



Council's Own Patch Programs & Backpatches

October 2010



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How to "Jump" to any Section & Printing Instructions

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1. Once the print dialog box appears, find the "Print Range" section;
2. In the "Print Range" section, select the "Pages" button and indicate which page numbers you would like to print (ex. 4-7). NOTE: Use the page numbers in the Adobe Reader toolbar, not the numbers on the bottom of the documents;
3. Click OK.



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.

BROWNIE GIRL SCOUT TRY-IT

Supplementary Materials



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.

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/eeek/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.



Indians of Western Oregon

The Northwest Coastal Indians lived in what is now Alaska along the Pacific Ocean down the coast to Northern California. This was a rugged strip of land with many small islands, deep inlets, and narrow beaches. The mountains rise to the shore in many places. Thick forests of spruce, cedar, and fir dominate the area supplying and endless supply of wood. Many rivers and streams cross the land. By the 1750's more than 100,000 Indians lived in this area because it was richer in natural resources than any other area of North America. This patch is designed to help girls understand and appreciate the rich heritage and culture of Indians of Western Oregon.

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

1. Take a field trip to a museum for a program on local Native Americans or attend a Pow Wow or other Native American celebration.
2. List Indian tribes that lived in your area.
3. Find out what places have Indian names. Can you find out their meaning?
4. Prepare a Native American food (fry bread, baked salmon, pemmican). Talk about how the Indians prepared and preserved their food.
5. Take an imaginary journey into the life of a Native American girl in the Willamette Valley or on the coast 150 years ago. Use skits, posters, or other media to portray a day in her life.
6. Make a Native American craft made by the tribe in Western Oregon. Your leader may have some suggestions and instructions or decide on one of your own.
7. Take a nature hike. Identify plants and animals that were used by local Indians. How were they used?
8. Legends and storytelling were important part of Native American life. The stories taught a way of life through oral tradition. Read some Native American legends from Western Oregon. Portray one in skits, pictures, or other media.



Lewis & Clark and the Corps of Discovery



In the years 1803-1805 President Jefferson sent Lewis and Clark to explore the newly acquired Louisiana Purchase and look for the most direct route to the Pacific Ocean. He directed them to keep journals describing the plants and animals they discovered, to map the way and to contact the Indian tribes along the way working out peaceful trade relations. It took discipline, team work and a variety of talents to make this a successful journey. The bicentennial was celebrated in 2003.

Much of the exploring you can do about the Lewis and Clark trail can be done on the internet. There are dozens of Lewis and Clark sites and growing, some better than others. Be a safe and responsible web user, always ask for adult supervision when exploring the web.

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

1. Find a map of the Louisiana Purchase in a history book or on the web. Find a map of the Lewis and Clark trail. Put a map of today's United States next to them. What modern states are inside the Louisiana Purchase? What modern states would you travel thru if your family followed along with Lewis and Clark?
2. Capt. Lewis brought along Seaman, his large black Newfoundland dog. Seaman served not only as companion, but like all the members of the corps he had many important jobs, hunter, watch dog, early warning system. He even saved the entire camp once. To learn more about Seaman or the Newfoundland breed of dog explore www.lewisandclarktrail.com/seaman or www.montanaphotos.com/corps_of_discover/seaman and try one or more of these activities:

- Read about one of Seaman's adventures below and then find the underlined words in the puzzle .

Seaman Saves the Camp

After a long hard day of pulling the boats up the Missouri River Lewis and Clark and their party set up camp on the shore of the river. A large herd of buffalo was grazing on the opposite shore, but the river was wide and the people felt safe. After eating supper everybody went to sleep in their tents or around the campfire. In the darkness of the night the guard did not see the big bull buffalo swimming across the river. When it got to the shore the buffalo jumped over one of the boats and ran right towards the men sleeping around the campfire. Luckily it missed all the men who were now awakened. Now the bull was headed right towards Lewis's tent where he was sleeping. The men tried to scare the bull, but it paid no attention to them. Just as it was about to trample the tent Seaman, Lewis's dog, ran after the buffalo barking ferociously. He scared the buffalo away saving Lewis and the other men.

B	A	S	W	I	M	M	I	N	G	K	C	T
U	M	B	L	E	W	I	S	R	O	R	A	R
F	C	A	M	P	F	I	S	E	C	A	M	A
F	L	R	T	E	N	T	E	S	D	L	P	M
O	A	K	B	U	F	F	A	L	O	C	F	P
L	N	I	G	H	T	D	M	T	G	U	I	L
A	K	N	O	I	B	O	A	T	S	O	R	E
C	O	G	R	A	Z	I	N	G	E	B	E	I

BROWNIE GIRL SCOUT TRY-IT: Lewis & Clark

- Experience the journey through Seaman's eyes, read or have someone read to you, one of the following:
 - *Lewis & Clark & Me, A Dog's Tale* by Laurie Myers, Henry Holt & Company 2002 (this is a good book because it has each of Seaman's adventures separated into tales and links to the Lewis and Clark journal entries)
 - *The Saga of Seaman, the Story of the Dog Who Went with Lewis and Clark*, Everett C. Albers, Northernlights ND Press, 2002 (this presents Seaman's adventures in poems and links to the journals, it is yet another way to read about him.)
 - *Seaman-The Dog Who Explored the West with Lewis and Clark* by Gail Langer Karwosk, PeachTree Publishing (this is a story of the whole journey "through" Seaman's eyes, better for older readers or listeners 2-3rd grade)
 - *The Captain's Dog: My Journey with the Lewis and Clark Tribe* by Roland Smith, Gulliver Books(also a story of the whole journey through Seaman's eyes, just told in a little different manner. Good listening for all)
 - *The Dog who Helped Explore America* by R.W. Gustafson (this one is good for the young reader (grade 1)
 - Learn more about the breed of Newfoundland dogs. What special thing do they do? What is so special about their hair and paws that make them perfect to do their job? Draw a picture of a Newfoundland dog or what you think Seaman looked like. How tall was he? How much did he weigh? How many of the Brownies in your troop would it take to weight as much as Seaman?
3. Journals were very important. All that we know about the expedition and the discoveries made came from daily journals kept by Lewis and Clark and their Sergeants. They wrote down what they did and saw, what they discovered, wrote about the weather and land and especially about the new plants and animals they discovered. They also drew pictures of things they saw too! In fact President Jefferson felt that these observations were so important that he directed them to make duplicates of their journals and to store them separately in special oiled cloth to preserve them and keep them safe from accidental loss.
- Try keeping a journal of what you did and saw each day for a week, talk especially about the weather, how you feel, any new things you see as you observe the world around closer than before.
 - Take a walk with your family or troop in a part of your town you have not visited before, or in the country or forest. Write down what you see. Draw pictures of new plants or animals or types of homes or buildings you see. Describe the terrain you are hiking in (flat, hilly, mostly trees, mostly grass etc.) what sort of animals did you see? Are there streams running thru it? Are they big or small? Are they running fast or just sort of sitting there (like a lake or pond?) What color is the water? What is the weather like? How does this new environment make you feel? Happy? Scared? Safe? Adventuresome?
4. Diversity and Communication. To be successful, the Corps needed men with many talents and the ability to talk and work among themselves as well as talk with the new peoples they were to meet. A man needed to be able to do his main job and step in to help another if need be. Some of the men knew English, French, Omaha, Hidatsa, Mandan or Plains Indian sign language.
- When the Captains were in council with the Indian Chiefs often the speeches and questions had to be translated multiple times. For example, when the Corps finally got to the plains and needed horses from the Shoshone, Sacajawea would translate from Shoshone to Hidatsa for Charbonneau, who would translate to French for one of the Corps soldiers, who translated to

BROWNIE GIRL SCOUT TRY-IT: Lewis & Clark

English for the Captains. See how difficult it is to pass on a message even when you speak the same language by playing the telephone game:

- With the help of an adult, make up two fairly long or complicated sentences or questions and write them down or memorize them.
- Break into two teams. The first person in each team whispers their sentence or question to the second person. The second person must try to remember it exactly (without writing it down) and tell it to the third and so on until it has gone all the way down to the last person.
- The last person then repeats the line. See how close they are to having it exactly right! Just imagine how hard it must have been when the Corps members not only had to remember what was said, but try and translate it into a different language! The translators had to really listen closely.

OR Try This: (Check out “A Winter Count” on page 4)

- The Yankton Sioux communicated important events of the year from a child’s birth to the death of a great chief, from the first green grass to the winter snows. These were recorded on “Winter Counts”, histories painted on tanned buffalo hides. Symbols of events showed highlights of the past year.
- Make a “winter count” of your own, tell the story of your year in symbols.
 - You will need some paints or crayons, some brown craft paper or a brown paper bag.
 - With the help of an adult, cut the paper or bag roughly into the shape of a buffalo hide.
 - Draw or paint your “winter count” using 12 pictures. Each representing an event that happened during one month of your year. Important events on some winter counts were meteor showers shown by a small star with a long tail or the capture of horses using lots of hoofprints. Did you move during the year? You could draw a symbol for a moving van Or go camping with your troop? Or go to Girl Scout resident summer camp for the first time? You could draw a cabin or tent.. Or make a new friend? You could draw two people shaking hands. Or maybe you saw a lightning storm for the first time.
- Share the story with your troop.

OR

- Many tribes told their stories with paintings or carvings on rocks. These drawings are called pictographs and the carvings petroglyphs. There are some very good examples in the Columbia River Gorge. Learn about pictographs and petroglyphs in the pacific northwest. Invent some symbols for your self and draw a story or life event in figures, share your story or event with others.
 - You will need some flat, rounded stones with a surface big enough to draw on and some marking pens. (River rock is very good for this sort of work)
 - Remember, be a responsible citizen and don’t draw on rock walls or fences.
 - If you would like a bigger canvas get some washable street chalk, get permission from an adult and make your drawings in your driveway, or if it is safe to do so and you have adult supervision, in your cul-de-sac. But remember to wash it away when you are done.
 - Or you can put paper up on a wall or fence and use crayon NOT felt pen, because felt pen bleeds thru the paper into the wall or fence.

A Winter Count

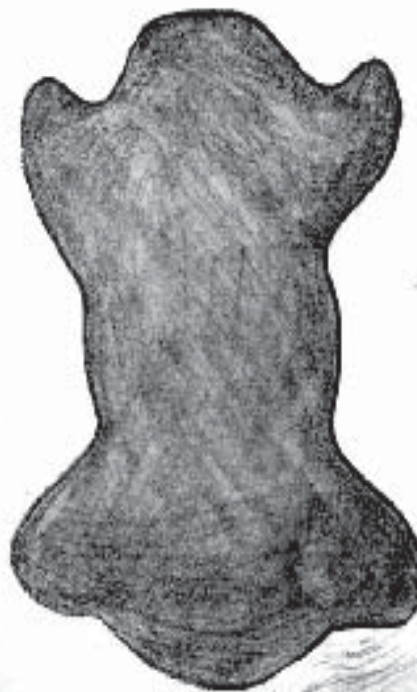
You can tell the story of your year in pictographs (pictures representing ideas), as the Sioux did on their winter counts.

Materials

- Large brown paper bag
- Pencil
- Scissors
- Paints & brushes or markers or crayons

Trace an outline on the bag in the shape of a hide, like the one in the illustration, then cut it out. Paint or draw 12 pictures on the hide, each representing an event that happened during one month of your year. Important events depicted on some winter counts were meteor showers (shown by a star with a long trailing trail), visions or great medicine (pictures of people's heads connected to images of their spirit guides above them), and the capture of many horses (lots of hoofprints). Perhaps your family moved one month--you could draw or paint a picture of a travois (or the modern-day version, a moving van). Did you make a new friend? You could show that by drawing two people

shaking hands. Make your own personalized winter count or make one for a friend or family member as a way to celebrate a birthday.



Acknowledgment: from Janis Herbert "Lewis & Clark for Kids"

Speaking in Sign

Lewis wrote that Drouillard “understood perfectly the language of signs, which seems to be universally understood by all nations we have yet seen.” This sign language common to the Plains tribes goes back hundreds of years. You can learn some of the signs Drouillard used to speak to the Shoshone!

BUFFALO: Make fists with both hands, leaving the index fingers pointing out and slightly curved. Bring your hands to either side of your forehead and tip your curved fingers forward like the buffalo’s horns.

BEAR: Place your hands near your ears, palms facing forward and curve your fingers down so they look like round ears.

TIP: Hold your hands in front of your chest facing each other. Touch your fingertips together and hold your palms far apart, making an angle shaped like a tipi.

SUN: With your left hand, make a semicircle with your thumb and index finger. Move your left hand in a curve from east to west.

MOON: Make a semicircle with the thumb and index finger of your left hand. Then make the sign for night by holding both hands, open and palms down, about one foot apart in front of you with the right hand higher than the left. Then cross your wrists, right over left.

MOUNTAIN: Make your hands into fists and raise them above your head. Then bring them down, one to each side of your chest, and move them forward very slowly (to demonstrate the great effort needed to climb a mountain).

HORSE: Hold your left hand in front of your chest with the palm facing the chest and the fingers straight. Straddle it with the index and middle fingers of your right hand.

THANK YOU: Hold both of your hands in front of you with palms down, then lower them down toward the ground.

FRIEND: Hold your right hand, palm facing forward, next to your right shoulder, with the index finger and middle finger straight up and together, and the other fingers closed.

Acknowledgment: from Janis Herbert “Lewis & Clark for Kids”

BROWNIE GIRL SCOUT TRY-IT: Lewis & Clark

5. Compass and Map: Lewis and Clark created their maps using a technique called dead reckoning. They used their compass to note direction of travel and estimated the distance by taking readings of stars that night.
 - Learn what the cardinal points of a compass are.
 - Draw a compass rose.
 - Then play the game “Captain Clark Says: A Game Using Directions”
 - This can be played indoors or for maximum effect, find an open place like school play yard or an open field in a park or a meadow.
 - As a troop determine where the cardinal points are in your “playing field” and pick a land mark for each cardinal point (a fence post, or maybe that yellow house, or that tree snag or if inside the blackboard or the wall clock etc.). Hint, to give the girls a feel for the relative directions pick a landmark, have them face it and “name” it North. Have the girls face “north” with their arms outstretched. Explain that whenever they face north their left hands will always point west, their right hands will point east and their backs will be to the south.
 - Memorize or write down these points.
 - Pick a captain. Have the captain say for example, “Captain Clark says take four steps West.”
 - If the girls remember the landmarks, they should be heading in the correct direction.
 - Have the girls take turns being Captain Clark.
 - Choose new landmarks once in a while.
 - Once they have the feel for the game a variance might be to have each figure out a path using a number of instructions.
 - Have the girls stand in circle and pass their written instructions to the left three times.
 - Have all the girls sit down.
 - Allow four girls at a time to stand and go to the starting point and read each step of their direction sheet to find their destination.
 - Repeat this until all the girls have had a chance to follow their instructions.
 - There are a lot of ways to use this game, think of some for yourself and have fun discovering navigation via landmarks.
6. Make some trading beads: Trade items and gifts for the many tribes which were meet along the way were very important to the expedition. Especially prized were the colorful trading beads.

Create your own trading beads from paper mache or another material. Trade them amongst yourselves or invite other Brownie troops in your area to make beads as well and take them to a Neighborhood Lewis and Clark day or your Neighborhood campout and trade them. You could also put scenes or symbols from your “Winters Count” story or your petroglyphs if you did those activities.
7. Visit one of the many Lewis and Clark interpretive centers or reenactment sites. Interview a Ranger or reenactor. Find out what they do in their job and what training they needed for their position.



Mount Saint Helens

Mount Saint Helens is the only active volcano in the continental United States. This striking landmark of the Pacific Northwest was changed forever in 1980 when the mountain exploded violently. Learn more about this interesting mountain and its history by doing this Try-It.

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

1. The native Americans of the Pacific Northwest had a number of names for the mountain we call St. Helens. Write a short story using one Native American legend about Mt. St. Helens and illustrate your story. Read this story to your Girl Scout Troop.

2. Draw a picture or write a short explanation of any ten of these volcano words. Create a matching game with your words to play with members of your Girl Scout Troop.

Lava	Fault	Lava tube	Cinder cone
Magma	Earthquake	Fumarole	"Ring of Fire"
Eruption	Seismograph	Vent	Vulcanologist
Ash	Dormant volcano	Tsunami	Geyser
Pumice	Active volcano	Caldera	Shield volcano
Crater	Extinct volcano	Fissure	Stratovolcano

3. Draw a series of pictures to show how a volcano erupts and label each part. Create a color poster of your findings and share this with your troop, service unit or others.

4. Choose one of the volcanoes listed below and discover what makes it famous. What kind of volcano is (was) it? Where is it located? What happened when it erupted?

Mazama	Etna	Lassen	Paricutin
Krakatoa	Mauna Loa	Pinatubo	Vesuvius
Surtsey	Loihi		

5. Take a field trip to one of these local sites to see how volcanoes have changed the earth's surface.

- Ape Caves, Washington
- Mt. St. Helens Interpretive Center, WA
- Coldwater Ridge Interpretive Center, WA
- Johnston Ridge Interpretive Center, WA
- Weyerhaeuser Forestry Learning Center, WA
- Sediment Retention Dam on the North Fork Toutle River, WA
- Lava Lands Visitor Center, OR
- Crater Lake and Wizard Island, OR

6. Make an earthquake kit for your home. Be sure to include items that would be needed in case a major earthquake struck your community. Information on earthquake kits is available through the American Red Cross.

7. Build a working model of a volcano with your Girl Scout troop or family, using the method described below. Share your volcano model with another Girl Scout troop, your class at school, or at a science fair.

BROWNIE GIRL SCOUT TRY-IT: Mt. Saint Helens

Volcano Model

Use a large rigid board as a base for your volcano. You may build the model out of papier-mâché, clay, salt dough or other formable material. When building your model, be sure to add a small, wide-mouthed jar into the top of the cone. This will act as the magma chamber for your volcano. It is suggested that you erupt your volcano outside, or in a large, well-ventilated room.

- In addition to the volcano model you will need:
- 1 quart jar or measuring cup
- 4 tablespoons baking soda
- $\frac{1}{4}$ cup vinegar
- $\frac{1}{4}$ cup dishwashing liquid
- red food coloring
- $\frac{1}{2}$ cup water

Mix all the ingredients except the baking soda in the jar. This will be enough solution for a few eruptions. Place the baking soda in the small jar in the top of the volcano model. Pour some of the mixture into the small jar. If there is no eruption right away, stir the contents with a stick. When you want to make a new eruption, place fresh baking soda in the small jar and add more solution. When the baking soda and the vinegar mix together they form a bubbly gas called carbon dioxide. The bubbles mix with the soap to form "lava." Real volcanoes work in almost the same way. When hot magma mixes with gas inside the core of the earth, it rushes to the surface in the form of hot lava.



Oceanography

Oceanography: The science that deals with oceans, the physics and chemistry of ocean water, marine biology and the uses of the ocean's resources.

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

1. Oceanography includes the study of plant and animal life in the oceans, the study of ocean currents and many other things. Discuss the different things that oceanographers study.
2. Explore and experiment with the way water carries things like sand grains, and what happens to them when they are left behind. Shake up a jar of water with some sand, gravel, silt, small shells, and/or clay. Observe which things settle first and how the layers of sediment form. Discuss with others why this happens.
3. Visit the Oregon Coast. Look closely along the shoreline for debris such as shells, pebbles, plants, bottles, beach glass (pieces of glass that have been polished smooth by the sea), and decaying matter. Where did these things come from? How did they get there and what is likely to happen to them? What are *flotsam* and *jetsam*? Investigate how pollution is affecting a bay or the ocean. What are the long and short-term effects of this pollution?
4. Learn about one hazard at the coast. Describe what you would do to avoid and/or react to this hazard. Examples of natural hazards that pose a threat on the Oregon Coast include sneaker waves, earthquakes, tsunamis, floating logs, beached logs, and coastal landslides. Discuss safety rules for visiting the beach.
5. Make a list of some of the endangered species that live in or depend heavily upon the ocean. Learn more about at least one of these species and include a drawing or picture, a description, why it is endangered, and what, if anything, is being done to protect the species and its habitat.
6. Do one of the following and share what you learned with others:
 - Visit the Oregon State University Hatfield Marine Science Visitor Center, located in Newport, Oregon.
 - Visit the Oregon Coast Aquarium in Newport.
 - Visit a tide pool.
7. Make a list of careers that relate to oceanography or arrange to meet a professional in the field of oceanography.



Oregon Trail

The Oregon Trail was one of the main overland migration routes in the United States of America, leading from locations on the Missouri River to the Oregon Territory. Between 1841 and 1869 the Oregon Trail was used by settlers, ranchers, farmers, miners and business men migrating to the Pacific Northwest. This patch is designed to help girls understand and appreciate the history of the Oregon Trail and the pioneers that travelled it.

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

1. Build a toy that may have been played with by a pioneer child.
2. Make some homemade bread and butter.
3. Find out about your community. When was it settled? Who, if anyone, lived there before the pioneers moved into the area? Visit a historic location in your community.
4. Try your hand at a skill the early settler women may have had to know about (i.e. spinning, weaving, quilting, soap making, making candles, hand sewing, etc.) or attend a presentation offered by a local guild in one of these areas. Check your local newspaper for these events. These could include a quilt show, Mission Mills' annual Sheep to Shawl event in Salem or a spinning or weaving guild display.
5. Visit a historical site or museum on the Oregon Trail, such as:
 - The end of the Oregon Trail Interpretive Center
 - Fort Vancouver
 - Oregon City
 - Whitman Mission
 - High Desert Museum
 - Oregon Trail Interpretive Center
6. Trace your family tree. With your parents help trace back your family 4 generations - you, your parents, your grandparents, and your great grandparents.
7. Find out about the Native Americans that inhabited the area before the pioneers settled. Were they nomads? What did their homes look like? What did they eat? Attend a Pow Wow and practice a Native American craft or game.
8. What kinds of work did the pioneers do before they came and after they got here? Was it the same or different? Can you identify what kind of work five of these people did?

Farrier	Copper	Mercantile	Seamstress	Wrangler
Blacksmith	Cobbler	Apothecary	Wagon Master	Midwife
Tin Smith	Haberdasher	Milliner	Tailor	Cow Poke

Resources

National Park Service Oregon Trail website: <http://www.nps.gov/oreg/index.htm>

Bureau of Land Management – Oregon Trail Interpretive Center website: <http://www.blm.gov/or/oregontrail/>

BROWNIE GIRL SCOUT TRY-IT



Rose Festival

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

1. Construct your own model of a Rose Parade Float out of a shoebox. You may use real flowers, tissue paper or construction paper to look like real flowers.
2. See the Rose Parade live or watch it on TV. Compare the differences in the floats and how each float fits into the theme of the parade.
3. Tour ships from around the world anchored at Waterfront Park during Fleet Week. Learn about different navy ships and what it takes to keep them afloat! Talk to your Girl Scout troop about what you learned. (Contact the local office of the Navy about tour availability.)
4. Attend another event during the Rose Festival. Discuss what you learned and enjoyed about that event
5. Volunteer to help in one of the Rose Festival Events. In the past some girls have marched as part of a Girl Scout unit in the Junior Parade, or carried banners in the Rose Parade.
6. Visit the Rose Garden at Washington Park or another Rose Garden in the area. Learn about five different kinds of roses. Learn their names and make a list of what makes each rose unique.
7. Go to www.rosefestival.org and find out what the Rose Festival theme is for this year. Draw a picture, create a skit, or write a story based on the Rose Festival theme.
8. Learn about the history of the Rose Festival and how the festival is different from other types of parades.

Resources:

Rose Festival Website: <http://www.rosefestival.org>



Society of Women Engineers

What is an engineer? An engineer is someone who uses scientific knowledge to solve problems. There are many types of engineers: Civil Engineers, Electrical Engineers, Environmental Engineers, and Mechanical Engineers are just a few. The different types of Engineers do different things; here is a list of some of the things engineers do:

- *Civil Engineers: design bridges, roads, water systems*
- *Electrical Engineers: design electrical power systems, parts of computers*
- *Environmental Engineers: solve water and air pollution problems*
- *Mechanical Engineers: design cars or other moving machines*
- *Electrical Engineers: design electrical power systems, parts of computers*

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

1. Machines make work easier. The items listed below are examples of simple machines. Combinations of these simple machines are used together to make more complicated machines. Look up three of these simple machines in the encyclopedia. Find examples of three of the six simple machines listed. Look in your home, school, car or even toy chest. Document where you found them with a photo, drawing or list.

Pulley	Inclined Plane	Wheel
Lever	Screw	Wedge

2. Can you support the weight of a book at least one foot above the table atop of a flimsy piece of paper? You can if you reshape that piece of paper by folding, rolling or bending it. Engineers know that a material's strength varies with its shape and structure. For example a piece of paper tears easier than a piece of cardboard because paper is thinner than cardboard and cardboard is made up of several layers of paper. Some shapes and structures can support more weight than others.

Your challenge is to build a structure at least 1' (one foot) high which can support a book. You will need 30 Sheets of 8 1/2" X 11" Paper, a roll of masking tape and a book. You can build your structure anyway you like, but your structure must be portable! (This means you may not fasten or connect it to a table or other fixed structure.) Can your structure support a heavier book or more than one book?

3. Sometimes engineers have limited resources to work with. Build a car using only the following material: scissors, 3 non bendable plastic straws, 4 Lifesavers, 1 piece of paper, 2 paper clips, and tape. The catch is you can only make it move by blowing on it. How far does your car move when you blow on it once? How many puffs does it take to move 6 feet? Engineers redesign things to make them better. Can you redesign parts of your car to make it go 6 feet in less puffs than before? [Leaders: download an illustrated PDF of this activity at <http://www-tc.pbskids.org/zoom/printables/activities/pdfs/puffmobile.pdf>]
4. Engineers often use triangles when they design buildings. That's because triangles are stable shapes. That means they don't bend, twist, or collapse easily when you push on them. Make a geodesic dome using gumdrops and toothpicks. [Leaders: download an illustrated PDF of this activity at <http://www-tc.pbskids.org/zoom/printables/activities/pdfs/gumdropdome.pdf>]

Build It

1. Connect five toothpicks in a ring using gumdrops as connectors. This is the base.
2. Use two toothpicks and one gumdrop to make a triangle on one side of the base.
3. Instruct them to repeat this all the way around the base until they have five triangles.
4. Tell them to connect the gumdrops with the toothpicks at the tops of the triangles. Ask how many triangles they have.

BROWNIE GIRL SCOUT TRY-IT: Society of Women Engineers

5. Have students push one toothpick into each of the top gumdrops.
6. Tell them to use one last gumdrop to connect the five toothpicks at the top.

Try building bigger domes using marshmallows and bamboo skewers. Discuss how a full size dome could be constructed for homes or shelters.

5. Have you ever wondered how something works? Work with an adult and take something apart and put it back together again. Share what you learned with your Girl Scout troop. Some suggestions are: flashlight, egg timer, clock (not electrical), pen, or a backpacking water filter or think of something on your own.
6. Engineers design things to make our lives easier. Think of something you use a lot or would like to use. Can you think of how to make it better or invent something new that you would like to have made? Write or draw a picture of what it would look like. Often engineers start by brainstorming about what is important for the things that they are making. For example a coffee cup must hold a hot drink, keep it warm, and be small enough to hold in your hands. List what is important in your design. Share your design with your Girl Scout troop.
7. Today many engineering jobs are held by women. Interview a woman engineer. Find out what she does in her day-to-day work. What made her decide to become an engineer? What kind of education is required?
8. How can you make a weak material like newspaper strong enough to stand up? One way is to change its shape, like rolling into a tube, crumpling it, or pleating it with folds. Build the tallest tower you can using 2 sheets of newspaper. You can bend, tear, crumple or roll the newspaper. Try to make the tower taller and taller. Keep redesigning it until you can't go any higher. Measure the height of your tower. It must stand for at least 30 seconds without falling over. Try using different types of paper or adding tape to see if it makes a difference in your results. [Leaders: download an illustrated PDF of this activity at <http://www-tc.pbskids.org/zoom/printables/activities/pdfs/newspapertower.pdf>



Zoological

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

1. Visit a wildlife center such as the Oregon Zoo, the High Desert Museum or Wildlife Safari, pick your favorite animal and find out more about that animal from the display at the zoo or books. Create a skit or play to perform for other members of your Girl Scout Troop.
2. Learn what a carnivore, herbivore, and omnivore are and how they are different. See how many animals of each kind you can find at the zoo and create a list. Create a poster or other visual presentation of your findings.
3. Observe two or more different animals at the Oregon Zoo. Watch their movements and imitate them. Put these movements together to form a dance. Teach other girls in your Girl Scout Troop your dance!
4. Name an animal for each letter of the alphabet. Make up a song using your list of animals.
5. Create your own zoo exhibit using a shoebox. Pick a favorite animal; learn about its habitat and what it needs to survive. Then create an imaginary habitat using the box and a variety of materials.
6. Create a poster about an endangered species and share what you have learned with others.

JUNIOR GIRL SCOUT BADGE



Forestry Fun

The badge features a Ponderosa Pine. This pine is a very important eastern and southwestern Oregon conifer 125-180 feet tall. Common uses are molding, windows, doors and other millwork, furniture and general construction lumber. Its needles are in clusters of 2-5.

To complete this Badge, complete SIX of the following activities:

Forests are an important ecosystem in the United States and throughout the world. In addition to providing habitat for many interesting plants and animals, they are also very important to humans. These activities will help you explore forest ecosystems. Supplementary materials are available to help you, follow the badge requirements.

1. What's in a Forest?

More than just trees make their homes in a forest. There is no better way to investigate what else lives there 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 the forest floor and so on. Make a list of the trees, birds, plants and animals you can identify.

2. Different Animals need Different Kinds of Forests.

When it comes to a place to live and food to eat, animals have different needs. Some like open areas in the forest that occur after a fire or a clearcut, some like the larger trees and complex structure associated with older forests, and some can live in many different types of forests. Structural characteristics are more important to animals than forest age. Visit a forest that has had a forest fire or been clearcut. List the tree seedlings, plants, birds and animals you can identify. Compare your list from the visit to the forest in #1. What is the same? What are the differences?

3. Identifying Oregon's Common Trees.

The two main types of trees in Oregon forests are conifers and hardwoods. Although there are actually more hardwood species (35) than conifer (30), conifers dominate Oregon forests. Conifers have needle or scale-like leaves and bear seeds inside woody cones. Hardwoods are mostly broad-leaved and their seeds come from their flowers. Learn how to use a guidebook or key to identify at least 6 trees based on their physical characteristics.

4. Forest Recyclers.

Like most natural ecosystems, forests recycle. This doesn't mean that they separate their aluminum cans and plastic out of the trash the way that human recyclers do, but it does mean that the resources of the forest are continually reused. This recycling occurs through the process of decomposition. Learn about decomposition and why it is important for forests.

JUNIOR GIRL SCOUT BADGE: Forestry Fun

5. The History of a Tree

Trees can grow to be very old, very tall, and very big around. Each year that a tree is alive in addition to growing taller, its trunk also grows bigger around. A growth ring consisting of a light and dark circle is added to the outside of the tree's trunk, just under the bark, each year. You can discover many things about the life of a tree by examining its rings, including its age and history. Scientists called dendochronologists study tree ring growth, and they try to learn something about the past climate and environmental conditions of an area by analyzing how well trees grew during that era. Look at a tree stump or a disk from a tree trunk (called a "cookie") and examine the growth rings. Count the number of annual rings to estimate the age of the tree. Are all of the rings the same size? What might cause a tree to grow more or less than usual during a given year?

6. Forest Plant-Animal Relationships

The plants of a forest provide many resources for animals. Without the food and shelter that is provided by trees and other forest plants, forest animals would not be able to survive. But this exchange is not always one-sided; plants sometimes benefit from the activities of animals. Play a game, write a story, read a book, or have a discussion about the ways that plants and animals are dependent on each other.

7. Wood Products Past and Present.

People have relied on forest resources throughout history. Make a list of some of the ways you and your family use wood products. Find out what things are direct and indirect forest products. Once you have compiled your list, visit with an older person in your community or an older relative and ask them about how forest products were used when he or she was growing up. Talk about the ways in which forest products are used differently between the two time periods. And what has caused these changes. Also consider how wood products were used by native cultures prior to European settlement of the United States.

8. Become a Steward.

Land stewards are important people that work to preserve, restore and educate others about natural resources. To complete this requirement, develop your own stewardship plan for restoring or preserving forests. With your troop complete a forest related service project.

JUNIOR GIRL SCOUT BADGE

Supplementary Materials



Forestry Fun

The badge features a Ponderosa Pine. This pine is a very important eastern and southwestern Oregon conifer 125-180 feet tall. Common uses are molding, windows, doors and other millwork, furniture and general construction lumber. Its needles are in clusters of 2-5.

For each activity, additional information and resources are presented below to help your Junior Girl Scouts meet the requirements of the Forest Exploration Badge. 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: What's in a 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.

- 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 keep track of the trees, birds, plants and animals you see on your visit.

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Activity 2: Different Animals Need Different Kinds of Forests.

A. Background Information

There are two general methods of management and harvest in Oregon known as even-aged management and uneven-aged management.

- Uneven-Aged Management Cycle

This method involves the cultivation and periodic harvest of trees of various ages in a stand. A common harvest method east of the Cascades, it is often called selection or selective harvest. Small gaps created by harvesting leave room for natural seeding or nursery transplants. This method is aesthetically more pleasing than clear-cutting, but seems to work better in the more extreme climate of eastern Oregon. Research is underway regarding its use in western Oregon, but Douglas fir, the dominant Westside species, does much better after clear-cutting because it thrives in the sunlight provided by the open space.

- Even-Aged Management Cycle

This is the preferred method for regenerating and cultivation Douglas fir in western Oregon's commercial forests because the species grows best in nearly full sunlight. After harvest, foresters plant Douglas fir, often mixed with other seedlings, and keep low-lying vegetation from crowding them out for a few years until they are established. Some thinning may take place after 10 to 20 years. The final harvest completes the cycle and usually occurs between 40 and 80 years when trees are 12" to 30" in diameter. This is called clear-cutting because it sets the stage for reforestation and a new cycle to begin.

Wildfires and prescribed burns are other ways people change the forest.

- Wildfires

While we often look at wildfires as being destructive, many wildfires are actually beneficial. Some wildfires burn the underbrush of a forest, which can prevent a larger fire that might result if the brush were allowed to accumulate for a long time. Wildfires can also benefit plant growth by reducing disease spread; releasing nutrients from burned plants into the ground and encouraging new growth.

Common causes for wildfires include:

- Arson
- Campfires
- Discarding lit cigarettes
- Improperly burning debris
- Playing with matches or fireworks
- Prescribed fires
- Prescribed Burns

Every year, wildfires burn thousands of acres of forest in the U.S. The summer of 2000 was a particularly bad year, with wildfires burning in many states in the west. Drought, which makes the trees and plants very dry, can make wildfires worse. Wildfires are often started by lightning, or by accident, such as when a camping fire is not completely put out. Fires can also be started on purpose by people who commit the crime of arson.

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There are many firefighters across the country whose job it is to put out forest fires. In some cases, these special men and women actually set fires - called prescribed burns - to keep wildfires from going out of control and burning many acres.

A prescribed burn is a tool that firefighters use to reduce the “fuel” for the fire - in other words, to burn trees or brush that would fuel a large wildfire. They particularly make sure that the areas of the forest that comes near where people live are kept as safe as possible.

In addition, controlled burns actually mimic what happens in nature. Many birds, animals and plants rely on occasional fires to change the environment in a way that is beneficial to them.

A prescribed burn may be only 10 or 15 acres or as large as thousands of acres in size. Of course, you have to be very careful when using controlled burns. They are only done when the weather conditions are just right. The wind, for example, has to be blowing in the right direction to move the fire in the way the firefighters want.

How do firefighters control a controlled burn? They use a natural break like a river or an existing road, or they create a “plow line” by digging into the land with a plow to create a “line” that stops the fire. The firefighters carefully set a fire that will burn away from the line. Sometimes firefighters will set “spot fires” that will burn back into the original fire, taking all the fuel away and then the fires burn out.

Controlled burns are dangerous and are done very carefully and by trained experts.

B. Suggested Ways to Complete Requirement

- Guide to Oregon's Forest Wildlife booklets are available (one per troop) in each office, while supplies last. You can also order them free of charge at the Oregon Forest Resources Institute through their website www.oregonforests.org.
- Talk with a naturalist, forest ecologist, forester, or park ranger about methods used to keep Oregon's natural and urban forests healthy.
- See if you can find clues to determine how long ago the area was clear-cut or burned.
- Compare the list of tree seedling, plants, birds and animals you identified here and in your visit to the forest in requirement #1.
- On your drive to and from the site notice if you see other areas that have been burned or clear-cut.
- Discuss how timber is managed in the area of Oregon you live in.
- Check out these websites for more information
“How Wildfires Work” at www.science.howstuffsworks.com/wildfires ;
www.fs.fed.us/fire;
www.fema.gov/kids/wildfire

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Activity 3: Identifying Oregon's Common Trees

A. Background Information

To the untrained eye, a forest can seem to be filled with trees that all look the same.

However, different species of trees are unique, and a close observer can even learn to recognize trees from the same species as individuals. There are many physical characteristics of trees that can be used to properly identify their species. Some of these include:

- Leaf/needle shape
- Bud shape/size
- Leaf/needle size; leaves needle-like or flattened and scale-like; clustered or non-clustered
- Crown shape
- Leaf/needle color; length of needles; leaves opposite each other or alternating on stem
- Fruit shape
- Bark texture
- Branch/twig position
- Bark color
- Tree height/girth

B. Suggested Ways to Complete Requirement

- Help the girls try to identify trees by examining their bark, twigs, leaves/needles and buds.
- Use and compare a few different tree identification keys. Which one is easiest to use? Have the Girl Scouts learn to identify at least six different tree species until they recognize them by sight without the aid of the key.
- Help the girls create their own key to the trees in their neighborhood. Have friends or family members test out the key. Was the key easy for them to use? How could it be improved?

There are many tree identification keys online, including these:

www.oregonstate.edu/trees

www.treelink.org/whattree

www.oregonforests.org/factbook

Activity 4: Forest Recyclers

A. Background Information

The process of breaking down dead things is called decomposition, and is a very important aspect of maintaining a healthy forest. Plants need nutrients to grow, and these nutrients come from the soil. Through their roots, plants take up water and nutrients from the soil and then use them to build tissue and grow. However, if plants kept removing nutrients from the soil and more nutrients were never added, soon the soil would be devoid of nutrients, and no new plants could grow. When a tree drops its leaves in the fall or loses a branch during a storm, critters that live in the forest floor, known as decomposers, get to work turning the dead leaves and branches back into soil and nutrients that a new generation of trees can use to grow. Decomposers that are commonly seen include earthworms and sow bugs (also called pill bugs). Another set of important decomposers is made up of microorganisms that we cannot see.

Have you ever felt like you needed your own space? Sometimes we all need to be alone. Plants and trees need to have their own space, too. How do you get your own space? You can walk away or shut

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your door, but what can plants do? They can't walk or run anywhere. Plants have a different way of getting their own space. They use allelopathy.

Allelopathy is a chemical process that a plant uses to keep other plants from growing too close to it. Some plants that use allelopathy are black walnut trees, sunflowers, wormwoods, sagebrushes, and trees of heaven.

Some pine trees are allelopathic. When its needles fall onto the ground, they begin to decompose. The soil absorbs acid from the decomposing needles. This acid in the soil keeps unwanted plants from growing near the pine tree.

B. Suggested Ways to Complete Requirement

- Complete the "Study of a Rotting Log" activity in the appendix.
- Fill a jar or plastic bag with dirt, brown leaves, and other once-living materials. Poke a few air holes in the jar lid or near the top of the bag, and have the girls observe the contents of the container for several weeks.
- Many gardeners use compost bins to turn their garden waste into fertile soil. Learn about garden composting and how it related to the natural decomposition process that occurs in forests. How does the decomposition of old plants improve soil quality? What effect does this have on plants currently growing in a garden or a forest? How does your climate and the geography where you live effect the rate of composition?
- Learn about the relationship between decomposers, producers, and consumers (hint: they are all part of the food chain/web). Make a map with the girls showing how energy (food) moves through a forest, starting with the sun. Where are decomposers located on this map? In what ways are decomposers important to the cycling of nutrients and energy through a food web? What would happen if decomposers were absent in a food web?

Activity 5: The History of a Tree

A. Background Information

Trees can lead very long lives, sometimes surviving for hundreds of years. Much can happen over this long period of time. A tree changes as it matures from a seed to a sapling to an adult, and the environment in which the tree lives can change over its lifetime as well. A fire might sweep through and kill off many of the other plants and trees, or a drought might occur for a few years, slowing the growth of the forest plants. Both of these changes in the environment would likely affect the tree's health. Even after a tree has died, its history continues. It continues to provide habitat for animals, like certain insects or cavity nesting birds. People intending to produce paper, lumber, or some other wood product from it might harvest its wood.

As a tree grows, it produces growth rings that tell a story about its past. By examining a tree's rings, you can determine something about the environment in which the tree lived and how the tree grew throughout its life. Scientists who study the growth rings of trees are called dendrochronologists.

How to read rings:

- The outermost ring on a tree is from the last year a tree was alive. Rings are added each year as the cambium layer, just underneath the bark, grows new cells. So, the rings in the center are from the earliest years the tree was alive, and the outer rings are from the last years of the tree's life.

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- A narrow growth ring indicates that the tree did not grow much during that year, perhaps because of drought, inadequate sunlight, insect damage, or disease.
- Wide growth rings indicate that the tree grew well during that year.
- Wider rings on one side of the tree indicate that the tree leaned in that direction or there was greater competition for resources on one side.
- Knots and “V” shaped indentations of the rings are caused by the growth of branches.

B. Suggested Ways to Complete Requirement

- Try to locate the stump of a tree that has been cut down, or try to find a disk from the trunk of a tree. Help the girls analyze the rings of the tree to determine the history of that tree. Attempt to determine its age, when in its life it was growing fastest, when it was growing slowest, and whether it leaned to one side.

Check out this website for a great example: www.arborday.org/trees/ringsmain

- Try comparing the rings of two different tree species. Does it seem as though one species is faster growing than the other? Discuss with the girls how different rates of growth are related to “hardwood” and “softwood.”
- Examine the grain of different wood products around your house, such as furniture, flooring, or cabinetry. How do the grains of different types of wood look in comparison to each other? How is the appearance of a wood’s grain related to its growth?

Activity 6: Forest Plant-Animal Relationships

A. Background Information

Because forest plants and animals share a habitat, they are connected to each other in many ways.

Ecologists are people who strive to understand the many ways in which the plants, animals, and non-living things in an ecosystem are connected. Because forest plants and animals share a habitat, they are connected to each other in many ways. The purpose of this activity is to help Junior Girl Scouts get a sense of the many different relationships that plants and animals have with each other.

There are many ways in which plants and animals living within a habitat are important to each other. Some of them are listed below:

Food Sources – Many animals consume plants or parts of plants as a food source. Examples of this would be deer grazing on twigs, birds eating berries, and squirrels eating nuts.

Shelter – Most forest animals rely on plants in some way to provide shelter at some point in their lives. Young bears scale trees to keep safe from danger, birds build their nests in trees for the same reason, and shrubs provide hiding places for deer.

Seed Dispersal – It is beneficial for plants to have their seeds spread away from them and animals are one way in which this occurs. Birds eat berries, but their stomachs cannot digest the hard, specially coated seeds, which get excreted from the bird (probably in a different location). Animals (including children) running through the forest might get thistle seeds or burrs stuck to their fur (or clothes). Eventually these rub off, and the seeds land somewhere far away from the plant that produced them. Animals serve as seed dispersers for plants in these and other ways.

Pollination – Bats, birds, and insects are all important pollinators. Without the services of these

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sugar-seeking animals, certain plants would not be able to reproduce.

B. Suggested Ways to Complete Requirement

- Play a game that demonstrates the ways in which plants and animals interact.

Instructions for one such game, “The Squirrel and the Hickory Nut,” can be found in the appendix.

- Spend some time in the forest observing a single type of animal (it will be easiest to observe something commonly seen, such as certain birds, squirrels, or insects). Keep track of the number of times the animal comes into contact with a plant. How is the animal benefiting from the presence of plants? In what ways, if any, are the plants benefiting from the behavior of the animal?

Activity 7: Wood Products Past and Present

A. Background Information

The list of products that humans produce from forest resources is a long one. This has been true throughout history. However, the ways in which people make use of forest resources has changed over time. Different technology, cultural changes, and expanding populations have transformed the ways in which forests are used today in comparison to the past. Considering the ways in which wood products have been used in the past and present reveals the long and changing history that humans have shared with the natural world.

B. Suggested Ways to Complete Requirement

- Have the girls make a list of some of the ways you and your family use wood products. Do a bit of library or Internet research to find out what things are direct and indirect forest products. For example, it is easy to identify a wooden bench as a forest product, but you might be surprised to know that shampoo also can be considered a forest product since it has some ingredients that come from the forest. Once you have compiled your list, visit with an older person in your community or an older relative and ask him or her about how forest products were used when he or she was growing up. Talk about the ways in which forest products are used differently between the two time periods, and what has caused these changes. (See sample list in the appendix.)
- Consider how wood products were used by native cultures prior to European settlement of the United States. Learn about the tools and shelters that were crafted by Native Americans living in forested regions of the country.
- Learn how the process of making different forest products has changed with changes in technology. For example, compare the process of making maple syrup in the early 1900's with how it is produced today, examine the history of papermaking and how it has changed through time, or investigate how the process of logging trees has changed.

Activity 8: Become a Steward

A. Background Information

Stewards of the land are those who manage and protect it to ensure its enduring health. Land stewards work to educate the public about preserving natural resources and protect the environment from destruction and neglect. Environmental stewardship is about taking action to improve or protect the environment. Protecting and restoring forests is important for many reasons. In the past few decades many humans have become very concerned about the effect that people are having on natural systems. Our cars, factories and lifestyles produce a lot of pollution and waste that can have

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a negative impact on the environment. Forests play a large role in maintaining a healthy environment, and many environmental problems such as loss of bio-diversity, global climate change, and water quality are linked to the health and size of the world's forests.

B. Suggested Ways to Complete Requirement

- Talk with a naturalist, forest ecologist, forester, or park ranger about what you can do to help keep Oregon's natural and urban forests healthy. Have the girls share the information they learn with their family and friends.
- Have the girls identify an area in their community that could be spruced up with the presence of trees. Research which types of trees and bushes are native to your area and might grow well on your chosen site, then develop a management plan for planting and maintaining trees on that site. Plant 3 trees. Visit this website for other ideas about service projects related to trees other children have done; www.arborday.org
- Girl Scouts could develop a poster that shows the ways that people benefit from forests around the world. They should include the benefits we get from forest products, the ecological benefits that forests provide, and the recreational opportunities available in forests. Have them display the poster at their school, library or another community gathering place, and provide information on things everyone can do to become good stewards of the land.
- Consider how restoring and preserving forests can help solve environmental problems such as global warming, loss of biodiversity, and water quality. Choose one of these problems and investigate how it is related to the destruction or exploitation of the world's forests.

APPENDIX

The Squirrel and the Hickory Nut (or Acorn)

Examples of Wood Products

Study of a Rotting Log

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The Squirrel and the Hickory Nut (or Acorn)

This activity will demonstrate the co-reliance of forest plants and animals by examining one specific plant-animal relationship.

Materials:

About 3 kernels of corn, dried peas, beans or other biodegradable item per girl

Instructions:

Gather the girls underneath a tree (preferable a hickory or oak) and tell them that they are squirrels living near this tree. Tell them that it is fall, and the tree is getting ready to drop its nuts.

Once the nuts have been dropped, the squirrels will prepare for winter by collecting and hiding the nuts. Then spread all of the “nuts” onto the ground beneath the tree and tell the squirrels to get to work hiding them.

After the nuts are hidden, call the girls back to the tree and discuss how squirrels benefit from living near a hickory or oak tree. You might want to cover the following points:

- The tree provides a place for the squirrel to hide from predators (including the neighborhood dogs).
- The tree provides a place for squirrels to build nests and raise their young
- The tree provides food for the squirrels that can be stored to help them get through the winter months.

Also ask the girls whether or not they think the tree benefits from living near squirrels (don't have an in depth discussion at this point, just have them state 'yes' or 'no').

Next, tell them that it is now mid-winter, and they are quite hungry and need to go foraging for the nuts they hid in the fall. After they have searched for their nuts for a few minutes, call them back to the tree and count how many nuts they recovered. It is very likely that the girls will not have recovered all of the nuts.

Have them guess what happens to the nuts that the squirrels could not find. Explain that, because squirrels do not always remember where they hid nuts, they are acting as seed dispersal mechanisms. Because nuts are actually tree seeds, the ones that have been buried and forgotten might have a good chance at sprouting and growing into a young tree. Talk about why it is beneficial for plants to have their seeds dispersed away from them. Touch on the following points:

- Because hickory nuts and acorns are relatively heavy, when they fall from the tree they land directly beneath it because they are too heavy for the wind to carry them. If they sprouted in the same place where they land, they would have to compete with each other and the much larger parent tree for resources such as water and sunlight. This would not be a good situation because the taller parent tree would shade them and, with its well-established roots, slurp up most of the water. By being moved away from the tree by squirrels, the nuts might end up in a place where they have more access to these important resources.

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Trees are amazing! They provide beauty, shade, oxygen, clean air and water, fruit, nuts and wood products such as paper, furniture and housing. These benefits are well known. But did you know that literally thousands of products are made from trees? Many are surprising! From the medicine L-Dopa for treating Parkinson's Disease, to film in your camera, forest products are all around us.

When trees are used to make lumber and plywood, there are leftover chips, bark sawdust. The chips and sawdust are made into wood pulp for paper and other products. Not too long ago, those leftovers would have been burned as waste. Bark is used for landscaping, and to generate electricity for paper and lumber mills. Modern forest products operations are very efficient at using every part of a tree. Nothing is wasted.

Wood is made of tiny fibers (cellulose) and the natural glue that holds them together (lignin). When wood is turned into pulp for paper, heat and chemicals dissolve the lignin and release the cellulose fibers. Byproducts of this process are used in asphalt, paint, chewing gum, detergents and turpentine.

Cellulose is used for paper and much, much more. It is a principle part of melamine dinnerware, toilet seats, tool handles and cellophane. It is also used to produce helmets, toothbrushes and electrical outlets. Other refined cellulose products include rayon fabric, and nitrocellulose which is used to make nail polish, solid rocket fuel and industrial explosives.

Wood pulping by-products are used for many different things, ranging from cleaning compounds, deodorants and hair spray, to artificial vanilla flavoring, medicines and cosmetics. Torula yeast, produced from wood sugars separated in the pulping process, is a high-protein product used in baby foods, cereals, imitation bacon, pet foods and baked goods.

Silvichemicals (chemicals from trees) are so much a part of our civilization that we take them for granted. But they wouldn't exist without wood and wood products. Trees are truly a miracle resource!

Below are just a few of the thousands of products we get from trees.

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WOOD
you
believe?



dye
oxygen
piano keys
rayon - books
fishing floats - inks
telephone books



varnish - atlases and maps
price tags - ping pong balls
tires - umbrella handles - signs
automobile instrument panels
space craft reentry shields - newspaper
photographic film - newspapers - posters
football helmets - toilet seats - guitars
road building materials - insulation
shatterproof glass - artificial vanilla flavoring
cork - vacuum cleaner bags - movies - stadium seats
adhesives - decorations - turpentine - camphor - waxes
fireworks - crayons - tannin - charcoal - pine oil - pitch
musical instruments - perches for birds of prey - toilet paper
milk cartons - flooring - bark for landscaping - cardboard
grocery bags - furniture - chewing gum - paper towels
oil spill control agents - Christmas trees - hockey sticks
wildlife habitat - cosmetics - roofs - baby foods - cider - vitamins
cooking utensils - photographic film - lacquer - pallets - rubber gloves
mulch - clean water - golf tees - egg cartons - nail polish - fence posts - toys
toothpaste - eyeglass frames - syrup - antacids - shampoo - rubber gloves
menthol - electrical outlets - medicines - energy for electricity - plates and bowls
sausage casings - torula yeast - rulers - wooden blocks - houses - notebook paper - oars
plywood - paper plates - computer casings - stain remover - coffee filters - toothpicks
movie tickets - carpet and upholstery backsides - imitation bacon - diapers - horse corrals
postcards - tax forms - sponges - shade - particle board - shoe polish - luggage - bowling alley lanes
suspending agent for drinking soda - pencils - dry wall - baby cribs - baseball bats - lumber - decoys
magazines - ice cream thickener - step ladders - birthday cards - broom sticks - cider - ceiling tiles
crutches - backyard play sets - axe handle - food labels - 2 x 4's - candy wrappers
scenery - party invitations - disinfectants - cd inserts - gummed tape - fruit
railroad ties - shelter belts - puzzles - swings - baking cups
buttons - cutting boards
benches - bird houses
stereo speakers
garden stakes
stairways - beds
tables - barrels
window frames
bulletin boards
linoleum - seesaws
fishing boats - billboards
disposable medical clothing
church pews - totem poles - desks

How many other tree products can you list?

We get
so much
from
trees!

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Study of a Rotting Log

Objective: To point out an example of the life cycle. To observe the concept of “Everything is going somewhere” and “Everything is becoming something else”. To see the uses and purposes of a rotting log.

Concepts: Rotten logs are an important part of a living community as well as the soil making process. As they decompose, they provide homes and food for animals and a place where certain plants can grow. With the help of plants, animals and weathering a log eventually decays and enriches the soil with important nutrients which provide food for plants.

Time: ½ to 1 hour

Season: Any

Location: Forest

Materials: Hand lenses, paper, pencils

Procedure:

- Find a rotting log or stump and observe it in pairs
- Discuss the following questions:
 - Where is the stump or trunk the log came from?
 - How might the tree have died? (cut, rot, wind, disease, fire, etc.)
 - What species of tree is it?
 - How long has the tree been dead? How old was it?
 - Is the bark still on it?
 - Can you see two or more stages of decomposition?
 - Is the inside firm or rotting? Can you push a small stick through the wood?
 - Is the wood dry or moist? How does this help in the decay of the log?
 - What roles in the living community is the log playing? (food provider, home builder, etc.)
 - List the plants you see living on this log.
 - How is this log useful to the soil? Water? Plants? Animals? People?
 - How does this log help new plants to grow in the community?
 - What effects do the animals have on the log?
 - What will this log eventually become?
 - What will happen to its “inhabitants”?
- As you observe, be sure not to tear the log apart. Discuss why.
- Bring your findings back and discuss them as a group.

JUNIOR GIRL SCOUT BADGE



Indians of Western Oregon

The Northwest Coastal Indians lived in what is now Alaska along the Pacific Ocean down the coast to Northern California. This was a rugged strip of land with many small islands, deep inlets, and narrow beaches. The mountains rise to the shore in many places. Thick forests of spruce, cedar, and fir dominate the area supplying and endless supply of wood. Many rivers and streams cross the land. By the 1750's more than 100,000 Indians lived in this area because it was richer in natural resources than any other area of North America. This patch is designed to help girls understand and appreciate the rich heritage and culture of Indians of Western Oregon.

To complete this Badge, complete SIX of the following activities:

1. Take a field trip to a museum for a program on local Native Americans or attend a Pow Wow or other Native American celebration.
2. List Indian tribes that lived in your area. What places have Indian names? Can you find out their meaning?
3. Prepare a Native American food (fry bread, baked salmon, pemmican). Talk about how the Indians prepared and preserved their food.
4. Take an imaginary journey into the life of a Native American girl in the Willamette Valley or on the coast 150 years ago. Use skits, posters, or other media to portray a day in her life.
5. Make a Native American craft made by the tribe in Western Oregon. Your leader may have some suggestions and instructions or decide on one of your own.
6. Take a nature hike. Identify plants and animals that were used by local Indians. How were they used?
7. Discuss what life is like for Native Americans today. How is it different from your own? How is it similar?
8. Legends and storytelling were important part of Native American life. The stories taught a way of life through oral tradition. Read some Native American legends from Western Oregon. Portray one in skits, pictures, or other media.
9. Choose one activity from the Interest Project t section below.
10. Make a piece of Native American clothing or regalia for yourself. This could be shawl, wing dress, mask or other item. How has the regalia evolved over the years?

JUNIOR GIRL SCOUT BADGE



Girl Scouts®

Lewis & Clark and the Corps of Discovery



In the years 1803-1805 President Jefferson sent Lewis and Clark to explore the newly acquired Louisiana Purchase and look for the most direct route to the Pacific Ocean. He directed them to keep journals describing the plants and animals they discovered, to map the way and to contact the Indian tribes along the way working out peaceful trade relations. It took discipline, team work and a variety of talents to make this a successful journey. The bicentennial was celebrated in 2003.

Much of the exploring you can do about the Lewis and Clark trail can be done on the internet. There are dozens of Lewis and Clark sites and growing, some better than others. Be a safe and responsible web user, always ask for adult supervision when exploring the web.

To complete this Badge, complete SIX of the following activities:

1. Make a time line of the journey of the Corps of Discovery. Illustrate some of the key points with drawings or pictures from magazine, books or off the internet.
2. Would you go with Lewis and Clark? Create a recruiting poster using pictures from your reading or internet surfing. Highlight things like the adventure, discovery of new plants and animals, scenery to dazzle your senses, meeting new peoples, and using ALL your potential. Think up more, after all you are the PR man for Captains Lewis and Clark! Share your recruiting poster with others, did you convince them to join you?
3. Learn about the cultures of three different Native American Tribes encountered by Lewis and Clark.
 - How are they similar to each other and the more European populations in the then U.S.?
 - How are they different?
 - How is where they live reflected in their cultures?
 - Do all cultures make the same sorts of adaptations?
4. Learn about what types of transportation were used by the Corps.
 - What forms of transport could you use today to complete the trip?
 - With your troop or family plan to take one of these forms of transport along one section of the trail.
 - Make a model: Using the plans in the back of this pamphlet, build a model of a keel boat or dug out similar to that used on the expedition.
6. A two year camping trip: The expedition took nearly two years.
 - Find out what supplies the Corps took along with them.
 - Plan a weekend camping trip with your family or troop.
 - Compare the lists.
 - What things did you find on both lists?
 - What did the Corps take with them that you did not need? Why don't you need them?
7. Lewis and Clark passed through forests of giant conifer trees in the western mountains and along the Pacific Coast. They estimated the height and measured the diameters.
 - Learn to recognize the following four Pacific Northwest native conifers (there are many books in the libraries to assist you in this identification. OR plan a trip to a regional forestry center or the World Forestry Center up near the Oregon Zoo in Portland.)
 - Western Red Cedar - Sitka Spruce
 - Western Hemlock - Douglas Fir
 - Using the instructions in the back of this pamphlet, make a tangent height guide.
 - Learn how to measure trees using: (see back of this pamphlet for details)
 - the shadow method

JUNIOR GIRL SCOUT BADGE: Lewis & Clark

- the partner method
 - the tangent height guide method
 - With a partner or your troop, take one or more outings:
 - Identify each of the four conifer types
 - Then measure them using the three methods you learned above
8. Lewis and Clark exploring new frontiers: Read the inserts at the back of this pamphlet about Lewis and Clark AND Sacagawea in space and beneath the sea. Now, think 200 years forward and imagine the Lewis and Clark Expedition in the 23rd century. Make your own field observations using the outline in the back of this pamphlet and share your observations with others.
 9. Journals were very important. All that we know about the expedition and the discoveries made came from daily journals kept by Lewis and Clark and their Sergeants. They wrote down what they did and saw, what they discovered, wrote about the weather and land and especially about the new plants and animals they discovered. In fact President Jefferson felt that these observations were so important that he directed them to make duplicates of their journals and to store them separately in special oiled cloth to preserve them and keep them safe from accidental loss.
 - Try keeping a journal of what you did and saw each day for a week, talk especially about the weather, how you feel, any new things you see as you observe the world around you closer than before.
 - Take a walk with your family or troop in a part of your town you have not visited before, or in the country or forest. Write down what you see. Draw pictures of new plants or animals or types of homes or buildings you see. Describe the terrain you are hiking in (flat, hilly, mostly trees, mostly grass etc.) what sort of animals did you see? Are there streams running through it? Are they big or small? Are they running fast or just sort of sitting there (like a lake or pond?) What color is the water? What is the weather like? How does this new environment make you feel? Happy? Scared? Safe? Adventuresome?
 10. Taking Observations: President Jefferson instructed Lewis & Clark to make observation of latitude and longitude at all remarkable points on the river... and to carry instruments for ascertaining by celestial observations the geography of the country through which they passed. Lewis learned to use navigational instrumentation including the chronometer, sextant, quadrant and compass. Using the handout in the back of the packet, learn how to make and use a simple Octant.
 11. Being a Naturalist: President Jefferson believed that careful observation led to discovery, and good recordkeeping made discoveries and observations valuable to others. Select some flora or fauna from your area. Use the Field Observation sheet at the back of the booklet to:
 - Make detailed written description of the object.
 - Make a sketch of all or part of the item.
 - Measure the dimensions of the object and label them on the sketch.
 - Complete the first page of the Field Observation Sheet.
 12. Visit one of the many Lewis and Clark interpretive centers or reenactment sites. Interview a Ranger or reenactor. Find out what they do in their job and what training they needed for their position.

JUNIOR GIRL SCOUT BADGE: Lewis & Clark

HOW TO BUILD A KEELBOAT

Materials:

Shoebox - long narrow one is best.

One pencil or dowel rod - for the mast

Two pieces of white paper , 8 1/2 x 11 - to be trimmed as needed for the sail & cover

Scotch tape, glue, scissors

Markers, tempera paints & brush, or crayons - blacks, brown, tan or similar colors

Ruler

Instructions: Ask an adult to help you as needed.

1. Remove the top from the bottom. Set the top aside. It will be used later.
2. Measure the side - length of the shoebox. Divide the side into 4 parts. Mark as shown in the Diagram A below. The 1/4 at one end will be the bow, and the 1/4 at the other end will be the cabin.
3. Measure the height of the shoebox. Divide it into 3 parts. Mark as shown in the Diagram A.
4. Now repeat the same sets of instructions for #3 and #4 on the other long side of the shoebox. Be sure that the cabin end matches the other side.
5. Using the scissors, now make the cuts 1, 2, 3, 4, & 5 on both sides of the shoebox - Diagram A.
6. The bow end of the shoebox can be cut off completely.
7. Turn the shoebox upside down so you are looking at the bottom as in Diagram B. Measure the width of the shoebox and divide it in two as shown in the diagram.
8. Using the scissors, make cuts 6 & 7 to form a point for the bow of the boat. Discard the extra material. See Diagram B. You may have to trim the bow later.
9. In the center half of the both side sections draw black lines one inch apart on the top two-thirds. These will be painted later. See Diagram A.

JUNIOR GIRL SCOUT BADGE: Lewis & Clark

HOW TO BUILD A KEELBOAT

DIAGRAM A - Side view of shoebox

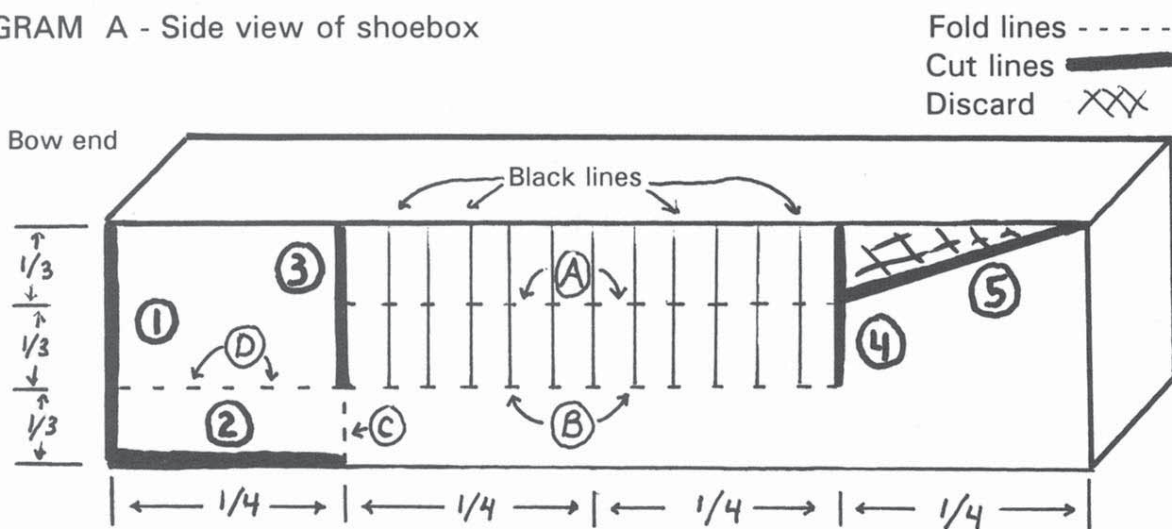


DIAGRAM B - Bottom

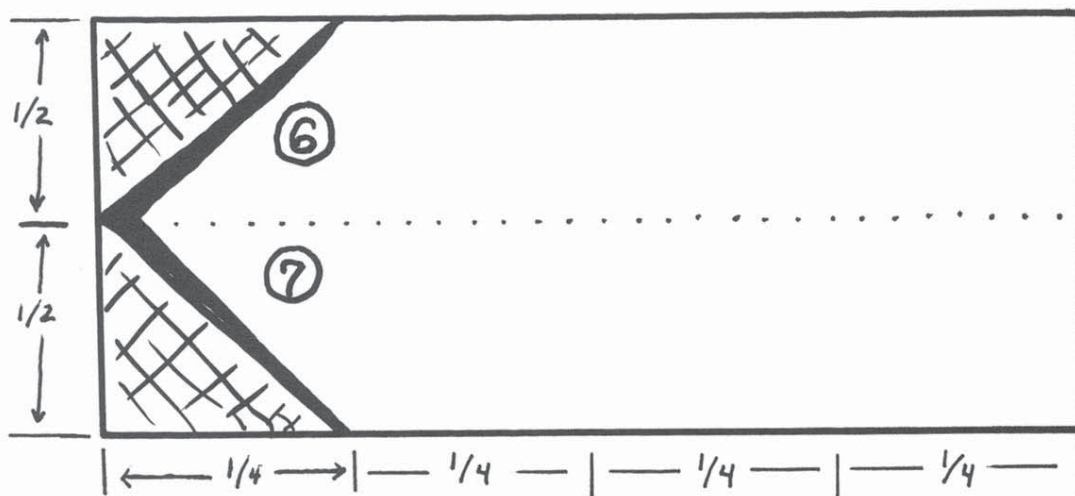
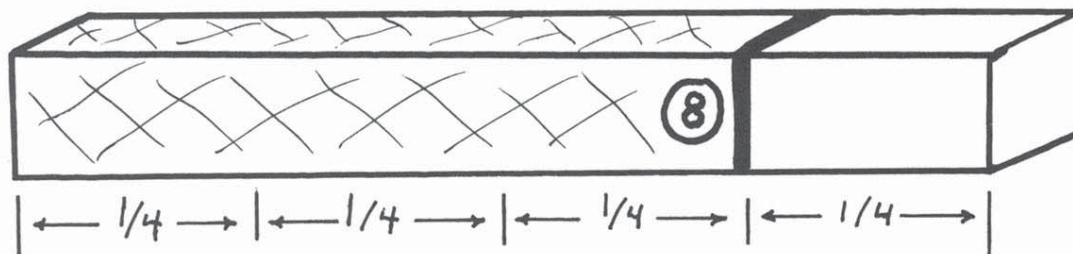


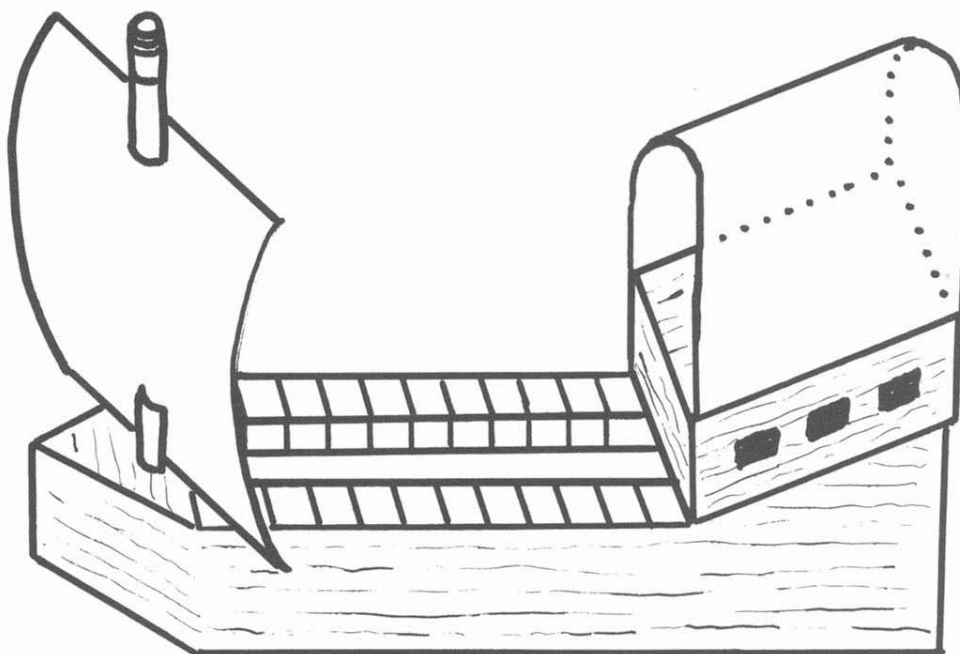
DIAGRAM C - Box top



JUNIOR GIRL SCOUT BADGE: Lewis & Clark

10. Now make all the folds in order, A, B, C, and then D. Folds A, B and D are 90 degrees. Fold C is about 45 degrees. Be sure to do both sides of the shoebox. You will have to trim off the extra material to have the bow look proper - pointed at the front and square at the back. See Diagram A.
11. Use the tape to hold the pieces in place.
12. Now take the top. Divide it into quarters. Cut one quarter section. This will serve as the top for the cabin. It will slide on the cabin end of the shoebox. The end of the top piece you just cut will cover the open inside of the cabin. Tape or glue the piece in place. See Diagram C, #8.
13. Paint or color the keelboat brown, tan or gray. You may want to paint or color thin black or brown lines on the boat to make it look like wooden boards. You can also paint windows on the cabin as shown below. See Diagram D.
14. Use the pencil to put a hole in the top of the bow. Use the pencil or dowel rod to serve as a mast. Use one piece of white paper for the sail. Put two holes near each end of the paper and slide it on the mast. See diagram D. You may have to tape the mast to the bottom to hold it straight up.
15. Using the second piece of paper, cut it lengthwise to be as wide as the cabin. Glue or tape the paper to form a cover for the top of the cabin area. See Diagram D.

DIAGRAM D

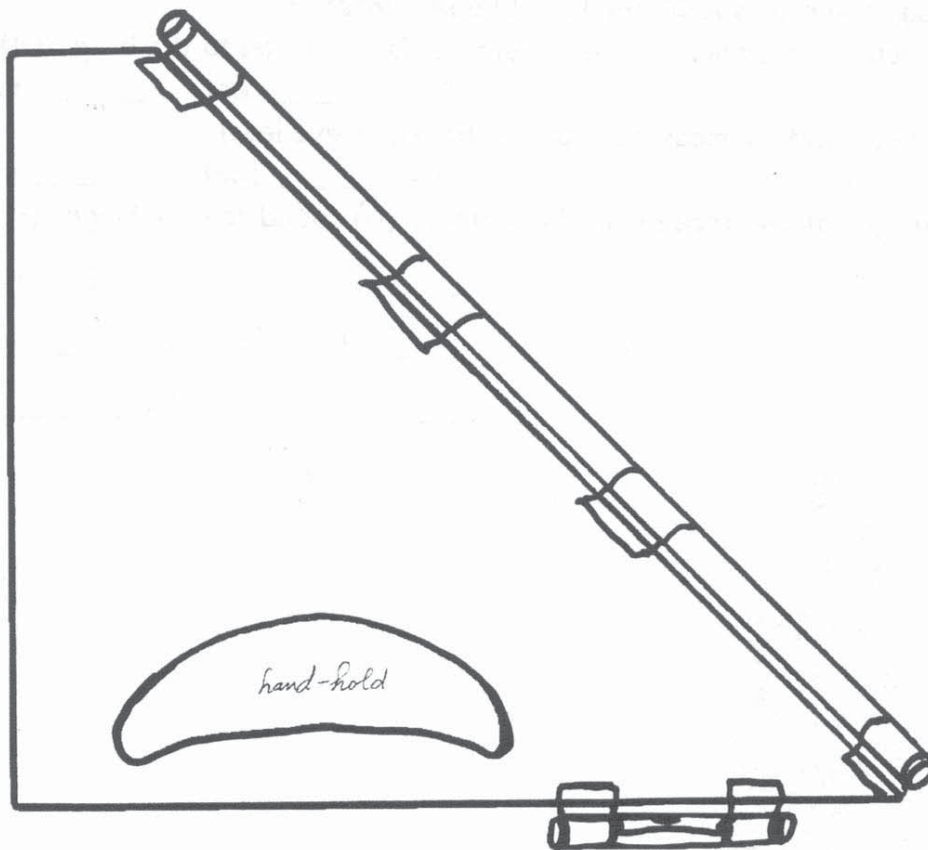


JUNIOR GIRL SCOUT BADGE: Lewis & Clark

Make a Tangent Height Guide

Materials: cardboard or foamcore drinking straw
scissors adhesive tape
pencil small bubble level

Pattern:



1. Draw the outline on the cardboard or foamcore.
2. Cut out the guide. Cut out the hand-hold.
3. Tape straw to the sloping side.
4. Tape level to the long flat side which also has the hand-hold in it.

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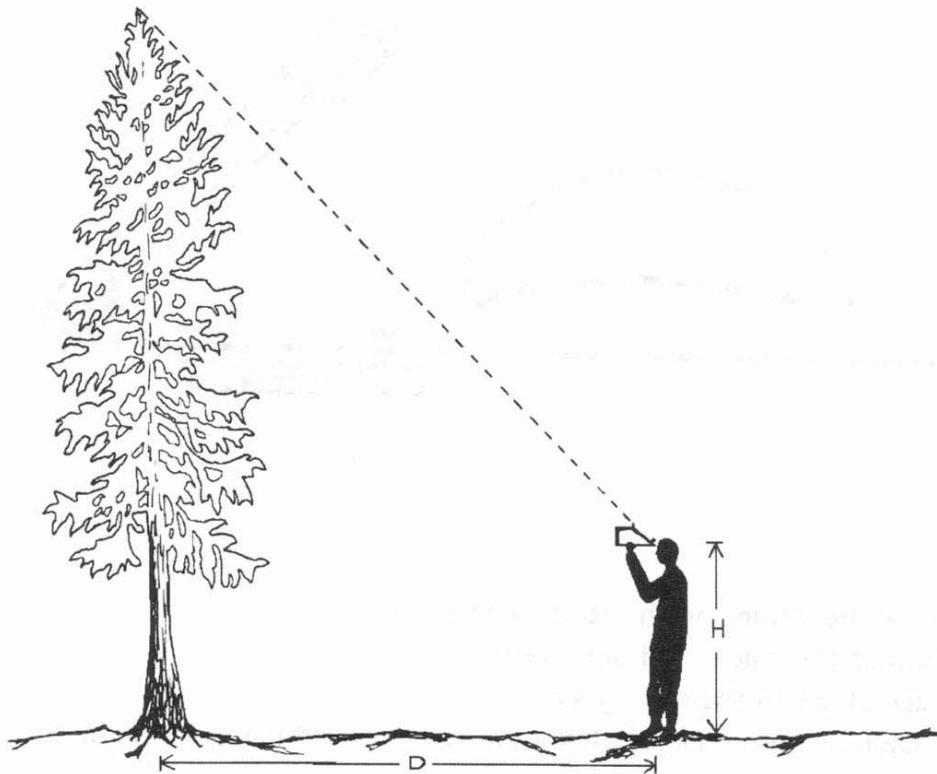
JUNIOR GIRL SCOUT BADGE: Lewis & Clark

Measuring Trees: The Tangent Height Guide Method

Name: _____ Date: _____

1. Look at the top of the tree through the sights on the gauge. Have your partner help you keep the gauge level bubble centered.
2. Move forward or backward until you can keep the top of the tree visible through the sights AND the level bubble centered.
3. Have your partner measure the distance (D) from you to the base of the tree.
D = _____ feet _____ meters
4. Have your partner measure your height (H) to eye level.
H = _____ feet _____ meters
5. The height of the tree (T) is the distance (D) added to your height (H).

$$\begin{array}{rcl} & \text{_____} & D \\ + & \text{_____} & H \\ & \text{_____} & T \end{array} \quad \text{OR} \quad \begin{array}{l} T = D + H \\ T = \text{_____} + \text{_____} \\ T = \text{_____} \end{array}$$



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JUNIOR GIRL SCOUT BADGE: Lewis & Clark

Measuring Trees: The Shadow Method

Name: _____ Date: _____

Finding tree height by proportion:

1. YOU WILL NEED A TREE IN AN OPEN PLACE AND A SUNNY DAY.
2. Measure your partner's height and the length of their shadow using a measuring tape. Record the numbers below.
3. Measure the length of your tree's shadow as soon as you can after measuring your partner's shadow (why is this important?). Record the number below.
4. Calculate your tree's height in both feet and meters (1 meter = 3.3 ft) using the ratio:

$$\frac{\text{tree height}}{\text{tree shadow}} = \frac{\text{student height}}{\text{student shadow}}$$

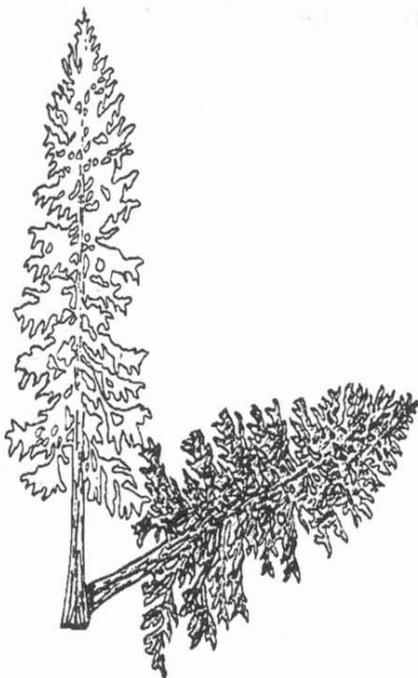
$$\text{tree height} = \frac{\text{tree shadow} \times \text{student height}}{\text{student shadow}}$$

Partner's Height: _____ feet _____ meters

Partner's Shadow: _____ feet _____ meters

Tree Height: _____ feet _____ meters

Tree Shadow: _____ feet _____ meters



The lengths of two shadows and the height of the objects making the shadows will always be in equal proportion. Each object forms a triangle with its shadow. The triangles formed by other objects and their shadows will be similar. The unknown height of your tree can be determined using this information because the matching sides of similar triangles always have equal ratios.

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JUNIOR GIRL SCOUT BADGE: Lewis & Clark

Background:

Lewis and Clark Exploring New Frontiers

The Lewis and Clark Expedition had the distinction of being the first military and scientific exploration sponsored by the United States government. It inaugurated a tradition of exploration and discovery that continues today with the National Aeronautic and Space Administration's (NASA) space program and the Ocean Exploration program led by the National Oceanic and Atmospheric Administration (NOAA).

Lewis and Clark in Space

In the 1990s, NASA launched two special Landsat earth-scanning satellites designed to enable scientists to monitor climatic, geographic and vegetation conditions for its Mission to Planet Earth program. The satellites were named Lewis and Clark in honor of the famous explorers. The Clark satellite was designed to orbit the Earth at an altitude of 285 miles making geographic observations of urban areas to assist planners in protecting open spaces and making decisions concerning potential construction sites and transportation routes. The Lewis satellite was launched to orbit at 314 miles above the Earth and map biological and geological features such as vegetation, minerals and coastal erosion. Tragically and ironically, the Lewis satellite lost power just four days after its launch on August 22, 1997 and self-destructed within a month. Had Lewis and Clark the opportunity to view aerial photographs of North America transmitted by these orbiting satellites they would probably have marveled at the geographically and biologically diverse western continent. They could have immediately seen that there was no easily navigable water route across North America and radioed President Jefferson that the rugged ranges of the Rocky Mountains presented a formidable barrier between the Missouri and Columbia River headwaters. The fabled Northwest Passage did not exist within the latitudes of the Rockies.

Lewis and Clark Beneath the Sea

NOAA has initiated an ocean exploration effort scientists hope will excite the public in the same manner as NASA's space exploration. In 2001 the Ocean Exploration program launched the Lewis and Clark Legacy expedition, a research effort to gain knowledge about the ocean's biologically rich ecosystems and its role in Earth's climate processes. An exploration into the Astoria Canyon, the submarine western end of the Columbia River, examined the chasm's geology, biology and chemistry. The program's interdisciplinary research team studied the canyon's

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JUNIOR GIRL SCOUT BADGE: Lewis & Clark

currents, faults, landslides and inhabitants. Although a one-week cruise explored less than 1 percent of the canyon, scientists were able to see a representative sample of its biological communities and geological features.

Under Thomas Jefferson's direction, Lewis and Clark strove to gain a greater vantage point of the world. Today's technology allows us to view the Earth from a yet greater vantage point and gain a higher appreciation for its amazing geographic and biological diversity. Our challenge is to use the vision we have gained to become good stewards of this small, beautiful planet capable of sustaining so much life.

Sacajawea in space

Clark rose early on the morning of August 27, 1804 to see, *"This morning the Star Calid [the planet Venus]. The morning Star much larger than Common."* Today on a volcanic plateau on the surface of Venus, a crater bears the name "Sacajawea," commemorating the young Shoshone woman who, with her infant son, accompanied her husband on the Lewis and Clark Expedition from the Mandan villages to the Pacific and back again. The planet Venus is named for the Roman goddess of beauty and love. The International Astronomical Union of Paris, France, has given the features on Venus names of famous women. "Sacajawea" shares this distinction with Helen of Troy, Cleopatra, Florence Nightingale and many others.

Useful Resources:

Cavan, Seamus. *Lewis and Clark and the Route to the Pacific*. New York: Chelsea House Publishers, 1991.

Cutright, Paul R. "Contributions of Philadelphia to Lewis and Clark History." *We Proceeded On*, Supplementary Publication 6. Great Falls: Lewis and Clark Trail Heritage Foundation, Inc., July 1982.

Greene, John C. *American Science in the Age of Jefferson*. Ames: Iowa State University Press, 1984.

Ronda, James R., ed. *Thomas Jefferson and the Changing West*. St. Louis: Missouri Historical Society Press, 1998.

Useful Website:

National Aeronautics and Space Administration

www.nasa.gov

National Oceanic and Atmospheric Administration

www.nwr.noaa.gov

JUNIOR GIRL SCOUT BADGE: Lewis & Clark

Procedure:

1. Ask students to give several examples of place names in your local area that honor or commemorate people. Why were these people and features selected?
2. Have students brainstorm a set of criteria they would use to name space missions or celestial features to commemorate someone. Write these criteria on the board and have students include them in their journals.

Assessment:

1. In a creative writing assignment, ask students to project forward 200 years and imagine the Lewis and Clark Expedition into the 23rd century.
 - a. You are in command of the first manned flight to land on and explore Mars. Based on the precedent set by the Lewis and Clark Expedition 200 years ago, plan and write your mission profile.
 - b. Name your flight crew and exploration team. Who will join you on your mission and what skills will they possess necessary to the success this flight?
 - c. What are the names of your space craft and your landing craft?
 - d. Name and describe your landing site on Mars. Describe several of the prominent land features in the area.
 - e. What type of survival and scientific equipment will your team need to investigate the planet's surface?
 - f. What kinds of maps and navigation methods will your team need to explore the surface?
 - g. What kinds of samples will you collect and how will you prepare and preserve them in order to bring them safely back to Earth?
 - h. How will you document your team's activities and the sites they investigate?
 - i. Did you find any signs of life (even microscopic)? If so, describe life on Mars.
 - j. Why is your mission important?
 - k. What are the similarities and differences between your mission and the Lewis and Clark Expedition?

JUNIOR GIRL SCOUT BADGE: Lewis & Clark

Shooting the Stars: How to Make and Use an Octant

Name: _____ Date: _____

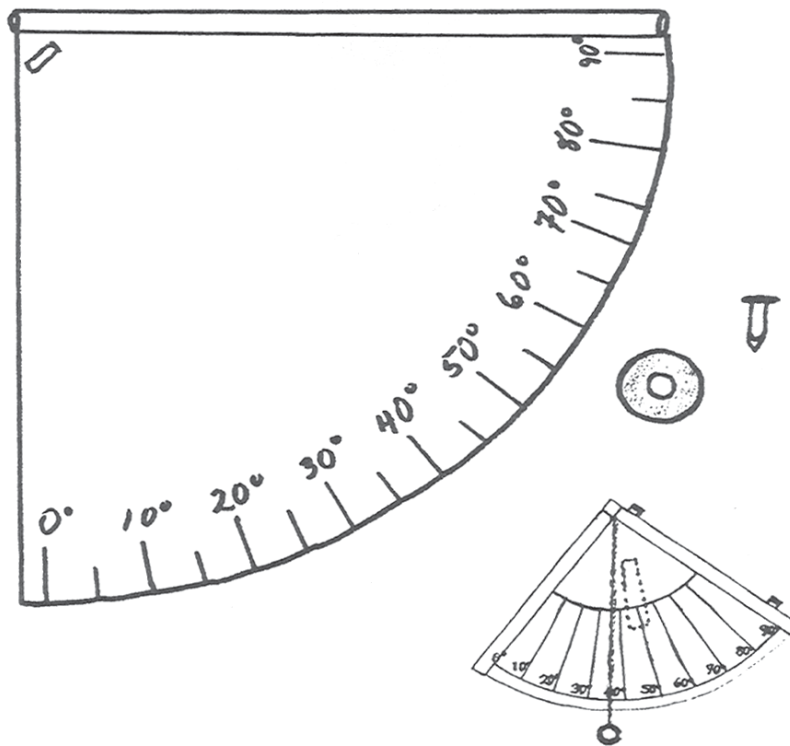
Materials:

poster board
brass paper brad
string

drinking straw
metal washer
adhesive tape

Method:

1. Using the pattern below, cut out the "octant" shape. With adhesive tape, attach the drinking straw to one of the straight sides. Mark the calibration as shown in the pattern.
2. Tie one end of the piece of string to the paper brad and secure it in the slot in the right angle corner of the "octant." Tie the metal washer to the other end of the string to serve as a weight to hold the string taut.



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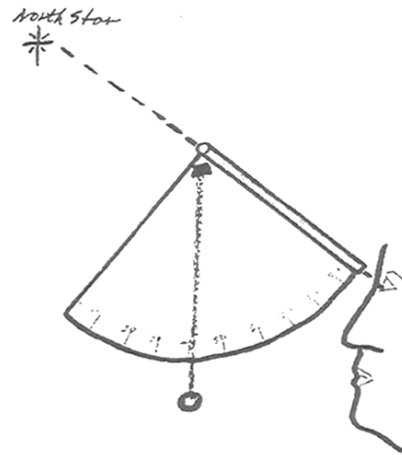
JUNIOR GIRL SCOUT BADGE: Lewis & Clark

Shooting the Stars: How to Make and Use a Octant

pg. 2

Establishing Latitude:

1. Go outside on a clear night and face north. Find the North Star. At eye-level, point the straw toward it. Look through the straw to sight the North Star.



CAUTION:

Be sure students take sightings only at night using the stars. Any viewing of the sun will cause serious eye injury.

2. You are now "shooting the stars." Let the weighted string hang freely from the tack on your instrument.
3. Have your partner read the number closest to the string. This number is your approximate degree of latitude.

What is your approximate latitude? _____

4. Is your finding close to your latitude as shown on a U.S. Geological Survey map for your area?

Establishing longitude is harder to do. Finding your longitude requires tracking the moon's movement in relation to certain fixed stars. Several steps are involved: locating the known stars, noting the exact time of each location reading, and consulting navigational tables to find the corresponding longitude or using a long and complicated mathematical formula.

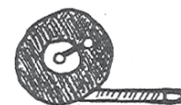
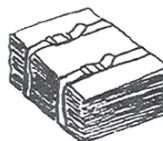
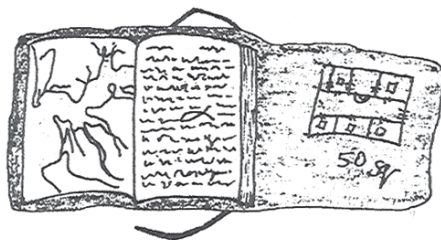
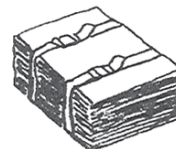
L & C: Scientific Discoveries ... 1.24

JUNIOR GIRL SCOUT BADGE: Lewis & Clark

In the Field: Then and Now: Match Sheet

(Items shown are not to scale)

Name: _____ Date: _____



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JUNIOR GIRL SCOUT BADGE: Lewis & Clark

Field Observations

Observer: _____

Date: _____ Time: _____ Season: _____

Location: _____

Habitat(s): _____

Weather: _____ Cloud Cover: _____

Describe this habitat and the animals, signs of animals, plants and other things you observe.

Field Descriptions

Field Sketches

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JUNIOR GIRL SCOUT BADGE: Lewis & Clark

Field Observations

pg. 2

Conclusions:

1. How many different kinds of animals or signs of animals did you find? Name the animals you saw.

2. How were these animals the same or different from those you have found in other habitats?

3. How many different kinds of plants did you find here? Name the plants you saw.

4. How were the plants the same or different from those you have found in other habitats?

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JUNIOR GIRL SCOUT BADGE



Mount Saint Helens

Mount Saint Helens is the only active volcano in the continental United States. This striking landmark of the Pacific Northwest was changed forever in 1980 when the mountain exploded violently. Learn more about this interesting geological feature by completing this badge.

To earn this Badge, complete at least SIX of the following activities:

1. Draw a timeline to show how Mt. St. Helens “awakened” in 1980. Use diagrams, drawings, articles and photos to illustrate your timeline.
2. What is the relationship between earthquakes, tsunamis and volcanoes? Create a display that will demonstrate the relationship between volcanoes and earthquake activity around the “Ring of Fire.” Be sure to include information about tectonic plates, rift zones, subduction zones and faults.
3. Make a collection of different types of rocks formed by volcanic activity. Label your samples and briefly explain how they were formed.
4. Create a booklet to explain Mt. St. Helens to younger Girl Scouts. Be sure to include how the mountain got its Native American and English names, how often it has erupted, and how a volcano works. Make sure to use diagrams, photos, and drawings to illustrate your booklet.
5. Make an earthquake kit for your home. Be sure to include items that would be needed in case a major earthquake struck your community. Information on earthquake kits is available through the American Red Cross.
6. Create a picture collage of volcanoes using magazines, Internet sources, or newspapers.
7. Take a field trip to at least one of the following sites that you have not visited before:
 - Ape Caves, WA
 - Mt. St. Helens Interpretive Center, WA
 - Coldwater Ridge Interpretive Center, WA
 - Johnston Ridge Interpretive Center, WA
 - Weyerhaeuser Forestry Learning Center, WA
 - Crater Lake and Wizard Island, OR
 - Sediment Retention Dam on the North Fork Toutle River, WA
 - Lava Lands Visitor Center, OR
 - Or another lava field in the Northwest
8. After your trip, discuss with your Girl Scout troop what was your favorite part of the trip, two facts that you didn’t know before you went and anything else that you would like to share.
9. Invite an expert on volcanoes or earthquakes to speak to your Girl Scout troop. Ask the speaker

JUNIOR GIRL SCOUT BADGE: Mt. Saint Helens

to talk about our local geology and how our community is preparing for the next eruption or earthquake.

10. Learn about the emergency broadcast system in your city or town. Then create a mock broadcast about an eruption or earthquake in the Pacific Northwest. Include information about what happened, and how people need to handle the situation to make sure they are safe.
11. Interview a family member or friend that has been through a natural disaster such as an earthquake, eruption, tornado etc. Try to video or audiotape a copy of this interview to share with others.
12. Make up a song for younger girls outlining the safety tips about what to do during a natural emergency such as an earthquake.
13. Write a story about a girl who found herself caught in an earthquake. Focus on character and plot and illustrate your story. Read this story to a group of younger girls.

JUNIOR GIRL SCOUT BADGE



Oceanography

Oceanography: The science that deals with oceans, the physics and chemistry of their water, marine biology and the uses of the ocean's resources.

To earn this Badge, complete at least SIX of the following activities:

1. Oceanography includes the study of plant and animal life in the oceans, the study of ocean currents and many other things. Make a display of or list the different things that oceanographers study.
2. Explore and experiment with the way water carries things, like sand grains, and what happens to them when they are left behind. Do at least **one** of the following activities:
 - a) Shake up a jar of water with some sand, gravel, silt, small shells, and/or clay. Observe which things settle first and how the layers of sediment form. Why do you think this happens?
 - b) Make a long trench using wood or metal and plastic. Place some gravel, sand, silt, small shells, and pieces of wood at one end. Use a hose to simulate a stream. Does the speed of the water affect the amount and size of material carried by the water? Try raising one end. Does this affect what is carried by the water? What about the amount of water? Try pushing the material up a slope using water, the way oceans do. What do you observe?
 - c) Most ocean water is not perfectly clear. Find out what causes cloudiness in water. You may need to use a filter, plankton net, magnifying glass or even a microscope.
3. Visit the Coast. Look closely along the shoreline for debris such as shells, pebbles, plants, bottles, beach glass (pieces of glass that have been polished smooth by the sea), and decaying matter. Where did these things come from? How did they get there and what is likely to happen to them? What are *flotsam* and *jetsam*? Investigate how pollution is affecting a bay or the ocean. What are the long and short-term effects of this pollution? Participate in or organize a beach or river clean-up. (Follow *Safety-Wise* activity considerations.)
4. Do **one** of the following:
 - a) Learn about and describe ocean waves. Where do waves get their energy? What accounts for the different types of waves? How do different kinds of waves affect the coastline? What accounts for the different kinds of beaches (rocky coasts, tide pools, sand dunes, for example)? Draw pictures or make a display to show what you have learned.

-or-

 - b) Observe waves in motion. If you cannot go to really see the following structures, make a model of a beach to help you discover what effect waves have on the shoreline. Observe how the effects of waves on the shoreline may be altered by a jetty (a wall that is built out into a body of water), a groin (a short wall built at right angles to the shore to trap moving sand), or a breakwater (a structure protecting the shore from breaking waves). Observe the changes in the behavior of the waves.
5. Do **one** of the following:
 - a) Phytoplankton and zooplankton are microscopic plants and animals. They are eaten by a great many larger animals. Make a food chain illustrating the importance of plankton to sea life. Expand it into a food web that includes examples of both sea and land creatures.

-or-

 - b) Make a plankton net. Tow the net from a dock, wade with it, hold it in a current, or tow it behind a boat for about twenty minutes. (Follow *Safety-Wise* activity considerations.) Examine what you have caught under a microscope or high-powered magnifying glass. Identify and draw the three most common types of plankton in the sample.

JUNIOR GIRL SCOUT BADGE: Oceanography

6. Do **one** of the following:
 - a) Explore plant and animal life along the shores and mudflats of a coastal shoreline. Learn how the estuarine ecosystem supports the abundant life found here. Collect and observe a ghost shrimp and a shore crab. List 3 unique characteristics of the estuary.
-or-
 - b) Travel to a sandy coast beach to discover the plants and animals that live there. Investigate where you would find at least 2 different types of organisms that inhabit that inhabit the sand. (Examples include razor clams, sand crabs, amphipods, isopods, mysids and blood worms.)
-or-
 - c) Prepare a display, talk or activity that talks about at least 2 hazards that exist on the coast. Describe what you would do to avoid and/or react to these hazards. Examples of natural hazards that pose a threat on the coast include sneaker waves, earthquakes, tsunamis, and coastal landslides.
7. Do **one** of the following:
 - a) Measure and record the water temperature one-foot below the surface of a body of water three or four times daily, at the same time each day, for six consecutive days. Measure and record the air temperature at the same times. Record the cloud cover and roughness of the water surface. Show your findings on a graph. How does water temperature change with respect to air temperature? What other conclusions can you draw?
-or-
 - b) Make a tide stick. Take a four-foot stick and mark it every six inches. Push it into sand in shallow water and record where the water level is. Check every half-hour to see how the depth has changed. Chart or graph your results. Learn how to read a tide chart. Find out what the tides are for a particular beach for a week.
8. Make a list of some of the endangered species that live in or depend heavily upon the ocean. Research at least one of these species, and include a drawing or picture, a description, why it is endangered, and what, if anything, is being done to protect the species and its habitat.
9. Do **one** of the following:
 - Visit the Oregon State University Hatfield Marine Science Visitor Center, located in Newport, Oregon.
 - Visit the Oregon Coast Aquarium in Newport, Oregon.
 - Visit a tide pool.
10. Do **one** of the following:
 - a) Make a list of careers that relate to oceanography. Learn about the different types of training or education needed to do these jobs.
-or-
 - b) Arrange to meet a professional in the field of oceanography. Meet with this person at his or her place of employment, or have the person come to a troop meeting.
-or-
 - c) Research a scientist who has made an important contribution in the field of oceanography. Interview the scientist in person or by phone, letter, or e-mail, if possible.
11. Hike a mile on the Oregon Coast Trail and observe how the coastline changes in different areas.

JUNIOR GIRL SCOUT BADGE



Oregon Trail

The Oregon Trail was one of the main overland migration routes in the United States of America, leading from locations on the Missouri River to the Oregon Territory. Between 1841 and 1869, the Oregon Trail was used by settlers, ranchers, farmers, miners and business men migrating to the Pacific Northwest. This patch is designed to help girls understand and appreciate the history of the Oregon Trail and the pioneers that travelled it.

To complete this Badge, complete SIX of the following activities:

1. Build a toy that may have been played with by a pioneer child.
2. Make some food dishes that pioneers would have eaten on the trail.
3. Try your hand at a skill the early settler women may have had to know about (i.e. spinning, weaving, quilting, soap making, making candles, hand sewing, etc.) or attend a presentation offered by a local guild in one of these areas. Check your local newspaper for these events. These could include a quilt show, Mission Mills' annual Sheep to Shawl event in Salem or a spinning or weaving guild display.
4. Visit a historical site or museum on the Oregon Trail, such as:
 - The end of the Oregon Trail Interpretive Center
 - Fort Vancouver
 - Oregon City
 - Whitman Mission
 - High Desert Museum
 - Oregon Trail Interpretive Center
5. Trace your family tree. With your parent's help, trace back your family 4 generations - you, your parents, your grandparents, and you great grandparents. Find out when your family came to the Pacific Northwest.
6. Find out about the Native Americans that inhabited the area before the pioneers settled. Were they nomads? What did their homes look like? What did they eat? Attend a Pow Wow and practice a Native American craft or game.
7. Read a book or story about pioneer life. Would you have liked to live during that time period? Write down your thoughts. What things were different? What kinds of chores were the children expected to do?
8. Take a field trip and follow part of the Oregon Trail. There are places not far from the Willamette Valley where the actual ruts from wagons are visible.
9. What kinds of work did the pioneers do before they came and after they got here? Was it the same or different? Can you identify what kind of work all of these people did?

Farrier	Copper	Mercantile	Seamstress	Wrangler
Blacksmith	Cobbler	Apothecary	Wagon Master	Midwife
Tin Smith	Haberdasher	Milliner	Tailor	Cow Poke

JUNIOR GIRL SCOUT BADGE: Oregon Trail

10. What might a trip to the doctor have been like? What kinds of medicines were used? How has medicine changed?

Resources

National Park Service Oregon Trail website: <http://www.nps.gov/oreg/index.htm>

Bureau of Land Management – Oregon Trail Interpretive Center website: <http://www.blm.gov/or/oregontrail/>

JUNIOR GIRL SCOUT BADGE



Rose Festival

To earn this Badge, complete at least SIX of the following activities:

1. Design a float for your community. Decide what the approximate cost might be. What kinds of materials would be used to decorate the float? Decide what jobs are necessary for the completion of the float and who you would need to employ to complete the jobs.
2. Learn about a career associated with float decorating such as florists, builders, artists, designers, and float production company owners.
3. Learn about materials used to decorate a Rose Parade Float. Where are the materials bought, where are they grown and what kinds of dry or fresh materials are used for decorating the float?
4. Volunteer at the "Make the Town Clean" event with your troop. This is a SOLV sponsored event where volunteers are assigned to specific sites to collect litter off street corners, sidewalks, bus stops and common areas. For more information or to register, contact your local SOLV office.
5. Talk with a float builder about the mechanics of a float, how the float moves, and how animation is achieved.
6. Attend the Portland Rose Society Annual Spring Rose Show presented during the Rose Festival or another local rose show. Learn about different types of roses and how to grow them.
7. Visit the Qwest Dex Showcase of Floats after the Rose Parade to view the floats. List as many different kinds of flowers and natural products were used to decorate these floats as you can.
8. Attend the Dragon Boat Races held during the Rose Festival. Learn about the boats themselves and about the people who race them.
9. Go to **www.rosefestival.org** to learn about the history of the Rose Parade or look through books or newspaper articles from past years.

Resources:

Rose Festival Website: <http://www.rosefestival.org>

JUNIOR GIRL SCOUT BADGE



Girl Scouts®



Society of Women Engineers

An engineer is someone who uses scientific knowledge to solve problems. There are many types of engineers: Civil Engineers, Electrical Engineers, Environmental Engineers, and Mechanical Engineers are just a few. The different types of Engineers do different things; here is a list of some of the things engineers do:

- *Civil Engineers: design bridges, roads, water systems*
- *Electrical Engineers: design electrical power systems, parts of computers*
- *Environmental Engineers: solve water and air pollution problems*
- *Mechanical Engineers: design cars or other moving machines*
- *Electrical Engineers: design electrical power systems, parts of computers*

To earn this Badge complete at least SIX of the following activities.

1. Create a new design or design modification. The design can be as simple as a new paper clip or another unique solution to a problem in your life. Make the drawing to scale. You can use diagrams, drawings, articles and photos to illustrate your design.
2. Learn what makes a circuit work using a simple flashlight. **Directions:** You should have a flashlight and some wire in front of you. Take the flashlight apart and try to make the lamp (mini-light bulb) light with a battery and a wire. This is called a simple circuit.

Symbols



Battery



Lamp

Wire

Draw a diagram of the circuit to show how you made the bulb light. Use the symbols above.

What additional features do you think would make a flashlight better or more useful? What would this flashlight look like? (Draw a sketch.)

3. Create a booklet to explain the light bulb circuit to younger Girl Scouts. Be sure to include how the electricity moves through the wires and needs a complete circuit to work. Make sure to use diagrams, photos, and drawings to illustrate your booklet.
4. Make a rolling toy using any or all of the materials listed. The toy must travel 3-5 feet (1-1.5 meters) on its own power. (It does not need to go in a straight line.) [Leaders: go to <http://www.intel.com/education/design/session05/activity1.htm> to view a video of the solution.]

If you get stuck along the way, here are some hints:

- Consider a wind-up toy. How does it work?
- Wind-up toys convert potential energy into kinetic energy as they unwind.
- How is the energy stored and released? (Often this is a spring.)
- What could be used instead of springs to store and release energy?

Supplies: One "Rolling Kit" per girl.

- 1 film canister with lid, with holes drilled (or punched) in each end
- 2 size #30 or #31 rubber bands (dimensions 2.5" x 1/8" x 1/36" [6.5 cm x 3 mm x 0.7 mm], #31 is slightly heavier)
- 2 washers (either 1/2" or 3/4" [1.25 cm or 2 cm] outside diameter)
- 1 piece of thick drinking straw the length of the canister

5. Job shadow an engineer for a day. Give a presentation to your Girl Scout troop on what you learned. Call the Society of Women Engineers to get a woman engineer to volunteer to sponsor you at her workplace. Write up what you learned.

JUNIOR GIRL SCOUT BADGE: Society of Women Engineers

6. Create a picture collage of examples of projects, buildings, bridges, electronics, environmental clean-up solutions that have been engineered using magazines, Internet sources, or newspapers.
7. Machines make work easier. The items listed below are examples of simple machines. Combinations of these simple machines are used together to make more complicated machines. Look up three of these simple machines in the encyclopedia. Find examples of three of the six simple machines listed. Look in your home, school, car or even toy chest. Document where you found them with a photo, drawing or list.

Pulley	Inclined Plane	Wheel
Lever	Screw	Wedge

Do a simple machines scavenger hunt movie night. Watch one of the following movies and find at least one example of each. Movies with lots of simple machines include Chicken Run, Chitty Chitty Bang Bang, Willy Wonka and the Chocolate Factory, Star Wars (any), and October Sky.

8. Take a field trip to at least one of the following sites that you have not visited before:
 - Ride the MAX or Portland Streetcar and write down issues that the engineers needed to address in the design such as cross walks, safe intersections, wheel chair access, etc.
 - Visit the Evergreen Aviation Museum. Find out what engineering challenges were met in transporting the Spruce Goose to the museum.
 - Visit the Oregon Museum of Science and Industry. Set up a meeting with staff and ask them how they design their new exhibit space for each new exhibit. Ask to see their drawings of the exhibit space for their next exhibit or the existing exhibit.
 - Tour your local Drinking Water Treatment Plant or Wastewater Treatment Plant that serves your area and write down how the water is cleaned.
 - Visit Bonneville Dam. Find out how the dam was built and how electricity is generated. How does the dam accommodate river traffic and fish migration? What sort of engineers work at the dam today?

After your trip, discuss with your Girl Scout troop what was your favorite part of the trip, two facts that you didn't know before you went and anything else that you would like to share.

9. Invite an expert on an engineering topic of your choice to speak to your Girl Scout troop. Ask the speaker to talk about a project they are working on and the design process they are using.
10. Interview a family member or friend that is an engineer. Try to video or audio tape a copy of this interview to share with others.
11. Make up a song for younger girls about one of your favorite things that you use every day and what type of engineers have designed it. Research the different types of engineering.
12. Engineers evaluate different materials for their properties. Materials are chosen for their rigidity, elasticity, resilience and other properties. Design a bungee jump for an egg (your crash test dummy) so that the egg stops within 2 inches of the floor when dropped from 5 feet. Gather nylon stockings, balloons, rubber bands, yarn and other items that could be used to create your bungee cord. Test how elastic the materials are. Make a test egg: fill a balloon with pennies, gravel or sand until it weighs about the same as your egg. Test your bungee design with the test egg. Measure how close the test egg comes to the ground. Evaluate your design. What changes can you make to improve your bungee design? When you're confident in your design, try with a real egg? Did your egg survive the jump? What other materials could you use to make it safer for the egg?

JUNIOR GIRL SCOUT BADGE



Zoological

To earn this Badge, complete at least SIX of the following activities:

1. Interview a volunteer or staff member from a wildlife center such as the Oregon Zoo, the High Desert Museums, or Wildlife Safari. Find out about the job they do at their business.
2. Find out about the history of zoos. Create a timeline that explains this information; add pictures or drawings to make it fun.
3. What four basics do all birds need to survive? Build a bird feeder, birdhouse or birdbath for your backyard. Make sure that the birdhouse is the right dimensions for local birds.
4. Visit a wildlife center such as the Oregon Zoo, the High Desert Museum or Wildlife Safari. See how many animals at that center naturally live in Oregon or the Northwest. In what types of areas would you most likely find them? For example: forests, ponds, deserts, etc.
5. Find six endangered animals at the Oregon Zoo and find out why they are endangered. Learn what can be done to prevent them from being endangered.
6. Log onto **www.oregonzoo.org** and explore the zoo cam!
7. Learn about the recycling program at the Oregon Zoo from a volunteer, staff member or books and pamphlets. During your trip practice conservation to help preserve the world
8. Do a photo scavenger hunt at the Oregon Zoo with your Girl Scout troop or a friend! Find a mammal, an amphibian, a reptile, a bird, an insect and a fish. Identify three species native to the Pacific Northwest and three species not native to the Pacific Northwest. Find and photograph animals from each of the seven continents. Place all your photos on a map indicating where each animal is found.

GIRL SCOUT INTEREST PROJECT



Girl Scouts®



Forestry Fun

This badge design is a Douglas Fir. It is a large conifer 100-250 feet tall predominant in western Oregon and common east of the Cascades, especially at mid-to-high elevations. Common uses are: structural products such as lumber, beams, trusses and flooring, plus veneer, plywood, paper pulp and some chemicals.

To complete this Interest Project, complete SEVEN activities. Must include two skill builders, four activities from any section and one SMART goal you develop and complete.

Humans have always depended upon forests. Forests have provided food, fuel, shelter, and many other resources. They have been worshipped, feared, bought and sold, protected, destroyed, and restored. Forested lands are deeply woven into our myths and legends, music, literature and art. Without forest, our existence would be far less rich. In fact, without forest, we would find it difficult to survive at all.

Today, the forests of the world continue to be among the most interesting and important natural resources on the planet. Nearly 30 percent of the world's land is forested, and a third of the acreage of North America is covered with forests. These great stands of vegetation shield Earth from the forces of wind, rain, and sunlight. They slow erosion, enrich the soil, protect bodies of water, and provide shelter for wildlife. Forests are home to plant and animal species that, in many cases, we have yet to fully understand.

You might not spend much time thinking about the products that come from forest, but they are vital to our way of life. Your home probably has lumber in it that was milled from trees harvested right here in Oregon. Much of the furniture in your house is made of wood, and so is the paper used to print this packet. Many foods and prescriptions drugs have forest origins. If you wrote down all the forest products you use, the list would be very long.

Forests provide jobs, too. Some people manage timberlands and harvest trees and other forest resources. The wood-products industry is a key industry in Oregon. The outdoor recreation industry creates many jobs as well.

With so many pressures upon forests, we have the responsibility to be good stewards to ensure that forests are healthy today and that we can pass them on to future generations in as good or better condition that we found them. This is the goal of modern forestry. To accomplish it, we need to understand as much as we can about forests and how to use and enjoy them without causing harm.

Many of the interest project requirements listed below can be completed by visiting one of the locations listed in the publication Opportunities for Rediscovering Oregon's Forests (available 1 per troop while supplies last) or you can order additional copies free of charge from www.oregonforests.org and *Teacher's Guide to Forest Education Opportunities.

Resources shown with an * are available for free at www.oregonforests.org; or 1-800-719-9195.

GIRL SCOUT INTEREST PROJECT: Forestry Fun

Skill Builders

1. Most trees in Oregon are classified in the Coniferous or Broadleaf Deciduous families. Coniferous trees have cones, needles and are evergreen. Broadleaf deciduous trees have flowers, leaves and the leaves change color and fall from the tree. Using a dichotomous key, identify five Coniferous and five Broadleaf deciduous trees. If possible, collect samples and keep them in a field notebook.

Broadleaf Evergreen is another tree family. Madrone, Holly and Myrtlewood are three Broadleaf Evergreens that grow in Oregon. Find a sample to include in your field notebook or look up on the internet.

Resource: Online tree guide – <http://oregonstate.edu/tree/index.html> or use a Pacific Northwest Tree Guide.

2. Trees are living systems. What do trees need to live and how do they grow? How do trees get food and water? Learn about the different tree parts (roots, outer bark, phloem, cambium, sapwood and heartwood). In your field notebook, draw a cross section of a tree and mark the location of each part.

Resource: Project Learning Tree Environmental Education Activity Guide, activity 41, or www.arborday.org/trees.

3. How has the suppression of fire affected Oregon's forests? What have we learned and how are we managing our forests now to reduce the impact of fires on our forest land.

Resources: Forest Fact Book –at www.oregonforests.org/factbook; * Severe Fires: What Can Be Done About Them?

4. Insects and disease can destroy a forest. Learn about a forest or tree that has been harmed by an insect or disease. Describe what happened, why and what can be done to prevent further harm.

Resource: Project Learning Tree Environmental Education Activity Guide, pages 63-64; or visit the Forest Health Protection Pacific NW Region USDA Forest Service website at www.fs.fed.us/r6/nr.

5. Why do the different animals in Oregon's forests choose to live where they do?

6. In 1971, Oregon became the first state to enact laws governing the practice of forestry. The Oregon Forest Practices Act (OFPA) sets standards for any harvesting of trees and most forest-related management operations on Oregon forestland both private and public. Why did Oregon develop the OFPA? What resources are being protected by this law?

Resources: Forest Fact Book – online at www.oregonforests.org/factbook;

* Protecting Oregon's Forests and * Oregon's Forest Protection Laws.

7. Learn about the different forest types in Oregon. What kind of trees grow in each forest type? What forest type do you live near?

Resource: Forest Fact Book – online at www.oregonforests.org/factbook.

8. With a knowledgeable individual, visit a public or private forest. How is the forest being managed?

GIRL SCOUT INTEREST PROJECT: Forestry Fun

Has the timber been harvested? What harvest method was used and why? What kind of trees were replanted and why?

Other Activities

1. Products are derived from all parts of a tree. We use over 5000 products a day that are made with wood or wood byproducts. Wood is the most obvious. It provides things such as lumber for housing, furniture, doors, floors and much more. Learn about the many ingredients we get from trees and how they are used to make a multitude of products from adhesives to wood stains.

Resources: Project Learning Tree Environmental Education Activity Guide, activity 13; Forest Fact Book – online at www.oregonforests.org/factbook; Chemicals and Products from Trees (included in this packet or www.idahoforests.org/plans.htm).

2. Laser technology is providing foresters with new tools to do their job faster and more accurate. Visit their website www.lasertech.com/innovate and learn about what new technology is available.
3. Like most scientists, the people who study forest ecosystems rely on scientific equipment to make meaningful measurements of forest processes. Do a web search, contact a forest scientist or ask a science teacher to help you learn about the types of equipment used to monitor forests.
4. Become involved with a community organization that supports urban or rural forests (nature centers, public parks, arboretums, your local Girl Scouts, etc.). Volunteer to help plant trees or maintain forests during workdays or help with a public event.
5. Offer your services to a troop of younger Girl Scouts. Share your knowledge of forestry while helping them earn their Forestry Fun Try-It or Forestry Fun Badge.
6. Interview by phone, email or in person someone who works in forests. This could be a forest logger, ranger, manager, scientists, etc. Ask him/her about his/her job and the specific duties for which he or she is responsible.
7. Visit the Oregon State University College of Forestry website at www.forestry.oregonstate.edu. Read about the undergraduate majors. Learn about the kind of job opportunities available to graduates.

GIRL SCOUT INTEREST PROJECT



Indians of Western Oregon

The Northwest Coastal Indians lived in what is now Alaska along the Pacific Ocean down the coast to Northern California. This was a rugged strip of land with many small islands, deep inlets, and narrow beaches. The mountains rise to the shore in many places. Thick forests of spruce, cedar, and fir dominate the area supplying and endless supply of wood. Many rivers and streams cross the land. By the 1750's more than 100,000 Indians lived in this area because it was richer in natural resources than any other area of North America. This patch is designed to help girls understand and appreciate the rich heritage and culture of Indians of Western Oregon.

To complete this Interest Project, complete SEVEN activities. Must include two skill builders, four activities from any section and one SMART goal you develop and complete.

Skill Builders

1. Prepare a Native American food (fry bread, baked salmon, pemmican). Talk about how the Indians prepared and preserved their food.
2. Make a piece of Native American clothing or regalia for yourself. This could be shawl, wing dress, mask or other item. How has the regalia evolved over the years?
3. Take a nature hike. Identify plants and animals that were used by local Indians. How were they used?
4. Make a Native American craft made by the tribe in Western Oregon. Your leader may have some suggestions and instructions or decide on one of your own.

Other Activities

1. Take a field trip to a museum for a program on local Native Americans or attend a Pow Wow or other Native American celebration.
2. List Indian tribes that lived in your area. What places have Indian names? Can you find out their meaning?
3. Take an imaginary journey into the life of a Native American girl in the Willamette Valley or on the coast 150 years ago. Use skits, posters, or other media to portray a day in her life.
4. Discuss what life is like for Native Americans today. How is it different from your own? How is it similar?
5. Legends and storytelling were important part of Native American life. The stories taught a way of life through oral tradition. Read some Native American legends from Western Oregon. Portray one in skits, pictures, or other media.
6. Find out what events would have been taking place in a teenage Native American girl's life 150 years ago in Western Oregon. How does that differ from yours? What would you like or dislike?
7. Research Tribal restoration. What is it? Why do tribes have to be restored? What tribes have been restored in Oregon? Discuss what this can do for communities.

GIRL SCOUT INTEREST PROJECT: Indians of Western Oregon

8. Learn about the economic system of the tribes in Western Oregon 150 years ago. What did they trade? What currency and language did they use?
9. Find out about the three periods of Native American history in Oregon. What happened to Native American communities after contact with other cultures? How did other cultures' diseases and a forced move to reservations affect Native American culture?

GIRL SCOUT INTEREST PROJECT



Lewis & Clark and the Corps of Discovery

in the years 1803-1805 President Jefferson sent Lewis and Clark to explore the newly acquired Louisiana Purchase and look for the most direct route to the Pacific Ocean. He directed them to keep journals describing the plants and animals they discovered, to map the way and to contact the Indian tribes along the way working out peaceful trade relations. It took discipline, team work and a variety of talents to make this a successful journey.

Much of the exploring you can do about the Lewis and Clark trail can be done on the internet. There are dozens of Lewis and Clark sites and growing, some better than others. Be a safe and responsible web user, always ask for adult supervision when exploring the web.

To complete this Interest Project, complete SEVEN activities. Must include two skill builders, four activities from any section and one SMART goal you develop and complete.

Skill Builders

1. The Corps of Discovery recorded over 300 new species of plants and animals. We have become stewards of the land and creatures described in those journals.
 - Find at least 5 each of plants and animals that are native to the Pacific Northwest.
 - Look at how the ecology of the land has changed or state of the health of a species listed in Lewis's journals.
 - Determine whether any of them appear on the EXTINCT, ENDANGERED, THREATENED, RARE or RECOVERED lists.
 - Learn what is being done to help the species recover.
 - Consider developing a Silver or Gold award project to assist or improve habitat for one of the endangered or threatened species.
 - ~ OR ~
 - Consider what sort of team you would need to put together to explore unknown regions of today's rainforests.
 - What type of specialists would you take along?
 - What equipment would you need?
 - What would your transportation needs be?
 - Put together an exploration proposal encompassing all those details.
 - And how does this all compare to what Lewis and Clark had going for or against them?
 2. The Native American peoples of the region use pictographs in stone and totems on their boats, lodges and villages to tell tales of their family and legends.
 - Learn the "Legend of Multnomah" which can be found on www.lewisandclarktrail.com/section4/orcities/portland/legend/ or find other legends in The Indian Legends of the Pacific Northwest by Ella E. Clark for example.
- OR - Learn about Native American tales and oral histories of the ancient peoples of the Pacific Northwest by reading *She Who Watches* by Willa Homes, Bidford & Mort Publishing, Portland, Oregon. Do you suppose Tsagaglalal is watching over the river and her people today? What do you think she would think of the uses of her river today?
- AND
- Create a display or activity with which you can share what you have learned with others.
 - Explore why/how keeping these tales alive are important to the health of the identity a people have with their own culture or even their own family lineage.
 - Explore why it is important for others to understand the cultural history of those who reside around

GIRL SCOUT INTEREST PROJECT: Lewis & Clark

them.

- Look at folktales from other parts of the world. What sorts of common themes have you found that run through tales from various cultures?
- In what ways do these themes or characters color our lives today? (Advertising, theme parks, architecture, fashion, etc.)

3. The mysterious Sacajawea. (this is the preferred spelling by Sacajawea's descendants, the Lemhi Shosoni). Imagine being a 16 year old woman about to participate in the greatest expedition in man's history. Then read about the contributions Sacajawea made to the expedition, how the Captains empowered her, how she took on responsibilities beyond her original assigned role. What a steadying influence she must of had on the party as she kept her cool in emergencies. I've come to think that the Corps would have been in dire straights more than once if Sacajawea had not been there with her skills and personal strengths.
 - My primary suggested reading on Sacajawea is The Truth About Sacajawea by Kenneth Thomasma. After doing some reading of my own, I agree with him, that his approach is the most factful and indeed interesting of the lot for reasons you will discover for yourself if you take a read.
 - Second suggestion would be Searching for Sacagawea by Margaret Talbot. This looks at the world of writers and photographers as they tell you about the best, worst and quirkiest places and adventures they encountered in the field as they researched this elusive woman.
 - Discuss with others what attributes and strengths Sacajawea exhibited that are also personifications of the ideals you are learning in Girl Scouting.
 - Resources and related links:
 - Check out the National Geographic Magazine website for more information. Or Google Sacagawea at National Geographic Magazine.
 - Check out www.lemhishoshone.com/sacajawea
4. YOU ARE THERE! Was a television program with Walter Cronkite. The premise was to reenact a moment in history and 'insert' a television news reporter at the scene. Pretty inventive! It was very entertaining. Try out your leadership, acting, researching, arts and stage craft skills and produce either a stage play or video using this technique to make a "live report" on a few of the adventures recorded (events noted) in the Lewis and Clark journals. (Perhaps Sacajawea's heroic saving of the journals and other light items which escaped the keelboat when it nearly flipped over...I can see the reporter now...running to her as she drags the bundles to shore...."Sacajawea, tell our viewers, how on Earth did you manage....." or any of the other many exciting events that are recorded in the journals)
5. Think about casting the expedition your self either in the same era or out in the future say the 23rd century exploring an Earth like planet.
 - Explain why you selected the persons (real or characters from your favorite programs or movies) to play the participants. At the very least cast Lewis, Clark, Sacajawea, and any two of the other members of the expedition.
 - Create a movie poster to advertise your movie using pictures from magazines, off the Internet, or your own drawings.
 - Do you think movies are an effective way to communicate facts or are they just for story telling? Can a story be factual and still be entertaining?
6. Read portions of the journals from the expedition. Think about the members of the Corps of Discovery in a different era participating in a similar expedition. Say as astronauts exploring a new world, or aquanauts exploring the ocean floor, getting into similar tight spots. Use your communication skills to write a story, play or your own version of their journals to record their discoveries, trials and successes, keeping in mind the directives given them by President Jefferson.
7. In 1803 President Thomas Jefferson commissioned Meriwether Lewis to lead an expedition to explore and map the uncharted western areas of North America as far as the Pacific Ocean. This expedition embodied a spirit of adventure, curiosity and exploration that is as exciting today as it was 200 years ago. The journey that Lewis and Clark made in the early 1800's would be similar to an "extreme adventure" by today's standards. To capture that spirit use your leadership and planning skills and design your own expedition or

GIRL SCOUT INTEREST PROJECT: Lewis & Clark

“extreme adventure” to an unknown place. Choose a place that you have never visited, but would love to explore. Check out the National Geographic Adventure magazine web site (www.nationalgeographic.com/expeditions/activities). After exploring this site, try to think of an extreme adventure of your own.

- Find a map of your destination that shows the area where you want to go.
- Make a list of what you know about the area.
- Make a list of what you will need to know about the area to prepare for your adventure.
- How will you get there? (What modes of transportation will you need? How much fuel or feed will be required?)
- What will you take? (what equipment will be required? Personal, housekeeping, scientific, etc?)
- Who will go with you? (what sort of folks will you recruit to go with you, what will their assigned tasks be?)
- What arrangements will you make to ensure your safety? (Don't forget to refer to “Safety Wise”) Will you be crossing international borders? What documents might you need to take with you?
- Write a proposal to explain your proposed adventure as though to recruit other Girl Scouts or submit a Wider Ops proposal.
- Compare all this with the planning and procuring of materials Lewis and Clark had to make. How does your list compare to theirs? What do they have in common?

Other Activities

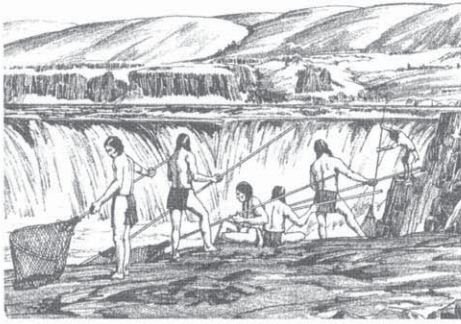
1. Consider the Leave No Trace Ethic (to learn more about it go to www.lnt.org) and apply it to the impact left by the Corps of Discovery. What technologies could you use today to gather the same information and have less of an impact on the lands and creatures encountered by the Corps?
2. Learn about the scientific tools taken on the expedition and what they were used for.
 - What are the modern equivalent tools that would be used on a like journey today?
 - For example Lewis used a feather quill and paper which were stored in a wooded portable lap desk to record his observations (the first laptop?), today you would most likely use a laptop computer with a satellite link.
 - Select one of these tools you have never used before and learn how to use it. Teach another person how to use it.
3. Did you know that Lewis & Clark have been in space and under the sea?
4. In the 1990's NASA launched two special Landsat satellites, one named Lewis, the other Clark.
 - Learn about the missions of these satellites.
 - If Lewis and Clark had access to these tools do you think they would have still looked for the Northwest Passage? Why or why not?
 - In 2001 NOAA initiated an ocean exploration effort called the Lewis and Clark Legacy expedition. Learn about the mission, what were the scientists looking for? What tools did they use? Do you think Lewis and Clark would have been surprised by what their modern counterparts found? Why?
5. Lewis used the technique called dead reckoning to create his maps.
 - Learn about the technique and try creating a simple map.
 - Find out how modern maps are made.
 - If you have access to a GPS try using that to map the area you just mapped by dead reckoning technique. Which is the most accurate?
 - If available, find an aerial or satellite photo of the area you just mapped. How does it compare to your map?
6. Make a timeline for the expedition. Illustrate it with pictures from the Internet or magazines. Share it with a younger troop to get them excited about the Lewis and Clark Expedition.
7. Learn about ecology projects going on in your area and assist in a clean up or stream restoration.
 - Get involved with other SOLV projects year around.
8. Create a show, play or video based on the native legends you learned about or read about Seaman, Lewis's Newfoundland dog and create a puppet show or play for Brownies expanding on the journey from his point of view (he had many “adventures”. Get some ideas by reading “Seaman-The Dog Who Explored the West

GIRL SCOUT INTEREST PROJECT: Lewis & Clark

with Lewis and Clark” by Gail Langer Karwosk, PeachTree Publishing, “The Captain’s Dog: My Journey with the Lewis and Clark Tribe” by Roland Smith, Gulliver Books or “The Dog who Helped Explore America” by R.W. Gustafson.

9. Share your “You Are There” episode with younger girl scouts or a grade or middle school class studying Lewis and Clark. Contact your local grade or middle school principal and ask permission to present the idea to the appropriate teachers.
10. Compile a listing of your favorite web sites and books you discovered during your journey into the story of the expedition. Share this collection with Brownie or Junior Girl Scouts as they work on their own Lewis and Clark Try-it or Badge.
11. Go on line and learn more about modern explorer careers with NOAA and NASA.
12. Lewis had to draw his maps using “dead reckoning”. Learn what tools are used today to map the earth. Learn more about careers in mapping and surveying, not only on earth but also out in space and distant galaxies.
13. Lewis not only had to map their journey, but he also made observations about the plants and animals they discovered. Check out careers in botany and biology. Do you think there are still new species to discover?
14. Learn what careers are available in the realm of ecology.
15. Explore the USGS.gov web site. Look at the career opportunities described there. Investigate what education or life experiences are required for those positions.
16. And lets not forget the historians. How has their work clarified or clouded our interpretation of what the journey was like? And who the people were. Explore the role of historians in the 21st century. How does ‘point of view’ color the way a history is written? Are Historians just reporters of events or are they mystery sleuths? Explain or give examples of your answer.
17. Visit one of the many Lewis and Clark interpretive centers or reenactment sites. Interview a Ranger or reenactor. Learn what type of education is required. What drew them to do their job? What does their job entail?

GIRL SCOUT INTEREST PROJECT: Lewis & Clark



[39] Hood River County Historical Museum Displays of Indian artifacts including Klickitat baskets.

[40] Memaloose State Park Named for the offshore island used by early Indians as a burial ground and described by Lewis & Clark, who called it "the Sepulchar Island". Interpretive wayside on I-84.

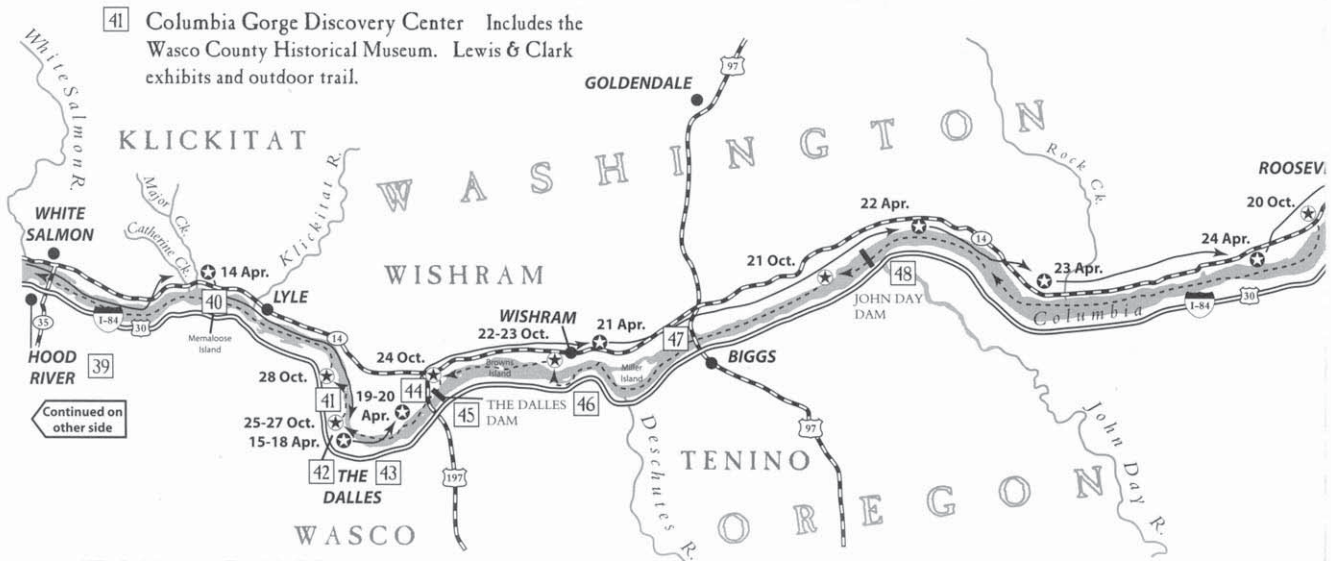
[42] Rock Fort Campsite The Corps established a defensive position here on both the outbound and return journeys. Interpretive signs.

[43] The Dalles Murals At several locations in the downtown area, large murals depict Lewis & Clark's arrival and the Indian trading center at Celilo.

[44] Horsethief Lake State Park Here the Corps camped, after running the "Narrows", and visited an Indian village where Clark counted 20 wooden houses. Interpretive signs and tours of many Indian petroglyphs (by appointment), including "She Who Watches".

[45] The Dalles Dam This area was the center of trade for tribes from the Plains to the Pacific. Visitor center and guided tour train.

[46] Celilo Park The Corps portaged around these great falls, now under water. Interpretive signs.



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WASHINGTON STATE TOURISM
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OREGON TOURISM COMMISSION
1-800-547-7842 www.traveloregon.com



WASHINGTON STATE GOVERNORS'
LEWIS & CLARK COMMITTEE



LEWIS & CLARK BICENTENNIAL IN OREGON
www.LCBO.net

Nearly all of their campsites and the vistas they encountered are still accessible to today's visitor, with a wealth of museums, interpretive signs, and parks to explore. Welcome to the Lewis & Clark trail in the Pacific Northwest: the Columbia River.

They returned upstream the following spring on their journey homeward to the United States in 1806. The Corps' route on the Columbia passed through the homelands of many native peoples in today's states of Oregon and Washington.

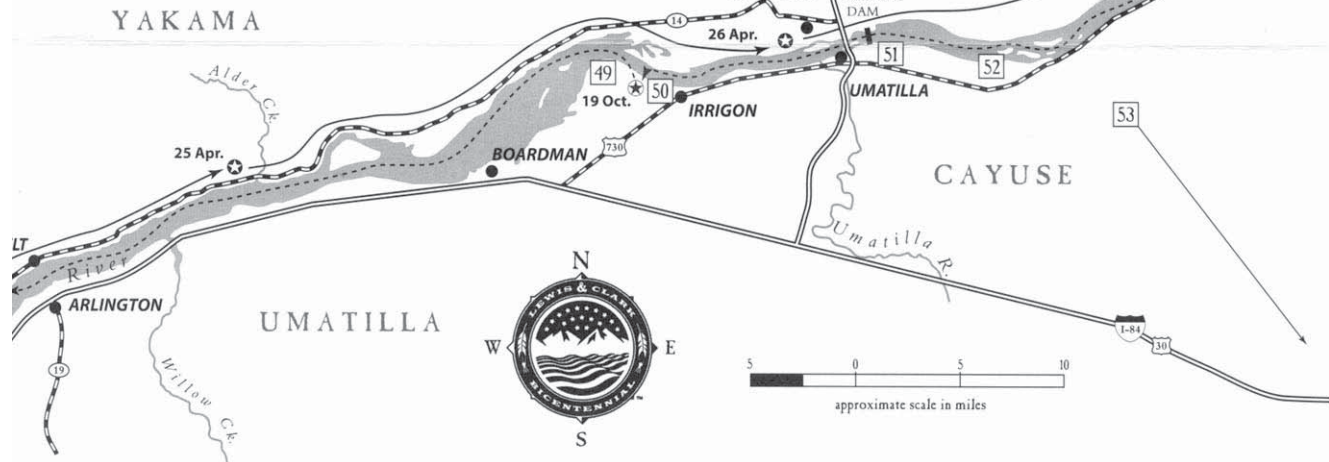
Meriwether Lewis, William Clark, and their Corps of Discovery descended the Columbia River in dugout canoes in the fall of 1805, reaching their goal at the mouth of the Columbia and wintering at Fort Clatsop.

LEWIS & CLARK
on the
COLUMBIA RIVER

GIRL SCOUT INTEREST PROJECT: Lewis & Clark

- [47] Maryhill Museum of Art Exhibits include Indian baskets and stone tools. The site, near Maryhill State Park, overlooks the river. Interpretive signs.

- [48] LePage Park Named for the Corps' private Jean LePage, whose name Lewis & Clark gave to today's John Day River. Interpretive sign.



- [49] Umatilla National Wildlife Refuge Auto tour route, wildlife viewing platforms, and landscapes seen by the Corps.
- [50] Irrigon Marine Park The Corps camped near the park shore. Firewood was scarce... "about 100 Indians came and a number of them brought wood, which they gave us". Interpretive signs.

- [51] McNary Dam Overlook Interpretive sign describing the Umatilla Rapids. The Corps met Umatilla villagers northwest of here; Clark climbed a cliff nearby and first sighted Mt. Adams.

- [52] Hat Rock State Park Clark described this rock as "resembling a hat". Interpretive signs.

- [53] Tamastslikt Cultural Institute Interpretive center on the Umatilla Indian Reservation (exit 216 on I-84). Lewis & Clark exhibits and interpretation of the peoples who greeted the Corps in the Columbia plateau region. Clark called the Walla Walla Indians: "...the most hospitable, honest, and Sencere people that we have met..."

- [54] Wallula Wayside Roadside interpretation of the "Two Sisters" legend from the local tribes and trail to that rock formation.

- [55] McNary National Wildlife Refuge Spans the east bank of the Columbia from the Snake to the Wallula Gap. Trails, wildlife viewing, and education center.
- [56] Sacajawea State Park Interpretive center at the confluence of the Snake and Columbia Rivers. Spelled the "old" way with a 'j' (1927).

LEGEND

- Dam
- Interstate Highway
- U.S., State Highway
- Route and Campsites - Westward 1805
- Route and Campsites - Eastward 1806
- Clark's search for the Willamette - April 1806
- Native Homelands

YAKAMA
Mapping by Cartographer-at-Large. Art by Roger Cooke. Text by Ted Kaye. January 2001 Edition.
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GIRL SCOUT INTEREST PROJECT: Lewis & Clark



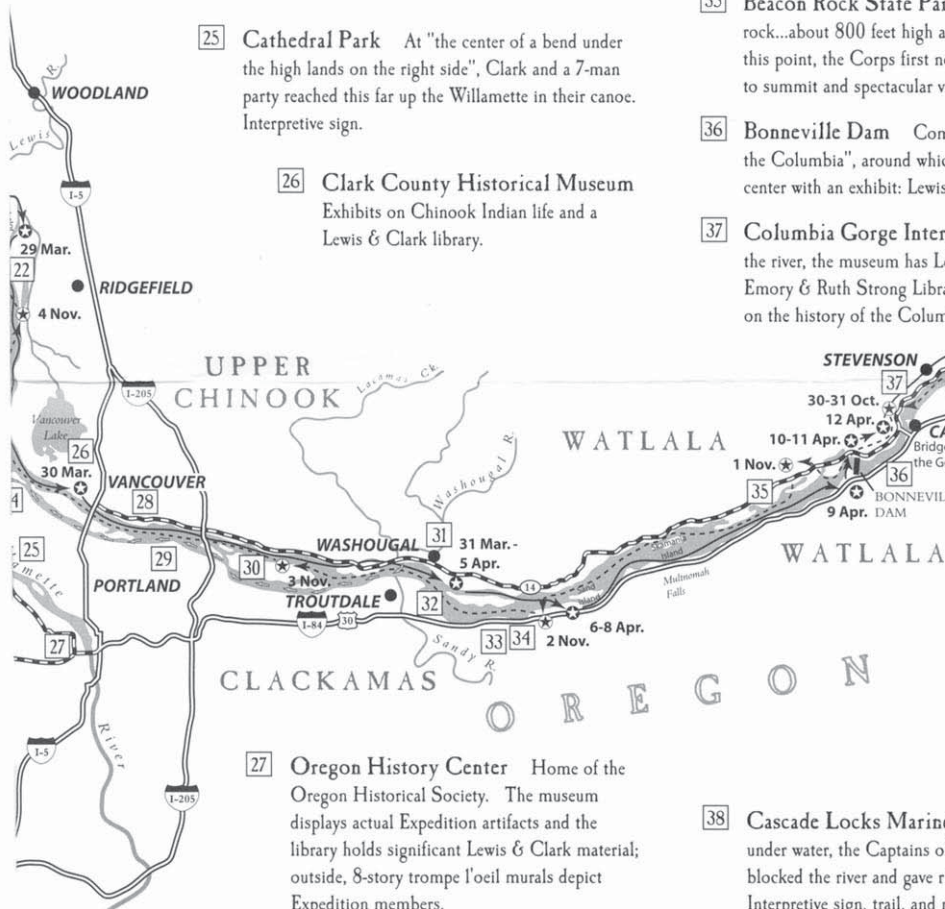
GIRL SCOUT INTEREST PROJECT: Lewis & Clark

- [17] **Julia Butler Hansen Refuge for the White-Tailed Deer** Wildlife viewing platforms to see deer and elk species first described for science by Lewis & Clark.
- [18] **Cowlitz County Historical Museum** Display on Cowlitz Indian culture.
- [19] **Prescott Beach County Park** The Corps camped "under a point of high ground, with thick pine trees". Interpretive sign.
- [20] **Deer Island** The Corps visited twice and gave the island its name, after killing several deer and learning that the Indian name, E-lal-lar, meant "Deer". Highway marker on US-30.
- [21] **Columbia County Historical Society Museum** Exhibit on Lewis & Clark in Columbia County.
- [22] **Ridgefield National Wildlife Refuge** The Refuge contains two Corps campsites and the site of the Chinook town of Cathlapotle, which had 14 large wooden houses and 900 inhabitants. Trails, auto tour, and wildlife viewing.

- [23] **Sauvie Island / Howell Territorial Park** The Corps called Sauvie Island "Wappato Island", for the potato-like water root harvested by the Indians. 1853-era house and museum.
- [24] **Kelley Point Park** Kelley Point, now a city park at a peninsula's tip, was once one of the islands obscuring the mouth of the Willamette River. Interpretive sign.

- [25] **Cathedral Park** At "the center of a bend under the high lands on the right side", Clark and a 7-man party reached this far up the Willamette in their canoe. Interpretive sign.

- [26] **Clark County Historical Museum** Exhibits on Chinook Indian life and a Lewis & Clark library.



- [27] **Oregon History Center** Home of the Oregon Historical Society. The museum displays actual Expedition artifacts and the library holds significant Lewis & Clark material; outside, 8-story trompe l'oeil murals depict Expedition members.

- [28] **Vancouver National Historic Reserve** The replica of Hudson's Bay Company's Fort Vancouver overlooks the area of the Corps' campsite, whose exact location is uncertain. Visitor center and interpretive signs.
- [29] **Portland International Airport** The Corps twice visited Neerchokioo village, a temporary residence for Shahala Indians when gathering wappato—the site is now under airport parking lots. No interpretation.
- [30] **Government Island** Lewis & Clark called this "Dimond Isl" for its shape, and camped on its north shore. Access only by boat.
- [31] **Parker's Landing** Camping at the mouth of the Washougal for six days, the Corps traded with the Indians and hunted elk for the return trip. Interpretive sign.
- [32] **Lewis & Clark State Recreation Site** The Corps' hunters explored this area at the mouth of the Sandy River, which they called the "Quicksand". Sergeant Pryor ascended six miles. Interpretive signs and botanical trail; historical museum in Troutdale.

- [33] **Vista House / Crown Point State Park** The original "comfort station" on the Historic Columbia River Highway commands a 30-mile view of the Columbia River Gorge National Scenic Area and several Lewis & Clark sites. Interpretive exhibits/signs.

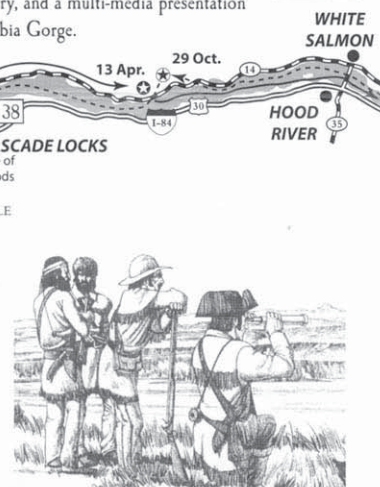
- [34] **Rooster Rock State Park** Clark wrote "we encamped under a high projecting rock on the Lar[board] Side". Interpretive sign.

- [35] **Beacon Rock State Park** Clark described this "remarkable high detached rock...about 800 feet high and 400 paces around, we call the Beaten rock". At this point, the Corps first noted the tidal influence of the Pacific Ocean. Trail to summit and spectacular view. Interpretive sign.

- [36] **Bonneville Dam** Completed in 1938, this dam inundated the "Cascades of the Columbia", around which the Corps portaged. Hatchery, trails, and visitor center with an exhibit: Lewis & Clark on the River.

- [37] **Columbia Gorge Interpretive Center** Overlooking the river, the museum has Lewis & Clark-related exhibits, the Emory & Ruth Strong Library, and a multi-media presentation on the history of the Columbia Gorge.

Continued on other side



- [38] **Cascade Locks Marine Park** At the Cascades of the Columbia, now under water, the Captains observed evidence of a massive landslide that had once blocked the river and gave rise to the myth of "The Bridge of the Gods". Interpretive sign, trail, and museum.

GIRL SCOUT INTEREST PROJECT



Mount Saint Helens

Mount Saint Helens, along with other familiar mountains gracing the skyline of the Pacific Northwest, is part of the Pacific "Ring of Fire". The reawakening of Mt. St. Helens in 1980 with a violent eruption and subsequent landslide, the largest in recorded history, renewed interest in volcanoes and their formation. Learn more about the fascinating field of volcanology through this Interest Project.

To complete this Interest Project, complete SEVEN activities. Must include two skill builders, four activities from any section and one SMART goal you develop and complete.

Skill Builders

1. What are some of the ecological effects of an eruption? How did the 1980 eruption of Mt. St. Helens affect the timber, transportation, fishing and recreational industries in the Pacific Northwest? How quickly did life return to the area around the mountain? Discuss with your Girl Scout troop how you think an eruption would affect your daily life.
2. Throughout the centuries, people have used legends to explain natural phenomena. Research and compare volcano myths from four different cultures, including Native Northwest Coast legends. Share your knowledge with younger girls through storytelling or other dramatic presentation.
3. Learn about the American Red Cross and how they help people deal with natural emergencies such as earthquake, flood, and eruption. Volunteer with the American Red Cross by contacting your local chapter. For more information go to www.redcross.org.
4. Watch one of the following videos which detail volcanic activity:
 - Nova: Pinatubo
 - Savage Earth: Volcanoes
 - Mt. St. Helens
 - Ring of Fire (IMAX)
 - Inside Hawaii's Volcanoes
 - Another video about volcanic activity

Afterwards write a critic's review of the video discussing what kinds of things you liked best about the movie along with three facts that you learned from watching it. Read other girl's reviews and discuss as a group what you learned.

Other Activities

1. Find out about the tools geologists use to measure earthquake activity. Can earthquakes, volcanic eruptions and tsunamis be predicted? Visit a facility where earthquakes are monitored.
2. How are satellite images being used to study volcanoes? What other tools do vulcanologists use to monitor volcanic activity? Write a short report on two tools used to study volcanoes.
3. Following the 1980 eruption of Mt. St. Helens, the Army Corps of Engineers was called in to help restore the shipping lanes on the Columbia River. Describe the technologies used to dredge and maintain open waterways on the North Fork Toutle River, Cowlitz River and Columbia River. Describe how the sediment retention dam on the North Fork Toutle River keeps the downstream flow clear of volcanic debris.

GIRL SCOUT INTEREST PROJECT: Mt. Saint Helens

4. One of the unique features of Mt. St. Helens is the opportunity for scientists to measure how quickly the ecology of the region has recovered since the 1980 eruption. Describe how the forest industry and the government have created zones within the blast area to study reforestation rates. Use models or diagrams to illustrate your findings.
5. Learn about advances in architecture that allow builders to create buildings that are safer and more earthquake “proof.” Create a mock up (either a drawing or model) of a building using these principles.
6. Create a volcano exploration kit for use at a local day care center, camp or younger troop. Be sure to include basic definitions of terms and information that is unique to our area. Use lots of hands-on models and displays, diagrams and photos.
7. Put on a skit, puppet show, or dramatic presentation for a group of younger Girl Scouts on earthquake preparedness. Show them what to do in case of an emergency, especially if they are at school or away from home during an earthquake.
8. Design a library exhibit about Mt. St. Helens for a local school or public library. Include general information about volcanoes and special information about Mt. St. Helens. Offer to display it in conjunction with the anniversary of the eruption.
9. Help Brownie and Junior Girl Scouts earn the Mt. St. Helens Try-It or Badge.
10. Read about an individual who has studied volcanoes or earthquakes. What led this person to this career? How did their work add to our understanding of these phenomena?
11. Do a college search to find out which schools offer programs in vulcanology. Is this a specialized field? How long does a course of study run? What are some other related fields of study?
12. Interview a Park Service employee about career opportunities at our National Monuments. What led this person to this career? What type of education is required? What does this person do on a daily basis?
13. Go on-line to discover if investigational research data is available in real time. Can you view seismographic monitoring as it occurs?
14. Take a hike through or a science exploration trip to at least one of the following sites that you have not visited before:
 - Ape Caves, WA
 - Mt. St. Helens Interpretive Center, WA
 - Coldwater Ridge Interpretive Center, WA
 - Johnston Ridge Interpretive Center, WA
 - Weyerhaeuser Forestry Learning Center, WA
 - Crater Lake and Wizard Island, OR
 - Sediment Retention Dam on the North Fork Toutle River, WA
 - Lava Lands Visitor Center, OR
 - Or another lava field in the Northwest

Oregon Trail

The Oregon Trail was one of the main overland migration routes in the United States of America, leading from locations on the Missouri River to the Oregon Territory. Between 1841 and 1869 the Oregon Trail was used by settlers, ranchers, farmers, miners and business men migrating to the Pacific Northwest. This patch is designed to help girls understand and appreciate the history of the Oregon Trail and the pioneers that travelled it.

To complete this Interest Project, complete SEVEN activities. Must include two skill builders, four activities from any section and one SMART goal you develop and complete.

Skill Builders

1. Build a toy that may have been played with by a pioneer child. Give the toy to a child you know and share with them the history about the toy
2. Make a meal that people in covered wagons may have eaten and share it with others.
3. Try your hand at a skill the early settler women may have had to know about (i.e. spinning, weaving, quilting, soap making, making candles, hand sewing, etc.) or attend a presentation offered by a local guild in one of these areas. Check your local newspaper for these events. These could include a quilt show, Mission Mills' annual Sheep to Shawl event in Salem or a spinning or weaving guild display. Teach the skills that you learn to a younger troop.

Other Activities

1. Visit a historical site or museum on the Oregon Trail, such as:
 - The end of the Oregon Trail Interpretive Center
 - Fort Vancouver
 - Oregon City
 - Whitman Mission
 - High Desert Museum
 - Oregon Trail Interpretive Center
2. Trace your family tree. With your parents help trace back your family 4 generations - you, your parents, your grandparents, and your great grandparents.
3. Write a short biographical sketch about your parents' or grandparents' life, or make a recording with your parents or grandparents talking about their lives.
4. Find out about your community. When was it settled? Who, if anyone, lived there before the pioneers moved into the area? Visit a historic place in your community and learn about conservation efforts to preserve that location.
5. Find out about the Native Americans that inhabited the area before the pioneers settled. Were they nomads? What did their homes look like? What did they eat? Attend a Pow Wow and

GIRL SCOUT INTEREST PROJECT: Oregon Trail

practice a Native American craft.

6. Read a book or story about pioneer life. Would you have liked to live during that time period? Write down your thoughts. What things were different? What kinds of chores were the children expected to do?
7. Take a field trip and follow part of the Oregon Trail. There are places not far from the Willamette Valley where the actual ruts from wagons are visible. A trip from Prineville to Oregon City might be an example. Hike for two miles along the Oregon Trail. How does it feel walking that distance? How do you think the pioneers felt with the distances they covered?
8. What entertainment did the pioneers participate in both along the trail and in the established settlements? How is it different than today's entertainment? If possible, participate in some form of entertainment they might have enjoyed.
 - Music: What types? What instruments?
 - Drama: Melodrama. Vaudeville type?
 - Dance: Square or live dance. Waltz.
9. What kinds of work did the pioneers do before they came and after they got here? Was it the same or different? Can you identify what kind of work all of these people did?

Farrier	Copper	Mercantile	Seamstress	Wrangler
Blacksmith	Cobbler	Apothecary	Wagon Master	Midwife
Tin Smith	Haberdasher	Milliner	Tailor	Cow Poke
10. What might a trip to the doctor have been like? What kinds of medicines were used? How has medicine changed?
11. Play through the Oregon Trail computer game and reflect on the experiences and skills needed to make the trip.
12. Contact the National Park Service or Bureau of Land Management and find out about conservation projects supporting the Oregon Trail.

Resources

National Park Service Oregon Trail website: <http://www.nps.gov/oreg/index.htm>

Bureau of Land Management – Oregon Trail Interpretive Center website: <http://www.blm.gov/or/oregontrail/>



Rose Festival

To earn this Interest Project, complete at least SEVEN activities. These must include two skill builders, four activities from any section and one SMART goal you develop and complete

Skill Builders

1. Participate in the preparation of a parade float.
2. Find out about the advertising and promotion of the Rose Parade. How is the parade advertised to the public? How are sponsors and float entries solicited? How are the program and advertisements put together? Find out the skills and education required of the people who work in these positions.
3. Learn about the history of the Portland Rose Festival. Contact the Oregon Historical society or the Rose Festival Association to learn about the first years of the Rose Festival.
4. Carry a banner in the Rose Festival Grand Floral Parade.

Other Activities

1. Learn about how computers have advanced float technology. How are computer graphics programs are used in float design?
2. Learn about cloning and scientific advances in pollination. Explore how these techniques have affected the varieties and quality of roses. Learn how new varieties of roses are created.
3. Learn about the principle of bouyancy. What makes a ship stay afloat? Tour the Rose Festival Fleet and see how these principles are applied.
4. Talk with a floral designer responsible for the arrangement of flowers on a float. Discover how this person became involved in float decoration. What kinds of education and training are required for this career?
5. Speak to the owner or manager of a float decorating company. Find out about the education and skills required in running a successful company.
6. The Rose Festival depends on volunteers and not for profit organizations to help. Choose a non-profit organization in your community and learn how the company is funded, what services they provide, what type of staff they hire, and what issues and concerns they deal with.
7. Create your own community garden! Be sure to include roses and/or other flowers. Involve your neighbors, school, or other community members in the creation of your garden.

GIRL SCOUT INTEREST PROJECT: Rose Festival

8. Volunteer for the Starlight Run. Although you are not allowed to run/walk for Girl Scouts because you cannot earn money for another organization, there are many different ways you can participate! You can help with registration, water stations and many other tasks. For more information, go to www.rosefestival.org.
9. Assist a group of senior citizens or persons with disabilities in attending a Rose Festival event. Contact a local senior center or convalescent home to volunteer.

GIRL SCOUT INTEREST PROJECT



Girl Scouts®



Society of Women Engineers

An engineer is someone who uses scientific knowledge to solve problems. There are many types of engineers: Civil Engineers, Electrical Engineers, Environmental Engineers, and Mechanical Engineers are just a few. The different types of Engineers do different things; here is a list of some of the things engineers do:

- *Civil Engineers: design bridges, roads, water systems*
- *Electrical Engineers: design electrical power systems, parts of computers*
- *Environmental Engineers: solve water and air pollution problems*
- *Mechanical Engineers: design cars or other moving machines*
- *Electrical Engineers: design electrical power systems, parts of computers*

To complete this Interest Project, complete SEVEN activities. Must include two skill builders, four activities from any section and one SMART goal you develop and complete.

Skill Builders

1. Brainstorm a list of ten engineering inventions that you think have changed the world (for better or worse) and your reasons for listing them. Have a debate with your Girl Scout troop or parents to select the invention with the greatest impact.
2. Think of an engineering or design problem at your home, your school, or your community that needs to be solved. Look for problems found in your daily life such as kitchen tools or traffic patterns in your neighborhood. List possible solutions to the problem and the different fields of engineering that would be needed to resolve the problem.
3. Design a roller coaster ride for a marble. The goal is to have your marble travel slowly, so it takes as long as possible to go from the top to the bottom. Supplies: *large piece of cardboard or foam core board (20" x 30"), ruler, and masking tape. Building materials (things like construction paper, paper towel tubes, sandpaper, yarn, styrofoam, cloth, cotton balls, sponges, or clay). Marble.*

First, set up the marble ride board. Lean the board against a wall. Make sure the bottom is 8 inches from the wall. Plan your design. Think about what you can do to slow down the marble. Start building. Each time you add a new part to your roller coaster, test it with your marble. When you are ready time how long it takes your marble to complete the ride. Have a competition with other girls. Whose ride takes the longest?
4. What engineering task would you attempt to do if you knew you could not fail? Imagining your "perfect world", how would you do this task? Visit the Discovery Channel's Extreme Engineering site to learn what others are imagining and doing. <http://dsc.discovery.com/convergence/engineering/archives/archives.html>
5. Learn about the laws of motion by building a simple crankshaft device. Supply lists and instructions can be found at <http://www.intel.com/education/design/session05/handout3.htm>

GIRL SCOUT INTEREST PROJECT: Society of Women Engineers

Other Activities

1. Review the following four Building Big lab links and test each one.

<http://www.pbs.org/wgbh/buildingbig/lab/forces.html>

<http://www.pbs.org/wgbh/buildingbig/lab/materials.html>

<http://www.pbs.org/wgbh/buildingbig/lab/loads.html>

<http://www.pbs.org/wgbh/buildingbig/lab/shapes.html>

2. Review the following four links and learn about Ohm's Law. Do the exercises found on the links. Write a short report defining Ohm's Law and explaining how changing one variable affects the other variables.

http://www.grc.nasa.gov/WWW/K-12/Sample_Projects/Ohms_Law/ohmslaw.html

<http://jersey.uoregon.edu/vlab/Voltage/>

<http://www.physics.uoguelph.ca/tutorials/ohm/Q.ohm.intro.html>

<http://ohmslaw.com/ohmslaw.htm>

3. What is Bernoulli's Principle? Who was Bernoulli? Do the exercise outlined on the following link. Write a report on what you learned. Were you able to obtain the results listed in the discussion section? Research various engineering applications that use this principle.

http://www.grc.nasa.gov/WWW/K-12/TRC/Aeronautics/Ping_Pong_Curve.html

4. Newton's Laws of Motion Study the following two links, do the exercises, and write a short report on Newton's three Laws of Motion.

http://www.grc.nasa.gov/WWW/K-12/WindTunnel/Activities/first2nd_lawsf_motion.html

http://www.grc.nasa.gov/WWW/K-12/WindTunnel/Activities/third_law_motion.html

5. Arrange a hands-on engineering workshop for Brownie or Junior Girl Scouts in your Neighborhood. Work with women engineers to select appropriate activities. Ideas for activities can be found at <http://www.societyofwomenengineers.org/careerguidance/activities/>, <http://www.asme.org/education/precollege/gsusa/index.htm>, <http://www.asce.org/public/handson.cfm> and <http://pbskids.org/zoom/too/engineering> to name a few.

6. Contact a local manufacturing facility and arrange a tour for Brownie or Junior Girl Scouts in your Neighborhood. Help the girls identify the following simple machines during the tour.

Pulley

Inclined Plane

Wheel

Lever

Screw

Wedge

7. Use your engineering skills as a volunteer. Potential sites include the Community Cycling Center, Free Geek, and Habitat for Humanity.

GIRL SCOUT INTEREST PROJECT: Society of Women Engineers

8. Read the Women in Science article found at:
<http://www.sdsc.edu/ScienceWomen>
Write a paragraph on the woman who impressed you the most and why.
9. Job shadow an engineer for a day. Give a presentation to your Girl Scout troop on what you learned.
10. Visit the Engineering Your Future website and complete the self assessment: <http://www.asee.org/precollege/assess.cfm>
11. From the site <http://www.asee.org/precollege/>, review the link for Engineering Disciplines and write a paragraph on the field of engineering interests you the most and why.
12. Contact a university engineering department and find out the requirements for admission. Which high school courses are recommended? What is the minimum GPA for admission? What is the average SAT score for enrolled students?

GIRL SCOUT INTEREST PROJECT



Zoological

To complete this Interest Project, complete SEVEN activities. Must include two skill builders, four activities from any section and one SMART goal you develop and complete.

Skill Builders

1. Learn about countries with endangered animals. Explore the political and social issues surrounding the native plants and animals and what the government and the people who live there are doing to deal with these issues.
2. Learn about advances in zoo building and animal care. Draw a diagram depicting what you think would be the perfect zoo in terms of layout, design, structure etc.
3. Learn about the tropical rainforest. Find out about pharmaceuticals or other products that come from that area and other products that humans use that are made from plants and animals present in the rainforest. Learn about human issues such as destruction of habitat and any conservation projects that are taking place in the rainforest.
4. Learn about the World Bank and how it is involved in conservation projects all over the world. Create a news report that would present this information to the public in a manner that everyone could understand.
5. Explore careers in ecotourism. Learn what types of issues are facing professionals in this field and how they are working to resolve those problems. Plan an ecotourism vacation trip for someone you know that would address the information you have just learned.

Other Activities:

1. Go to **www.oregonzoo.org** to learn about conservation projects that the Oregon Zoo is participating in.
2. Explore scientific advancements in captive animal reproduction related to endangered species.
3. Read a scientific journal article related to endangered species. Present this information in an understandable format to a younger group of Girl Scouts.
4. Learn about new species' discoveries from journals, newspapers, or web sites. Write a journal article that could be presented in the local paper highlighting your discoveries.
5. Explore careers in biology, zoology etc. Learn what types of education and work experience are needed to be a zoological professional.
6. Talk to the Human Resources department at the Oregon Zoo or another wildlife center. Find out the various types of jobs available at the zoo and what skills are needed to get those jobs.

GIRL SCOUT INTEREST PROJECT: Zoological

7. Interview a Zookeeper about his/her job. Find out what education is required to become a Zookeeper.
8. Go online and research veterinary schools in the US. What does it take to be accepted to veterinary school? How many veterinary schools are in the US? How long does it take to become a licensed veterinarian?
9. Interview someone in an animal/wildlife career. This person can be a veterinarian, zoo staff or humane society staff to name just a few! Ask about this person's education, job history, what they like/dislike about their job, what the hardest part of their job is, etc.
10. Interview someone with a career in conservation. Learn about what their day-to-day job is and what issues they face.
11. Become a ZooParent at the Oregon Zoo or participate in a similar program at another wildlife center. Sponsor your favorite animal for a year and contribute to its quality of life.
12. Volunteer for the Oregon Zoo or another wildlife center in your area.
13. Learn about the Nature Conservancy. Use books, magazine, pamphlets, newspaper articles and interviews to learn what the organization does, where it gets its funding, what projects they are working on, and what types of animals they work to protect. Consider volunteering at the Nature Conservancy or with a similar local program.

GIRL SCOUT BACKPATCH



Daisy's Dream

This patch program was developed in honor of Juliette Low's Birthday. Girl Scouts of any level can earn this patch. The goal of this program is to help girls gain a better understanding of the World Association of Girl Guides and Girl Scouts, and the Juliette Low World Friendship Fund.

Each troop must do at least 15 activities. Each girl must attend at least 12 of these activities. Each troop must complete the starred activities (these count as two of the 15 activities).

Daisy was Juliette Low's nickname. Daisy's dream was to spread the Girl Scout movement throughout the world and to increase worldwide friendship. The Juliette Low World Friendship Fund was started to honor her and her vision of worldwide friendship. Every year, Girl Scouts all over the United States give money to this Fund - usually, on Daisy's birthday or on Thinking Day. Part of the money is used to send Girl Scouts to other countries and to bring Girl Guides to the United States. The other part goes to the World Thinking Day Fund set up by the World Association. It is used to help Girl Scouts and Girl Guides all around the world.

- **GOAL:** To gain a better understanding of the World Association of Girl Guides and Girl Scouts, and the Juliette Low World Friendship Fund.
- **REQUIREMENTS:** Each troop must do at least 15 activities. Each girl must attend at least 12 of these activities. Each troop must complete the starred activities (these count as 2 of the 15 activities).

Ideally, this program should take place between Juliette Low's birthday, October 31st, and Thinking Day, February 22nd. There are 18 weeks between these two dates. One activity a week at troop meetings (most activities only take 5 to 10 minutes,) during this time will complete the program. (There are a few FREE spaces on the COUNTDOWN CALENDAR to allow for holidays.) The following is a list of over 60 activities from which to choose. With your girls, go through the list and select the activities they would like to do. As each activity is completed, have the girls mark the COUNTDOWN CALENDAR. When all the spaces are filled, you've completed the program and helped Daisy's dream of international friendship become a reality!

GIRL SCOUT BACKPATCH: Daisy's Dream

SUGGESTED ACTIVITIES

1. Participate in a celebration of Juliette Low's birthday. *
2. Participate in a World Thinking Day celebration. *
3. Hike through your community looking for signs or evidence of other lands.
4. Discover the cultural and ethnic backgrounds represented in your troop. Talk about some of the special celebrations families hold that stem from their heritage.
5. Choose a country where there are Girl Guides or Girl Scouts. Prepare a meal typical of the country and have a troop feast.
6. With a map of the world, mark the major deserts. What natural resources do they provide? What do people need to live in these areas?
7. With a map of the world, mark the International Dateline. Locate the first Girl Guides/Girl Scouts to start the day. When your troop is meeting, what time is it in Japan, France, Egypt and Venezuela?
8. Play this game: One person or patrol asks "Where in the world is _____?" and names a place, city, river, etc. The others have to guess its location.
9. Music can provide the cadence for such efforts as digging a well, churning butter, planting rice or coming home from the fields. Learn several songs from other countries used for different purposes; include American Indian songs. Learn a good hiking song. Can you find a song to use for calling your troop members together?
10. Make simple musical instruments such as shakers, shepherd's pipes, drums, water glass or pop-bottle chimes, triangles, cymbals, etc., include American Indian musical instruments. In what countries are such instruments used? Find someone in your community who can tell you about various kinds of instruments and their uses.
11. Learn the "World Song."
12. In most cultures, music is used to express joy, sorrow and other emotions common to everyone. What songs do you know that give such messages?
13. Select a country and a typical girl's name from that country. Make a doll or hand puppet of that girl. Plan what you would show her if she visited you. What do you think your friend might do when she grows up?
14. There are more than 400 million people with disabilities in the world. Discuss some of the kind of disabilities that people may have. Make something that would make a person with disabilities life easier or more interesting.
15. Find out what organizations exist in your community to serve people with disabilities. Take a field trip to see some of their work and to find ways to help.
16. Discuss and then dramatize how girls can help their families in case of natural disaster or a family emergency.
17. Decide on and practice a skill that the troop could contribute to the community in the event of a disaster. Example: Entertaining younger children, cooking for large groups, etc.

GIRL SCOUT BACKPATCH: Daisy's Dream

18. Become aware of how your immediate neighborhood is changing. Make a map of local land use, building conditions. Talk with other people in the area. Do a service project based on your findings.
19. Invite newcomers to your community to join your troop. Help them to feel at home.
20. Find out how a person may become a United States citizen.
21. Name the five major religions of the world.
22. Prepare a friendship envelope with messages for someone's friend.
23. Learn about women artists, scientists, and writers from other countries. Learn about American Indian women artists, leaders, teachers and writers. Learn about Asian, Black, Hispanic American women in this country, three from the past and three contemporary.
24. Mark on a map countries contributing to your community's population.
25. Celebrate a holiday with international customs.
26. Plan an international program for another troop.
27. Have a "tasting tea" of international goodies.
28. Name currencies used in six other countries.
29. Learn to say "Thank You" in four languages.
30. Find people in your community who are from another country or have lived in another country. Invite them to speak at one of your troop meetings.
31. Learn a song, game, folktale or craft from another country. Share it with others.
32. Learn about the Juliette Low World Friendship Fund. Decide, as a troop or group, how you would like to contribute to it. Make your contribution.
33. In your community, what ideas have you borrowed from other cultures? Consider how and why. To help do this, you might: interview different people, make a scrapbook of activities, collect labels from imported goods, take part in a cultural festival.
34. Through mime, song, dance, art or drama, present the kind of world you want for future generations of children. Decide what you can do to make that world possible.
35. Talk to immigrants or new settlers in your country and find out about their needs, expectations and differences. Discuss with them what your troop or group can do to help. Try to carry out one of the ideas.
36. Play-act situations that give an opportunity for members of your troop or group to experience how different cultures react in different behavioral situations, e.g., greetings and sadness.
37. Using puppetry or a dramatic presentation, portray important aspects of your cultural heritage, e.g., a coming of age, betrothal, initiation or other traditional ceremony.
38. Play-act a special occasion such as a birthday, religious festival or public holiday which is common to several cultures. Note the different ways it is observed in each culture, e.g., meals, games, traditional dress, art and music.

GIRL SCOUT BACKPATCH: Daisy's Dream

39. Collect or draw pictures from your country and one other country that is quite different, comparing houses, roads, transportation, food, water, etc.
40. What are some of the enforced laws of your country, which have improved the quality of life, e.g., speed limits, bottle/trash recycling, penalties for littering, no smoking areas. In small groups, prepare a list you would like to see implemented in:
 - your home
 - your troop or group
 - your school
 - your local community
41. Take at least six everyday happenings, such as sleeping, eating habits, social activities and find out and dramatize the differences between your country and one other.
42. Make simple wood/pipe cleaner/straw/cardboard dolls representing different nationalities and dress them in the clothing of their country.
43. Find out about and dramatize the various meanings of at least five different hands, head or other body gestures, which have different meanings in different countries.
44. Find out all you can about children's toys used in other countries. Make a few and demonstrate their use.
45. Collect pictures of flowers, trees, animals and birds. Find their country of origin. Make a display linking the two.
46. Plan an imaginary visit to another country. What knowledge is necessary and what preparations and plans must you make? Learn at least three basic sentences in the language of the country.
47. Plan and carry out a practical service project in relation to a global issue, such as malnutrition, literacy, conservation, etc.
48. In a local library, school or public place, set up a display for Thinking Day.
49. Plan an exciting international day for a group of young people not necessarily Girl Scouts.
50. Collect or make a set of international slides, prepare a script and present an audio-visual show depicting life in one or more overseas countries.
51. Read and dramatize Brownie Girl Scout stories from at least three different countries.
52. Make a set of models depicting the four World Centers and display the set in appropriate scenery.
53. Dress peg, pipe cleaner or stick dolls in the uniforms of at least 20 member organizations of WAGGGS. Use suitable scenery and backdrops and display in a public place.
54. Dramatize or make up a song or poem about the history of each World Center. Learn one World Center song.
55. Learn about the Regional Structures within the World Association of Girl Guides and Girl Scouts.
56. Using TREFOIL ROUND THE WORLD, compare the Promise, Law and Motto with those of member organizations from at least six other countries. Discuss the differences.

GIRL SCOUT BACKPATCH: Daisy's Dream

57. Make a collection of prayers, readings and sayings from the religions of the world. Illustrate it appropriately and link each with a member country.
58. Find out which countries are members of the World Association of Girl Guides and Girl Scouts. Which are Associate Members? Which are Full Members? What is the difference?
59. Prepare an entertaining audio-visual presentation outlining the early history of WAGGGS.
60. Make a chart or other visual aid to use when telling a younger age group about WAGGGS.
61. As a patrol, troop or group, share pen pals' letters. Prepare a special display of pictures, artifacts and excerpts that would be of interest to a wider audience.
62. As a troop or group, become involved with a person or a group of persons with disabilities. Learn of her/their achievements and challenges. Make a practical contribution to her/their development and welfare. Include her/them in at least one Girl Scout activity.
63. Plan a dramatized music and dance act to help others understand the fundamental principles of Girl Scouting.
64. Using slides or photographs, prepare a talk on a Girl Scouts USA destination.
65. Invite an older Girl Scout who has been on a destination to speak at one of your meetings.
66. Create a card or paper game that could teach others about WAGGGS and its membership requirements or the essential elements of its administration.
67. Develop your own activity.
68. List the American Indian tribes that lived in your local area. What places have American Indian names? Can you find out their meaning?
69. Read some American Indian legends from Oregon. Portray one in skits, pictures or other media.
70. Make two American Indian crafts made by tribes in your area. One used for ceremonies and one for work/home use.

COUNTDOWN CALENDAR



Growing Daisies

This patch is designed to aid in girl planning and to give the girls a wider range of Girl Scout experiences.

To complete this back patch, girls must complete all 15 requirements.

Activities

1. Our troop is comprised of at least five girls and two unrelated adults, one of whom is female and We were all registered in a timely manner.
2. We made a chart of troop rules that will help our troop have a good year.
3. We made a kaper chart to help us divide the troop chores.
4. We participated with another troop in an activity.
5. We learned music, games or arts from people of a different culture.
6. We spent at least an hour working on a service project with our community or school.
7. We talked about what it means to be a Girl Scout.
8. We invited our parents to a special troop meeting.
9. We visited a local community attraction (such as a museum, park, or restaurant).
10. We created a troop calendar outlining which activities and events we want do this year.
11. We attended or created a special event that celebrated a Girl Scout Holiday, such as Juliette Gordon Low's Birthday or Founder's Day, Girl Scout Birthday, Girl Scout Sabbath, Girl Scout Sunday, Girl Scout Leaders Day, or World Thinking Day. Resource: http://www.girlscouts.org/program/gs_central/gs_days/
12. We learned an outdoor skill or held an outdoor activity, such as a color hike or alphabet hike.
13. We can say the Girl Scout Promise and Law
14. We learned a Girl Scout song or game. Resources: Songs - <http://www.gsmusic.com/> CD's also available in council stores. Games - <http://scoutingweb.com/scoutingweb/Program/Games.htm>
15. We participated in a friendship circle.

GIRL SCOUT BACKPATCH



Summer Lovin' Fun

This patch program is to encourage troops to continue meeting through the summer and help your troop get a head start on things in the fall. Remember as your troop goes through the program, leaders should encourage the girls to do the planning and decision making. They've had a whole school year of practice and are ready to make even bigger and better decisions! And most of all, remember to have FUN! This patch program can be done multiple time! Earn a sun segment for every summers activities!

Requirements

- 1. The troop/group must plan and carry out at least three (3) activities during the summer. Include some service at least once. Include families of troop members at least once. Inter-troop/group activities are not required but are encouraged. (Day camps do not qualify - the girls need to plan the activity.)**
- 2. Each girl must attend at least two (2) of the activities. This allows for family vacations and other obligations.**
- 3. The activities must take place between the close of school for summer and the first day of school in the fall.**

Activity Ideas

IDEAS FOR SUMMER GIRL SCOUTING

- Go swimming. Certified lifeguard needed.
- Go roller skating.
- Go on a campout. Wallace Creek/Woodlot is available most of the summer.
- Take a sack supper to a spot for the sunset.
- Have a play day.
- Take a trip to a local park.
- Go to your County Fair.
- Go on a hayride.
- Play miniature golf.
- Have a service project.
- Attend a softball or baseball game.
- Learn to prepare a meal.
- Go on a family or troop picnic.
- Go ice skating.
- Take a sack breakfast to a high point for the sunrise.
- Have a cook-out at the coast, or anywhere.
- Take a trip to the library, a museum, OMSI.
- Go kite flying, check with local kite shop.
- Go horseback riding. Check Safety-Wise.
- Go on a bike hike. Check Safety-Wise.
- Go canoeing, water rafting, lifeguard needed.
- Make ice cream.
- Have a "come as you are" party.
- Tour a college campus.

GIRL SCOUT BACKPATCH: Summer Lovin' Fun

The following are things that girls in your troop can do as individuals or as a group to keep in touch as the summer months go by.

- Set up a letter exchange or newsletter for keeping contact during the summer. Summer time is often when families move, girls visit relatives, go to camp or participate in Wider Opportunities. The letter exchange will allow close relationships within a troop to continue until you meet in the fall.
- Start a calendar, map and vacation chart to let everyone know where, when and how to reach each other over the summer. With a few girls serving as writers and editors, some form of group communications could be available to those interested.
- Work individually or in small groups to complete try-its, badges or interest projects over the summer. Encourage girls to set aside some time either daily or weekly to work on the activities.
- Plant a garden, either as individuals or as a troop/group effort, in the spring. Gardens can be almost anywhere - backyards, window boxes, community plots. As the vegetables ripen, get together to enjoy a delicious meal from the fruits of the harvest. You might give any surplus to your local food bank.

IT'S A PLAY DAY!

One fun way to spend time during the summer and help out younger girls is to have your girls plan a play day and invite a troop or group of girls to participate. This is a great way for your girls to s-t-r-e-t-c-h their leadership and planning skills.

There are lots of activities for girls to choose from when planning. The following may help them get started.

- **BALLOON TOSS** - Fill balloons with water (not too full!) from a hose and tie a knot in the end. Each person chooses a water balloon and a partner and forms two lines, facing each other about three feet apart. At the signal, toss the balloon to your partner; she should try to catch it. After each toss, take one step back and throw again. Continue until only one team is left with a filled balloon.
- **BEACH BALL RELAY** - You will need two beach balls. Divide the group into two teams and have each team line up behind the starting line with a ball. Establish starting and turnaround points and a start signal. When the signal is given, one player from each team puts the ball between her knees, "runs" to the turnaround point, returns to the starting line and hands the ball to the next person in line. Each person repeats the procedure. The first team to finish, wins.
- See Games for Girl Scouts or search the internet for additional ideas.

SERVICE PROJECTS

Summer is a great time to take on a service project. There is much more time for girls to really get into a project and summer weather permits more opportunity to work outdoors. The following information should help you determine what kinds of service projects you can look for in your community and some hints for carrying out your project.

Steps:

1. Choose a project. Here are a few suggestions. You can probably think of others.

- Pick up litter while on an outing. (Be sure to wear gloves and follow safe practices.)
- Commit to keeping an area of a local park attractive.
- Plan entertainment for people in a residential care facility or just visit and talk and/or play

GIRL SCOUT BACKPATCH: Summer Lovin' Fun

games. Help with birthday parties.

- Look around the neighborhood for someone who needs help with yard work or window washing, etc.
- Sponsor a bicycle safety day.
- Contact a local farm for information about gleaned (gathering leftovers from previously harvested fields) crops to donate to your local food bank.
- Do a wildflower seeding project.
- Volunteer at a community garden.
- Gather clothes, supplies for a homeless shelter.
- Volunteer at a homeless shelter.
- Complete a project at Wallace Creek. Call Eugene service center for information.
- Call your local Girl Scout service center for projects in your service center.

2. Decide how to carry it out.

3. Do it!

4. Evaluate.

HIKING

Hiking is a great way to explore the area around you and summer time brings an explosion of exciting places and things to see. Try hiking through your neighborhood, a local park or even around town.

For the more adventurous, take some of the trail in our State and National Forests. Be sure to read Safety-wise before going on your outing.

- Treasure Hike - A well-laid trail with a treasure of lunch or snack at the end.
- Evening Hike - Especially good for star gazing and noting what plants and animals do at night.
- Onion Hike - Rub a cut onion on trees to mark the trail. Followers smell trees to find the trail.
- Penny Hike - Have leader flip a penny at start of hike to decide direction - heads, right; tails, left. Flip again at each corner until you have hiked as far as time permits. Return home by most direct route. Variation: decide whether on flip of coin at corner you sing a song or eat a treat OR flip to decide whether to go forward or reverse. With a good pace kept up, this can turn into a hilarious jaunt!
- Bubble Gum Hike - Give each girl a paper plate and a piece of bubble gum (the big soft pieces work best!) As girls go on hike, have them find things along the way that are interesting, pretty, unique, etc. (but don't let them pick anything.) Each item they find is then stuck to their paper plate with a small piece of bubble gum pinched off the piece they are chewing. Have them make a collage with all the different items they find. (This sounds awful, but the girls love it!)
- Initial Hike - Give each girl a pencil and paper. On the hike, have them list everything they see that begins with the initial of their first name. Compare lists at the end of the hike.
- Blind Walk - Half the group wears blindfolds and the other half leads them around...carefully! Blindfolded girls should be helped to touch, smell, feel, hear. Switch roles.
- Color Hike - Find things all the same color. If you divide into teams, one half could look for one color and the other half look for another color.
- Inch Hike - Find things that are only an inch long - no more - and still complete.
- Scent Hike - See how many scents you can identify. Find scented plants, like wild garlic, dandelion, etc.
- Sealed Order Hike - Several sets of "orders" (instructions) are placed over an area. Different colored envelopes indicate different teams. Teams then set out to follow their orders. All groups go different directions to reach all points along the way. All teams end up at a "treasure". Often a skill must be practiced at the end of the trail.

GIRL SCOUT BACKPATCH: Summer Lovin' Fun

- Spider Web Hike - This is a good early morning hike. Sometimes a camera can record interesting patterns in the dew drops.
- Play the City Safari game.
- Make a Bandana Bag to take on your hike.

MAKE - IT - FROM - SCRATCH (or almost)

Have a feast:

1. Go berry picking.
2. Make jam.
3. Bake bread. (You can start with yeast and knead, use frozen dough or a bread machine.)
4. Make butter.
5. If someone has a food processor, make your own peanut butter.
6. Squeeze lemons for lemonade.
7. If you are really ambitious, make ice cream in a hand-crank freezer.
8. Eat it all up. Yum, Yum, Yum!

TALENT SHOW

Plan and carry out a troop(s)/group(s), or neighborhood talent show:

1. Decide who, (Girl Scouts, non-Girl Scouts, adults?), when (afternoon, evening, mid-week, weekend?) and where, (park, backyard, school, church?)
2. Include dancing, singing, reciting, baton-twirling, story-telling, musical instruments, juggling, tumbling, etc., etc., etc.
3. Get out the word!
4. Admission could be a can of food for the local food bank.
5. Recruit a panel of judges.
6. Have lots of prizes, ribbons, recognitions.
7. Have a good time!

COMMUNITY CELEBRATIONS

Many, many communities have a summertime celebration to share with their citizens and visitors all the things that make them special. Plan to be a part of your community's celebration: have a booth, watch the parade or be in the parade, help with clean-up or some other way. Take a picnic lunch and check out the celebration in another community. Watch the paper and see how many communities in your county have special days and what kinds of things they celebrate. Keep a list.

STARGAZING

Warm summer evenings are a great time to do a little stargazing. Plan a sleep-over or backyard over-night and complete some badge work at the same time.

Brownie Girl Scouts-

See Space Explorer pages 138-139 in the Brownie Girl Scout Handbook Activity #1 The Night Sky. Go stargazing with someone who knows the planets and stars, or have someone help you read a star map. Try to find the North Star, the Big Dipper or other constellations. Look for the planets overhead. Also do the prep-work for Activity #4 Shadow Time and #5 Star Maker.

GIRL SCOUT BACKPATCH: Summer Lovin' Fun

Junior Girl Scouts-

See Sky Search pages 128 & 129 in Girl Scout Badges and Signs Activity #1. Learn how to use a star map. Be able to point out to others what the different symbols on the map mean. Obtain a star map for your stargazing location and appropriate time of year to help you complete your badge.

Activity #3. Look at a star map and choose six constellations. Note any distinguishing features such as size, shape, number and brightness. With your star map, locate the constellation and point them out to others.

Also do some prep-work for Activities #8 and #9.

Cadette, Senior and Ambassador Girl Scouts-

See Space Exploration page 91 in the Cadette, Senior Interest Project book, Activity #2, Part Two. Write your own science fiction story about life on planet earth in the future or life elsewhere in the universe.

Activity #4. Visit a museum or other facility that has an exhibit, display or presentation on aerospace, astronomy or a related field. Based on your visit, select at least one topic that interested you and explore it further on your own.

PLACES TO GO AND THINGS TO DO

The places listed below were chosen for their fun and learning potential. Be sure to check the time , days, fees, programs and locations before you "take to the road." Please tell us about your experiences on the evaluation section of your patch order form.

- Southern Oregon
- Central Oregon
- Eastern Oregon
- The Coast
- Portland Area
- Willamette Valley

Note to leaders: If you know of other interesting places to visit in your area please send the information to the Lauren Shapiro at lshapiro@girlscoutsosw.org. We will be glad to add your suggestions to the packet.

SOUTHERN OREGON

- Jacksonville Museum, Jacksonville
Photographs from famous local photographer Peter Britt are displayed along with memorabilia from Pinto Colvig, who left to become Bozo the Clown. Open daily. 11-5, closed October to May,
541-773-6536. <http://www.ohwy.com/or/j/jacksomu.htm>
- Oregon Shakespeare Festival, Ashland
The Festival celebrates the Bard and other famous playwrights with award-winning productions on three unique stages, Winter through Fall.
<http://www.orshakes.org/>
- Douglas County Museum of History and Natural History, Roseburg
An adventure of the history and natural beauty of the county and Oregon. Admission \$3.50 for adults, \$1.00 for children.
541-957-7007. Email: museum@co.douglas.or.us
<http://www.co.douglas.or.us/museum/>

GIRL SCOUT BACKPATCH: Summer Lovin' Fun

- Wildlife Safari, Winston
Wildlife Safari is one of the most exciting drive-through wild animal parks in the world. Group rates available.
541-679-6761, 1-800-355-4848. <http://www.wildlifesafari.org/>

CENTRAL OREGON

- High Desert Museum, Bend
For the first time in the area's history, a single institution has evolved to preserve, interpret and re-create the legends, lore and natural legacy of the High Desert. Special programs daily.
541-382-4754. <http://www.highdesert.org/>
- Newberry National Volcanic Monument, Bend
A wealth of geological and natural wonders are held within its five-mile-wide cauldron. There are lava formations, waterfalls and the world's largest obsidian field.
541-593-2421 <http://travelingtoday.com/resources/articles/nnvolcanicmonument.htm>
- The Pine Mountain Observatory, Bend area
The observatory's 15-inch and 24-inch telescopes are available to view Jupiter, comets, the moon, star clusters and faraway galaxies every Friday and Saturday night from late May through September, weather permitting. Drop-in viewing begins at dusk and continues all night. Interpretive programs start at 9 p.m. A donation of \$3 per person is requested to help defray cost. Located 26 miles SE of Bend, Oregon, and 8 miles south of Millican at an elevation of 6500 feet. Free camping is available. A group of amateur astronomers, called the Friends of Pine Mountain Observatory, helps to operate the Summer visitors season as well as to visit classrooms during the school year as part of the Observatory's outreach campaign. Advance notice is required if you plan to bring a group larger than eight people. Other times possible by advance reservation. Skies need to be clear, "Dark Moon" weekends are best. Virtual tour at <http://pmo-sun.uoregon.edu/~pmo/tour.html>. The facility is operated by the University of Oregon Physics Department.
(541) 382-8331 <http://pmo-sun.uoregon.edu/~pmo/index.html>

EASTERN OREGON

- National Historic Oregon Trail Interpretive Center, Baker City
The 2000-mile journey across the Oregon Trail comes alive through the exhibits and re-enactment's at the Center.
1-541-523-1843. <http://www.efn.org/~venus/antique/oregontrail.html>

THE COAST

- Umpqua Discovery Center, Reedsport
The Umpqua Discovery Center is an educational and cultural resource for all ages making active, innovative contributions to preserving the Oregon "Tidewater Community" experience. Interactive exhibits and programs illustrate how land, water and people have shaped each other over time.
541-271-4816 <http://www.harborside.com/~discover>
- Siuslaw Pioneer Museum, Florence
Historical artifacts and photographs specific to the coastal area. Open daily 12-4.
541-997-7884.
<http://www.florencechamber.com/business-directory/siuslaw-pioneer-museum.shtml>

GIRL SCOUT BACKPATCH: Summer Lovin' Fun

- Coos County Logging Museum, Myrtle Point
Tools, artifacts and photographs of logging industry dating from the late 1880's to 1950's.
541-572-2352 or 541-572-5266
- Hatfield Marine Science Center, Newport
Interactive exhibits and aquaria highlight research conducted by marine scientists. Special tours and programs available.
541-867-0100 <http://hmsc.oregonstate.edu/>
- Yaquina Head Outstanding Natural Area, Newport
Visit the interpretive center, explore the lighthouse and examine creatures in the tide pools. Wheel chair accessible. Oregon Department of Fish and Wildlife,
- Oregon Coast Aquarium, Newport
A slice of Oregon's rugged coastline, reproduced on the shore of Yaquina Bay. Presenting more than 190 animal species that thrive in the unique habitats found where the Pacific Ocean meets the Oregon shore.
541-867-3474. Email: webmaster@aquarium.org <http://www.aquarium.org/>
- Cape Perpetua Visitor Center, Yachats
Volkswalk trail for the energetic as well as shorter walks to the tide pools and Devil's Churn. Also an auto tour to the top of Cape Fairweather.
<http://www.orcoast.com/capeperpetua>
- Sea Lion Caves, Yachats
Wild, roaring Stellar sea lions live inside the cave or on the rock ledges outside. It's the only known mainland home of wild sea lions in the world.
541-547-3111 <http://sealioncaves.com/>

PORTLAND AREA

- OMSI, Portland
There's always something to do and see at OMSI! In addition to hundreds of interactive exhibits and labs, OMSI offers dozens of fun-filled, interactive events designed for visitors of all ages. This summer's program offers several topics.
503-797-6674. <http://www.omsi.edu/>
- KENDALL PLANETARIUM
Take a trip to the stars in OMSI's Harry C. Kendall Planetarium, the largest and most technologically advanced planetarium in the Pacific Northwest. The 52-foot domed theater features educational astronomy shows with state-of-the-art visuals and special effects. The Harry C. Kendall Planetarium offers a variety of educational and entertaining multimedia presentations on astronomy, space science and laser programs.
Pacific Northwest Skies takes visitors on a journey to the stars, constellations and celestial highlights of our night sky. No matter what the weather is outside, the stars always shine in OMSI's Kendall Planetarium. Take a look at the current night sky, the visible planets and more. Perfect for all ages!
- Oregon Zoo, Portland
Animals so close, you'll wonder who's watching who. You'll see and sense what it's like to be in each animal's natural habitat.
503-226-1561. <http://www.oregonzoo.org/>
- Children's Museum, Portland
Discover a world of hands-on fun especially designed for children up to 10 years old.
503-223-6500. <http://www.portlandcm.org/>

GIRL SCOUT BACKPATCH: Summer Lovin' Fun

- End of the Oregon Trail Interpretive Center, Oregon City
Step back in time 150 years to those days when “Oregon Fever” swept the country like wild fire. More than 300,000 people crossed this land on the Oregon Trail, in search of a new life. Experience the adventure of that journey through living history interpretations, exhibits, storytelling and a mixed media presentation.
503-657-9336 <http://www.blm.gov/or/oregontrail/ortrail-map.php>

WILLAMETTE VALLEY

- Mission Mill Museum, Salem
A living tribute to the Willamette Valley's textile industry, featuring an 1896 woolen mill, historic homes dating to 1841, and shops in a park-like setting.
503-585-7012, 1-800-874-7012. <http://www.missionmill.org/>
- Bush House, Salem
A 10,000 square-foot mansion built in 1878 is now a museum set among 90 acres of oak groves, gardens, an art center and an old greenhouse.
503-363-4714 http://www.oregonlink.com/bush_house/index.html
- A.C. Gilbert's Discovery Village, Salem
A.C. Gilbert's Discovery Village is an interactive children's museum where the imagination comes alive. Children and adults enjoy hands-on learning through exhibits, classes, and daily activities.
503-371-3631. <http://www.acgilbert.org/>
- The Science Factory, Eugene
For more than 35 years The Science Factory (formerly known as WISTEC) has been the catalyst for a spontaneous reaction between the curiosity and imagination of children. The museum's periodically changing displays provide mind-stretching, hands-on encounters with wonders of the universe ranging from transcendent nature of atomic particles to what keeps bridges from falling down and computers humming. At The Science Factory, “hard” subjects like math and science melt into fun!
541-682-7888. Email: info@sciencefactory.org <http://www.sciencefactory.org>
- Oregon Air & Space Museum, Eugene
Depicting the story of Oregon's aviation heritage and history. Group tours arranged anytime.
541-461-1101.
- University of Oregon Museum of Natural History, Eugene
541-346-3024.
<http://natural-history.uoregon.edu/>
- Mt. Pisgah Arboretum, Eugene
A 208-acre “living museum” on the banks of the Coast Fork of the Willamette River. Seven miles of all-weather trails lead visitors through conifer forests, oak woodlands and riparian areas. For information about tours and workshops call
541-747-1504. <http://www.efn.org/~mtpisgah>
- Nearby Nature, Eugene
A nonprofit educational organization hosts free nature walks, environmental restoration work parties, and day camps in East Alton Baker Park.
541-687-9699 <http://www.nearbynature.org>
- Cascades Raptor Center, Eugene
A nature park featuring 25 species of native Oregon birds of prey, including hawk, owls, eagles and falcons. The birds in captivity are disabled and thus non-releasable. More than 40 birds in

GIRL SCOUT BACKPATCH: Summer Lovin' Fun

large cages. Open to the public from 10-4 Tue., Thur. and Sat. Group tours may be scheduled on other days. Admission: \$4 adults, \$3 teens, \$2 children. 32275 Fox Hollow Road
541-485-1320 www.raptor-center.org

- Dorris Ranch Living History Farm, Springfield
Enjoy self-guided tours on trails that lead you through 250 acres of filbert orchards, natural wildlife areas, and river front greenways.
541-736-4544. http://www.willamalane.org/1_dorris/index.htm
- Springfield Museum, Springfield
Located in a historic power station. Historic Springfield Interpretive Center. Changing exhibits.
541-726-2300. Call 541-726-3677 to schedule tours. <http://www.springfieldmuseum.com/>
- Shelton McMurphey Johnson House, Eugene
The Shelton-McMurphey-Johnson House, built in 1888, was often referred to as the "Castle on the Hill" because of the panoramic views of Eugene and the surrounding hills.
541-484-0808. <http://www.smjhouse.org/>
- Lane County Historical Museum, Eugene
The Lane County Historical Museum opened in 1951 and is dedicated to collecting, preserving and interpreting Lane County's history from the early 1800's to the present.
541-682-4242. Email: lchm@efn.org, <http://www.lanecountyhistoricalsociety.org/>
- West Eugene Wetlands, Eugene
The West Eugene Wetlands includes more than 2,200 acres of open space within the city limits of Eugene. There are more than two miles of walking trails, boardwalks, a wildlife observation blind, several interpretive overlooks and a paved bike path that follows Amazon Creek through the wetlands.
Call 541-683-6181 for more information. <http://www.ci.eugene.or.us/parks/wetlands/>

SOLAR ENERGY/SOLAR COOKING

Solar energy can do many things for us - heat water, warm our homes - even cook our meals! Try some of the following - you'll find the sun's heat can really work. Solar heat is free, and a simple cooker is inexpensive to make. Solar cooking is fun! It is also very energy efficient. No charcoal, wood or propane gas is used: just the sun, a cardboard box, aluminum foil and a pot are needed. Using a package mix you can make brownies, gingerbread or cakes. Follow the instructions on the next pages to cook one pot meals, beans and other vegetables.

HEATING WATER

Materials needed:

- 2 large enamel dishpans
- plastic wrap (Saran wrap) large enough to line one pan
- 2 sheets of glass or Plexiglas - 1/8" - 1/4" thick and large enough to cover the pans
- thermometer - immersible
- watch or timer

In the morning, set both dishpans in an area where they will be in full sun all day. Line one pan with plastic wrap and then fill both pans with cold water. Determine the air and water temperatures and record. Cover both pans with glass/Plexiglas. Each half hour, measure air and water temperature in each pan and record. See how much the temperature changes through the day in each of the pans.

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EGGS ON THE SIDEWALK

Materials needed:

- 3 eggs
- 2 black (cast iron) frying pans
- 1 sheet of glass

Clean a space on the sidewalk. Cook an egg on the open sidewalk, in an open frying pan and in a frying pan covered with the glass. See how the color black and the glass trap the heat.

(HINT - You'll need 144° to get the eggs to thicken.)

COWBOY CANDY

This is a fun treat that uses the sun to cook it! Both recipes are good. Girls may think of other "goodies" to throw in (raisins, crispy chow mein noodles, sunflower seeds, etc.)

RECIPE #1: Melt in a can in the sunshine: one 6 oz. package chocolate or butterscotch chips and 1/4 cup peanut butter. Stir in 3 cups Rice or Wheat Chex. Drop by teaspoons onto a foil covered pan and put in the refrigerator or a cool place to harden.

RECIPE #2: Empty one small jar of crunchy-style peanut butter; one package of chocolate chips and one cube of margarine in a 9x13 pan. Cover the pan with foil and place in sun for about 40 minutes. Stir in one 1 pound box of powdered sugar and mix until stiff. The mixture can be left in the pan to set or transferred to candy molds.

WAGGGS AND SOLAR COOKING

Zambia Girl Guides are helping to spread the use of Solar Cooking technology around their country. Solar cooking is being used at Kakuma Refugee Camp in northwestern Kenya with help the of Girl Guides. Rangers (17 & 18 year-old Guides) are helping to provide workshops in Botswana and Zimbabwe.

These countries all share the same problem, the lack of firewood for cooking. In the refugee camps the situation is critical. If you are interested in finding out more about solar cooking and the involvement of Girl Scouts and Girl Guides, contact Barby Pulliam at barby@barby.com or her web page: <http://www.barby.com/> This project was initiated by Barby and her Senior Girl Scout troop in Northern California. It has since then spread far and wide with help from other Girl Scouts.

**Bend Service Center**

908 NE 4th Street Ste 101
Bend, OR 97701
541-389-8146

Eastern Oregon Contact

P.O. Box 1346
Hermiston, OR 97838
541-667-9696

Eugene Service Center

1577 Pearl Street Ste 300
Eugene, OR 97401
541-485-5911

Klamath Falls Service Center

707 Cypress Avenue
Klamath Falls, OR 97601
541-884-0989

Medford Service Center

2001 N Keene Way Drive
Medford, OR 97504
541-773-8423

North Bend Service Center

1611 Virginia Avenue
Box 610, Ste 216
North Bend, OR 97459
541-756-4626

Portland Service Center

9620 SW Barbur Boulevard
Portland, OR 97219
503-977-6800

Roseburg Service Center

2556 W Harvard Ste 1
Roseburg, OR 97471
541-672-2401

Salem Service Center

1922 McGilchrist Street SE
Salem, OR 97302
503-581-2451

