

A Pacific NW Coast Experience: Educator Guide

In A Pacific NW Coast Experience, students will travel back in time to a coastal village to meet the people who have been stewards of their lands for millennia. As travelers, students will be welcomed into the village to learn from elders and knowledge keepers, perform harvest tasks to help the village prepare for winter, and ultimately build their own self-sustaining village further up the coast.

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Guide Introduction

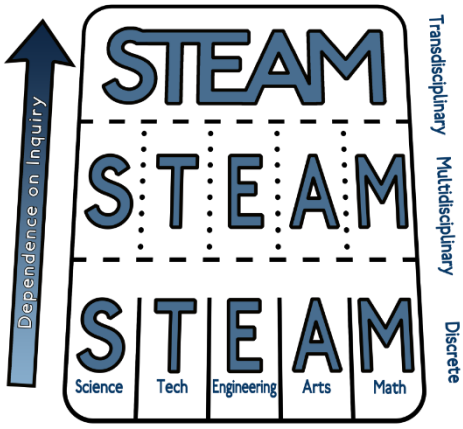


INTENTIONS: The guide is intended to help facilitate the respectful and meaningful inclusion of Indigenous knowledge and perspectives into the classrooms. As such, it often reflects an approach to indigenous knowledge that values a holistic, integrated approach to teaching and learning. As a part of a holistic approach, this guide does not attempt to create units for sole applicability to one course or a single grade and does not attempt to match individual lessons with specific learning outcomes.

This learning resource is guided by the recognition of ways of learning inherent in First Nations' worldviews. While each First Nation has its own unique identity, values and practices, there are commonly held understandings of how we interact and learn about the world. In respect of these, this guide includes activities that:

- are learner centered and inquiry based
- are based on experiential learning
- emphasize an awareness of self and others in equal measure
- recognize the value of group processes
- support a variety of learning styles
- the activities are based on the above principles which reflect a respectful and holistic approach to teaching and learning and are an example of Indigenous Knowledge.

RECONCILIATION: This guide is intended in part to address the Calls to Action of the Truth and Reconciliation Commission, particularly the call to "integrate Indigenous knowledge and teaching methods into classrooms" (clause 62) and "build student capacity for intercultural understanding, empathy and mutual respect" (clause 63). *A Pacific NW Coast Experience* and this guide supports reconciliation by highlighting the incredible traditional ecological knowledge, rich culture, and stewardship of the land maintained by NW Coast Peoples for millennia.



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STEAM FRAMEWORK FOR LEARNING: The world's learner-centered, experiential, and inquiry-driven activities fit well within a STEAM framework of learning. The STEAM framework brings together science, technology, engineering, art and math in an integrated approach. The OECD identifies STEAM-related goals as important to long-term student wellness and equitable opportunity.

Specifically, STEAM approaches to learning promote core competencies such as problem-solving and critical thinking. STEAM approaches provide an opportunity to transcend the curricular competencies that represent its component parts and provide educators with a practical instructional framework to pursue multi-disciplinary and trans-disciplinary learning experiences. Furthermore, scholars such as University of British Columbia's Dr. Cynthia Nicol, note that "STEAM education has potential for supporting the decolonization of educational practices—to interrupt colonial structures and logics to re-imagine our relationships with each other"[1]

At first glance, some might assume this is solely a Social Studies resource. On the contrary, this is intended as a launchpad into multidisciplinary and even transdisciplinary inquiry. Teachers are encouraged to facilitate a wide variety of curricular connections that go beyond discrete subject areas.

ASSESSMENT: This guide assumes that educators will choose their own appropriate assessment practices. As such, the guide does not endeavor to include these in detail. While some formative assessment opportunities are suggested, educators may need to use their own expertise to develop these more fully. As well, they will need to develop their own summative assessments to match the activities that they use.

PLACE-BASED LEARNING: SD43 Coquitlam is grateful for the assistance from the kʷikʷəƛ̓əm First Nation in developing this world. It is important to note that although this world was developed in consultation with the kʷikʷəƛ̓əm First Nation, it is intentionally generalized in order to spark student inquiry about specific local nations… especially important for students who live and learn on their lands. It can be a starting point for deep learning about place and understanding and respect for indigenous ways of knowing and being. For participating students who may be geographically distant, this world can be a valuable resource for recognizing the value of indigenous traditional ecological knowledge, sustainable practice, and stewardship.

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LANGUAGE: There is very little use of indigenous language in the Minecraft world other than "Siyam." Use this word for chief as a springboard for students to research the local language and dialects. How does your local First Nation pronounce it? How do they say thank you? Many First Nations have online. E.g.: vocabulary and pronunciation guides (Kwikwetlem Nation).

MINECRAFT VS. REALITY:
Students land in the world in Adventure mode. If the teacher is hosting the world, this will be true for all students at all times. However, if students are working independently or in groups, they may be tempted to switch to creative mode to make travel easier. As a class, agree that the only time students should be in creative is when they are in the sandbox village. They are guests in the village. There is no place for flying, spawning creepers, or using TNT. It's also important to understand that many students will have experienced Minecraft within a resource extraction context. Students need to exist in this virtual world as if it were real. They are not there to take what the can… only to take what they need. Additionally, teachers ARE encouraged to ask students to compare generalized, representational aspects of a block-based Minecraft world to the real world. For example: Do the welcome figures seem to be a realistic size? Why or why not? Can you find out what a welcome figure from your area really looked like? Students should be encouraged when building in the sandbox village to explain why they chose a certain block from MCEDU to represent something from the real world that doesn't exist in MCEDU.

ARTWORK:
The depiction of the lightning snake is inspired by the works of the late Nuu-chah-nulth artist Art Thompson of the Ditidaht Nation. Thompson's work can be seen in the Museum of Civilization in Hull, Quebec, the Royal British Columbia Museum in Victoria, The Canadian High Commission in Singapore, and Stanford University in the United States.

Instructional Overview

1. **What will the students do?**
   - Students will learn from elders and knowledge keepers about how Pacific NW Coast Peoples use the gifts of the land and sea in a responsible way to provide everything they need to thrive. In the four showcased **Traditional Learning Tasks**, students will contribute to the community by helping to prepare for winter. Students will explore and reflect on the world, work together to

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harvest cedar bark for weaving, planks for building, build a gill net to catch salmon, gather salmonberries, and harvest camas.

2. **Recommended student age:**
   - Grades 2-12.
3. **Four Showcased Traditional Learning Tasks Estimated Run Time**
   - **Arrival… Observe and Explore:** Arrival and welcoming at the big house. Then students explore the world (community, ocean, land, and animal resources), observing, connecting, documenting – 40 to 60 minutes
   - **Traditional Learning Task: Cedar (Tree of Life).** Students are introduced to the tree of life… an invaluable and integral part of Pacific NW Coast Peoples. – 40 to 60 minutes including debrief. Additional time (open-ended) for the build challenge.
   - **Traditional Learning Task: Salmon.** Students will learn about gillnetting salmon, gaining an appreciation of the salmon's cultural and ecological importance, which guide the reverential harvest practices. – 40 to 60 minutes including debrief. Additional time (open-ended) for build challenge.
   - **Traditional Learning Task: Plants.** Students learn the importance of gathering berries and how to manage a staple crop, camas. – 40 to 60 minutes including debrief. Additional time (open-ended) for build challenge.

4. **Instructional Format**
   - Teachers may use the world with students in a variety of formats:
     - Teacher hosts the world and invites students to join on their own devices or on shared devices (e.g. two students on one laptop).
     - Students work in small groups, with a responsible leader who hosts the world and invites the others in the group to join. ***Preferred**
     - Students work individually in their own worlds
   - Ultimately, it is up to the teacher to choose the best delivery method, knowing what works best in their context. Teachers may choose to do a blend. They may, for example, choose to show the videos on a screen to watch together and discuss.

5. **Overview of game "traditional learning tasks" and assessment**
   - Each of the four "traditional learning tasks" is a self-contained learning experience, which do not need to be completed in a particular order after the first "Arrive, Observe, and Explore" task. Students will be asked to receive teachings from the knowledge keepers, extend their knowledge with out-of-

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game links to resources, complete a task, document and reflect, and apply that knowledge to a build challenge after the task is completed.
- Assessment: Students will document their learning with an in-game camera and portfolio and reflect on their learnings with the in-game book and quill (which allows PDF export for sharing with a teacher). Some teachers may choose to have students document using full screen shots and PowerPoint. Each activity is paired with real-world application of learning extension lessons connecting learners to the place where they live. In this way, teachers can engage in in-game and out-of-game assessment.

Learning Path:

1. **Learning objectives**
   - Students will develop understanding of indigenous traditional ecological knowledge, focusing on the *interconnectedness* of all living and non-living things. Through participation, students will discover the sustainable practices that have been maintained by these peoples for millennia.
   - Students will understand and reflect on First People's Principles of Learning (FNESC):
     - Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors.
     - Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place).
     - Learning involves recognizing the consequences of one's actions.
     - Learning involves generational roles and responsibilities.
     - Learning recognizes the role of Indigenous knowledge.
     - Learning is embedded in memory, history, and story.
     - Learning involves patience and time.
     - Learning requires exploration of one's identity.
     - Learning involves recognizing that some knowledge is sacred and only shared with permission and/or in certain situations.
2. **Learning outcomes**
   - Students will be able to explain showcased traditional ecological knowledge and explain how it relates to sustainability.

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- Students will be able to reflect on their own practices both in the game and in the real world and determine those practices which are sustainable and those which are not.
- Students will be able to explain the rich cultural values discovered in performing tasks.
- Students will be able to draw connections between the learning tasks in the game and examine the real world outside the classroom door with a STEAM lens.
- Students can explain how they engaged in first people's principles while playing the game.

3. **Learning journey (steps of HOW students will learn in the overall game)**
   - Students **must** be welcomed onto the land and understand protocols before entering the village. After the first lesson (**Arrival, Observe, and Explore**) teachers may pick any of the three remaining traditional learning tasks. Perhaps students can vote for cedar, salmon, or plants for the next lesson. One does not have to be completed before the other.
   - Each **traditional learning task** elder NPC in the big house (Cedar, Salmon, Plants) has a **Build** button. Once the students complete, document, and reflect on the learning task, students can click the build button to teleport to the sandbox village for the associated challenge. It is important for students to recognize that when they teleport, they will be switched to creative mode. Each of the three Elder NPCs in the sandbox village have a "back to village" button. When students click this button, they will be stripped of inventory, and then given a replacement camera, book and quill, portfolio, and canoe… only the items they were given at landing.

WARNING: All inventory (e.g. harvested items) and the book and quill will be erased when students teleport back to the village. Students must sign and export the book **before** teleporting to the sandbox village or they will lose their work. Photos and captions in the portfolio will remain, however.

- **Inquiry Opportunities:** Within the world, there are many NPCs who share knowledge but are not part of a larger activity-based lesson. These may be used to spark interest and to generate inquiry amongst students. These NPCs include: **Wool weaver, bark weaver, canoe builder, plank house builder, kelp harvester, clam garden, storytelling, pit house, dip netting, wind dried salmon, petroglyphs and pictographs, healing waters, sasquatch, and transformer stones**. The learning generated by this inquiry can be represented

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in the sandbox village. Students can plan and build a plank house, a clam garden, a pithouse, etc. based on what they have learned. Ultimately, students can build an entire village. A teacher may choose to make this a year-long project as students research and use information from Knowledge Keepers in the game and their own research to create their own village, complete with housing, food security, storytellers, and other important cultural elements. These elements can be highly localized, based on local indigenous knowledge. Such a build would be a powerful opportunity for formative and summative assessment.

Traditional Learning Task: Arrive, Observe, and Explore

Lesson overview:



1. Exploration and connection to place:
    - First people's principle (Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place). Before students begin learning tasks, students explore the coastal community, land features, plants, and animals. Students will make connections, comparing and contrasting the coastal environment with their own community. Students document and reflect using camera, portfolio, and book and quill. This is a look and explore only phase. Students will understand protocols upon landing (reading sign) and through teacher scaffolding.
2. STEAM in-game activity
    - Students follow teacher direction to explore, document, and return. This activity is about noting the features of the world. How do these features compare to what you've experienced where you live? Students export book and quill with reflection on each photographed feature. As a class, create a classification system for the features. E.g. land animals, sea creatures, land features, plants

Teacher Role:

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1. Set expectations: the class is here to explore and respect the people, plants, animals, and land. **Observe only** in this phase. Take care of each other, the people who live here, and this place.
2. Introduce First Peoples Principals of Learning (FNESC)
3. Monitor, address behavior, and debrief.

Lesson Flow

1. Open World on screen
2. Discuss expectations and highlight First Peoples Principles before students enter the world (please see instructional format options above). Impress upon students that they will be guests.
3. Read the protocols from Welcome! NPC together and discuss. Why is it important to be welcomed into the village. Why should you offer a gift? Take a blanket from the bentwood box. Note, that students must click on NPC to be given a canoe, portfolio, camera, and book and quill. It will be important for students to line up and take turns. Right clicking on the NPC gives the nearest player the items.
4. Model using the camera, portfolio, and book and quill.
5. Model placing the boat in the water and paddling to the village. Model placing the blanket in the bentwood box and reading the Siyam's greeting.
6. This is an important discussion point: always be kind, take only what you need from the land, and give thanks. Students used to playing Minecraft may have experienced the game with a resource-extraction focus. In this world, we are focused on living in *harmony* with Mother Earth. First Peoples Principles hold that all living things are connected. What happens when we take more than we need? What happens when we don't respect Mother Nature or be thankful for her gifts?
7. Ask students which First People's Principles connect well to this activity (Learning involves recognizing the consequences of one's actions; Learning takes patience and time). Outline expectations for their first visit to the world. This is an observe-only stage.
8. Once students enter the world, they will read the Welcome! NPC message, take a blanket from the bentwood box and practice using the camera, portfolio, and book and quill in place (see technical guide for help). Students then place a canoe in the water and head to the welcome figures. After placing the blanket in the bentwood box, students read the Siyam NPC's message and then are set free to explore the big house and then the whole world, using the book and quill or portfolio (see assessment) to record and reflect on what they see. This is a stage to record wonderings, surprises, and connecting to their own experiences and comparing with where they live. E.g. (We have mountains

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to the North… This area reminds me of a local beach, I've picked berries like this near the school, etc.)

9. Students then set free to explore the village and natural environment, noting the geographical features and gifts of the land and water.
10. Students record discoveries using camera, portfolio, and book and quill.

Debrief

1. Share what you observed and documented. Any surprises?
2. Students make connections between *A NW Coast Experience* world and their world
3. Did students meet expectations around behavior and protocols?

Traditional Learning Task: Cedar…The Tree of Life

Lesson overview:

1. Cultural Teachings:
    - The tree of life story
    - Cedar important and revered
    - Protocols for respecting and thanking the tree for its gifts
    - Learn the many items that can be crafted from cedar
    - Learn from plank harvester how plank was harvested from a living tree, allowing the tree to keep growing.
    - Learn from the bark stripper how the bark was harvested… not too much to allow the tree to live.



2. STEAM in-game activity
    - Work as a class to plan sustainable bark stripping and plank harvesting. Adze provided by NPC. This will require cooperation to harvest planks and bark from as few trees as possible.
    - Students return to the Big House with bark and plank. They pool their planks to build bentwood boxes (takes 8 planks each) to place on the bench behind the Bark Weaver. The students place their bark in the bentwood box for the Bark Weaver to use.
3. STEAM sandbox activity

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- After harvesting bark and plank, students return to big house and click NPC link to teleport from Cedar elder NPC to a bounded sandbox area to work together to recreate the Cheewhat Giant. The same NPC in the sandbox area has a learn more link to a webpage with information about the tree. This is the largest living Western red cedar and the largest known tree in Canada. Students work in groups to create a scale model (as close as possible). The tree is 6.1 meters in diameter and 55.5 m in height. Students work together to recreate from pictures they find through internet search. Students work in groups, document their creation in their Portfolio, estimate volume in cubic meters (how many blocks). Older grades can estimate surface area. Fly to the top and take a photo from an eagle's view. Jump from the top and use a timer to record time in the air. Determine average speed. Or for older grades, use freefall equation and how does this compare to a drop from such a height in the real world? Document in their portfolio and comment on how their model compares to the actual tree. NPC has button to teleport back to big house, strips inventory and changes to adventure.

4. STEAM real-world activities
    - Students explore around their school to identify Western red cedars.
    - Engage in bark and leaf rubbings, examining the structure of branches and trunk.
    - Students find the largest Western red cedar they can find nearby and engage in measurement and estimation
        - Estimate height using a variety of methods. See the following resources
            - Estimating tree height resource
            - "Handy" Measuring Tool video
        - Measure circumference at base and derive diameter (compare to Cheewat Giant) or other nearby trees. Older students can develop a method to estimate volume of wood
        - What is the story of this tree? Can students speculate how long ago it was a sapling. How did it come to be there? How long will it live? How does it interact with neighboring plants and trees?

5. Explore the rot-resistant properties of Cedar through experimentation (e.g.: cedar vs. spruce shims from home center spiked into soil. Observe over time.

6. After watching a bentwood box maker in action, explore steam bending through teacher demo (e.g. steaming or boiling cedar shims and then bending).

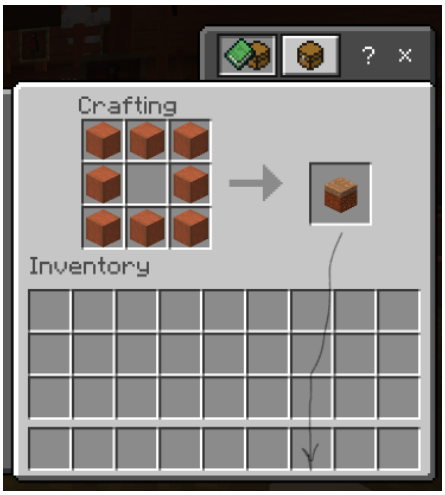
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Teacher role: Teacher carries out the lesson plan and at the end, inspects the forest and debriefs. Teacher plays external video links for the class.

Lesson Flow

1. Teacher approaches the Cedar knowledge keeper and displays their teachings on the screen.
2. Teacher follows external links to supplemental resources, displaying images.
3. Students travel along the path past the smokehouse to the northwest side of the lake.
4. Students find the Tree of Life knowledge keeper and read the story of cedar
5. If you have a large group, students split into two groups to find the bark stripping knowledge keeper in the forest or the plank harvesting knowledge keeper in the forest and begin the harvest task. Groups switch after sufficient time.
    - Students can ONLY harvest planks from trees that are large enough (2x2 base) to allow the tree to continue living. The bark on these trees will already be stripped in preparation for harvest. Take only one cedar "plank" per student, harvesting from the 2nd block up to the branches. It will take 8 cedar planks to build a bentwood box. Tell students this is a Minecraft behavior and with the help of the "learn more" video, discuss whether this is accurate. Students need to plan together to share their harvest to create the box. A class of 28 can make 3 bentwood boxes if they each harvest one plank, but that leaves a remainder of 4. They can decide together to harvest four more planks to make a fourth box. A small group of 5 students might decide to harvest one each plus 3 more to make a single box.
    - Only harvest bark from the four tallest, skinny trees (1x1 base), harvesting from an uphill position (if possible), removing bark from only one side. Bark removed from one 2nd block up to where the branches begin. Only 1 piece of bark per student. Note, not all trees are harvestable. Students will need to cooperate to not harvest from more than one side of the tree.

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- Debrief: were protocols followed? Did the students follow the teachings? Asked to explain what they learned. Teacher tours the forest and displays on the screen. Discuss. What are the consequences of not following the teachings? What do the deep understandings the Pacific NW Coast Peoples possess about sustainability and the interconnectedness of all living things compare to forestry practices in our region?
- **WARNING**: After learning about bark stripping, students may be tempted to try it themselves. Please help your students understand that bark stripping should only be done with supervision from indigenous knowledge keepers. Even if done correctly at the right time, a stripped tree near a school "invites" more stripping, which can seriously harm a tree.
- Students bring one piece of bark and one plank each back to the big house to make a bentwood box on the crafting table (next to the Cedar Elder), place it on the platform next to the Bark Weaver and store the bark inside. Smaller groups will need to take more than one per person (it takes 8 to make a bentwood box). **PLEASE NOTE** the recipe for crafting a bentwood box indicates using oak planks. Students can ignore this and use cedar. Also, please note that a real bentwood box does not require 8 planks. In fact all four sides are made from a single plank!

Learn More Links:

- Cedar Bark Harvester
- Cedar Plank Harvester

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Traditional Learning Task: Salmon… Gillnetting and the Smokehouse



Lesson overview

1. Cultural Learning:
    - Incredible importance and reverence for salmon.
    - The First Salmon ceremony
    - Sustainable harvest… gill net designed to let smaller salmon through, larger salmon go around and medium salmon get caught by the gills
    - Open the gill net when we have enough… always only taking what they need
2. STEAM in-game learning
    - Students taught to extract ONE slowed-down salmon from the gill net using a spear. Take it to the smokehouse. NPC in smokehouse teaches about smoking process. External links. Students hang their fish on empty item frames (by right clicking on item frame with salmon in hand). NPC has bentwood box filled with smoked salmon. Students take one smoked salmon each from the bentwood box to the Big House to Store in the Salmon Elder's bentwood box.

3. STEAM sandbox activity
    - Students click on sandbox link. Big House Cedar NPC teleports students to an area by the river. Students work together to build their own gillnet. Students may use barrier blocks to pen in the salmon. Students asked to predict how many salmon they would need to spawn to make a small section of the river run red. Students spawn salmon until they are satisfied with the results (not so many that the game slows down). Students encouraged to get in with the fish, record observations, total fish count (for older grades approx.. salmon/cubic meter of water), and photos in portfolio. NPC in sandbox area with same external links as NPC at gill net and a link to get back to gill net. Inventory stripped. Switched back to adventure. TP back to Big House

4. STEAM real-world activities
    - Students tasked with discovering why smoking salmon preserves it. Try tasting smoked salmon. Exploration of preservation techniques (wind drying, smoking,

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salting) possible. Use smoked salmon and raw salmon in petri dishes to compare bacteria growth.

Teacher role: Scaffold the importance of salmon to the ecosystem. Salmon is a keystone species, which supports life in the ocean, land, air, plants, and trees. Teacher observes the harvesting of salmon to ensure protocols are followed and discuss the consequences if not.

Lesson Flow

5. Students learn from the salmon elder about the importance of salmon and the Pacific NW Coast People's deep reverence for salmon.
6. Teachers plays support videos of the process of preserving salmon
7. Elder sends the students on their task to find the gill netter to catch one fish
8. Gillnetter explains the First Salmon Ceremony and the reverence shown to salmon. He explains how the gillnet is made and how it works, letting some salmon through, and opened up to let all the salmon through once they take only what they need. This allows for the salmon to come back again and for upriver peoples to fish as well.
9. Gillnetter give the students a spear to catch one salmon as it gets stuck in the net. Students retrieve the salmon and must retrieve the spear.
10. Students go to the smokehouse and hang their salmon on the item frames by right clicking on the item frame with salmon in hand. Students each take one already smoked salmon from the bentwood box to bring to the big house for storage in the salmon elder's bentwood box.
11. Teacher debrief: Why is it important to limit the number of salmon harvested and to open up the gill net after harvest?

Learn More Links:

- Gillnet Knowledge Keeper
- Smokehouse Knowledge Keeper

Traditional Learning Task: Plants

Lesson overview + Challenge

1. Cultural Learning

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- Students learn from Salmonberry NPC that when the salmonberries come, they know the salmon will soon return. Students will learn that it is important to not overharvest, leaving berries for the birds and bears. Students also sent to another NPC by camas field behind the smokehouse. Camas is one of the most important traditional foods in Salish country. The small bulb-like roots are dug and roasted, eaten fresh or boiled, and can be dried for use as a winter food. Open grasslands, or "camas prairies," were traditionally maintained by families and were managed with controlled burning and by aerating the soil with digging sticks, and by weeding out unwanted species including the poisonous Death Camas.



2. STEAM in-game learning
   - Salmonberry NPC in meadow above the lake tells the students to work together to harvest no more than half the berries, leaving enough berries for those who follow… including the birds and bears. Teacher-led discussion follows. Why not harvest it all? Teacher scaffolding explains there tells students that the bears eat the berries and defecate the seeds in rich "fertilizer" for more berries in the future.
   - NPC also directs students to camas garden behind the smoke house along the lake. Students learn from NPC there that the Camas fields are managed by a family. They take good care of it. Students are asked to help harvest camas, taking care to harvest sparingly, so camas will come back next year. Students will be asked to improve the garden as they go, removing weeds and re-planting one bulb for each square meter harvested. In reality, in improving their camas fields, families would replant smaller bulbs and sometimes transplant bulbs from surrounding areas. Option: Students will monitor their harvest, determining the average harvest/square meter of the garden. Using tally sheets, determine the experimental probability of harvesting 1, 2, 3, 4, or 5 camas bulbs from a square meter (average is 3). Students will need to take special care with Death Camas… not to eat it or add it to the stores in the Big House. See if students can derive the experimental probability of harvesting Death Camas (2%).
3. STEAM sandbox activity
   - Students create their own family plots. Working in groups, students claim a plot, clear the weeds (perhaps even using fire). Students will need to work out how create a plot that will thrive. In the mechanics of MCEDU, the camas must be planted within 4 blocks (either straight or diagonally) from a water source in order for it to grow.

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Traditional camas fields were not irrigated, so the field by the smokehouse has green carpets hiding the water.

4. STEAM Real-world activities.
    - Students explore indigenous plants in their community, classifying as Technology, Medicine, or Food. Students can complete plant cards like those in the Going Wild Guide
    - Students examine food waste in their community/country and compare with indigenous practices.

Teacher role

Teacher may choose to play the video(s). Teacher monitors harvest of camas. How are the students making sure they aren't harvesting more than half the crop. Did they have a plan? Ask students to explain it.

Lesson Plan

- Students learn from the plant elder that the plants of the coast can be used as food, technology, medicine, or all three!
- The plant elder explains that the plants are harvested and prepared for storage in bentwood boxes to be consumed over the long winter.
- Students are asked to help with gathering two types of plants: salmonberries and a staple crop, camas. Students are directed to find the camas field behind the smokehouse and the salmonberry meadow above the lake.
- Students meet the salmonberry Knowledge Keeper, who explains the importance of harvesting sparingly (no more than half), leaving enough for the birds and bears.
- Teacher examines the harvest and debriefs: "How many (younger grades) or what fraction/percent (older grades) of the berry bushes did you actually leave? Why is it important not to harvest too many of the berries?" Teacher can provide background on how birds and bears and other creatures rely on berries, too. They consume the berries and defecate the seeds far and wide, which means more salmonberries!
- Students head to the Camas Knowledge keeper in the Camas field behind the smokehouse. NPC explains that this camas field has been managed by her family for generations. Explains how the soil is improved through burning, and weeds are removed, especially death camas (camas look-alike). NPC explains that she is roasting camas in an earth oven.
- Students asked to harvest camas to bring back to the big house for storage. Students harvest sparingly (no more than half the crop), remove any weeds (tall grass). Teacher

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asks students to keep a tally sheet to monitor how many camas bulbs (and death camas) they get from a square meter of soil.
- Teacher **debriefs** with students, asking them to analyze the data and determine the experimental probability of getting 1, 2, 3, 4, or 5 bulbs per square meter as well as probability of getting Death Camas. The teacher asks students to determine how much camas they harvested together. Is it enough for a family for the winter?

Learn More Links:

- Camas Knowledge Keeper
- Salmonberry Knowledge Keeper

NPC Dialogue, Coordinates, Learn More Links, and Inquiry Opportunities

Welcome (1109, 63, -3513)

- **Dialogue**: "Hello travelers. Before you enter the village, you must be welcomed by the Siyam (Chief) who is waiting for you on the shore beneath the welcome figures. Take a blanket from the bentwood box. Gift the blanket to the Siyam. This gesture will be well received and begin your journey in a good way. Now use your canoe to paddle to the shore."
- **Gifts:** Camera, Book and Quill, Portfolio, and Cedar Canoe. Students take a blanket

Siyam (1233, 64, -3479)

- **Dialogue**: "I welcome you to the traditional territory of my people. We have been the caretakers of these lands for millennia. Thank you for the beautiful blanket. You may place it in this bentwood box. On your journey, remember to always be kind, take only what you need from the land, and give thanks. Always leave enough for others and for those who come after. Now travel to the entrance of the big house to meet an elder who will invite you in."
- **Inquiry:** Why is it important to give the Siyam a gift and to be formally welcomed into the village? What is a Siyam? How do the First Nations where you live say it? How does a Siyam become a Siyam? What is their role in the community?

Elder Outside the Big House (1257, 65, -3494)

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- **Dialogue**: “I am an elder in the Siyam's family. Inside you will find my relatives. They are wise elders who will have a task for you to help us prepare for winter. Listen and learn from them and thank them for their teachings.”
- **Inquiry:** What is the role of elders in this community? What is the role of elders in your community? Why are elders important in maintaining sustainable living and stewardship of the land?

Cedar Elder (1272, 65, -3484)

- **Dialogue:** “The cedar tree is the heart of the Coastal Peoples. We call it the Tree of Life. The cedar tree gives us shelter and transportation, tools and clothing. It also keeps our history alive. Follow the trail past the smokehouse to the forest at the end of the lake. Find the Cedar Forest Knowledge Keeper who will teach you about the Tree of Life. **Task:** Bring back one strip of cedar bark and one cedar plank. When you return here, cooperate with others in your group to craft a bentwood box. Place it on the platform next to the Bark Weaver and store your cedar bark inside. The Bark Weaver will be able to make so many things with the bark you harvest.”
- **Build:** Build button teleports nearest player to build area. Cedar Elder there has return to village button.
  - **Build Area Cedar Elder** (913, 63, -2894)
    - **Dialogue:** Now that you understand the importance of the Tree of Life, can you build a cedar? Choose an appropriate space and build a giant cedar to stand over your village. Can you make it just like the Cheewhat Giant? Research this giant tree and find out just how big it is.
    - **Learn more link:** Build Area Cedar Elder
- **Inquiry:** Cedar is called the Tree of Life. If the tree of life provides for the Coastal Peoples, what provides for the cedar? Investigate the interconnectedness between salmon, bears, and cedar.

Bark Weaver (1272, 65, -3487)

- **Dialogue:** “Once you have crafted your bentwood box, place it on this platform. Use it to store the cedar bark you harvested. I can use the soft inner bark to weave so many things... from cedar mats to cedar hats. I can even weave a basket so tight that it can be used to carry water! I can incorporate other barks to create beautiful multi-colored patterns.”
- **Learn More link:** Bark Weaver

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- **Inquiry:** Could you partner with indigenous knowledge keepers to learn how to weave with cedar bark? See this Cedar Weaving Lesson Plan (NCCIE)https://www.nccie.ca/lessonplan/cedar-weaving/

Cedar Knowledge Keeper (1322, 66, -3564)

- **Dialogue:** "The cedar tree was once a kind and generous man. The Transformer changed the man into a cedar tree for him to continue giving to his people. Before we take any of the cedar's gifts, we always give a small offering of thanks. We only take what we need, making sure to harvest in a way that won't hurt the tree. If we take care of the cedar, the cedar takes care of us. **Task:** Step up onto this path and follow it to find the Cedar Bark and Plank Knowledge Keepers. Learn from them how to harvest with respect. I have given you a tool called an adze to help you with your tasks.
- **Gift:** Adze to help with bark and plank harvest.

Bark Harvester (1325, 67, -3596)

- **Dialogue:** "The soft inner bark of the cedar is an amazing fiber. We can use it to weave baskets, nets, clothing, mats, and so much more. I harvest from small cedars (like this one behind me) when the warmer weather comes and the sap starts to run. Before I harvest, I thank the tree for its gift. Starting at the bottom, I pull a strip no more than two hands wide. This won't hurt the tree. It will heal itself and continue to grow and thrive. I pull up to the branches. Task: Look for four tall, thin cedars. Use your adze to take only one piece of bark. Work together to make sure you harvest from as few trees as possible."
- **Learn More Link:** Cedar Bark Harvester
- **Inquiry:** What are the properties of the cedar bark that make it possible to pull from a trunk in long strips? Are there other trees with bark like this? How is the inner bark, which is used for weaving, different from the outer bark? What is the purpose of bark on a tree. What would happen to a tree if you harvested too much?

Plank Harvester (1327, 68, -3615)

- **Dialogue:** "The largest trees give us the gift of cedar planks. We use an adze to harvest planks from the ground up to the branches (like in this tree behind me). We cut and split the plank from the tree in a way that allows the tree to live on. **Task:** Look for large trees where the bark is already stripped. Use your adze to take planks from the roots in a straight line up to the branches. Be sure to thank the tree before you harvest!"
- **Learn More Link:** Cedar Plank Harvester

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- **Inquiry:** Research to find a picture of a culturally modified tree that shows evidence of plank harvest. Find out how this harvest was performed. How is it different than in the game?

Salmon Elder (1280, 65, -3483)

- **Dialogue: "**Salmon is our main source of food. Everyone helps in the process. Fathers catch the fish, mothers prepare, cook and preserve the fish, and children help their parents. **Task:** Go to the river and find the Gillnetter. You will need to catch a salmon, take it to the smokehouse, and then bring a smoked salmon back here to be placed in this bentwood box for storage."
- **Build:** Build button teleports nearest player to build area. Salmon Elder there has return to village button
  - **Build Area Salmon Elder** (956, 63, -2938)
    - **Dialogue:** "Can you build your own gillnet across the river? Fill the river with beautiful red salmon so that it looks like you could almost walk across their backs to reach the other side."

Gillnet Knowledge Keeper (1245, 64, -3630)

- **Dialogue:** "In the spring the Salmon People return to their traditional spawning grounds. We greet the first salmon when it arrives. We prepare its body with the greatest care and respect. After eating the salmon, the bones are carefully returned to the water so that its spirit can return again. My net is typically woven from inner cedar bark and/or stinging nettle fiber. It is designed to let smaller salmon through. Bigger salmon bump into the net and find a way to swim around. The medium sized salmon get caught by their gills. After we have caught what we need, we open the net to let the salmon through to their spawning grounds and to feed the community upriver. **Task:** Use the spear I've given you to catch one salmon and then take it to the smokehouse. Be sure to thank the Salmon People for this miraculous gift."
- **Gift:** Spear for harvesting a salmon from the net
- **Learn More Link:** Gillnet Knowledge Keeper
- **Inquiry:** Can you research to find out more about the design of the gillnet? How does its design and use maintain sustainable fishing? The Knowledge Keeper mentions the Salmon People returning in the spring. What kind of salmon might this be? Do all salmon spawn then? Find out more about the lifecycle of various salmon in the sea and waterways.

Smokehouse Knowledge Keeper (1273, 65, -3515)

- **Dialogue:** "Have you brought me some beautiful fresh salmon? I have the alder wood fire burning. Task: Please place your salmon in the racks. I will keep

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the fire burning and after 3-4 days, the salmon will be fully smoked, preserving it for up to a year. On your way out of the smokehouse, please help by taking one smoked salmon from this bentwood box to the Salmon Elder in the big house. Thank you!"

- **Learn More Link:** Smokehouse Knowledge Keeper
- **Inquiry:** Why is smoking the salmon essential for food security? How does smoking salmon slow down microbial growth?

Dipnet Knowledge Keeper (1345, 66, -3650)

- **Dialogue:** "My family have fished from these rocks for thousands of years. I use my dipnet to scoop up the salmon as they swim up the river. I only take what I need for my family. We wind dry the salmon right here in the canyon. Can you think of why my family chose this spot?"
- **Learn More Link:** Dipnet Knowledge Keeper
- **Inquiry:** Why did the dip netter's family choose this spot on the river? Monitor a nearby stream and note what happens when the stream gets narrower. What happens when it gets wider. What happens when it drops suddenly? Create floating leaf boats and track speed (measure distance and record time) through various sections of the stream. Hypothesize why the water slows down in wide sections and speeds up in narrow sections.

Wind Dried Salmon Knowledge Keeper (1349, 72, -3642)

- **Dialogue:** "We preserve the salmon caught by the dipnetter right here in the canyon. The hot summer wind that funnels through here is perfect for drying and preserving the salmon. To prepare the salmon for hanging, I remove the head and bones. Then I slice it into strips without severing the tails or separating the meat from the skin. It takes days for the salmon to dry. During this time, we guard the drying hut carefully, just in case a hungry bear comes for a delicious snack."
- **Inquiry:** How does wind-dried salmon compare to smoked salmon? Does one last longer than the other? What are advantages/disadvantages of each method?

Plant Elder (1289, 65, -3482)

- **Dialogue: "**Camas and berries are important parts of our diet. We dry and store them in our bentwood boxes to last through the winter. **Task:** I would like you to help harvest camas, a very important crop for our people. Find the Camas Knowledge Keeper in the meadow behind the smokehouse. Harvest bulbs and bring them here for storage in one of these two bentwood boxes.

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After that, visit the Salmonberry Knowledge Keeper in the field above the lake. Bring back salmonberries to store in the other bentwood box."

- **Build:** Build button teleports nearest player to build area. Plant Elder there has return to village button
  - **Build Area Plant Elder** (788, 64, -2913)
    - **Dialogue:** "Work together to plant salmonberries and camas to provide food for your village. Choose a location and create a sustainable food source for the future."

Salmonberry Knowledge Keeper (1264, 70, -3612)

- **Dialogue**: "Do you see all the salmonberries? We call them salmonberries because the berries look like salmon eggs, but also, when we see the berries ripen, we know the salmon will be returning to the rivers. **Task:** Work together to harvest no more than half the berries, leaving enough for the other creatures who share this land. Take the berries back to the big house for storage."
- **Learn More Link:** Salmonberry Knowledge Keeper
- **Inquiry**:
  - If in season, locate salmonberries. Where do they tend to grow? Can you see patterns? How do you think this shrub got there?
  - How does a salmonberry plant get there? Investigate salmonberry reproduction (UWLAX)
  - Salmonberries, like many plants and animals can be used to mark seasonal changes. What plants or animal activities do you know of that mark seasonal changes?
  - Investigate the seasonal round: My Seasonal Round (openschool.bc.ca)

Camas Knowledge Keeper (1289, 65, -3536)

- **Dialogue: "**The camas bulb is an important food item for our people. This is my family's camas field. We maintain it by weeding and transplanting bulbs into the field. We make sure not to overharvest so that the remaining plants reproduce for next year. After harvest, we sometimes burn the fields to enrich the soil and remove unwanted plants. Right after harvesting bulbs, we cook them in a pit oven in the ground, using heated rocks, water and a cover of leaves. When they are ready, they are a little sweet and quite delicious. We can dry them for storage or for trading. **Task:** I've given you a digging stick. Work with others in your group and use it to harvest no more than half of the field. For every plant you harvest, re-plant one bulb. Pull any weeds you find

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and plant a bulb in its place. Take your harvested bulbs to the Plant Elder in the big house for cooking later. Warning: watch out for death camas. It looks a lot like camas, but it will make you very sick.

- **Gift:** Digging stick to help with the harvest
- **Learn More Link:** Camas Knowledge Keeper
- **Inquiry:** In many communities, camas was the second-most traded food after salmon. Why was camas so important? Can you find the nutritional value of Camas? How does it compare to the indigenous wapato, and also the potato introduced by Europeans?

Ocean Resources Elder (1290, 65, -3470)

- **Dialogue:** "Much of our food is right outside our door… in the ocean! We use canoes to hunt seals and whales. In the winter, we net oolichan and herring and use hemlock branches or kelp to gather herring roe (eggs). We build clam gardens to harvest clams and crabs. We even harvest and roast kelp. All these delicious foods are gifts from the ocean. Have you visited the clam garden on the beach? Nearby, you can also find a kelp harvester."

Clam Garden Knowledge Keeper (1260, 64, -3425)

- **Dialogue:** "I am working on repairing the wall to our clam garden. We created this garden by building rock walls at low tide along the edge of the bay. This made a nice level beach perfect for clams and crabs. When the tide goes out, our dinner table is set!"
- **Learn More Link:** Clam Garden Knowledge Keeper
- **Inquiry:** Can you reconstruct a clam garden in a model? Research how it works with the tides. What understanding of the tides do you need to have in order to make a clam garden successful?

Kelp Knowledge Keeper (1215, 67, -3415)

- **Dialogue:** "Have you ever had roasted kelp or seaweed? It's delicious! We also use the kelp as a collector for herring roe. If you don't mind getting wet, help me harvest some kelp from the bay. You can roast it on the fire. It takes a little time, but it's worth it. Once you have roasted some, bring it back to the Ocean Resources Elder for storage in a bentwood box."
- **Learn More Link:** Kelp Knowledge Keeper

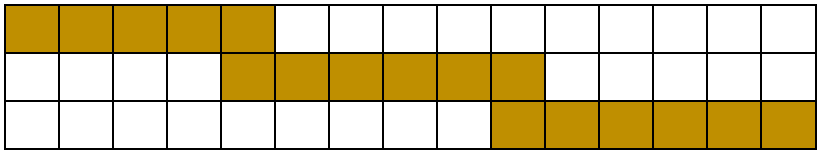
House Building Elder (1286, 65, -3458)

- Dialogue: "This plank house is truly a comfortable place to live in the winter. We tell stories, participate in important ceremonies, and enjoy the foods we harvested and preserved. The house is built from cedar planks and timber posts and beams. The planks on the walls are tied to the thin posts with

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withes (thin cedar branches). The roof is sloped to shed water. We can move the roof planks above the fires to let the smoke out during the day. When the fires die down to embers in the evening, we can move the roof planks to close it up. We place stones on the roof planks to prevent them from blowing away in the wind. Climb on the roof and see for yourself. If we want to make the house bigger, it's easy to remove planks and add on. We can rearrange the interior by moving the hanging cedar mats. It's a wonderful and flexible home for our people in the winter. There's another type of house our upriver relatives use called a pit house. Can you find it?"

- **Learn More Link:** House Building Elder
- **Inquiry:**
  - What about the Big House could you measure? Could you set cones on a field to layout a 1:1 scale representation of the perimeter? (1 block length = 1 meter)
  - Can you visualize a Minecraft block by taping meter sticks together to form a cube?
  - Research plank houses. How are they made? What design features do you notice? What is the impact on people sharing a large communal living structure?
  - Climb on the roof of the big house. Walk from the high side to the low side. How would you describe the slope? Why is slope important on a roof?



Pit House Knowledge Keeper (1398, 66, -3626)

- **Dialogue:** "The pit house is an inland house that we use in the summer to keep cool. It also can be quite cozy and warm in the winter. Why do you think that is? Climb in and see how cozy a pit house can be."
- **Learn More Link:** Pit House Knowledge Keeper
- **Inquiry:**
  - What about a Pit House could you measure? Could you set cones on a field to layout a 1:1 scale representation of the circumference? (1 block length = 1 meter)

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- Research pit houses. How are they made? What design features do you notice? What is the impact on people sharing a small communal living structure?
- Students carry out an investigation of the difference in temperature above ground vs. in ground. Data log using Micro:bits
- See this Pit Houses numeracy activity for middle school (BC Min ED)

Canoe Elder (1281, 65, -3458)

- **Dialogue:** "The cedar canoe is incredibly important to our people. Our canoes make it possible to hunt sea life and to travel the coast to our seasonal camps. We build small near-shore canoes for 1 to 4 people, but our largest ocean-going canoes are huge and can carry many people! Have you seen my nephew on the beach by the gillnet? A log washed up on the shore and he's going to begin carving soon."

Canoe Builder Knowledge Keeper (1205, 65, -3558)

- **Dialogue:** "This beautiful cedar log washed up on the beach. I plan to turn it into a canoe. It will take a long time and a lot of work. I will use a hand adze to shape the outside of the canoe and then hollow out the inside. To make the side wider (and the canoe more stable), I will put water in the canoe and use hot rocks to make the cedar softer and easy to bend. Wooden spreaders will help me push the sides out wider than the log. Then the artistic work begins with carving and painting to create a truly useful and beautiful object."
- **Learn More Link:** Canoe Builder Knowledge Keeper
- **Inquiry:**
  - Why are Western red cedar logs chosen for canoes? Look at photos of actual Pacific NW canoes. What design elements do they have in common? Is shape important?
  - If a log didn't conveniently wash up on the beach as it did in the MC world, what system did Coastal Peoples use to fell such giant trees?

Wool Weaving Elder (1270, 65, 3461)

- **Dialogue:** "I am a weaver. I use mountain goat wool and the wool from the woolly dog to create beautiful blankets. I have raised this dog for its fine and beautiful fur. I also use the mountain goat wool collected by my nephew. Have you met him? If you'd like to weave a blanket, find my nephew by following the path through the cedar forest into the mountains. Get some wool from him to bring back here so I can spin it on my spindle whorl. Try weaving your own blanket using a loom and the materials in this bentwood box."

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- **Gifts:** Wool Weaving Elder has a bentwood box with dyes and blankets
- **Learn More Link:** Wool Weaving Elder

Wool Knowledge Keeper (1451, 67, -3636)

- **Dialogue:** "My Auntie is a weaver, and she depends on me to gather wool from the mountain goats. In the spring, as the mountain goats pass through thickets and brush, tufts of hair are snagged and left behind. Look what I have gathered in this bentwood box so far. If you would like to try weaving, take some wool back to my auntie."
- **Gift:** Bentwood box contains wool.
- **Inquiry:**
  - What are the properties of mountain goat wool that make it perfect for blankets?
  - Look at photos of historical and modern Pacific NW Coast blankets. Can you describe the patterns you see? Do you see parallel lines or perpendicular lines? Can you see diagonal lines? Can you describe the slope? See this Weaving Math Resource (SD41 Burnaby)
  - The looms in *A Pacific NW Coast Experience* aren't accurate. Can you learn about how a real loom works and build a working small-scale replica?

Storytelling Elder (1275, 65, -3473)

- **Dialogue:** "Stories are essential to carrying on our history and our teachings. There are two very special stories I would like you to hear. Go to the big boulder on the beach. There you can learn about Transformer Stones and the stories they tell. After that, find the Serpent Storyteller beyond the pit house for another story."

Serpent Knowledge Keeper (1468, 78, -3662)

- **Dialogue:** "There are many stories of the serpent. Some are two-headed. Do you have a serpent story in your community?"
- **Learn More Link:** Serpent Knowledge Keeper
- **Inquiry:** The knowledge keeper introduces a serpent story. Can students learn about a local serpent story… recognizing that some knowledge is sacred and only shared with permission and/or in certain situations.

Transformer Stones Knowledge Keeper (1213, 65, -3527)

- **Dialogue:** "The transformers (three brothers and a sister) arrived and made order out of chaos by transforming things into their permanent forms. They transformed some people into stone to teach the people lessons. Others were turned into plants and fish, like salmon. What are some of the stories you

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know that carry important lessons? Do you have transformer stones where you live?"

- **Inquiry:** Students are asked if there are transformer stones near where they live. Some are well known (xaytem.opened.ca). Understand that these are sacred stones.

Sasquatch Knowledge Keeper (1374, 64, -3502)

- **Dialogue:** "The Sasquatch People are kind and helpful beings who take care of and protect our forests. They are very shy and have the ability to blend in with their environment. That is why it is difficult to find them. Sasquatch are strong swimmers and can carry or roll very large rocks."
- **Inquiry:** Investigate stories of the Sasquatch

Petroglyphs and Pictographs Knowledge Keeper (1357, 64, -3485)

- **Dialogue:** "Petroglyphs and pictographs (like those beside me) are located at places of power or mystery... places where the forces of nature are particularly strong. They can be found by features such as waterfalls, rock formations, or caves. My ancestors created this petroglyph by grinding or pecking the rock with another stone. Pictographs are painted with a mixture of ochre and animal fat."
- **Inquiry:** Are there petroglyphs and/or pictographs near you?

Healing Waters Knowledge Keeper (1369, 64, -3481)

- **Dialogue:** "The warm waters here are healing springs. The waters cleanse and restore. We are thankful for the blessings of mother earth like this spring. Care for a soak? Be sure to thank her before getting in."
- **Inquiry:**
  - Have you ever been in a hot spring? Is there one near you?
  - How can hot springs be healing waters?
  - What system is causing the water to be so hot?

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