor the tree in place so it doesn't fall over called tap roots, and thinner, shallower roots called lateral roots that suck up water from the soil.
Trunk	This part of the tree holds the branches up high where leaves can collect sunlight.
Bark	This covers and protects the tree from disease and injury, much the same way our skin protects us.
Branches	These stretch outwards and hold up the leaves.
Leaves	These capture sunlight so that the plant can make food for itself.
Seeds or Cones	These are the plant's way of reproducing, and each seed can grow into a new tree if it is planted in an area with the proper growing conditions.

Most Brownie Girl Scouts are probably already familiar with most of the tree parts listed above. Here are a few others that might be less familiar that are located inside of the tree, just like some of your important parts are located inside of you (heart, lungs, etc.)

Tree Part	Function
Xylem	These are veins that move water up the tree. Maple syrup is made by tapping into the xylem of tree and capturing sugary water as it is transported through the tree.

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Phloem	These are veins that move nutrients through the tree.
Cambium	This is a layer of tissue under the bark that produces new cells so that the tree can grow wider around.

Trees also have characteristics specific to themselves or their species that make them unique. Although all trees have leaves, they can have different shapes, sizes, textures, and smells. The same is true of the other parts of trees. Your girls might want to focus on noticing the following ways in which trees can be different from each other:

- | | |
|----------------------|--------------------|
| Height | Leaf shape/Needles |
| Trunk Circumference | Bark Texture |
| Smell | Branch position |
| Seed characteristics | Bark Color |
| Leaf Color | |

B. Suggested Ways to Complete Requirement

Your girls might want to start by talking about the similarities between all trees. You could do this by doing one of the following:

- Tree Parts Discussion - Gather near a tree to point out and talk about the different tree parts and their jobs.
- Parts of a Tree Worksheet – Have the girls review their knowledge of tree parts by completing the worksheet found in this packet.
- Tree Parts Craft Project – As a craft project, Girl Scouts can use materials found around the house or modeling clay to construct their own tree, complete with all the right parts.

Once Girl Scouts are familiar with the things that all trees have in common, they can focus on what makes individual trees and species unique. They could do this by:

- Adopting a Tree - Each child adopts an individual tree, and once they have spent time examining it, describes it to another child. One way to do this would be to define boundaries in a small patch of the forest. Have the girls partner up, and assign one girl from each pair to a tree, while the other girl sits in a designated area with her eyes closed. The girl adopting a tree is allowed to spend several minutes examining and taking notes about the look, feel, and smell of her tree. Once she is ready, she meets up with her partner and describes the tree to her. The goal is for her to describe her tree so well that the partner will be able to recognize it. After she has shared her notes about her adopted tree, the partner searches for that tree and tries to locate it based on the clues she has been given.
- Tree Touch – Using only their sense of touch, have girls learn to feel the difference between different species and individual trees. Have them use their hands and cheeks to feel the texture of different types of bark, their arms to gauge the size of different trees, and their fingers to investigate leaf shapes. The “Meet a Tree” activity in Joseph Cornell’s *Sharing Nature with Children* book is one activity that makes use of blindfolds to help children use their other senses to discover the uniqueness of individual trees. This book is available for check out at most public libraries.

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Activity 2: What's in the Forest?

A. Background Information

A trip to the forest can reveal a whole new world of plants and animals. Here are some tips to share with your Girl Scouts for having a successful forest visit:

- Keep your eyes and ears open. There is a lot to see and hear when you are walking outside, and if you keep your senses keen you are less likely to miss things. Also, remind the girls to look up and down as they walk, so they don't miss what's happening in the canopy or on the forest floor. You might consider bringing along binoculars or magnifying glasses to help the girls investigate the forest.
- Be as silent as possible. Although no amount of noise is likely to scare off a tree, the same is not true of animals. The louder you are as you walk in the forest, the more likely you are to send the animals hiding. Encourage the girls to use quiet voices as you hike.
- Respect plants and animals. In general, the best policy when you are visiting a natural area like a forest is to leave things exactly as you have found them, which means not picking plants, removing birds' eggs, and so on. By being respectful visitors, the girls will be preserving both wildlife and the opportunity for other people to enjoy it.
- Keep track of the things the girls observe on their hike. By recording the things they see, hear and smell in the forest, the girls will always be able to remember their experience. Plant and animal field guides can be used to help identify what you see.

B. Suggested Ways to Complete Requirement

It is up to your troop to decide which forest to visit. You might choose one of Oregon's state parks, a national forest, a county park, Girl Scout camp property, or a private urban or rural forested area near your community. Oregon Forest Resources Institute's book *Opportunities for Rediscovering Oregon's Forests* is an excellent resource. It describes 21 great forests to visit throughout our state. It identifies trees, common plants, animals, fish, birds and insects you may encounter. You can order copies at no charge through their website www.oregonforests.org.

On your hike you could do one of the following:

• Guided Nature Hike

– You might make use of marked trails at a state park, or find a nature center that offers forest hikes guided by a naturalist. Don't forget to somehow keep track of the things you see in the forest.

• Scavenger Hunt

– Make a list of things you might find in the forest, and have the girls check them off as they see them on their forest visit. You might include different plant species, types of animals, non-living things (like a rock or drop of water), and signs of living things (like a paw print) on your list. A sample list is found below:

___ Singing bird

___ Rock

___ Drop of water

___ Paw print

___ Tree with needles

___ Plant shorter than 1 foot

___ Hole in the ground

___ Feather

___ Mushroom

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- | | | |
|--------------------|------------------|---------------------------|
| ___ Moss on a tree | ___ Chewed leaf | ___ Fallen log |
| ___ Bird's nest | ___ Nut or acorn | ___ Animal track |
| ___ Flying bird | ___ Squirrel | ___ Tree with smooth bark |
| ___ Wild flower | ___ Pine cone | ___ Insect |

Activity 3: Forest Ecosystems

A. Background Information

An ecosystem is a natural community made up of living and non-living things. Some examples of Oregon's ecosystems include forests, high desert, ocean, mountains and lakes. Living things in a forest ecosystem might include trees, shrubs, flowers, elk, birds, beaver, insects, salamanders and worms. Non-living things in a forest ecosystem might include rocks, soil, air, and water. Non-living things have never been alive, so make sure your girls are not confusing them with living things that are now dead. These living and non-living things are all part of a system, and they are all connected to each other in some way. For example, in order to grow, trees need sunshine and water, both non-living things. Flowers need insects to pollinate them so they can produce seeds. Deer need to eat plants in order to live. Trees move water from the soil to the air. These are just a few examples of the ways that living and non-living things within an ecosystem are connected.

B. Suggested Ways of Completing Requirement

- **Forest Ecosystem Mural** – Create a mural that includes both living and nonliving things that make up a forest ecosystem. Girls can cooperate on painting or drawing one large mural, or make smaller individual murals. You might want to suggest that each ecosystem mural include a minimum number of things, such as 6 living and 3 non-living things.
- **Mapping Ecosystem Connections** – To help Girl Scouts realize the many connections between plants, animals, and the non-living things in an ecosystem, create a poster with the names of living and non-living things that are found in a forest. Then, have the girls identify connections between the things on the poster, and draw lines between them. For example, if a squirrel and an oak tree were both on the list, a line could be drawn between them because squirrels eat acorns produced by oak trees.
- **The Ecosystem Game** – Play a game to help get the girls thinking about which things in a forest are living, non-living, or signs of something living. Explain to the girls that this game will involve three different categories of things that could be found in a forest ecosystem. The first category includes all presently living things that can be found in a forest. The second includes non-living things – things that have never been alive. The final category includes anything that can be considered a sign of a living thing.

This could be something that was once living but is no longer, such as a brown leaf or a bone, or evidence of a living thing, such as a paw print in the mud or the smell of a skunk. Note: some things might be both living things and a sign of something living, such as a green leaf that has been chewed on by an insect (the green leaf is a living thing, and the chew marks are evidence of the insect). Also, soil can be a difficult item to categorize, since it is made up of non-living things like sand, living things like bacteria, and signs of living things like decomposing leaves.

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To play the game, have the girls' spread out while facing a leader standing at the front of the group. Explain the three different categories and give examples of each. Also assign an action to each category, such as hopping in place for living things, spinning around for non-living things, and waving arms for signs of living things. The leader will then name something that might be found in the forest and the girls must determine which of the three categories it falls in and then do the appropriate action. Keep naming items until it is clear that the girls are comfortable distinguishing between the categories.

Living	Non-Living	Sign of Living
Deer/Elk	Rock	Egg shell
Tree with green leaves	Air	Paw print
Caterpillar /ant	Dew drop	Feather on the ground
Bird in flight	Sun light	Brown leaf
Wildflower/Fern	Sand	Animal bones
Worm	Water in a Stream/lake/ocean	Scat
Tree with needles	Partially eaten pine cone/acorn	Bird's nest

Activity 4: Leaf Investigation

A. Background Information

Kids need to eat nutritious food in order to grow bigger. In fact, all living things need food in order to grow bigger, but have you ever wondered where it is that plants get their food? They have no mouths to eat with, and no grocery stores to sell food to them. They can't hunt or graze for food the way many animals do, so where do plants get their food? The answer is surprising – plants use their leaves to make food from sunlight. Since plants can't live without food, and they use their leaves to make the food they need, leaves are very important plant parts.

And not only are leaves amazing because they can make food for plants, they also come in many different shapes and sizes. People can identify a tree (Oak or maple? Pine or spruce?) by recognizing the shape of its leaves. The girls' mission is to investigate how leaves from different trees look and feel different from each other.

To get started, learn some of the terms that are used to describe trees based on what type of leaves they have.

Trees can be either:

- Broad-leaved – this term refers to trees that have wide, flat leaves. Oaks, maples, alder and cottonwood trees are examples of broad-leaved trees.
- Needle-leaved – this term refers to trees that have skinny, pointed, needle-like leaves. Pines, firs, hemlock, cedar and spruce trees are examples of needle-leave or scale- like leaved trees.

In addition to being broad-leaved or needle-leaved, trees can be either:

- Deciduous - this term refers to trees that shed all of their leaves seasonally when the weather

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turns too cold or dry. Deciduous trees can either have broad- or needle-leaves. Oak, maple, and alder are examples of Oregon trees that shed all of their leaves each fall.

- Evergreen – this term refers to trees that do not shed all of their leaves seasonally, and therefore stay green year round. Evergreen trees can have either scale-like or needle-leaves. Pines, spruce, and fir trees are examples of evergreen trees.

B. Suggested Ways of Completing Requirement

- Leaf ID -Collect a number of leaves and determine whether or not they are broad-leaved or needle-leaved, and if they come from an evergreen or a deciduous tree. Once the girls are experienced at recognizing different leaf shapes, they will no doubt become pros at identifying different tree species! There are many tree identification keys online, including these:

<http://www.oregonforests.org/factbook>

<http://oregonstate.edu/trees>

<http://treelink.org/whattree>

- Leaf Bingo – Girl Scouts can use the game card found in this packet to keep track of what types of leaves they see in the forest. Try to get five across in any direction for BINGO!
- Leaf Collage - After identifying 4 different types of leaves, make a leaf collage in the manner described in the Try-It Requirement Guide

Activity 5: Plant a Tree

A. Background Information

Planting a tree and watching it grow over the years can be a very rewarding experience, and is an excellent way to promote the ideals of stewardship in young people. In order to give the tree the best shot at a healthy life, there are a few things to consider.

1. Growing Conditions - make sure the site and tree species the girls choose are compatible. Different species of trees have different growing requirements. Assess the needs of your tree and then find a site that matches. Growing conditions you should think about include but are not limited to the following:
 - a. Light
 - b. Rainfall
 - c. Drainage
 - d. Soil type (sandy, clay, etc.)
 - e. Minimum temperatures tolerated
2. Tree Size – remember that the tree will be alive for many years and will grow much larger than its current size. Investigate how tall and wide the tree is likely to grow and be sure to give it enough space to grow.
3. Planting Procedure – follow the planting instructions provided with the tree. Planting a tree too deep, too shallow, or in a poor location can all lead to an unhealthy tree. You can ask for more planting information at your local tree nursery, or check out the Wisconsin DNR's Tree Planting Guidelines for Kids at <http://www.dnr.state.wi.us/org/caer/ce/ee/nature/planttree.htm>

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4. Follow-up Care – have the girls check up on the tree periodically. Newly planted trees might need regular watering during their first growing season, and it might be necessary to occasionally remove competing grasses or shrubs that might otherwise choke out small seedlings.

B. Suggested Ways of Completing Requirement

- Have each girl draw a map of her backyard or schoolyard. Once the map is completed, have her decide on possible locations that would be appropriate for planting a tree based on the amount of light, water and space available. Once she has located an appropriate spot and obtained permission an adult can help her plant a tree there.
- Have the Girl Scouts identify some place in their community that might benefit from the addition of trees. Have the girls work together to decide on which location the trees will be planted, and plant some trees together. Choose a location the girls can visit often to check up on and care for the seedlings.

Activity 6: Products of the Forest

A. Background Information

In addition to providing recreational opportunities for humans, habitat for plants and animals, and clean air and water, forests provide many products that we use in our everyday lives.

You might be surprised at all of the products that come to us from forests. These include all sorts of things we use to meet our most basic needs, such as food and materials for constructing shelter, as well as products that meet our less necessary desires like keeping our hair in place with hairspray.

Trees from Oregon's forests are harvested to provide lumber for building homes and furniture, paper production, plywood, siding, fences and posts.

Below is a list of just a few forest products that can commonly be found in homes:

wooden furniture	milk or juice cartons
newspapers or magazines	cellophane bags
hard wood floors	rayon clothing
wooden picture frames	toilet paper
cinnamon	lipstick
rolling pin	hairspray
kitchen utensils with wooden handles	shampoo
books	charcoal
bananas	cardboard boxes

B. Suggested Ways of Completing Requirement

- Making Paper –Learn about the papermaking process that happens in paper mills and then have the girls try their hand at making their own paper. There are many library books and internet resources that can help you along your way, including instructions for “Making Paper in 10 Easy Steps” at <http://pioneerthinking.com>
- History of a Forest Product – choose one forest product and trace its path from the forest to your home. For example, the girls could trace all the stages involved in producing a pencil and why most pencils are yellow!

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<http://www.pencils.com/makeit>
<http://pencils.com/history>

- Forest Product Scavenger Hunt - Use the list of forest products above or create your own. Have the girls go on a scavenger hunt to locate how many forest products they use in their home or school.

Activity 7: Animals in the Forest

A. Background Information

There are many different types of animals that live in Oregon's forest. Forest animals rely on the resources of the forest for food and shelter, and in many cases cannot survive without their forest habitats. Forest animals are important parts of the forest community, as they interact with each other, with plants, and with the air, water, and soil in the forest.

While there are many types of animals native to Oregon's forests, from tiny insects to big black bears, it might seem a little overwhelming to consider all of the animals that live in the forest. Check out a library book on forest animals or visit the Oregon Forest Resources Institute online at:

www.oregonforests.org

Their book *A Guide to Forest Wildlife* is available to order at no charge through their website. This excellent resource describes some of the wildlife associated with stands of different classes and where the animals may be found in our state.

B. Suggested Ways of Completing Requirement

- Animal Pantomime – Have the girls take turns acting out the behaviors of a forest animal, including the way they eat, move, and rest. The other girls keep guessing the identity of the animal until they guess correctly.
- Animal Identity Game - Draw pictures of a variety of forest animals on pieces of paper. After reviewing the basic characteristics of the animals with the girls, attach one animal picture on the back of each girl without allowing them to see which animal is on their back. Then have the girls' walk around asking each other yes/no/maybe questions in an attempt to learn the identity of the animal on her back. For best results, direct the girls to ask questions that will be most revealing of the animal's identity, such as those that pertain to the animal's color, locomotion, eating habits, etc.

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References and Additional Resources

- Cornell, Joseph. Sharing Nature with Children.
- Peterson Field Guides
- Project Learning Tree: Supplementary Activity Guide for Grades K through 6
- Oregon Forest Resources Institute Forest Fact Book-Answers to Questions Frequently Asked
- About Forest and Forestry in Oregon (no longer in print but available to download from their website: www.oregonforests.org)
- National Audubon Society Field Guide to North American Trees
- Wisconsin DNR's Environmental Education for Kids (EEK!) Web Site
<http://www.dnr.state.wi.us/org/caer/ce/eeek>
- National Arbor Day Foundation Tree Identification Guide
<http://treelink.org/whattree/index.htm>

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Parts of a Tree Worksheet

1. _____ This anchors the tree in place.
2. _____ These suck up water from the ground.
3. _____ These capture sunlight to make food.
4. _____ This covers and protects the tree.
5. _____ These stretch outwards and hold leaves.
6. _____ This part of the tree holds up the branches
7. _____ These transfer water from the roots to the leaves.
8. _____ These move nutrients throughout the tree.
9. _____ This layer of tissue lies under the bark and produces new cells so the tree can grow.

Leaves

Branches

Tap root

Lateral roots

Bark

Trunk

Heartwood

Sapwood

Cambium

Xylem

Phloem

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FOREST BINGO

Seedling Tree Less than 6 "	A Tree Stump	Leaf with Veins	Moss on a Tree	Spruce Tree
Old Man's Beard*	Ponderosa Pine or Douglas Fir needles	Clusters of 2-5 needles	Deciduous Leaf	Acorn or Pine Cone
Brown Leaf	Needle-leaf of your choice	FREE SPACE	A tree too big to wrap your arms around	Chewed-on Leaf
Broad-leaf of your choice	Evergreen Leaf	Signs of a Forest Fire	Leaf with Brown spot	Green Leaf
Needle-leaf Shorter than 2 "	A tree you can wrap your arms around	Non-Clustered Needles	Chewed on Pine Cone	A Dead Tree

*Gray-green lichen, commonly found growing on tree bark or hanging from branches that looks like an old man's beard. When pulled gently, each strand reveals an elastic, white core. It does not harm trees and is eaten by deer and elk.