

ALTERNATE PAST PROGRAM

GRADES 4 & 5 – GARRY OAK ECOSYSTEM STEWARDSHIP

(Channel Ridge)

This program was conducted once successfully and remains an alternate program option. It is structured differently from the other programs. Rather than have four stations to which four groups of students rotate, this program has many activities that can be conducted without the expertise of a station master. The stations are self explanatory, set *in situ* with the topic of discussion. Students with their group leader move about freely among them, spending relatively equal amounts of time at each activity. For note taking, students have a booklet of pages preformatted for the various activities.

Activities are outlined here to serve as example activities. Aspects of some of the activities are easily incorporated into other program activities.

Age of Young Trees

Look at the young Douglas Fir tree.

Look at the leader, the growth for this year, at the top of the tree.

Counting up from the bottom to each node (where a ring of branches starts), how old is the tree? (Don't forget to count this year's growth at the top of the tree).

What can you say about how much each tree grew each year? Was it always the same?

Why do you think some years had more growth than others?

Look at other small firs and compare them to this tree.

Age of Young Tree Student Notes

Why do you think some years had more growth than others?

SSI Conservancy Stewards in Training Program

Draw a tree and label the growth nodes as year 1, year 2, etc.



Burnt Tree

Bark of Douglas-fir trees can withstand some fire if it does not last long or get too hot. The fire in this area was too hot. It was set accidentally and could have burned a lot of Salt Spring Island if it had not been spotted early and put out. This tree is dead. It died from the intense fire.

What would help a Douglas-fir tree not get too hurt from a small fire?

The First Nations people set fires deliberately in Garry oak habitat but there is a difference. They set the fire in the fall just before the heavy rains and they controlled the fire by beating it back.

Did you notice any other trees with burn marks on them where the tree did not die?

Burnt Tree Student Notes

1. What would prevent a Douglas-fir tree from burning up in a small fire?

2. Why would the First Nations people set fires under the Garry Oak trees, in the meadow?

Camas

Plants in the Garry Oak meadows are very active in the spring. They leaf, then flower and make seeds in a short time. In the dry summer heat they go to sleep.

Use your compass to figure out what direction the Garry Oak meadow is facing?

What difference would the direction make?

Look at the camas bulbs. They can grow as big as small onion bulbs in the spring.

One reason First Nations would have come to this meadow was to gather the camas bulbs for food. When they saw the purple flowers in the spring they set up camp and spent time gathering the bulbs. They had to wait to see the purple flowers because there is a white flowered one called Death Camas that could kill them.

What food nutrient do you think First Nations got from the purple camas?

Was it fat like in oily fish?

Or protein like in fish and other seafood?

Or was it carbohydrates like sugar or starch that we get in potatoes and grains?

Do you think the First Nations took all the purple camas bulbs? Why?

When they were here in the fall they set up camp again and did a very controlled burn of the area, just before the rains came, to keep the other plants like Douglas-fir from crowding the camas in the meadow.

What advantage was there to get rid of the competing plants like small Douglas-fir trees?

What is a way to describe what the First Nations people did with the Garry Oak Meadow?

Camas Student Notes

1. What direction is the Garry Oak meadow facing?

2. What food nutrient did the First Nations people get from the Camas bulbs?

SSI Conservancy Stewards in Training Program

3. What is your way of describing what First Nations did with the Garry Oak meadows for thousands of years?
-

First Nations Midden

Look around the area. This is a midden area. What do you see?

How large is the midden area? Walk around and see.

Wherever people live they need certain basic things. What are those needs?

Could the First Nations people have lived here comfortably while they worked in the area?

Why might people have wanted to camp or live here for a period of time?

First Nations Midden Student Notes

What is a midden?

Invertebrates

We are animals and we eat food, breathe, get rid of our wastes, and move around.

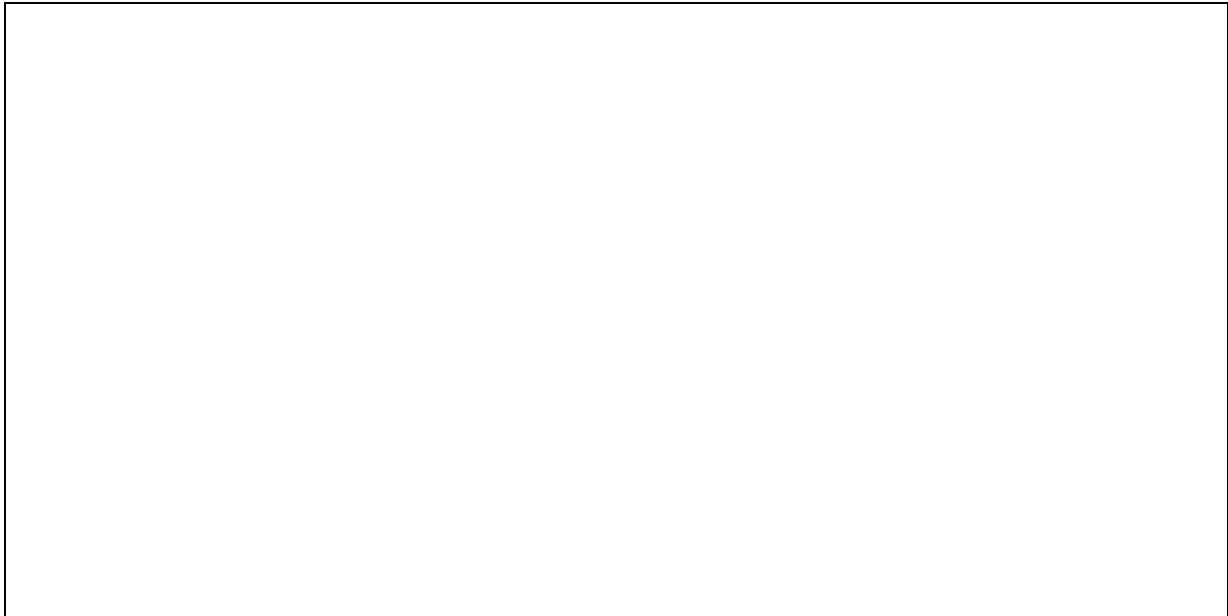
Find an animal like a spider, an ant, a woodbug, or an earwig. Quietly, with your animal, sit and observe it. Watch what your animal does. Use your hand lens for a close look.

Draw a picture of your animal. Be sure to include in your drawing its habitat. Did you name it?

Show one other person your animal.

Invertebrates Student Notes

Draw and label your animal



Moss

Observe the area around you. Notice that the moss is growing on the bare rock. A plant is called a pioneer species when it is the first one to grow on a bare or disturbed surface.

Most pioneer species are able to survive by doing some unusual things to get water, hold on to the rock, make food. How do you think moss can be a pioneer on the rock?

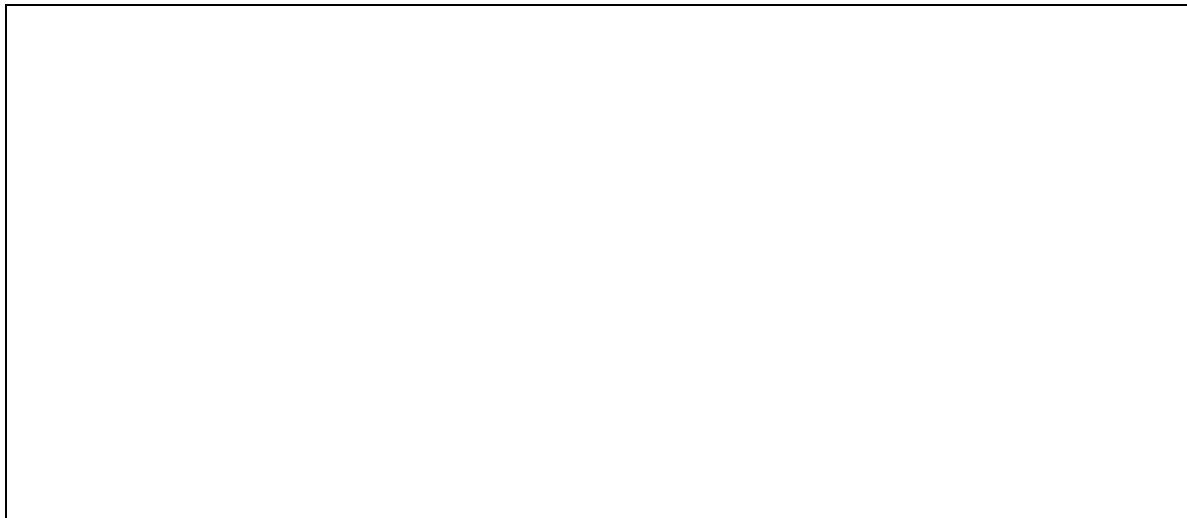
Place the footprint quadrat where you can see two or more different moss types.

Moss Student Notes

1. What special thing or things can moss do to survive on bare rock?

SSI Conservancy Stewards in Training Program

2. Draw and label what you see in your “footprint.”



Nurse Log

Look closely at the fallen log. Is it dead? What evidence do you observe?

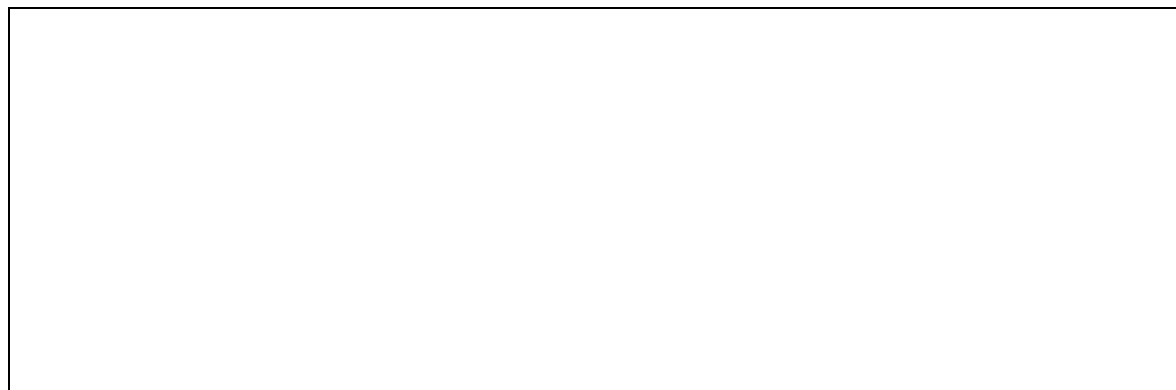
Are any plants using the nutrients in the log for their growth? Which ones?

Why would scientists call this a “nurse log?”

Nurse Log Student Notes

Why would scientists call this a “nurse log?”

Make a drawing of the nurse log.



Plant ID

Look around the area and notice the numbered signs on the plants.
Use the plant ID keys provided to figure out the name of each plant.

Plant ID Student Notes

Plant 1

Plant 2

Plant 3

Plant 4

Plant 5

Plant 6

Pond Station

1. Look closely at the area in and around the “pond.”
2. Where do you think the water for this area came from?
3. What are some possible reasons for the pond to be dry when local people say it has never been dry before this year?
4. Record three reasons on your paper.
5. Put a pencil star by the one you think is the most likely. You can choose more than one.

Pond Station Student Notes

What are some reasons the pond is dry this year when local people say it has never been dry before?

Put a star by your choice answer.

1. _____

SSI Conservancy Stewards in Training Program

2. _____

3. _____

Silent Walk

When you are in nature it is important to be observant of what is around you. Let's see how observant each of us can be.

1. One at a time take turns walking along the side of the rope.
2. As you walk take note of the interesting items.

Silent Walk Student Notes

Gather back into a circle, and one by one, students can name one item they saw, facilitator can keep a written record. Go around the circle a second time for any other items. Compare the students' list with the inventory list of all items on the silent walk. Which items are not usually found in this ecosystem? If any items were missed, its fun to walk the silent walk again and try to see them.

SOIL

Observe the three types of soil. Feel their texture in between your fingers.

Activity – Soil Texture – is it Clay, Silt and/or Sand?

1. Place some Channel Ridge soil from the bucket in your hand (the size of a small egg). Moisten it with the spray bottle water. Work the soil in your hand.
2. Can you form a ball?
 - If NO, then it is **SAND**
 - IF YES, then...

3. Can you form a ribbon?
-If YES, then it is
- a long ribbon, 5+ cm? and can you form a doughnut?
- If YES, then it is **CLAY**

 - a ribbon between 2-5 cm?
- If YES, then it is a **CLAY LOAM**

 - a short ribbon, <2 cm?
- If YES, then it is a **LOAM**

 - If NO ribbon but it forms a ball
-then it is either:
 - very gritty and is a **LOAMY SAND**, or
 - very soft and smooth and is a **SILT**

To Refine:

Wet a small pinch of soil in your palm and rub it with a forefinger. If it feels:

- I. Very gritty, then add "**SANDY**" to initial classification, i.e. **sandy clay, sandy clay loam, sandy loam**
- II. Very smooth, no grit, then add "**SILTY**" to classification, i.e. **silty clay, silty clay loam, silty loam**
- III. Only a little gritty, then leave name as is, i.e. **clay, loam, clay loam**

Soils Student Notes

1. What kind of soil is located on Channel Ridge?
-

Some Background Notes on Soil

Soils are a precious part of Earth, covering a thin layer of most of Earth's land surface. Soils began to form on Earth 2.6 billion years ago. Bacteria began to eat rock and weather acted on the rocks to break them down into soil.

SSI Conservancy Stewards in Training Program

What is Soil? Here are some definitions

- ✧ a complex mixture of three main ingredients: minerals, organics, and open space that can be filled with water and air
- ✧ a good soil for growing most plants should have...
 - about 45% minerals,
 - 5% organics,
 - 25% air,
 - 25% water)
- ✧ the source of much of Earth's biodiversity (Do you know what biodiversity is?)
- ✧ the place where nutrients are transformed from dead bodies into usable forms for plants

What influences the kind of soil that forms?

1. Parent material – the material from which the soil formed (i.e. bedrock, organics, deposit from volcano, etc.).
2. Climate – weathering of parent material.
3. Organisms – animals, bacteria and fungi living in soil affect decomposition; kind of dead animals and plants added to soil affect it; the way humans use it.
4. Topography – the location of the soil in the landscape, ie. At top of ridge, at bottom of valley.
5. Time – how long has soil been in formation.

Tree Aging

With each year's growth, a growing tree gets bigger around, as well as taller upwards. Trees can be aged by their annual growth rings.

Take a tree disc and see if you can tell how old it is by counting the rings. Now try one or two other discs.

Can you see any years where the cells are wider than others? What do you think that means?

Tree Aging Student Notes

How old were your trees?

What do the wider rings mean?

Tree Circumference

Trees get wider as they grow. The measurement around a tree is called the circumference.

Trees, like all plants, breath in carbon dioxide. How much carbon dioxide does a tree take out of the air? Who would want to know this?

Carbon dioxide is a greenhouse gas, and it is playing a big role in climate change, warming Earth's climate. Cars and factories pump out CO₂ as they burn fossil fuel. Growing trees draw CO₂ out of the air. You can compare the amount of carbon dioxide two trees take out of the air by measuring their circumference and comparing them on a chart.

Measure the circumference of the three trees in this area. Look on the chart to see how much carbon dioxide each tree takes from the environment.

Tree Width

1. How much carbon dioxide does each tree remove from the air when it makes food and oxygen?

Tree 1 _____

Tree 2 _____

Tree 3 _____

SSI Conservancy Stewards in Training Program