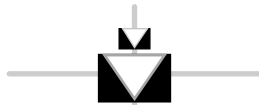




NATIVE FOODS: Linking the Past with the Present



A Leader's Guide to the Food Culture of the
Native American Plateau Cultural Area
for 5th–8th Grades



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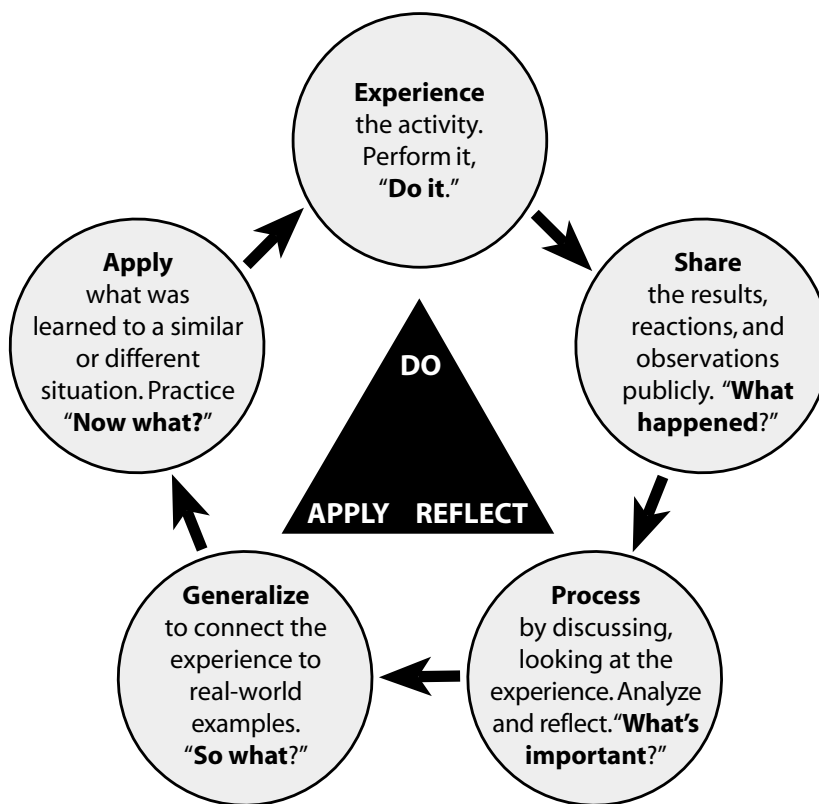
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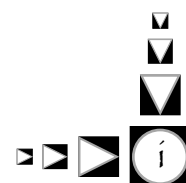
LEARN BY DOING

The 4-H Youth Development Program promotes learn-by-doing. A five-step process helps turn activities into learning experiences. Each of the activities in the Native Foods Curriculum has combined the five steps of the Experiential Learning Model into the three-step model of “**DO, REFLECT, and APPLY.**”

The experiential process of learning engages children in the activity, encouraging them to think more, explore, question, make decisions, and apply what they have learned. Learning by doing provides opportunities for the development of life skills.



Experiential Learning Model



YOUTH LEARNING CHARACTERISTICS

Listed below is a list of characteristics that are common to children in the 5th through 8th grades. Please remember, however, that children develop at their own pace, and all characteristics will not be observed in all children at the same age.

10–11 YEAR OLDS

- Active, full of energy, and anything but quiet. Activities should encourage physical movement.
- Interests may change often, jumping from one thing to another. Activities divided into small pieces or steps work best.
- Fairly concrete thinkers and tend to be more attentive if they have an opportunity for hands-on learning (seeing and doing rather than just learning).
- Just beginning to think logically and symbolically and are beginning to understand abstract ideas. As they consider an idea, they think it is either right or wrong, fun or boring (very little in between).
- Look for adult approval and have a strong need to feel accepted and worthwhile. Adults should provide lots of encouragement and recognize even small successes.
- Individual evaluation is preferred over group competition. Instead of comparing success with others, youngsters prefer to know how much they improved and what they should do to be better next time. They are easily embarrassed about doing either better or worse than their friends.
- Beginning to move out of the stage in which the satisfaction of completing a project often comes from pleasing the leader or parent rather than from the value of the activity itself.

12–13 YEAR OLDS

- Growth spurts may begin at this age, with girls maturing faster than boys. These rapid changes may make some teens uncomfortable with their changing body images.
- As puberty approaches, there begins a roller coaster ride of hormones and emotions, presenting a major challenge to a young person's self concept.
- Faced with so many changes they hardly know who they are. They begin to test values and identities and seek adults who are accepting and willing to talk about values and morals.
- Desiring a sense of independence from parents, they are concerned about being liked by friends. Opinions of peers become more important than opinions of parents and other adults in the areas of dress, music, and activities.
- Moving from concrete to more abstract thinking. Ready-made solutions from adults are often rejected in favor of finding their own solutions. Small groups provide an opportunity to test ideas.
- Adults should continue to avoid comparing young people with each other, being careful not to embarrass them. They want to be part of something that is important and that provides an opportunity to develop responsibility.
- Justice and equality are important issues. Judging of projects is viewed in terms of what is fair. Ribbons are seen as reflection of the individual's self-worth rather than feedback on a specific project.



—Adapted from *Leader's Guide Foods Curriculum*, BU-7145, pages iv and v



DEVELOPING LIFE SKILLS

The purpose of this 4-H leader's guide, *Native Foods: Linking the Past with the Present*, is to help youth develop life skills by involving them in fun, activity-based, learn-by-doing experiences.

Acquiring Life Skills Enable Youth to:



recognize and respond to significant life events



be self-directing and productive; lead satisfying lives and contribute to society



function effectively in a changing world

Life Skills Included in the Native Foods Leader's Guide are:



decision making



learning to learn



acquiring knowledge



critical thinking



making healthy life style choices



planning



organizing



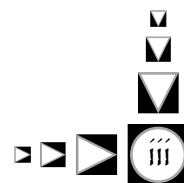
service learning



acquiring useful skills



wise use of resources



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INTRODUCTION

Plateau Cultural Area

The Plateau cultural area of North America was located between the Cascade Mountains and the Rocky Mountains in the present day states of Washington, Oregon, Idaho, and in British Columbia, Canada. It extends from south of the Fraser River in British Columbia to northern Oregon. This region is semi-arid, with considerable variation in climate. The Columbia, Snake, Thompson, and Fraser rivers and their tributaries were major sources of migrating salmon. Numerous types of berries, roots, and fish were the principal sources of food for the Plateau people.

Plateau people obtained their food according to the seasons. They gathered and preserved the food whenever it was available during certain times of the year. These native people traveled wherever and whenever the food was ready. Roots were dug in the spring. Salmon fishing began in early May and continued until autumn. Berries and other fruits were gathered from early summer until fall. Other foods were also collected throughout the spring, summer, and fall months.

The native people of the Plateau gathered, fished, and hunted for food most of the non-winter months, constantly collecting food to eat at the time and to dry for storage for the cold months of winter. They gathered food to live. They expended a great deal of energy to collect, preserve, and store all the food needed for daily and winter use.

For the Plateau people, food was a source of energy to take care of all the necessary duties. Today, we are more likely to eat foods because they taste good. Because foods taste good, we often eat more than we need for energy use.



We are more likely to “live to eat” than “eat to live” like the early natives of the Plateau.

An important part of subsistence for Plateau people were the tools or utensils needed for acquiring, preserving, preparing, and storing foods. Food, of course, is necessary to live. However, in order to survive, people also needed the knowledge of what plants could be used to make baskets for collecting, cooking, and storing food, to make nets and other tools for fishing, and to make mats for drying foods.

Because food could be scarce depending on weather and location, Plateau people were appreciative of those foods, thanking and honoring the spirits who provided them in “First Fruits” and “First Roots” ceremonies.

Winter was a time for visiting, story telling, trading, playing games, performing rituals, making, and repairing equipment. Hunting parties spent time hunting game to supplement stored foods.

SALMON

Fish, especially salmon, were an important food source for the Plateau people who lived along the rivers and streams of the Pacific Northwest. Millions of salmon and steelhead trout traveled from the Pacific Ocean each year to their spawning beds throughout the Columbia River drainage system. The same was true of the Fraser River in what is now Canada.

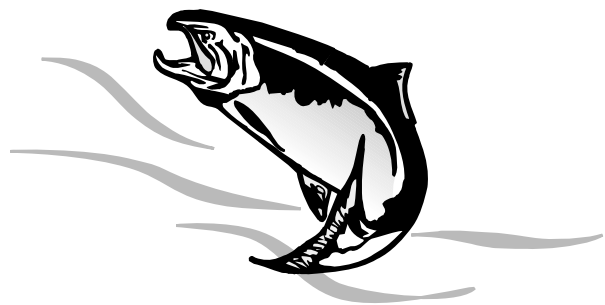
Salmon and steelhead trout were obtained in large numbers from May until November. While some of these fish were eaten as fresh food, the majority were air dried and stored for winter use. Other varieties of fish, besides salmon and steelhead, were also used for food by the Plateau people, but not in as large quantities. Sturgeon, eel, whitefish, suckers, and trout were some of these fish.

FOOD FOR SURVIVAL

Fish were eaten by Plateau people because they were available in large numbers and could be preserved and stored for winter use. Fish contain protein, a nutrient needed by the human body for building and repairing muscle, skin, blood, bone, and brain; it was an essential part of the Plateau diet.

Salmon is also an important food source for Omega-3 acid, an essential nutrient needed to form membranes of the brain and support the functioning of the retina of the eye.

- ▲ **Goals/Objectives**—use the USDA Food Guide Pyramid to make healthy eating choices, learn about serving sizes
- ▲ **Life Skills**—learning to learn, acquiring knowledge, critical thinking, healthy life style choices
- ▲ **Project Skills**—learn how to use the Food Guide Pyramid, learn what serving sizes are
- ▲ **Background**—Humans need food to survive. Food gives us two things—energy to move and do things and nutrients to help us grow and stay healthy. However, too much food (especially food with too much fat and sugar and few or no nutrients) and not enough activity can lead to obesity and other health problems. Plateau people only had certain foods available for



gathering and limited methods of preserving those foods. Today, many, many foods are available and these foods are easily accessible at grocery stores.

TIME REQUIREMENT

At least a week, but preferably a month or more

PREPARATION

- Time for prep—time collecting information and resources
- Supplies—daily food/activity journal, see Appendix
- Setup—none needed

DESCRIPTION of ACTIVITY

Do Using the information in the Food Guide Pyramid and the Nutrition Information in the Appendix (or use United States Department of Agriculture publications about healthy eating and the Food Guide Pyramid), have youth study the Food Guide Pyramid and nutrients needed by the body. For three days, have youth keep track of the foods they eat in a food journal such as

the one in the Appendix. List the foods, the amounts, and the Food groups from the Food Guide Pyramid.



Have the youth think about the following questions:
How did the foods you ate daily compare with the suggestions in the Food Guide Pyramid? Did you have enough servings of each food group or too many? What happens if you have more servings of the Bread, Meat, and Dairy food groups? What happens if you eat too much fat and sugar? Did you eat enough servings of foods that contain calcium? Why do you need calcium? What are some foods that contain calcium?



Have the youth apply their knowledge by completing the following activities:
Prepare a public speech or demonstration about healthy eating and being active. Design an educational poster about the Food Guide Pyramid or the importance of nutrients.

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

ADDITIONAL ACTIVITIES

Salmon is a great food source for the nutrient protein. Using the Nutrition Information/Chart in the Appendix, have youth make a chart or educational poster showing how protein is used in the body and the foods that supply protein.

RESOURCES

- *Six Easy Bites, Level A (4-H Foods)*, MNBU7144, 4-HCCS Curriculum
- *Helper's Guide A (Six Easy Bites)*, MNBU7145, 4-HCCS Curriculum
- *Traditional Foods Can Be Healthy*, National Cancer Institute. NIH Pub. No. 96-3548, September 1996. Call 1-800-4-Cancer.
- *Food and Activity Journal*, Washington State Dairy Council, www.eatsmart.org, phone: 425-744-1616
- Siser, Frances S., Whitney, Eleanor N., *Nutrition, Concepts and Controversies*, West Publishing Co., New York, 1994

FOOD ACQUISITION

Because enormous numbers of salmon were available to the Plateau people, many different methods of technology were used to acquire the fish. Different methods were necessary depending on the location, the height of the water, and the number and type of fish to be caught. Spearing, dip netting, trapping (with weirs and baskets), seining (with large mesh nets), poisoning, and hand collecting were some of the ways fish were caught.

Trout and smaller fish were caught by hook-and-line in mountain streams. Line was made of hemp or horsehair; the hook, of bone.

- ▲ **Goals/Objectives**—to learn how to catch a fish from the shore of a stream, river, lake, or pond
- ▲ **Life Skills**—planning, organizing, decision making, learning to learn
- ▲ **Project Skills**—learn about basic fishing tackle, techniques of fishing
- ▲ **Background**—Plateau people used many different methods to catch fish. They used the natural resources available to them to make spears, nets, weirs, and baskets. Today, instead of making tools to catch fish, people usually buy what they need at a sporting goods or fishing tackle store. And, unlike the few tools made by native peoples, there are many fishing tackle items available.

TIME REQUIREMENT

Part or all of a day for fishing, and a day or more for purchasing and getting ready for the fishing activity.

PREPARATION

- Time for prep—a day or two
- Supplies:
 - ✓ fishing tackle needed for shore fishing
 - ✓ basic tackle—fishing rod and reel, line, hooks, sinkers, bait (artificial or live). (Fishing tackle store assistants will help you choose tackle, or use the information provided in WSU Extension

publications, *Sport Fishing and Aquatic Resources* handbook and the *CCS Sportfishing Curriculum*.)

- Setup—gathering all the necessary equipment and traveling to fishing area

DESCRIPTION of ACTIVITY



Have youth use the booklet *Fishing is Fun For Everyone*, developed by the U.S. Fish and Wildlife Service, for what to buy for tackle, how to get ready to fish, how to fish, and then go fishing, following the tips provided. The booklet can be downloaded at the U.S. Fish and Wildlife Web site: (<http://www.fws.gov>) or (http://library.fws.gov/Pubs/fish_fun_.pdf) or contact your local U.S. Fish and Wildlife Service to obtain one. You may also recruit an adult volunteer who fishes to assist you. If youth catch a fish, they need to bleed and/or gut the fish, place in a cooler with ice both on the bottom and top of the fish. Transport as soon as possible to a refrigerator. If youth will not be cooking and eating the fish within 2 days of catching it, preserve the fish by following the instructions in the Food Preservation section of this unit.

Have youth learn and follow the rules and regulations of fishing in the area where you will fish. This information is usually available at fishing tackle stores.



Have the youth think about the following questions:
Getting ready to go fishing takes time and costs some money. Do you think it was easier to get ready to go fishing now or one hundred years ago? How would it have been to have to travel to gather the materials needed to make the tools used for fishing, take the time to make them, and then have time to fish?

Did fishing require “patience”? Did you like fishing? Do you think you would like it if you had to fish every day all summer long, year after year?



Have the youth complete the following activities:
Keep a record of how much you spent on tackle, how many hours you spent buying the tackle, getting ready to go fishing, and how much time



you spent fishing. How many fish did you catch? Calculate how much each fish cost. Take a trip to a grocery store and check how much a fish of similar type would cost to purchase at the store. How much did the fish you caught cost? Were you fishing for food or pleasure? Did the Plateau people fish for food or pleasure?

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

ADDITIONAL ACTIVITIES

Have youth search the Internet or ask the people at the tackle store to research the kinds of fish in the area where you will be fishing. What kinds of things do they eat? Will that determine what you use for bait?

RESOURCES

- *Fishing is Fun for Everyone*, U. S. Fish and Wildlife Service, 1999
- Hunn, Eugene S., *Nch'I-Wana "The Big River."* University of Washington Press, Seattle. 1990
- Ray, Verne F., *The Sanpoil and Nespelem: Salishan Peoples of Northeastern Washington.* University of Washington Press, 1932
- Schmidt, Bob, *Sport Fishing and Aquatic Resources Handbook*, Kendall/Hunt Pub. Co., 1991. Available from WSU Bulletin Office
- *Take the Bait*, Sportfishing Project Activity Guide, 4-H Cooperative Curriculum System. Available from WSU Bulletin Office

FOOD PRESERVATION

Large quantities of salmon, obtained during the summer and early fall months, were air- or sun-dried by Plateau people for use during the winter.

- ▲ **Goals/Objectives**—learn to properly handle caught fish, to preserve either caught fish or purchased fish for later use
- ▲ **Life Skills**—decision making, critical thinking, learning to learn

▲ **Project Skills**—learn to properly freeze fish for later use

▲ **Background**—The salmon, when caught by Plateau people, were cleaned, usually cut in half lengthwise, slashed diagonally every half inch and then hung by the tail to dry on racks built of poles. The racks were covered with brush and leaves to keep the fish from the direct rays of the sun. After drying, the fish were stored in flat, flexible, twined bags, 18"–20" wide x 32"–36" long. Today, fish are usually preserved by freezing, smoking, or canning in a pressure canner.


TIME REQUIREMENT

Less than an hour depending on amount of fish to be frozen

PREPARATION

- Time for prep—time necessary to purchase needed freezing supplies. Time for fish to freeze for glazing and then wrapping for freezer storage.
- Supplies—laminated paper (locker paper or butcher paper), freezer or masking tape, felt marker, sharp knife, cutting board, large tray. A machine that vacuum packs food for the freezer can also be used.
- Setup—kitchen with sink and counter, freezer

DESCRIPTION of ACTIVITY

 Have youth wash fish and remove scales by scraping the skin of the fish with a knife (adult supervision). If the fish is one the youth caught and have not gutted and cleaned, do so now—removing the entrails, gills, head, and fins. *The caught fish should have been bled before placing in a cooler with ice for transporting.* Cut into steaks, fillets, or leave whole.

Have youth glaze the fish to protect it against drying and loss of flavor while frozen. (Glazing is a protective layer of ice.) To glaze, place unwrapped fish or pieces of fish on a tray in the freezer. When frozen solid (may be overnight), dip into cold water. The water will freeze, forming an ice glaze. Wrap fish (in quantities to be cooked at one time) in the laminated paper, which is a moisture-vapor

resistant wrap. Pull the wrap tightly, forcing out as much air as possible and seal with a drugstore fold. Secure with tape, label with marker the date, type of food, and number of servings. Fish, after glazing, can also be placed in vacuum bags and sealed with a vacuum packer.

To retain its nutrient value and flavor, fish should only be stored in the freezer for five to nine months.



Have the youth answer the following questions:

Why would you want to freeze fish? If you went fishing, what was the limit of fish that you could catch? Could you eat all the fish you caught? Did you need to preserve some to eat at another time? Can you purchase fish at a grocery store year round? How did the Plateau people preserve their fish? Why did they have to preserve their fish?



Have youth complete the following activities:

Create an educational poster on the proper way to handle, preserve, and store fish. Prepare a demonstration for a public speaking contest. Design a simple brochure for elementary students on how to take care of fish after they are caught.

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

ADDITIONAL ACTIVITIES

Have youth create a chart or poster that compares how people catch and handle fish today with how the Plateau people did it one hundred and fifty years ago.

RESOURCES

- EC 1414, *Handling Sportcaught Fish*, Oregon State University Extension Service, October 1992
- EB 1195, *Freezing Meat, Fish, and Poultry at Home*, WSU Extension publication, July 1983
- Schmidt, Bob, *Sport Fishing and Aquatic Resources Handbook*, Kendall/Hunt Pub. Co., 1991. Available from WSU Bulletin Office

- Setup—table and chairs

FOOD STORAGE

After the salmon was taken from the drying racks, it was usually placed in soft, flexible storage bags that were either stored in storage houses or on elevated storage platforms. The soft bags were twined of the tule or the cattail plant. After the introduction of the horse (around the end of the 1700s), the hide parfleche was used by some tribes to store dried salmon. Today, salmon is stored in manufactured containers, usually made of plastic.

- ▲ **Goals/Objectives**—make a small, hide-like parfleche (about 2 ³/₄" x 5"), similar to the ones used by the Plateau people to store dried foods
- ▲ **Life Skills**—decision making, problem solving, learning to learn
- ▲ **Project Skills**—learn to make a folded “envelope” container
- ▲ **Background**—parfleches were rawhide-skin-folded containers and were rectangular in shape similar to an envelope or folder. They were made of buffalo or horsehide in different sizes, usually 8" x 16" to 18" x 28".


TIME REQUIREMENT


Less than an hour, depending on skills of the participant

PREPARATION

- Time for prep—an hour or more depending on number of participants
- Supplies—parfleche pattern, stiff paper (brown paper bag, brown mailing paper, butcher paper), canvas or plain colored upholstery fabric, 2-foot string or leather lacing (shoestring), scissors, hole

DESCRIPTION of ACTIVITY

 Have youth follow the instructions:
Trace or transfer parfleche pattern to the material (paper or fabric) you are using
Transfer all the markings for folds and holes. Cut on solid lines. Score (use a popsicle stick or dull side of a plastic knife to press along each fold line) and fold lines if material is too thick to fold easily. Punch holes. Fold each of the long sides toward the middle. Cut 3 lengths of string, each 7 inches long and lace one through each set of holes marked B, at one end of the parfleche. Fold the short sides to the middle to form a rectangular container with the longer side on the top. To secure the container, bring each end of the strings at B through the holes at A. Decorate back and outside folded flaps of the container with paints or markers.

 Have youth answer the following questions:

Did this project seem simple to do?

What if you had to make the material you used?

How would the project be more time and energy consuming if you had to hunt the animal for the skin, tan the skin, cut the skin without modern scissors, and then make either the string or the lacing to put it together?

Apply Have youth answer the questions and complete the activities:
How will you use your container? It could be used as a decoration or to wrap a gift. Try making smaller ones to use as unique greeting cards.

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

RESOURCES

- Ray, Verne F., *The Sanpoil and Nespelem: Salishan Peoples of Northeastern Washington*, University of Washington Press, 1932

- Hunt, W. Ben, *The Complete Book of Indian Crafts and Lore*, Golden Press, New York, 1974

FOOD PREPARATION

Preparation methods for cooking salmon included roasting, pit roasting and boiling. Fresh salmon was prepared by attaching it to a long stick and roasting it over an open fire (much the same as roasting hot dogs over a campfire). Shorter sticks were often used and these were stuck in the ground at an angle pointing toward the fire. Salmon was also baked in a pit.

Dried salmon was boiled to restore the moisture lost during drying. A cedar root coiled basket was used for boiling foods. Using wooded tongs, round stones that had been heated in an open fire were placed in the basket filled with water. This caused the water to boil, cooking the salmon and the roots and berries that had been added to make a stew or thin soup.

- ▲ **Goals/Objectives**—cook fish so it tastes good and is safe to eat
- ▲ **Life Skills**—acquiring useful skills
- ▲ **Project Skills**—reading and following a recipe, measuring ingredients accurately, following through with directions
- ▲ **Background**—Fish should always be kept cold until ready to cook. Thaw frozen fish in the refrigerator a day or two before preparation. Fish is very tender and should be cooked until just done. Raw fish looks watery—fish is done when the juices are milky white and firm. The fish is done when it flakes apart.

Fish can be cooked in different ways. It can be pan-fried, deep-fat fried, broiled, simmered, baked, microwave-cooked, or made into stews or soups.

TIME REQUIREMENT

30–60 minutes

PREPARATION

- Time for prep—time necessary to acquire fish (purchasing or going fishing)
- Supplies—fish (salmon steaks or small fish—fresh or frozen), salt, pepper, flour, oil for frying (about $\frac{1}{4}$ inch covering the bottom of the skillet), skillet, cooking range, or electric skillet
- Setup—set up necessary supplies in kitchen

DESCRIPTION of ACTIVITY



Have youth follow these instructions for cooking pan-fried fish:

1 teaspoon salt
 $\frac{1}{2}$ teaspoon pepper
 $\frac{1}{2}$ cup flour
 fish (about 2 pounds)
 oil—enough to cover bottom of skillet
 $\frac{1}{4}$ inch

1. Wash fish, drain, and pat dry with paper towel.
2. Mix salt, pepper, and flour in flat dish or pan.
3. Pour oil into skillet, heat skillet on medium heat, about 350°F.
4. Coat fish with flour mixture.
5. Fry fish about 4–5 minutes on each side (each side should be brown).
6. Fish will be done when it flakes easily when tested with a fork. If not, cook a few minutes more. Thicker pieces of fish will take longer to cook.
7. Put cooked fish on paper towel to absorb extra fat. Serve immediately.



Have youth answer the questions:
 How did your fish taste? Was this a simple way to prepare the fish? How did it compare with the way the Plateau people prepared their fish? Did you make sure it flaked easily before you ate it?



Have youth answer the questions and complete the activities:
 Since the USDA recommends that fish should be eaten at least 2 times a week, what are other ways you could prepare fish? Fish can be purchased in canned form. Try some of these kinds of canned fish—tuna, salmon, oysters, shrimp, etc. Find recipes that use these canned fish in different ways—sandwiches, vegetable dips, casseroles, patties, etc.

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

RESOURCES

- EM4704, *Fish*, WSU Extension publication, March 1993
- PNW335, *Foods of the Pacific Northwest Project 2*, pages 29–32, WSU Extension publication
- Ray, Verne F., *The Sanpoil and Nespelem: Salishan Peoples of Northeastern Washington*. University of Washington Press, 1932

FOOD SUSTAINABILITY

Salmon, once a major food source of the Plateau people, is now a major commercial resource in the Pacific Northwest. However, dams and many other obstacles along major rivers have decreased the millions of salmon that used to travel to spawning grounds throughout the Plateau area. Traditional fishing sites have been eliminated with construction of the dams, but many tribes have claimed areas where they still fish for salmon each summer.

Commercial fishing, especially along the Pacific Northwest coastline, limits the number of salmon that reach these fishing areas. Federal, state, tribal, and private agencies are concerned about the dwindling salmon population.

- ▲ **Goals/Objectives**—learn about the life cycle, the commercial industry, survival and sustainability issues, and plans for recovery of the Pacific salmon
- ▲ **Life Skills**—learning to learn, service learning
- ▲ **Project Skills**—use resources (library, Internet, experts) to gain information about salmon
- ▲ **Background**—Government and private agencies, as well as sportfishing groups and environmentalists, have been concerned with the issue of sustainability of the salmon population for many years. The issue is very complex and there are many aspects of the problem that need to be considered.

TIME REQUIREMENT

Time required will depend on the amount information to be researched.

PREPARATION

Research preparation will be either in a library, on the Internet, or interviewing people knowledgeable about the subject (including tribal elders).

DESCRIPTION of ACTIVITY



Have youth complete the activities:

Library Research—use the card file or the Periodical Guide and/or **Internet**—

use a “search engine” to: research the life cycle, commercial industry, survival and sustainability issues, and plans for recovery of the Pacific salmon. Prepare some questions regarding the research list above and ask elders and other experts what they know about the issues and the history.



Have youth answer the questions:

What did you learn? What are the problems facing the future of the Pacific salmon? Do you think it is important to save the salmon?



Have youth answer the questions and complete the activities:

How do the issues facing the Pacific salmon affect you, your family, your community, or your state? What are some of the groups that are trying to resolve the issues and problems? How can you help?

Prepare a speech to present at a Public Speaking Event on the issues, problems, and possible solutions in salmon recovery efforts.

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

RESOURCES

- (Internet site) <http://www.cbrj.washington.edu/crisp/rel/salmon.html>
- “Long Journey of the Pacific Salmon,” *National Geographic*, July 1990

PLANTS OF THE PLATEAU

Plants were an important part of the Plateau people's diet. The food uses of over one hundred plants were known to the Plateau people, including knowledge about how and when to gather the plant foods, the best methods of cooking them, and the most efficient ways to process and store them for winter use. Types of plant foods were fruits, berries, nuts, seeds, shoots, leaves, sprouts, roots, tubers, corms, bulbs, rhizomes, mushrooms, and tree lichen.

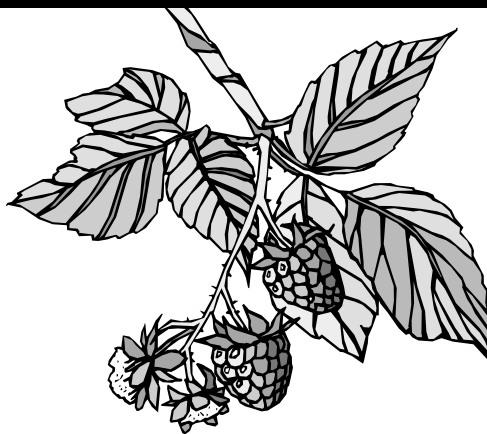
BERRIES AND OTHER FRUITS OF THE FOREST

FOOD FOR SURVIVAL

Although salmon and roots were the principal sources of energy for Plateau people, forest fruits, especially berries, were also important foods. Depending on the location, people collected numerous kinds of berries and other forest fruits during the months of June, July, August, and September.

Hand-picked berries required containers for collection, drying, and storing. Baskets and bags made of plant materials were the containers used by the Plateau people to collect the berries. These hand-made containers could take months, days or only hours to make. Just collecting the materials to make the baskets could take a great deal of time and effort, though some baskets (like the bark baskets) could be made from easily gathered materials in a short amount of time.

Because Plateau people used energy gathering materials to make food acquisition tools, making the tools, gathering the food, and processing it for winter storage, they used the energy provided by that food. Plateau people preserved their food without the addition of fats and sugars and so the natural food did not contain unnecessary calories, as many foods today do. People today are less active and eat more processed foods than people one hundred years ago. Many people in the United States are overweight because of lack of activity and overeating.



- ▲ **Goals/Objectives**—learn how to use the Nutrition Facts label to determine the amount of fat eaten daily
- ▲ **Life Skills**—learning to learn, acquiring knowledge, critical thinking, healthy life style choices
- ▲ **Project Skills**—use the Nutrition Facts label to make healthy eating choices
- ▲ **Background**—Humans need food to survive. Food gives us two things—energy to move and do things and nutrients to help us grow and stay healthy. Plateau people prepared and preserved their food with little added fat. Today, foods are prepared and processed with large amounts of fat so they will taste great. To avoid obesity, less fat should be eaten and activities increased (see Roots Unit).

TIME REQUIREMENT

30 to 40 minutes

PREPARATION

- Time for prep—time collecting Nutrition Facts labels
- Supplies—paper and pencil
- Setup—none needed

DESCRIPTION of ACTIVITY

Do Have youth collect Nutrition Facts labels from food packages, making sure that there are a wide variety of labels that depict different serving sizes (cups, tablespoons, pieces, units, eggs, slices, etc.). Have youth list the kinds of facts found on a label (serving size, total fat, sodium, etc.). Thoroughly, discuss all of the facts included on the label, especially the recommended daily amounts of nutrients listed at the end of the label. Be sure to note how many servings in the container. Have the youth check the amount of fat on the Nutrition label in some of the foods. Discuss which kinds of food have more fat (margarines, chips, cookies, red meats, etc.) and which have little or none (vegetables and fruits).

Reflect Ask youth to think about the following questions:
Do the foods you normally eat contain a lot of fat? Did the foods the Plateau people ate contain any fat? How much fat should you eat daily? Do you think you might eat more or less than that amount?

Apply Have youth answer and do the following:
How will you apply what you have learned about the Nutrition Facts label? Do you think you will now be more aware of what and how much you eat? Prepare a public speech or demonstration about using the Nutrition Facts label. Design an educational poster showing the amount of fat needed daily and the amounts of fats in snack foods.

RECORD KEEPING

- ☐ Have youth complete the record keeping form in the Appendix.



ADDITIONAL ACTIVITIES

Many kinds of forest fruits were gathered by Plateau people. Have youth complete the word search puzzle “Fruits of the Forest” in the Appendix.

Using the Nutrient Information/Nutrient Chart in the Appendix, have youth make a chart of the nutrients needed by the body that are provided by fruits. Show why these nutrients are important and which fruits are sources of these nutrients.

RESOURCES

- *The Power of Choice, Helping Youth Make Healthy Eating and Fitness Decisions*, A Leader’s Guide, United States Department of Agriculture, Food and Nutrition Service
- *Traditional Foods Can Be Healthy*, National Cancer Institute. NIH Pub. No. 96-3548, September 1996. Call 1-800-4-Cancer.

FOOD ACQUISITION

Plateau people traveled on foot or by horse to the berry patches where they camped for weeks. They picked berries by hand, placing them in containers they had made from natural plant materials. Several different types of containers were used, including the coiled cedar root basket and the folded cedar bark basket. These baskets were also used to store the dried berries for winter use. Today, most people travel by car to the berry patches and use plastic bags and plastic containers for picking.

- ▲ **Goals/Objectives**—make a small coiled basket similar to the coiled cedar root baskets made by the Plateau people used for collecting berries
- ▲ **Life Skills**—decision making, problem solving, learning to learn
- ▲ **Project Skills**—learning the coiling technique for basket making; using yarn and a yarn needle
- ▲ **Background**—Coiled baskets were made by the Plateau people using cedar roots. These

hard baskets were used for gathering and storing foods, cooking food, bathing babies, holding water, steeping herbs, carrying belongings and personal items, and many other uses. Cedar roots that were farthest from the tree were the straightest, easiest to use, and the most pliable. The cedar roots were distinguished from other roots by the way they smelled and tasted. Other tree roots have a bitter taste, while cedar root has a fresh, damp earth taste.

The roots were split and the thin outer bark removed. The basket was basically made from the rougher pieces forming the coil foundation and the long, smooth pieces for the stitching material. Collecting the roots and preparing them (splitting, trimming, smoothing) is a tedious, time-consuming task. After the material was prepared, it was left soaking in water because it needed to be damp to be pliable for coiling. As a basket is being coiled, dyed material is added to form designs.

TIME REQUIREMENT

3 hours or more depending on the size of basket made

PREPARATION

- Time for prep—the foundation material should be cut into at least 6-foot lengths, one for each participant. Yarn can be cut into 2-foot lengths, several (to start with) for each participant.
- Supplies:
 - ✓ foundation/coiling material—heavy cotton cord (clothesline or venetian blind cord), cut into 6-foot lengths
 - ✓ binding/wrapping material—yarn (variegated colors or plain colors), cut into 2-foot lengths, at least 75 to 80 feet for each basket
 - ✓ large blunt needles (with large eye)
 - ✓ small sharp scissors
 - ✓ clear tape
 - ✓ basket or bag to hold the supplies
- Setup—this activity can be done at tables, desks, couches, outdoors.

DESCRIPTION of ACTIVITY



(see Appendix for illustrations, figures A–L)

Have youth:

1. Thread the needle with one length of yarn. Place the end of the yarn (single strand) on the end of the heavy cord, $\frac{1}{2}$ inch from the end (fig. A). Begin wrapping the yarn tight and close together around the end of the cord, wrapping from the end and covering the yarn end as you wrap (fig. B). Continue wrapping about 2 inches (fig. C). Trim end of cord still showing beyond the yarn wrap.
2. Bend the wrapped coil to form either an oblong or round folded foundation (fig. D). Wrap the yarn tightly around the folded foundation towards the curved end as shown in fig. E. Wrap the yarn away from the curved end, so that all of the folded foundation is covered with this wrap making sure the raw end is completely covered with the yarn (fig. F).
3. Bring the needle from underneath through the edge in the center of the foundation, pulling the yarn through the foundation (figs. G and H).
4. Pull yarn tight and wrap 2 times around the exposed cord, making sure wraps are very close together and tight (fig. I).
5. Again, bring the needle from underneath through the edge in the center of the foundation, pulling the yarn through the foundation (fig. J).
6. Pull yarn tight and wrap 2 times around the exposed cord, making sure wraps are very close together and tight (fig. K).
7. Continue with these two steps, wrapping the cord and binding it to the previous coil, until the foundation becomes a flat coil (the bottom of the basket) measuring about $2\frac{1}{2}$ inches.
8. Add new yarn or a different colored yarn, as shown in fig. L.
9. To form the sides, start coiling and wrapping by placing the cord on top of the last row. Continue to wrap and coil until the basket is 1 inch to $1\frac{1}{2}$ inches high (or there is no more cord.)
10. To finish, taper the end of the cord and continue wrap until the cord is covered by yarn. With the needle, pull the yarn to the inside of the basket, stitch through a couple of wraps, and cut the yarn.



Have youth answer the following questions:

How did you feel about coiling the basket? Was it a lot of work? What problems did you have? Think about having to make the basket from materials you had to collect and then prepare before you could even coil a basket. Think about how much time it took the Plateau people to gather materials, prepare the materials, and then make the basket, while doing all the other activities necessary to live. How did they treat these baskets if they spent so much time and energy making them?



Have youth answer the following questions:

What will you use your basket for? Cedar root baskets were rigid and prevented the berries from being crushed. Is your basket stiff enough to be used for picking berries? Do you think your basket will last as long as one made with cedar root?

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

ADDITIONAL ACTIVITIES

The same coiling technique can be used to make very small baskets by using smaller materials such as hemp string, cotton string, dental floss, or crochet thread for the foundation and embroidery thread for the binding material. Have youth try making a basket or baskets with these materials to use for a necklace, earrings, or charm.

RESOURCES

- Hunn, Eugene S., *Nch'I-Wana "The Big River."* University of Washington Press, Seattle, 1990
- Ray, Verne F., *The Sanpoil and Nespelem: Salishan Peoples of Northeastern Washington*, University of Washington Press, 1932
- Schlick, Mary Dodds, *Columbia River Basketry*, University of Washington Press, 1994
- Stanli, Sue, *Basketry 11*, Eveready Superior Products, San Fransisco, 1976

FOOD PRESERVATION

Plateau people preserved berries by drying them on mats, usually made of tules. Modern methods of preserving berries include canning (especially jams, jellies, and syrups), freezing, and drying.

- ▲ **Goals/Objectives**—make a mat similar to those made by Plateau people for drying berries
- ▲ **Life Skills**—wise use of resources, learning to learn
- ▲ **Project Skills**—using simple sewing skills, such as threading a needle, sewing by hand, and using the twining technique used in weaving baskets
- ▲ **Background**—Tule, or bulrush, is a plant that grows in marshy areas or at the edges of lakes and ponds. The tule is a tall, soft reed-like plant with tiny flowers at the tips, unlike the cattail, which is a stiff reed with a tip shaped like a sausage. The core of the tule is Styrofoam-like, so it is insulating and moisture-absorbing. Tule stems are gathered, cut to size, and sewn together with Indian hemp and greasewood or bone needles to make large mats for shelters or smaller mats for drying berries and roots.

TIME REQUIREMENT

30 to 40 minutes

PREPARATION

- Time for prep—preparation time will depend on the materials used to make the tules. If using the tule plant, traveling to the plant site and cutting (which requires a knife or scissors) the tules will take additional time. The number of youth participating needs to be considered to determine the amount of tules to be cut. Tules should be cut into 8-inch lengths. Ten lengths will be needed for each mat.

If tules are not available to gather, pseudo-tules can be made from old phone book pages or newsprint (pages from newspaper). It will take additional time to make these "tules." Cut

newsprint 8 by 10 inches and enough for each participant to have 10 pieces of newsprint.

To make these “tules”: Start at the short side of one of the newsprint pieces, making a tiny fold ($\frac{1}{8}$ inch) the entire length of that side and then start rolling to make a tube (a pencil could be used to start the roll and then removed after two or three rolls). The tube will not be hollow because the tube is being rolled around itself. Thus, this tube with the paper rolled inside, resembles the tule, which has a Styrofoam-like core. Secure the ends of the tube with small strips of clear tape or glue. The tubes can be colored tan or brown with a felt tip marker or painted. Make ten for each participant.

- Supplies—ten tules or paper tules (10 inches long), sharp yarn needles, carpet thread, white cotton string, or crochet thread
- Setup—table and chairs, cotton string cut into 24-inch lengths, carpet thread into 20-inch lengths

DESCRIPTION of ACTIVITY

Do Have youth follow these directions: To make a tule mat: Thread the needle with carpet thread and tie a knot at the end. Place the 10 tules on the table, lining them up, side by side, so they form a rectangle. On one side, two inches from the edge, start sewing through all the tules, pulling the thread tight as you sew. When you sew through the last tule, go down the length of that tule six inches and start sewing back through the tules (this stitching will be 2 inches from the other edge). Pull the thread tight and knot it when you finish sewing through all the tules. Your project should now look like a small mat. Using the cotton string, twine (see diagram) both edges of the tule mat. (See Appendix for mat sewing diagram.)

Reflect Have youth answer the following questions: Did you think sewing the mat was easy? If you made the tules from newsprint, did that take a lot of time? If you gathered the tules, did that seem like a lot of work? Think about the effort the Plateau people had to expend to make mats, especially a large 10 by 20-foot mat for lodges—gathering the hemp for string, making the string, making a needle and then, gathering the tules, sewing,

and twining them into mats. What happened when Plateau people did not use their resources wisely? How do you use your resources? Do you think using old newspaper was a good way to reuse resources?



Have youth answer the following:

What other plants could be used to make mats? If you did not use your mat for drying berries, what could you use it for? Could it be used for displaying photos?

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

ADDITIONAL ACTIVITIES

Have youth try drying some frozen berries by following these directions: On a paper towel-covered paper plate spread out some frozen berries that have been thawed and drained. (The juice can be saved and used as a dye to color paper or fabric.) Taste a few of the berries and record your opinion. Measure three or four of the berries with a ruler and weigh them if you have a postal scale. Record the measurements on a sheet of paper.

Place the paper plate in a cupboard and let the berries dry for several days, checking daily. When the berries are dry and hard, measure them and/or weigh them. Berries, when dried, usually lose over 50% of their moisture. Did your berries shrink to at least half of their original size?

If you want, place the dried berries in a shallow dish and add some water, just covering the berries. Set the dish in the cupboard and let soak overnight. Boil the hydrated berries in some water and taste. How did they taste? Did they taste the same as when they were fresh?

Have youth try drying fruits in a dehydrator. Use WSU Extension publication PNW397, *Drying Fruits and Vegetables*, for instructions.

RESOURCES

- Hunn, Eugene S., *Nch'I-Wana "The Big River"* University of Washington Press, Seattle, 1990

- Ray, Verne F., *The Sanpoil and Nespelem: Salishan Peoples of Northeastern Washington*. University of Washington Press, 1932
- Turner, Nancy J., Randy Bouchard, and Dorothy I. D. Kennedy, *Ethnobotany of the Okanagan-Colville Indians of British Columbia*. British Columbia Provincial Museum, Victoria, B. C., 1980
- Turner, Nancy J., *Food Plants Of Interior First Peoples*, Royal British Columbia Museum, 1997

FOOD STORAGE

The berries and other forest fruits the Plateau people spent the summer drying for winter use were stored in caves or underground pits. These dried fruits were stored in containers, usually baskets made from plant materials. The most common type of containers used were folded cedar bark baskets, coiled root baskets and woven (twined) tule bags.

- ▲ **Goals/Objectives**—to make a folded container similar to the folded bark baskets made by the Plateau people for storing berries
- ▲ **Life Skills**—decision making, problem solving, learning to learn
- ▲ **Project Skills**—applying traditional skills (making a bark basket) for use with modern materials
- ▲ **Background**—Coiled cedar root baskets were most often used for picking and storing berries, especially huckleberries. These baskets were time-consuming to make, were well-taken care of, repaired and reused year after year. However, when there were not enough cedar root baskets on hand and the berries were plentiful, the berry picker could assemble a folded cedar bark basket rather quickly. These folded baskets were also used for cooking, holding water, and storing dried foods for winter use.

Compared with the time and effort required to make a coiled cedar root basket, the folded bark basket was much easier. To make a folded cedar

bark basket, first the bark had to be cut from the tree, reinforced with extra pieces of bark where the handles would be added. With the bark lying flat, a gentle oval was scored into the middle section of the bark using the arc of a cedar limb for the guide and a deer horn tool for the scoring.

The bark was then folded and shaped until it formed a tube-like container, sewn together with Indian hemp string and a bone needle. String was tied around the top and pulled tightly to form the more rounded, tube shape. This string was left on for several months until the basket dried. Handles of Indian hemp string or bark strips were attached to the basket.

TIME REQUIREMENT

30 to 40 minutes

PREPARATION

- Time for prep—depending on what participants will do, pre-prep would include transferring pattern to the material being used for the basket. If participants will be transferring the pattern, enough copies of the pattern need to be available and time allowed for this step.
- Supplies—pattern and instructions
 - ✓ used file folders, card stock, light-weight cardboard (cereal boxes, etc.)
 - ✓ tape, glue, scissors, white cotton string, or crochet thread
 - ✓ feathers, yarn, buttons, beads, etc., for decoration
- Setup—chairs and a large table with supplies set out.

DESCRIPTION of ACTIVITY

Do Have youth follow these directions: Use the pattern and instructions in the Appendix for making a folded container. Transfer the pattern to a heavy paper, cut, score (use a popsicle stick or dull side of a plastic knife to press along each fold line), and glue following the instructions. Attach string for a handle and decorate if desired.

Reflect Have youth answer these questions: Did you think cutting and gluing the

basket was easy? Think about the effort the Plateau people had to expend to make a folded bark basket—walk to a cedar grove and cut the bark from the tree without using modern tools, then fold and sew (with string and needles they made) the bark to form the basket. Would using modern tools (scissors, string, glue) to make a basket be easier than what the Plateau people had to make a basket? Why? Could you use your basket to collect berries?



Have youth do the following activities:
Try making other folded baskets from other materials—wallpaper, heavy gift wrap paper, or butcher paper. Use different patterns for making folded containers. Search the Internet for patterns or use French fry containers from fast food restaurants.

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

ADDITIONAL ACTIVITIES

Have youth make folded containers from recycled materials using this folded container pattern or other patterns. Decorate with string, yarn, beads, feathers, and/or buttons. Add dried flowers, mini-cookies, or other items. Attach a greeting and give to someone special.

RESOURCES

- Schlick, Mary Dodds, *Columbia River Basketry*, University of Washington Press, 1994

FOOD PREPARATION

Plateau people ate berries and other fruits fresh (when the fruit was in season) and dried large quantities for winter use. During the winter, they ate the dried berries and fruits by soaking them in water overnight and boiling them in water-tight baskets.

▲ **Goals/Objectives**—to make a berry pie

▲ **Life Skills**—acquiring useful skills

▲ **Project Skills**—reading and following a recipe, measuring ingredients accurately, following through with directions.

▲ **Background**—Plateau people ate berries fresh and dried them for winter use. Dried berries were soaked and then boiled. Today we can purchase fruit in many forms (fresh, canned, frozen, as juice, etc.) and prepare it many different ways (pies, cakes, pastries, with meats, in gelatin, fruit leathers, etc.).

TIME REQUIREMENT

30–40 minutes

PREPARATION

- Time for prep—time will be needed to purchase all the necessary supplies
- Supplies—
 - ✓ 1 C. flour
 - ✓ 1 tsp. salt
 - ✓ $\frac{1}{3}$ C. shortening
 - ✓ 4 C. blueberries or huckleberries, fresh or frozen
 - ✓ 1 C. sugar
 - ✓ 3 Tbsp. cornstarch
 - ✓ 9-inch pie pan
 - ✓ assorted utensils for mixing—bowls, large spoon, measuring cups and spoons, pastry blender, rolling pin, medium saucepan
- Setup—standard kitchen, with supplies set out

DESCRIPTION OF ACTIVITY



Have youth make Fresh Huckleberry (Blueberry) Pie:

Prepare pie shell:

1 cup all-purpose flour

$\frac{1}{2}$ teaspoon salt

$\frac{1}{3}$ cup shortening

3–4 teaspoons cold water

1. Stir together flour and salt. With a pastry blender, cut in shortening till pieces are the size of small peas.
2. Sprinkle one tablespoon water over part of the mixture; gently toss with a fork. Push to side of bowl. Repeat procedure until all flour is moistened.
3. Form all the dough into a ball.

4. Flatten dough with hands on lightly floured surface. With a rolling pin, roll from center to edge, forming a circle about 12 inches in diameter.
5. Gently wrap pastry around rolling pin. Unroll onto a 9-inch pie pan.
6. Ease pastry into pie pan, being careful to avoid stretching pastry.
7. Trim edges $\frac{1}{2}$ –1 inch beyond edge of pie plate. Fold excess under. Flute or pleat edge of pastry, using the back of spoon or fingers.
8. Prick bottom and sides of pastry shell with a fork.
9. Bake in 450°F oven for 10 to 12 minutes, until golden brown.

Prepare pie filling:

4 cups huckleberries or blueberries, fresh or frozen
 1 cup liquid (water or mixture of berry juice and water)
 1 cup sugar
 3 tablespoons corn starch

1. If using fresh berries, wash and drain. If using frozen berries, thaw and drain berries, saving the juice for part of the liquid.
2. Combine one cup berries with $\frac{2}{3}$ cup liquid in sauce pan. Simmer three minutes.
3. Blend sugar and cornstarch. Add remaining liquid and add to simmering mixture. Boil one minute, stirring constantly.
4. Remove from heat and add remaining 3 cups of berries.
5. Spoon into the baked pie shell. Chill in refrigerator several hours before serving.

Reflect

Have youth answer the following questions:

How did the berry pie taste? What problems did you encounter? What would you do differently next time? Would you rather eat the berries in a pie or dried, soaked in water and then boiled like the Plateau people did?

Apply

Have youth try these activities:
 Use the pie crust recipe to make a different kind of pie, like apple or peach

pie. The crust could also be used to make berry turnovers. What other ways could you prepare the berries? Cobblers, crisps, buckles—try making one of these desserts.

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

ADDITIONAL ACTIVITIES

Have youth do the following activities:

Make some other foods using berries or try some pancakes or muffins. Compose and present a public demonstration on how to make a berry pie. Make an educational poster on huckleberries or other wild fruits.

RESOURCES

- Hunn, Eugene. S., et.al., *Nch'I-Wana, "The Big River,"* University of Washington Press, 1990
- Ray, Verne F., *The Sanpoil and Nespelem: Salishan Peoples of Northeastern Washington.* University of Washington Press, 1932
- Turner, Nancy J., *Food Plants Of Interior First Peoples,* Royal British Columbia Museum, 1997
- Turner, Nancy J., Randy Bouchard, and Dorothy I. D. Kennedy, *Ethnobotany of the Okanagan-Colville Indians of British Columbia.* British Columbia Provincial Museum, Victoria, BC, 1980
- PNW335, *Foods of the Pacific Northwest, Project 2,* pages 29–32

FOOD SUSTAINABILITY

Wild berries, although still gathered by many people, are not the major food source they were one hundred years ago. Domestic berries, easily purchased in grocery stores, at fresh produce markets, or from a berry farm, have replaced wild berries for most consumers. Also, changes, such as logging and clearing land for farming, have decreased the habitat where many wild berries grew.

Adapted from PNW335, *Foods of the Pacific Northwest*, WSU Extension publication



In some areas of the Plateau, traditional berry patches could be owned by families, but many areas were held in common by a particular tribe. Berry patches were only harvested when a chief or a designated elder advised it was ready to harvest.

- ▲ **Goals/Objectives**—to plant a wild (native) berry plant, such as serviceberry, elderberry, blueberry, thimbleberry, huckleberry, and others
- ▲ **Life Skills**—learning to learn, decision making, problem solving
- ▲ **Project Skills**—learning to garden
- ▲ **Background**—People of the Plateau gathered berries and other fruits, but did more than just “gather” these foods. They were often cultivators, and their gathering grounds served as gardens. They practiced controlled burning to increase production and pruned berry bushes to increase the amount of berries produced.


TIME REQUIREMENT

Several months

PREPARATION

- Time for prep—time necessary to learn gardening techniques, purchase necessary supplies, prepare a garden plot, and plant the berry bushes
- Supplies—at least 2 wild berry plant bushes (see sources for ordering bushes in WSU Extension publication MISC0267, *Landscaping with Native Plants in the Inland Northwest*) gardening tools, potting soil
- Setup—prepare soil

DESCRIPTION of ACTIVITY

 Have youth:
Follow the instructions in MISC0267, *Landscaping with Native Plants in the Inland Northwest*, for getting rid of weeds, getting the soil ready and planting native plants. Plant your bushes following the instructions included with your bushes. Keep a record of the project—cost, amount of time spent, results, and problems (weather, others).

The following information is taken from MISC0267, *Landscaping with Native Plants in the Inland Northwest*, pages 11–16.

Getting Rid of Weeds

You may have noticed while hiking that healthy, native settings are free of weeds and aggressive non-native plants. You also may have noticed that if weeds are taking hold, they tend to be around disturbed areas such as parking lots, restrooms, or trail edges. This is because over time, in undisturbed natural areas, the soil has developed a natural mulch layer of decomposing plant debris. Even in open sunny areas such as the Columbia Basin, there is a crust that develops between the shrubs and bunch grasses that is impervious to weed seeds.

In areas that have been disturbed by grazing, farming, road construction, home building, and development, native vegetation has been cleared and the top layer of soil has been removed or irreversibly altered. When this happens “pioneering” species (generally aggressively spreading introduced species) take hold and grow at the expense of native vegetation. It is possible to restore these areas to natural plant communities by following these guidelines. If it seems like a lot of work, think about it in terms of being work up front that will pay off later in reduced or little maintenance. All weed control measures are most effective when weeds are young and before they have gone to seed.

1. Get rid of existing weeds or turfgrass. In some areas it may be practical to cultivate with a tractor or rototiller, or even to pull weeds by hand. However, cultivating and digging brings weed seeds closer to the surface so watch for new weeds and re-cultivate until they stop emerging. *Caution:* Canada thistle and quackgrass that get cut up into pieces during cultivation will resprout from each piece so cultivating is not recommended.
2. In some cases herbicides may be the best option. It is necessary to know which weeds you are controlling before you choose herbicide products. Some herbicides require a Pesticide Applicators License to purchase and use them. For information on licensing, contact your county Extension office.

Products that **do not** require a license for purchase or application are:

Roundup—This herbicide kills both broadleaf weeds and grasses, but will not prevent weed seeds from germinating. Spray growing weeds according to label directions. Wait at least three weeks to see if new weeds germinate and re-spray if necessary. You can usually plant within two weeks of the last Roundup application, but check the product label for any exceptions.

2,4-D Products—Herbicides containing 2,4-D are broadleaf herbicides. They kill all plants except grass type plants. 2,4-D is often combined with other herbicides such as MCPP or dicamba for increased effectiveness. Re-treatment may be necessary. **CAUTION!!!** It may be necessary to wait up to 4 months after application before replanting in the area, depending on the ingredients of the product you use. Read the label first!

Getting the Soil Ready



Once the area is weed free, take a good look at the soil. If it is a good loamy soil (dark colored, holds together somewhat when you squeeze a damp clump of it in your hand) you probably

don't have to add organic matter. If the soil is dry, sandy, light colored, and devoid of any humus whatsoever, you have the following two choices:

1. Decide to plant the area with plants native to dry, well-drained sites and don't plan on watering much (or at all) once plants are established.
2. Decide to amend the soil with organic matter, which will create a more fertile soil that holds moisture. This will allow you to choose among a greater choice of plants. Examples of soil amendments include commercially and home prepared compost, rotted sawdust, and packaged steer manure. Bulk quantities can be purchased from landscape companies, nurseries, and soil and bark suppliers.

If you do add organic matter to the soil, do it to the whole planting area, not just the planting holes. Amending just planting holes can result in root-bound plants that will not establish roots into the surrounding soil.

Planting Native Plants

If possible, water the planting area before planting. If water is NOT available to the site, do your planting early in the spring or fall so plants can get established during seasonal rains. If the rains don't come, you'll have to hand-carry water to new plants to ensure survival. In dryland sites where supplemental water is not available, the smaller plant you use, the more chance there is for its survival. Large containerized plants or balled and burlapped stock are risky additions if adequate water is not available during the establishment phase.

The actual planting of native plants does not differ from the planting of non-native landscape plants. It is best to have planting holes dug before plants are brought to the site. Dig the hole so that it is twice the width of the root system and deep enough so the junction of roots and trunk will be at ground level.

Native plants in nurseries are generally available in 1, 2, or 5-gallon containers. Some trees may come in larger pot sizes or with the rootballs balled and burlapped. Some trees or shrubs are available as bare root plants in the early spring.

Bare root plants are deciduous plants that have been dug without any attached soil. Roots must be kept moist until planting. Soak in water no more than six hours and either wrap in moist burlap or temporarily bury the roots in moist sawdust, sand, or soil until planting time.



Bare root plant



Balled and burlapped

(B&B) plants are dug from nurseries with soil around their roots and wrapped with biodegradable natural burlap. Keep this wrapped rootball moist until planting time. Plant so the rootball is even with or an inch or two higher than ground level.



Balled and burlapped plant

After the plant is in the hole, remove all wire, cords, or twine and loosen the burlap around the trunk area. Fill the hole half to two-thirds full and use a knife or scissors to cut off the top portion of the burlap. Remove it before filling up the rest of the planting hole. When backfilling with soil, just use the native soil; do not backfill with amended soil.



Containerized plant with pot removed

Containerized

plants usually come in plastic or fiber pots. Remove containers before planting. If roots have filled the pot and are circling, make several vertical slices into the root clump to cut those circling roots. Then spread apart the root clump as much as possible.

As with balled and burlapped plants, set the plant into the planting hole so that the top of the root mass is at or slightly above the ground level. Backfill with native soil, making sure roots remain spread out in the hole while filling it. Water again until the root area is saturated.

Limit pruning at planting time to removal of dead or damaged branches and removal of rubbing or crossed-over branches.

Getting the Soil Ready

Weed Control

During the first year or two, eliminate weeds that compete with your plants for water and nutrients. Controlling weeds is important because of the tendency of weeds in disturbed areas to spread aggressively and overtake an area. Trees, shrubs, and groundcovers need to be free of weed competition during the first 2 or 3 years of establishment. Call your county's Noxious Weed Board or Extension office for help in identifying weed problems and selecting the best management options for the site.

Tips

- Use mulches around new plants to prevent weed growth.
- Use a square of weed barrier fabric around each new plant.
- Use base protectors (plastic ventilated tubes) around trunks of newly planted trees to prevent damage from string trimmers, weed whackers, and gnawing animals.

Watering

Many native plants can survive in nature with little or no water. Unlike introduced plants, which may die during times of drought, drought tolerant natives will survive, but may become dry or brittle until the next seasonal rainy period. This is okay. Our "green trained eyes" may tell us that this is unsightly because we have come to see unchanging green lawns and plants as normal all summer long. Remember, though, this is NOT normal. It is only large amounts of water applied through the summer that keep landscapes green. Learn to "see" natural landscapes differently and you will begin to appreciate the subtle changes in colors and textures that occur naturally as the season progresses.

There are two exceptions to this advice. First, any new plant, whether it is drought tolerant or

not, will need water until it becomes established. This may take a season or two. Another exception is when fire safety is an issue. In fire-prone areas, keep areas near your home and outbuildings watered and green.

Watering Established Native Plantings

It is not necessary to water established native plantings on a regular basis. Monitor the application of water throughout the growing season and adjust it according to plant needs. How much does a plant need? There's no easy rule to follow here. The younger the plant, the smaller its root system, which makes it more susceptible to drought. A layer of mulch around plants will conserve soil moisture. Watch the leaves on trees, shrubs, and perennials, and when you notice wilting or dry edges of leaves, that's a sign of extreme thirst. While plants are very young, soil moisture should be replenished frequently. As they mature, taper off on watering to once a week or less. Fully established plantings may never need irrigation.

End excerpt.



Have youth answer the following questions:

How did your project turn out? Were there problems? Did you have any berries to harvest or does it take longer than one growing season to produce berries? Would you consider planting more than 2 bushes to be able to have more berries? From what you learned, do you think a community could sustain a wild berry garden?



Have youth do the following activities:
Take photographs of your project.

Design an educational poster about your wild berry planting project and/or plan to present your project as a demonstration speech.

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

RESOURCES

- Turner, Nancy J., *Food Plants Of Interior First Peoples*, Royal British Columbia Museum, 1997
- Turner, Nancy J., Randy Bouchard, and Dorothy I. D. Kennedy, *Ethnobotany of the Okanagan-Colville Indians of British Columbia*, British Columbia Provincial Museum, Victoria, B. C., 1980
- MISC0267, *Landscaping with Native Plants in the Inland Northwest*, WSU Extension publication, February 2001



ROOTS

FOOD FOR SURVIVAL

Roots and the underground parts of many plant foods made up one-third to half of the diet of Plateau people. These plant foods were high in carbohydrates, the nutrient that supplies energy for the human body. Because of the differences in climate and habitat of the Plateau area, different roots grew in different locations. Some roots, plentiful in one area and not another, became important trade goods.

- ▲ **Goals/Objectives**—learn about the importance of being active to stay healthy
- ▲ **Life Skills**—learning to learn, acquiring knowledge, critical thinking, make healthy life style choices
- ▲ **Project Skills**—learn to be more active
- ▲ **Background**—Plateau people were very physically active. They used a great deal of energy to collect, prepare, and preserve their food. Many people today are not very active because they can collect their food simply by driving to the grocery store. Physical activity is important to a healthy life style—lack of activity can lead to obesity and other health problems.

TIME REQUIREMENT

At least 3 days, but preferably a week or more

PREPARATION

- Time for prep—time collecting information and resources
- Supplies—paper and pencil
- Setup—none needed

DESCRIPTION of ACTIVITY



Using the Food Intake and Activity Journal in the Appendix, have youth keep track of their activity for three days.

Discuss with the youth the importance of activity for a healthy lifestyle (Be Physically Active Each Day in the Appendix). Have youth evaluate their journal.



Have youth answer these questions:
What were your activity levels for the week? Did you engage in moderately vigorous activity at least an hour a day? How did your activity habits compare with native people's one hundred years ago?



Have youth answer and do the following:
How will you apply what you have learned about the importance of being active? Will you change your habits if they were not representative of a healthy lifestyle? Prepare a public speech or design an educational poster about the importance of being active and what some activities might be.

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

ADDITIONAL ACTIVITIES

Have youth answer and do the following:
The native roots that Plateau people gathered were a great source of carbohydrate, a nutrient needed by the human body for energy. How much carbohydrate does your body need? What happens if you eat too much? Using the Nutrition Information/Chart in the Appendix, make a chart showing healthy foods you can eat to supply your body with carbohydrate.

RESOURCES

- Nutrition and Your Health: Dietary Guidelines for Americans: <http://www.health.gov/dietaryguidelines/dg2000/document/frontcover.htm>
- *Traditional Foods Can Be Healthy*, National Cancer Institute. NIH Pub. No. 96-3548, September, 1996. Call 1-800-4-Cancer.
- Turner, Nancy J., *Food Plants Of Interior First Peoples*, Royal British Columbia Museum, 1997

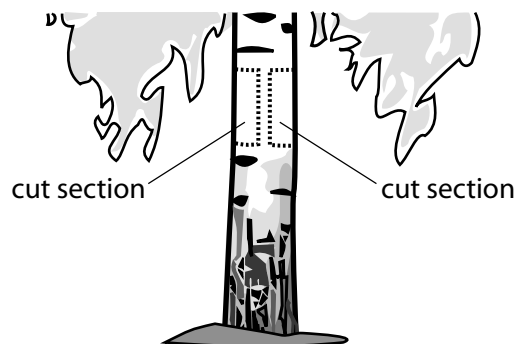
FOOD ACQUISITION

Roots, gathered in the spring and early summer, were usually harvested with a digging stick. The digging stick was a long curved tool made of some kind of hardwood—willow, Oceanspray, Black Hawthorn, Saskatoon Berry, or Orangewood. It was usually about 3 feet long. The stick was slightly curved, either naturally or artificially. The end was pointed by burning and shaving. The handle was a short, crosspiece of animal bone or antler. The stick was used to dig under the plant, forcing the root out of the ground. Because the stick was much narrower than a modern shovel, neighboring plants were not damaged.

Several different kinds of baskets—a round, twined bag of Indian hemp, a coiled basket, or a folded bark basket—were used to collect roots.

- ▲ **Goals/Objectives**—make a folded container similar to the folded birch bark basket made by Plateau people for collecting roots
- ▲ **Life Skills**—decision making, problem solving, learning to learn
- ▲ **Project Skills**—applying traditional skills, making a bark basket, for use with modern materials
- ▲ **Background**—The tough bark of the paper birch tree was used by Plateau people to make canoes, cradles, and baskets. The baskets were used as containers for collecting roots, storing foods for the winter, and could be used for cooking because they were watertight. The bark could be harvested any time of the year, but the best bark was collected in early summer. Two horizontal cuts were made around the tree, one high and one low, with a single cut made between them. These were done in such a way as to not “girdle” the tree. Girdling would kill the tree. The bark was then peeled off in one piece.

The piece of bark, cut in the dimensions of the basket to be made, was scored with a tool made



of antler, bone, or stone and then folded into the shape of a basket.

TIME PREPARATION

About 1½ hours

PREPARATION

- Time for prep—hour or less to gather supplies, make copies or prepare heavy paper for basket
- Supplies—birch bark basket pattern at the end of this curriculum, scissors, glue, heavy copy paper (brown or natural colored card stock), or heavy paper such as colored butcher paper, brown wrapping paper, or brown paper bags
- Setup—preparation of materials to make basket, table area

DESCRIPTION of ACTIVITY

Do Have youth:
Use the pattern and instructions for making a folded birch bark basket in the Appendix. Transfer the pattern to a heavy paper, cut, score (use a popsicle stick or dull side of a plastic knife to press along each fold line) and glue following the instructions. Attach string for a handle and decorate if desired.

Reflect Have youth answer the following questions:
How did your basket turn out? Did it seem easy to make? Would the project have been as easy if you had been making the basket one hundred years ago?

Apply Have youth do this activity:
Using the same basket pattern, transfer it to paper with a pattern or design (like

heavy gift wrap paper), attach a decorative string or cord to make a gift bag.

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

RESOURCES

- Ray, Verne F., *The Sanpoil and Nespelem: Salishan Peoples of Northeastern Washington*, University of Washington Press, 1932
- Turner, Nancy J., Randy Bouchard, and Dorothy I. D. Kennedy, *Ethnobotany of the Okanagan-Colville Indians of British Columbia*, British Columbia Provincial Museum, Victoria, B. C., 1980

FOOD PRESERVATION

Plateau people gathered many kinds of root vegetables—camas, bitterroot, biscuit root, wild potatoes, wild carrots, wild onions, and many others. Today, we also have a large number of root vegetables to eat.

- ▲ **Goals/Objectives**—research different domestic (cultivated) root vegetables that are sold in grocery stores. Discover how those root foods are preserved and prepared—raw, dried, canned, dehydrated, etc.
- ▲ **Life Skills**—learning to learn, problem solving
- ▲ **Project Skills**—learning how foods are preserved and packaged for sale, learning about grocery stores, reading food labels, reading grocery sale circulars
- ▲ **Background**—Plateau people preserved the roots they gathered by air drying on mats or stringing on hanging strings. Today, root foods can be purchased in many different forms using many different preservation and preparation methods.

TIME REQUIREMENT

A day or more

PREPARATION

- Supplies—paper, pencil or pen, grocery store sale circulars
- Setup—trip to a grocery store

DESCRIPTION of ACTIVITY



Have youth:

Choose a root vegetable such as a potato, onion, or carrot. Jot down all the ways this vegetable might be preserved and how it might be sold (for example, it could be sold in raw form). At the grocery store and using the sale circulars, write down all the foods you find that use this vegetable and how it is preserved. Be sure to look in all the sections of the store.



Have youth answer the following questions:

Were you surprised at the number of ways your root vegetable could be used? Did you find all examples (carrot cake, potato bread, onion soup mix)? Did Plateau people have all these preservation methods available to them? Do you think Plateau people were healthier because they used only simple methods of preservation (drying) and preparation (boiling)? What about food poisoning? Were the Plateau people more likely to be affected by food poisoning then we are today?



Have youth:

Create a report or a chart to show all the information about the vegetable you chose. Select a less popular root vegetable (turnips, beets, radishes) and research the food choices available for this vegetable. Are there as many different kinds of preservation and preparation choices as there were for the popular vegetables?

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

ADDITIONAL ACTIVITIES

Have youth:

Create an educational poster using the information you learned. Design a display using empty packages and/or labels showing all the ways a particular root

vegetable is preserved and prepared today. Prepare and present a public demonstration.

RESOURCES

- Turner, Nancy J., *Food Plants Of Interior First Peoples*, Royal British Columbia Museum, 1997

FOOD STORAGE

The roots Plateau people gathered and dried were usually placed in soft, flexible storage bags that were either kept in storage houses or on elevated storage platforms. The soft bags were twined of the tule or cattail plant.

- ▲ **Goals/Objectives**—to make a small, woven (rather than twined) bag (about 4 1/2" x 6") similar to the soft, flexible bags used by the Plateau people to store dried foods
- ▲ **Life Skills**—decision making, problem solving, learning to learn
- ▲ **Project Skills**—learn to weave a bag, use a thread and needle
- ▲ **Background**—The flat, flexible soft bags used for storage of dried salmon were twined of tule or cattail. They were less than two feet wide and about three feet long. The bags were actually made by folding a long piece of twined tule “fabric” and then sewing the sides with Indian hemp string.

TIME REQUIREMENT

Less than an hour, depending on participant’s skills

PREPARATION

- Time for prep—an hour or more depending on number of participants
- Supplies:
 - ✓ Felt rectangles (9" x 12") or other semi-stiff fabric, cut into strips

- ✓ Scissors, needle, thread, masking tape to secure strips to table
- Setup—table and chairs

DESCRIPTION of ACTIVITY



Have youth:

Cut 18 1/2" strips (12 inches long) from a felt rectangle. (Draw lines every 1/2 inch on the felt rectangle if you like to make the cutting easier.) Cut 9 of the strips in half, so they will be 6 inches by 1/2 inch. Place the 9–12 inch strips (weft strips) on a flat surface, with the strips close together. Tape the top of the strips to the surface with masking tape. One inch down from the top, start weaving one of the 6-inch strips (weft or woof strips)—over, under, over, under, etc. (When weaving the warps leave 3/4 inch on both sides.) Weave the second strip under, over, under, over, etc. Weave all the other strips in the same manner. Your finished mat should be about 12 inches by 6 inches with about 1 inch at the top and bottom and 3/4 inch on each side that is not woven.

Fold the flat weaving in half lengthwise, hand sew the sides together along the unwoven edges to form a bag. Use small stitches. To finish the top edges of the bag, fold the unwoven edges on the outside and stitch down to the bag. Turn the bag inside out.



Have youth answer the following questions:

Did the bag take very long to make? How long would a larger bag take to make? How long would it take to make the bag if you had to gather and prepare all the materials to make the bag? (You would have had to gather the tules and prepare them. You would have had to gather the Indian hemp and twine it into string. You would have had to make a bone needle, after hunting the animal to get the bone.)



Have youth:

Try weaving small bags with other materials—yarn, string, leather strips, ribbon, raffia, etc.

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

RESOURCES

- EM4768, *Line, Expressive Arts*, WSU Extension publication
- Hunn, Eugene S., *Nch'I-Wana "The Big River,"* University of Washington Press, Seattle, 1990
- Ray, Verne F., *The Sanpoil and Nespelem: Salishan Peoples of Northeastern Washington*, University of Washington Press, 1932
- Schlick, Mary Dodds, *Columbia River Basketry*, University of Washington Press, 1994

FOOD PREPARATION

Although a few roots were eaten raw, the majority of roots had to be cooked to be edible. Methods of cooking included pit-steaming and boiling in water-tight baskets.

- ▲ **Goals/Objectives**—to prepare a root vegetable (potato), similar to what the Plateau people might have eaten, using a modern cooking method—baking in an oven. This method is similar to pit roasting or steaming.
- ▲ **Life Skills**—acquiring useful skills
- ▲ **Project Skills**—reading and following a recipe, following through with directions
- ▲ **Background**—The wild Indian potato (Spring Beauty) was dug in the spring and early summer by Plateau people. The root, called a corm, was 1 to 2 inches in diameter. After digging the root, peeling, and cleaning, the Plateau people would either boil the roots or steam large quantities in a pit.

Today, potatoes are grown for family use or on large commercial farms. Potatoes are much larger and can be prepared in many different ways—snack, main dish, or side dish.

TIME REQUIREMENT

1 to 1 1/2 hours depending on cooking method

PREPARATION

- Time for prep—purchase potatoes and ingredients for toppings
- Supplies—potatoes, ingredients for toppings, kitchen utensils, paper towels
- Setup—kitchen facilities

DESCRIPTION of ACTIVITY



Have youth bake potatoes. While potatoes are cooking have youth prepare the toppings—taco meat, chili, grated cheese, sour cream, butter or margarine, bacon bits, chives, chopped onions, sunflower seeds, sliced olives, sliced mushrooms, chopped broccoli, etc.

1. Scrub potatoes, dry and pierce skin in 3 or 4 places with a fork.

In conventional oven:

2. Set at 400°F, place potatoes on center rack.
3. Bake for 45 minutes. Potatoes will be done if tender when pierced with a fork. If potatoes are not done, bake another 10 minutes and test again.
4. Let potatoes stand for a few minutes before adding toppings.

In microwave oven:

2. Place potatoes on paper towel in the microwave.
3. Microwave on full power for about 4 minutes for 1 average potato. Turn potato over after 2 minutes and cook another 2 minutes. Potato is done if tender when pierced with fork. Cook 1 more minute if not done (2 potatoes will cook in 5 to 7 minutes, 4 potatoes in 9 to 11 minutes).
4. Let potatoes stand for a few minutes before adding toppings.
5. Cut potatoes in half, mash gently and add toppings of choice.



Have youth answer the following questions:
Was this food activity simple and quick to do? Would the preparation have been simple and quick if you would have had to prepare a pit for

steaming the potatoes? How much time did you take to buy the potatoes compared with the time the Plateau people needed to journey to the root areas, dig the roots, peel, and clean, and then journey back to their village to prepare the roots? Did you expend a large amount of energy to “gather” your root vegetable?

Plateau people prepared their roots without any “toppings.” Did the toppings you use contain fat (sour cream, cheese, taco meat, bacon bits, etc.)? Which method of preparation would be healthier?

Apply Have youth answer the questions and do the activities:
What are other root foods (carrots, beets, turnips, etc.)? What other root foods could be baked or microwaved? What are other methods of cooking (boiling, deep-fat frying, sautéing, etc.) that could be used to prepare potatoes? Try some of these methods and compare the cooked potatoes with the ones you baked. What methods would be the healthiest?

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

RESOURCES

- PNW333, *Foods of the Pacific Northwest, Project 1, Member Manual*, WSU Extension publication
- Turner, Nancy J., *Food Plants Of Interior First Peoples*, Royal British Columbia Museum, 1997



FOOD SUSTAINABILITY

People of the Plateau dug roots for food, as well as for medicinal and spiritual uses. Today, some Plateau people still harvest the roots, but farming, grazing, and other human activities have decreased the amounts available for harvesting. Some tribal people are trying to preserve the areas where their traditional foods grew by working with landowners to curb the destruction of the habitat necessary for the plant growth.

- ▲ **Goals/Objectives**—to plant a traditional root plant (blue camas) and/or one or two contemporary root vegetables (carrots, onions, potatoes) in a container
- ▲ **Life Skills**—learning to learn, decision making, problem solving
- ▲ **Project Skills**—learning to garden
- ▲ **Background**—Plateau people did more than just dig roots. The areas where the roots grew were treated like vegetable gardens—tilled and weeded just like we tend gardens today. Plateau people gathered plants selectively and made sure they did not harvest the entire year’s growth of a single root. They used tools that did not harm the environment. For root digging, the digging stick was narrow, and so did not damage any plants next to the plant being dug. Plateau people would keep the larger roots that were harvested, replanting the smaller roots.

A traditional root dug by Plateau people was the blue camas (camassia quamash). Because of the blue camas’s dramatic star-shaped blooms, bulbs from this plant can be purchased at garden stores and by mail order for planting in a flower garden.

TIME REQUIREMENT

Several months

PREPARATION

- Time for prep—time necessary to learn gardening techniques, to purchase necessary supplies, to prepare the container

- Supplies—root bulbs from plant nursery, seeds or seed potatoes, container, gardening tools, potting soil
- Setup—prepare container for planting. For camas, the project should begin in the fall and the container set outside through the winter months. For carrots, onions, or potatoes, the project should begin in early spring, unless the containers will be indoors with artificial lights provided.

DESCRIPTION of ACTIVITY

Do Have youth:
Follow the instructions for planting a container garden below and grow, either some traditional roots, and/or carrots, onions or potatoes. Keep a record of the project—cost, amount of time spent, results, and problems.

Container Gardening:

Container suggestions: pots (clay, plastic, pulp nursery), hanging baskets, window boxes, wood patio planter, dishes, bottles, etc. Any container that will hold soil and water can be used. Containers can be made from scrap lumber, old boots, cooking pots, or other recycled containers. Use your imagination.

Planting: Use a loose, well-drained soil for container gardening. A readymade mix or potting soil would be the best. Place a layer of crushed rock or gravel in the bottoms of containers without drain holes. Add drain holes to containers when possible. Fill container with moist soil mix; do not pack down.

- **Seeds**—Plant several seeds per pot, according to seed package directions. After plants sprout, thin them to avoid crowding.
- **Plant sets** (young plants already grown in a transplant pot)—make a hole in the soil large enough for the roots of the set. Place roots in the hole and carefully firm the soil around the roots and lower stem.

Growing:

- **Watering**—water plants when the soil feels dry. Water containers with drain holes until the water runs out the bottom. Lightly water those containers without drain holes, just enough to dampen the soil. Containers in full sun or windy areas will need watering more frequently than those in shady, protected areas. Hanging baskets may

need watering several times a day during hot, dry weather.

- **Weeding**—pull weeds, which will grow faster than the container plants.
- **Moving**—move the container to take advantage of sunlight, shade, and wind protection. A container garden can be entered in a fair or other garden competition.

—Adapted from *Container Gardening*, PNW188, 4-H Member Guide

Reflect Have youth answer the following questions:
How did your project turn out? Were there problems? Did you harvest and eat the root vegetables you grew? How did you prepare those roots? Did Plateau people prepare them the way you did?

Plateau people harvested the bulbs (corms) of the blue camas. Could you cook and eat the bulbs of the blue camas you planted? If you did, would you have any plants next year? Why or why not?

Apply Have youth:
Take photographs of their project. Design an educational poster about their planting project and/or plan to present their project as a demonstration speech.

RECORD KEEPING

Have youth complete the record keeping form in the Appendix.

ADDITIONAL ACTIVITIES

Have youth try some of the other activities listed in PNW188, *Container Gardening*.

RESOURCES

- PNW188, *Container Gardening*, WSU Extension publication
- Turner, Nancy J., *Food Plants Of Interior First Peoples*, Royal British Columbia Museum, 1997
- Turner, Nancy J., Randy Bouchard, and Dorothy I. D. Kennedy, *Ethnobotany of the Okanagan-Colville Indians of British Columbia*, British Columbia Provincial Museum, Victoria, B. C., 1980



NUTRIENT INFORMATION

Nutrients are the parts of foods important to the human body:

1. to provide energy
2. for building material
3. to maintain and repair body parts
4. for growth
5. to prevent serious diseases

The nutrients are carbohydrates, protein, vitamins, minerals, fat, and water.

NUTRIENT CHART

Nutrient	Purpose	Food Source
Carbohydrates	Supply energy Supply fiber for good digestion	bread, cereals, rice, pasta, fruits, vegetables, dried beans and peas, sugar, sugary foods
Protein	Build and repair cells Fight infection, heal cuts Make antibodies, enzymes, and hormones	meat, fish, poultry dried beans, peas, nuts, seeds eggs, milk, cheese
Vitamin A	Keep skin healthy Keep eyes healthy (night vision) Help fight infection	deep yellow fruits and vegetables dark green, leafy vegetables liver, egg yolk, meat, cheese, butter
Vitamin C	Help heal cuts Prevent infection Help the body use iron Maintain healthy tissue	citrus fruits other fruits—strawberries, kiwi some vegetables—broccoli, spinach, tomatoes, potatoes, cabbage
Calcium	Provide strength and structure for bones and teeth Keep nerves/muscles healthy	milk, cheese, yogurt dark green leafy vegetables—broccoli salmon with bones
Iron	Help blood carry oxygen Prevent anemia Help fight infection	lean meat, liver, oysters, dried beans and peas, fortified grains, tomatoes, dried prunes and apricots, raisins
Fat	Supply energy, insulate body Carry vitamins throughout body Cushion internal organs/bones	butter, margarine, oils, fried foods, nuts and seeds, chips, crackers, cookies, pies, cakes, candy, etc.
Water	Carry other nutrients throughout the body/wastes out of the body Regulate body temperature	beverages; food, especially fruits and vegetables

Information adapted from Siser, Frances S., Whitney, Eleanor N., *Nutrition, Concepts and Controversies*, West Publishing Co., New York, 1994, and *Helper's Guide A (Six Easy Bites)*; MNBU7145, 4-HCCS Curriculum

FOOD INTAKE AND ACTIVITY JOURNAL

Date_____

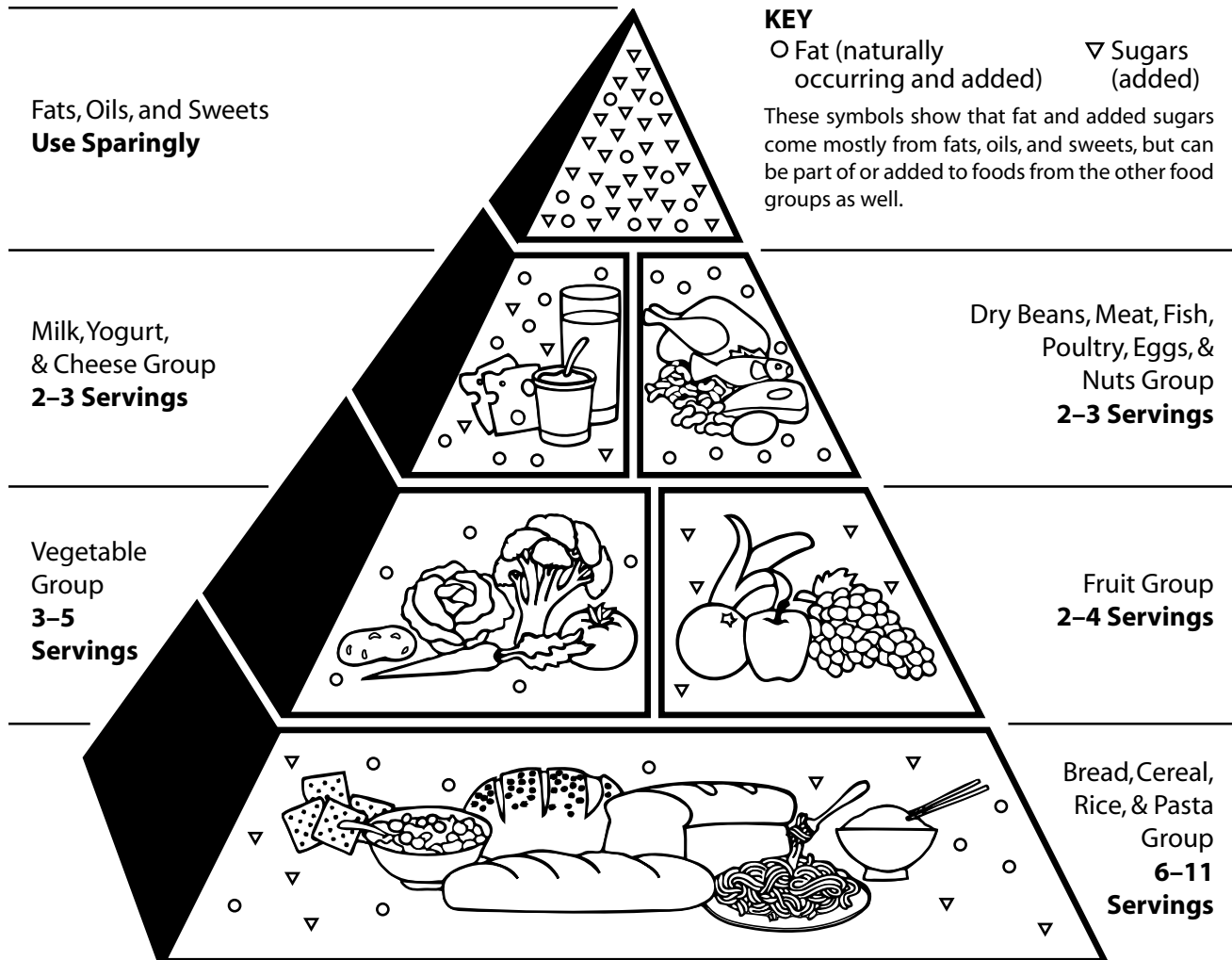
Time	Food and Beverages	Food Group**	Amount Servings	Physical Activity Activity and Minutes

**Food Group: G–grains, V–vegetables, F–fruits, Mlk–milk, etc., M–meats, etc., F–fats, W–water

—Adapted from *Food and Activity Journal*, Washington State Dairy Council

FOOD GUIDE PYRAMID

A Guide to Daily Food Choices



SOURCE: U.S. Department of Agriculture/U.S. Department of Health and Human Services

Use the Food Guide Pyramid to help you eat better every day...the Dietary Guidelines way. Start with plenty of Breads, Cereals, Rice, and Pasta; Vegetables; and Fruits. Add two to three servings from the Milk group and two to three servings from the Meat group.

Each of these food groups provides some, but not all, of the nutrients you need. No one food group is more important than another—for good health you need them all. Go easy on fats, oils, and sweets, the foods in the small tip of the Pyramid.

To order a copy of *The Food Guide Pyramid* booklet, send a \$1.00 check or money order made out to the Superintendent of Documents to: Consumer Information Center, Department 159-Y, Pueblo, Colorado 81009

HOW TO USE THE DAILY FOOD GUIDE

What Counts as One Serving?

Breads, Cereals, Rice, and Pasta

1 slice of bread
 $\frac{1}{2}$ cup of cooked rice or pasta
 $\frac{1}{2}$ cup of cooked cereal
1 ounce of ready-to-eat cereal

Vegetables

$\frac{1}{2}$ cup of chopped raw or
cooked vegetables
1 cup of leafy raw vegetables

Fruits

1 piece of fruit or melon wedge
 $\frac{3}{4}$ cup of juice
 $\frac{1}{2}$ cup of canned fruit
 $\frac{1}{4}$ cup of dried fruit

Milk, Yogurt, and Cheese

1 cup of milk or yogurt
 $1\frac{1}{2}$ to 2 ounces of cheese

Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts

$2\frac{1}{2}$ to 3 ounces of cooked lean meat,
poultry, or fish
Count $\frac{1}{2}$ cup of cooked beans, or 1 egg, or
2 tablespoons of peanut butter as 1 ounce
of lean meat (about $\frac{1}{3}$ serving)

Fats, Oils, and Sweets

LIMIT CALORIES FROM THESE especially
if you need to lose weight

The amount you eat may be more than one serving. For example, a dinner portion of spaghetti would count as two or three servings of pasta.

How Many Servings Do You Need Each Day?

	Women & some older adults	Children, teen girls, active women, most men	Teen boys & active men
Calorie level*	about 1,600	about 2,200	about 2,800
Bread group	6	9	11
Vegetable group	3	4	5
Fruit group	2	3	4
Milk group	**2-3	**2-3	**2-3
Meat group	2, for a total of 5 ounces	2, for a total of 6 ounces	3, for a total of 7 ounces

*These are the calorie levels if you choose lowfat, lean foods from the 5 major food groups and use foods from the fats, oils, and sweets group sparingly.

**Women who are pregnant or breastfeeding, teenagers, and young adults to age 24 need 3 servings.



A Closer Look at Fat and Added Sugars

The small tip of the Pyramid shows fats, oils, and sweets. These are foods such as salad dressings, cream, butter, margarine, sugars, soft drinks, candies, and sweet desserts. Alcoholic beverages are also part of this group. These foods provide calories, but few vitamins and minerals. Most people should go easy on foods from this group.

Some fat or sugar symbols are shown in the other food groups. That's to remind you that some foods in these groups can also be high in fat and added sugars, such as cheese or ice cream from the milk group, or french fries from the vegetable group. When choosing foods for a healthy diet, consider the fat and added sugars in your choices from all the food groups, not just fats, oils, and sweets from the Pyramid tip.

BE PHYSICALLY ACTIVE EACH DAY

Physical Activities for Children and Teens

Aim for at least 60 minutes total per day:

Be spontaneously active, play tag, jump rope, ride a bicycle, walk, wheel, skip, or run, play actively during school recess, roller skate or in-line skate, take part in physical education activity classes during school, join after-school or community physical activity programs, dance.

*Nutrition and Your Health: **Dietary Guidelines for Americans:***

<http://www.health.gov/dietaryguidelines/dga2000/document/frontcover.htm>

Health Benefits of Regular Physical Activity

- Increases physical fitness.
- Helps build and maintain healthy bones, muscles, and joints.
- Builds endurance and muscular strength.
- Helps manage weight.
- Lowers risk factors for cardiovascular disease, colon cancer, and type 2 diabetes.
- Helps control blood pressure.
- Promotes psychological well-being and self-esteem.
- Reduces feelings of depression and anxiety.



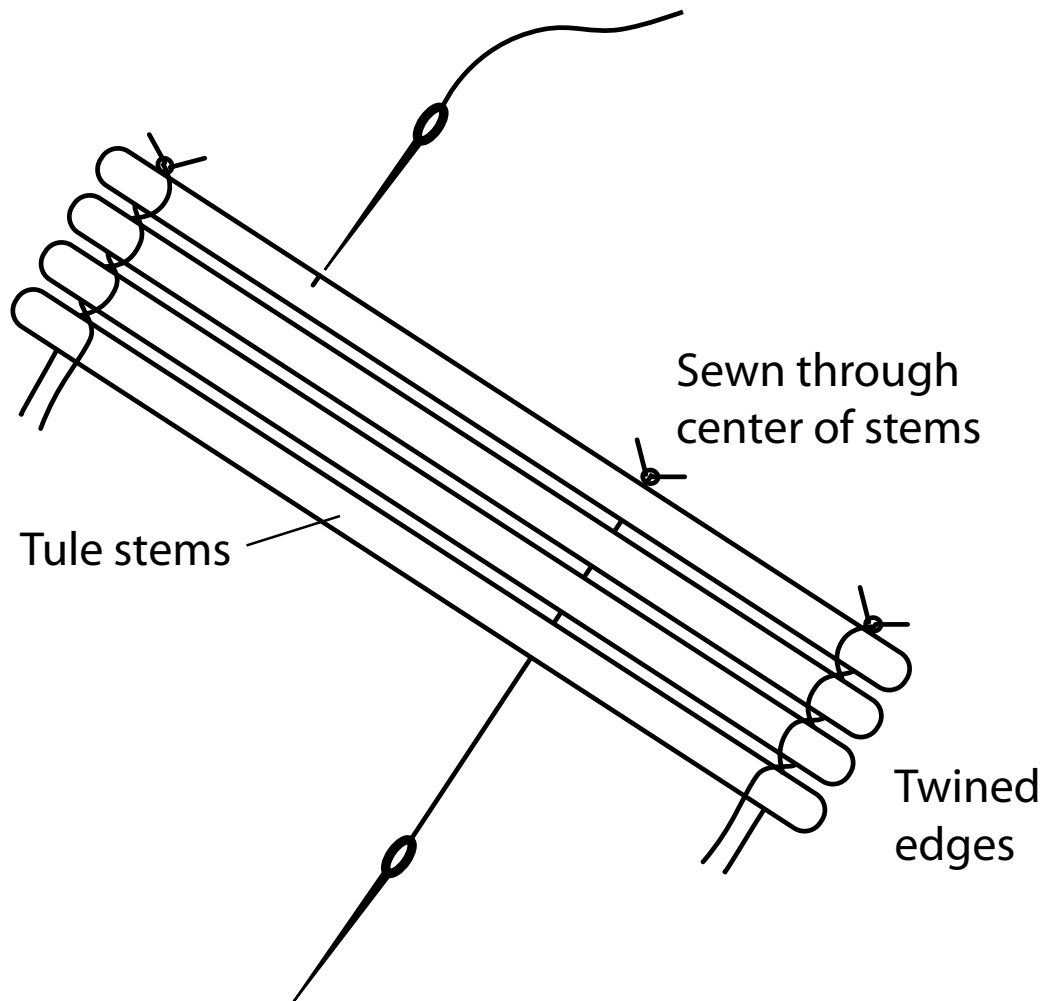
http://www.health.gov/dietaryguidelins/dga2000/document/aim.htm#physical_top

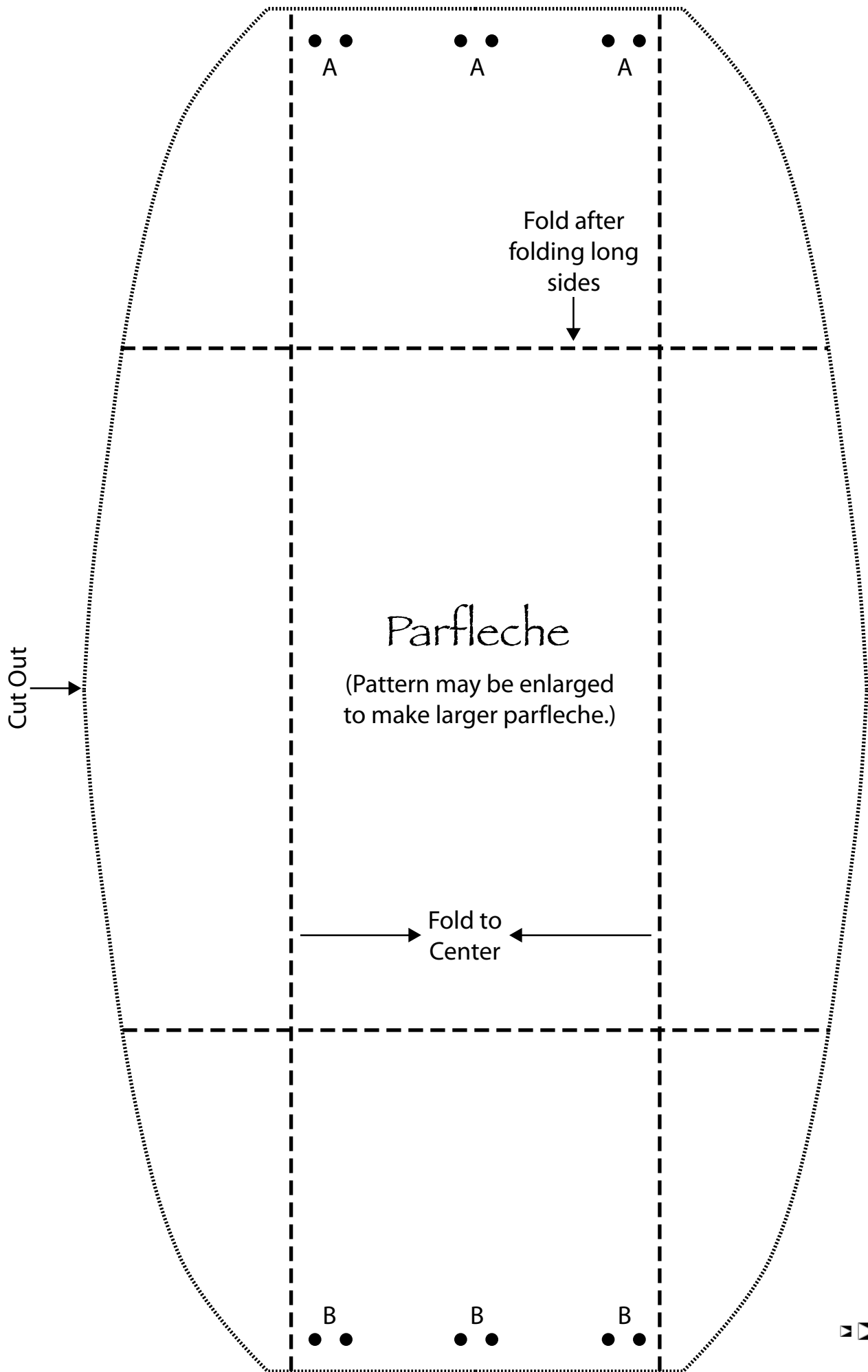
RECORD SUMMARY

Name _____

Date	Activity	Cost	What I Learned

MAT SEWING DIAGRAM





FRUITS OF THE FOREST

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

BEARBERRY
 BILLBERRY
 BITTERCHERRY
 BLACKBERRY
 BLACKCAP
 BLUEBERRY
 CHOKECHERRY

CURRANT
 ELDERBERRY
 GOOSEBERRY
 GROUSEBERRY
 HACKBERRY
 KINNIKINNICK
 OREGONGRAPE

RASPBERRY
 ROSEHIPS
 SALMONBERRY
 SOAPBERRY
 THIMBLEBERRY
 TWINBERRY

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

COILED BASKET ILLUSTRATIONS



Figure A

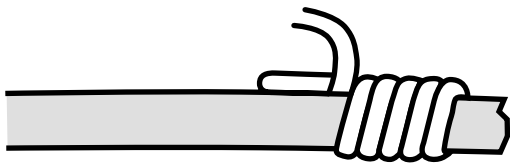


Figure B

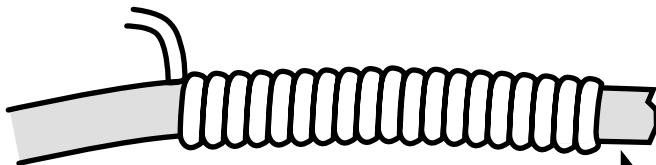


Figure C

Trim cord close
to wrapped yarn

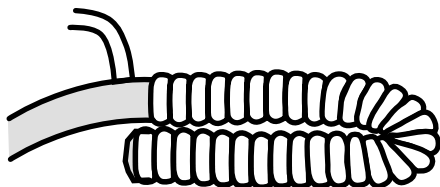


Figure D



Figure E

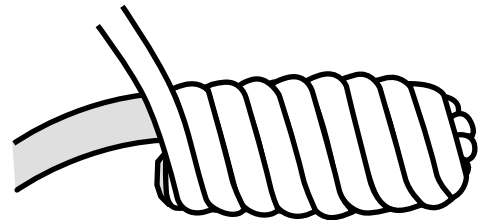


Figure F

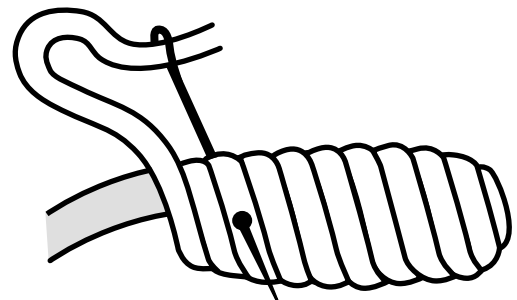


Figure G

COILED BASKET ILLUSTRATIONS

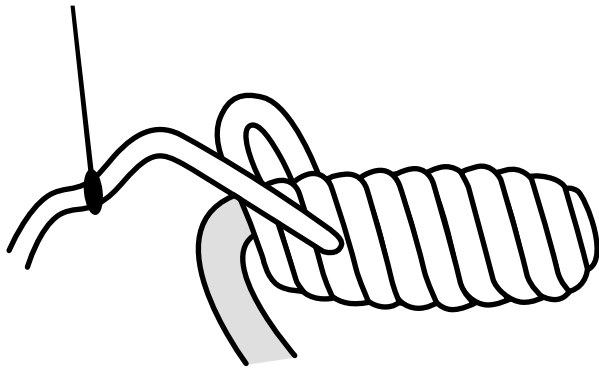


Figure H

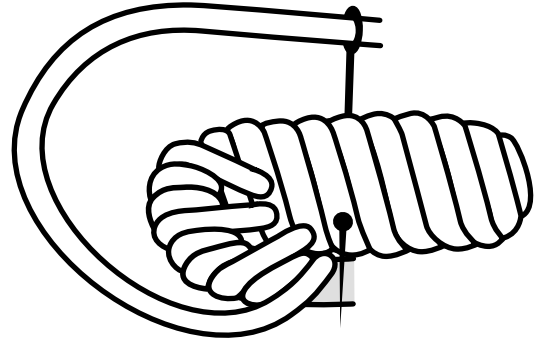


Figure K

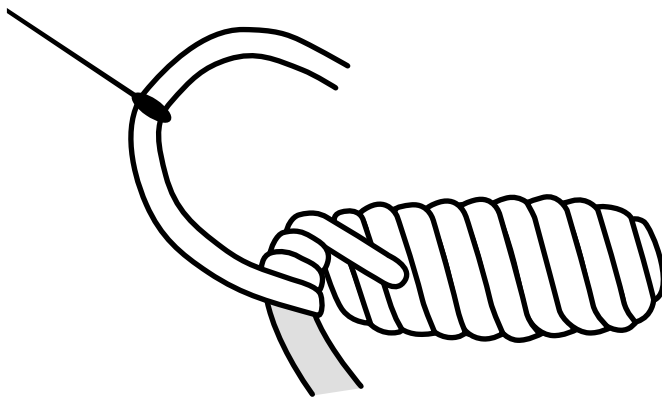


Figure I

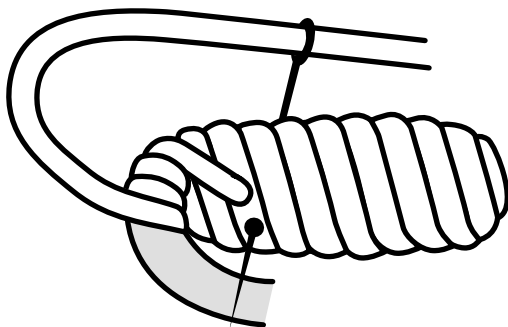


Figure J

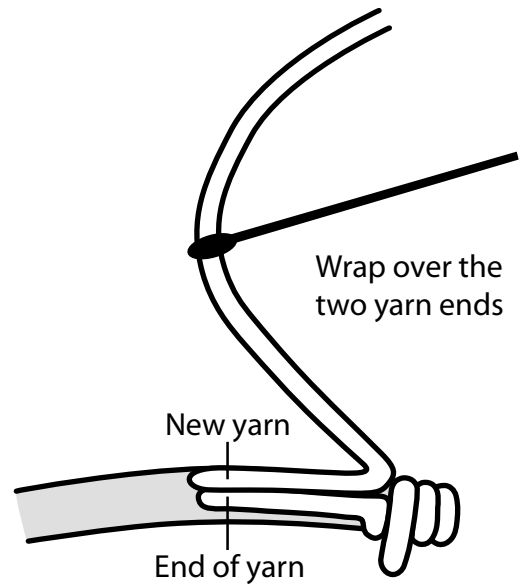
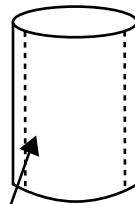
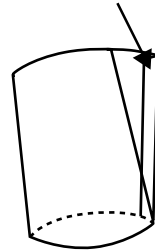


Figure L

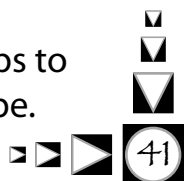
The diagram shows a rectangular domain with a central elliptical hole. The domain is divided into two regions: Region A (the outer area) and Region B (the inner area). The boundary of the domain is labeled 'A Flap' and the boundary of the hole is labeled 'B Flap'. The domain is bounded by a solid line on the left and a dashed line on the right. The hole is bounded by a dashed line. The domain is labeled 'A' and 'B' in the top right corner. The domain is labeled 'A Flap' and 'B Flap' in the bottom right corner. The domain is labeled 'A' and 'B' in the top right corner. The domain is labeled 'A Flap' and 'B Flap' in the bottom right corner.

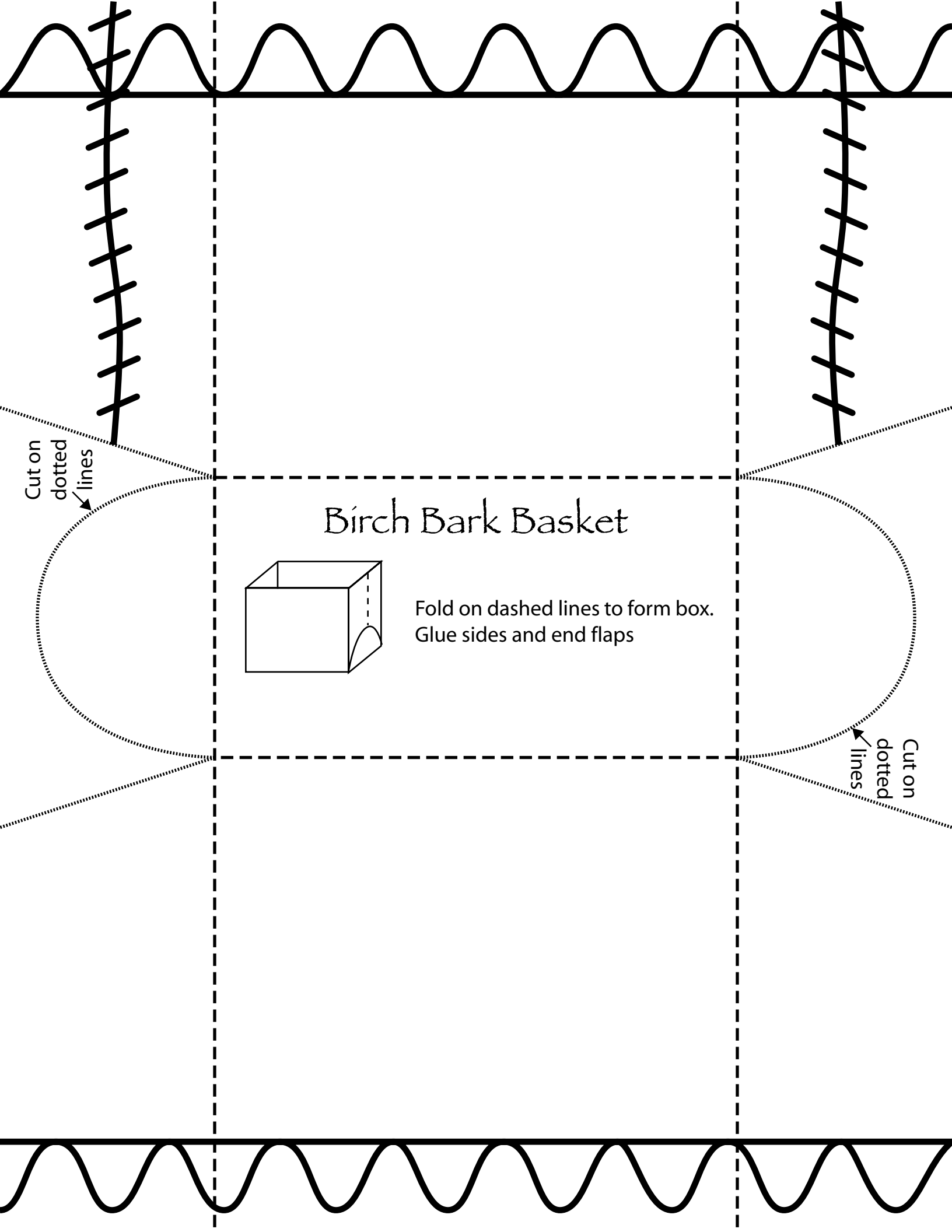
Score and fold on dashed line.

Fold flaps
to inside.

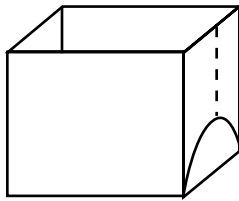


Glue flaps to form tube.





Birch Bark Basket



Fold on dashed lines to form box.
Glue sides and end flaps

Cut on
dotted
lines

Cut on
dotted
lines



College of Agricultural, Human, and Natural Resource Sciences

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