

**Science Unit:** *Soils, Plants, and First Nations***Lesson 5:** *First Nations Plants and Their Uses*

School year: 2007/2008

Developed for: Britannia Elementary School, Vancouver School District

Developed by: Catriona Gordon (scientist), Mary Anne Parker and Nicola Robinson (teachers)

Grade level: Presented to grades 1, 2 and 3; appropriate for Grades 1 to 5.

Duration of lesson: 1 hour and 20 minutes

Notes: This lesson is set up as four different stations, for students to rotate and visit. One to two adults should be at each station to facilitate, depending on the age of the students.

Students should be warned that many native plants are poisonous and should not be picked or eaten without the knowledge of an experienced adult.

For Plant Dyes: See Lesson 8, *Using Plant Pigments as Natural Dyes* in the Plants unit, available from the Scientist in Residence Program website <http://www.scientistinresidence.ca>

Objectives

1. Learn about the large diversity of plants used by First Nations Coastal peoples.
2. Discover the many uses of First Nations plants including edible plants and those used in aboriginal technology.

Background Information

First Nations people have inhabited the Pacific west coast of B.C. for thousands of years, using many native plants for food, medicines and technology. Common edible plants included many berries, which were eaten fresh, or dried or preserved in oil. In the spring time, fiddleheads (young fern shoots) were collected, cooked and eaten, as well as salmonberry and thimbleberry shoots, nettles and the inner bark of western hemlock, Sitka spruce and red alder trees. Seaweeds were collected and dried and eaten with herring spawn. Teas and beverages were made with Labrador tea, nettles, mint and other plant species. In total 130 species of coastal native plants were eaten or used in beverages or flavouring by First Nations peoples.

Plants were also used in aboriginal technology and provided coastal First Nations with dyes, firewood, construction materials, weaving materials for clothing and basketry, abrasives, and tobacco material. Plants such as Oregon grape wood (yellow) and red alder bark (red) and lichens (green/yellow/brown) have strong, natural pigments and were used to dye baskets and clothing. Due to its high absorbency, sphagnum moss was used for diapers, bedding and packing for wounds. Horsetails were used as scouring and polishing material as they contain large amounts of silica. Red Cedar was considered the “tree of life” as it provided aboriginal peoples with wood for their large canoes, totem poles, longhouses, and bark fiber for baskets, clothing and mats.



Vocabulary

<u>Fiddleheads:</u>	Furled young shoots of ferns of which some species are edible.
<u>Bannock:</u>	Traditional First Nations bread made over a campfire.
<u>Pigments:</u>	Any colouring matter in cells and tissues of plants or animals
<u>Chlorophyll</u>	Green pigment in plants, important to photosynthesis
<u>Anthocyanins</u>	Red, purple and blue pigments
<u>Carotenoids:</u>	Yellow, orange and red pigments
<u>Dyeing:</u>	The process of colouring something by saturating it in a coloured solution.

Materials

Edibles:

- Dried blueberries
- Dried cranberries
- Fiddleheads
- Fresh salmonberry shoots (collected in spring and peeled to reveal the inner stem)
- Edible seaweeds such as dulse and red laver
- Maple syrup
- Mint leaves
- Nettle leaves
- Tea pot and kettle

Plant Dyes:

- Frozen cranberries, blackberries or blueberries (or fresh if available)
- Whole walnuts
- Nutcracker
- 2 large non-reactive pots
- Prepared liquid plant dyes (see below)
- Hot plate for dye mixture (optional)
- Samples of horsetail and sphagnum moss
- Piece of wood for polishing with horsetails

Cedar Weaving:

- Cedar bark for weaving or cattails or bulrushes
- Waxed string available at a hobby shop
- Scissors, rulers

Making Bannock:

- Flour
- Baking powder
- Salt
- Cooking oil
- Water
- Mixing bowl
- Measuring cups and spoons
- Wooden spoon
- Greased cookie trays
- Mortar and pestle
- Whole wheat grains



SCIENTIST IN RESIDENCE PROGRAM

Introductory Discussion

1. When we have no food in our cupboards/fridges where do we go to get more? Where did First Nations people go to get food or a snack? Brainstorm about what plants were used by First Nations people. Talk about the lack of refrigeration. How did First Nations preserve the food that was collected in the spring and summer? How did they cook their food?
2. Where do your clothes come from? What plants do we use today for clothing? (Cotton, wool, synthetic material) What did First Nations people use for clothing, or to collect food in the forest? How were clothes/baskets made? What material did they use to weave?
3. How did First Nations people colour or decorate their clothes, baskets, masks, food? Talk about natural dyes found in bark, roots, berries, seeds, fruits.

Science Activity/Experiment

Station 1: Edible Plants:

Set-up a station with edible plants including dried blueberries, dried cranberries, dried elderberries, steamed fiddleheads, salmonberry shoots (new growth in the spring, shoots can be peeled easily by students), seaweeds such as dulse and red laver, maple syrup, teas such as mint tea, nettle tea. Let students sample each type of traditional first nations food and describe the tastes and textures. Leave sweet foods until last.

Station 2: Natural Plant Dyes:

Prepare plant dyes 2 days before lesson. Easily prepared plant dyes include powdered turmeric (yellow), cranberries (red), purple cabbage (purple). Turmeric dye: Add 4 Tbsp of powdered turmeric to 2 cups of water. Place in glass jar, mix and then let sit for 1-2 days. Cranberry Dye: Squish 1 bag of cranberries in a non-reactive pot and add 2 cups of water. Bring to a boil and then let simmer on low heat for 30 minutes, adding water if needed. Let sit overnight and then sieve mixture and place liquid dye in glass jar and refrigerate until ready to use. Purple Cabbage Dye: Chop up half a head of purple cabbage and place in a non-reactive pot. Add 2 cups of water and bring to a boil, then simmer for 20-30 minutes on low heat. Add more water if necessary. Let cool, sieve and place liquid dye in glass jar and refrigerate until ready to use.

During lesson: Give each student 3 strips of white or unbleached cotton (old sheets or pillowcases work well). Let students smell the prepared dyes and look at the colour, and then place one white cotton strip in each dye jar to be boiled up later.* After students have all placed their cotton in the dye jars let them guess what colour their cotton strips will be after they have been dyed. Then let students prepare fresh dyes:

Walnut shells: Note: check if there are any nut allergies in the class

Let students crack a walnut, using a nutcracker. Students may eat the walnut and then place the shell in the dye pot. After each student has added a walnut shell or two, add 2 cups of water and let soak for 24 hours. Then simmer the shells for one hour on low heat. Sieve and place dye liquid in a jar and refrigerate until ready to use.

Frozen blackberries, blueberries or cranberries (or fresh if available)

Thaw ½ - 1 lb berries before class. Using their hands, students can each have a turn to squish the berries in a large pot. If available, a hot plate can be used to heat the dye mixture in the classroom. Otherwise, dye mixtures can be heated at a later time. Simmer mixture for 30-40 minutes on low heat.



SCIENTIST IN RESIDENCE PROGRAM

*Boil up prepared dyes with cotton strips for 20 minutes. Let cool, then spoon out cloth strips and rinse under cold water. Let dry and return to students. Note that without a fixative, the dye will fade with repeated washings or strong sunlight.

Horsetails and Sphagnum Moss

Put out samples of horsetail and sphagnum moss and let students feel them and guess their aboriginal use. Place a piece of wood out with the horsetails and allow students to try and polish the wood.

Station 3: Making Bannock (traditional first nations bread):

Brainstorm about how First Nations got their bread. Explain that wheat was not grown by First Nations, but was traded by the Europeans. First Nations people would grind the wheat into flour and make bannock. Make batches of bannock with the students. There are many different recipes. Bannock can be fried in a pan on top of the stove and one can also add dried berries to the mixture. The following recipe is to be baked in the oven and can be baked over recess or lunch and is meant to be made in 4 batches for 4 rotations of students with each group making the following:

1 ½ c flour

½ Tbsp baking powder

½ tsp salt

1 ½ c water

1 ½ Tbsp oil or lard

Mix dry ingredients together. Add wet ingredients and mix lightly. Do not overmix. Make patties and put on to greased pan. Bake at 425 degrees for 20 minutes. Eat with jam.

If you have access to a mortar and pestle, purchase whole wheat grains and let students try to grind flour. (It is hard work!)

Station 4: Weaving with Cedar (to make a small mat)

Obtain cedar bark (see below for source), cattails or bulrushes to weave (all used by First Nations coastal people). Pre-cut cedar strips to be 15 cm long and 1cm wide. Inner cedar bark must be soaked in hot water for 30 min. before students start to weave. Each student will receive 8 cedar strips. Using a ruler, students will scrape cedar strips on both sides, to remove excess fibers and to smooth strips. Then they can place 4 bottom strips on the table and the other 4 strips are to be woven. Push tight with the end of a pencil or edge of a ruler in between the woven strips to make it tight. Then cut a piece of waxed string (or synthetic sinew) 3 ft. long. Fold in half and then weave in between the mat to keep the cedar strips in place. Pull tight at each corner and then tie a knot. Students can cut the ends of the cedar to make a shape of a star or flower.

Closure Discussion

What station did you like the best, least? What foods did you like? What foods did you not like? How was the food different from the food that you usually eat? How was it the same? Try to imagine living off the land thousands of years ago, like First Nations peoples, with just plants and animals around you to catch, gather and eat. What would be easy/hard?



SCIENTIST IN RESIDENCE PROGRAM

Sources for materials:

Dried berries found at On Broadway Specialty Foods (2696 W. Broadway St. 604 738 0326)

Fiddleheads found at Urban Fare (177 Davie St 604 975-7550) in spring

Mint, Labrador and Nettle tea leaves and dried elderberries and hawthorn berries found at Gaia Garden Herbals Inc. (2672 W. Broadway St 604 734 4372)

Seaweeds, dulse and red laver found at West Pointe Organic Produce (2625 W. 4th Ave. 604 736 2839)

References

www.ainc-inac.gc.ca/ks/pdf/food.pdf First Nations government website with bannock recipe

Turner, Nancy J. 1995. Food Plants of Coastal First Peoples. Royal British Columbia Museum Handbook, UBC Press, Vancouver.

Pojar, Jim and Andy MacKinnon. 1994. Plants of Coastal British Columbia including Washington, Oregon and Alaska. Lone Pine Publishing. Vancouver.

Dean, Jenny. 1999. Wild Color. Octopus Publishing. Watson-Guptil Publications. New York.

Senisi, Ellen B. 2001. Berry Smudges and Leaf Prints: Finding and Making Colors From Nature. Dutton Children's Books. New York.

Rose, Laura, Dorothy Giulani, Ruth Young, and Dorothy Patrick. 1997. Our Auntie Makes Indian Ice Cream. School District No. 91. Nechako Lakes. Vanderhoof, B.C.

Rose, Laura, Dorothy Giulani, Ruth Young, and Dorothy Patrick. 1997. My Grandma Makes Bannock. School District No. 91. Nechako Lakes. Vanderhoof, B.C.

Acknowledgements

I would like to acknowledge the generous donation of cedar bark by VSB First Nations Worker, Loretta Williams at Lord Selkirk Elementary School and her time in demonstrating how to weave the cedar mats.

Extensions

This lesson could easily be divided into 3 separate lessons: 1. food, 2. bannock 3. weaving/dyeing as there is a lot of material to get through in one class.

Plant a First Nations Garden in the school grounds with edible species such as salmonberry, thimbleberry, Saskatoon berry, wild strawberry, kinnikinnick, miner's lettuce, sedum, Oregon grape, salal. Make plant signs with names of plants and their First Nations Uses. Laminate the signs and place them in the garden.



1st Nations Plants Passport

By: _____

Grade: _____

Edible Plants

Plant	Tastes	Looks Like...
Tea		
Fiddle heads		
Seaweed		
Berries		
Maple Syrup		
Salmonberry Shoots		

Dyeing With Plants

A) Draw and label 4 steps needed to make plant dyes.

1.	2.
3.	4.

B) Write and draw 3 plants that can make plant dyes.

Making Bannock

What do you need to make Bannock ?

This is a picture of the Bannock:

Weaving with Cedar

Name 3 things that 1st Nations people made with Cedar

1._____

2._____

3._____

Why was Cedar so useful ?

This is my Cedar basket.