Teaching with the Land: Ideas based on the Ka:'yu:'k't'h'/Che:k:tles7et'h' Seasonal Round

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With Ideas Shared by Mindy Ogden

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IMPORTANT DISCLAIMER:

- This resource is based on the seasonal calendar of Ka:'yu:'k't'h'/Che:k:tles7et'h' First Nation and developed with Elders and knowledge keepers from this community. If you are applying these ideas in a different place, the language and seasonal information may vary.
- Knowledge is sacred, so various teachings and wisdom connected to the seasonal round may not be easily shared. There are creative ways of incorporating Nuu-Chah-Nulth knowledge and principles of learning into the classroom, but non-Indigenous educators need to proceed with caution as not to colonize knowledge that is sacred.
- Teachers must collaborate with Nuu-Chah-Nulth Education Workers (NEWs), Elders and community members to guide every aspect of this work
- Every moon and seasonal change can be connected to the BC curriculum, whether by content standard, curricular or core competency. This resource attempts to show some of these connections while encouraging individual educators to use their own ideas to create learning opportunities that best fit their courses and students. The ideas herein can and should be adapted.
- Our communities are home to knowledge keepers with unique talents. They should be consulted on specific areas such as herring or potlatch. Ask yourself how you can collaborate with the school's NEW or your community to honour this knowledge and these strengths. An educator who is not from the community, nor of Nuu-Chah-Nulth heritage, should not feign expertise in these areas.
- We challenge you to attempt a multi-disciplinary, project-based learning unit by working with a colleague from a different discipline. We have provided some basic samples, that would need to be further developed and adapted for your classroom. We have also provided some outdoor, hands-on activity ideas that could be incorporated within a day or over a longer period of time.
- If you notice something inaccurate or awry, please contact us so we can make appropriate changes. This is the first shareable version of this document and we will be improving it over time. As we aim to decolonize the curriculum, we do not claim to be experts in this process. We are learning too.
- This curriculum uses the seasonal changes and moon-cycles as a framework, yet there are plenty of other ways to connect classroom learning to Indigenous content and ways of knowing that are not directly connected to the seasons. Therefore, this guide should not limit your work to only exploring Indigenous content based on seasonal changes. Our motivation for with this work was to provide a sequential framework that inspires experiential, hands-on, and land-based learning.

About this Resource:

We emphasized the four subjects of Science, Math, English and Socials. Educators can absolutely connect different subjects as well.

The connections draw specific lines between the subject curriculum and the themes of the month. The connections are linked to both curricular competencies and content knowledge in the curriculum. Educators should not be limited to our examples. Please come up with your own connections!

Each month has a specific moon phase and name.

The inquiries are essential questions connected to the month's theme that could be used as the basis of an inquiry unit or to help introduce a lesson. Educators can easily come up with their own questions based on any new connections they make.

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September: Dog Salmon Moon

Themes: Salmon, staple foods, fishing, rivers, spawn

Subject	Connections	Inquiries
Science	• Salmon life cycle • Energy transfer in an ecosystem during spawn • Salmon migration in British Columbia • Ecosystems and habitats • Adaptations of species • Gestation and birth	• How do animals ensure survival of their young? • How do animals adapt to survive? • What are the human impacts on salmon habitat? • How can we protect salmon? • What role do salmon play in their local environment and communities?

Project Idea: Children's Story of Herring (English, Social Studies, Art)

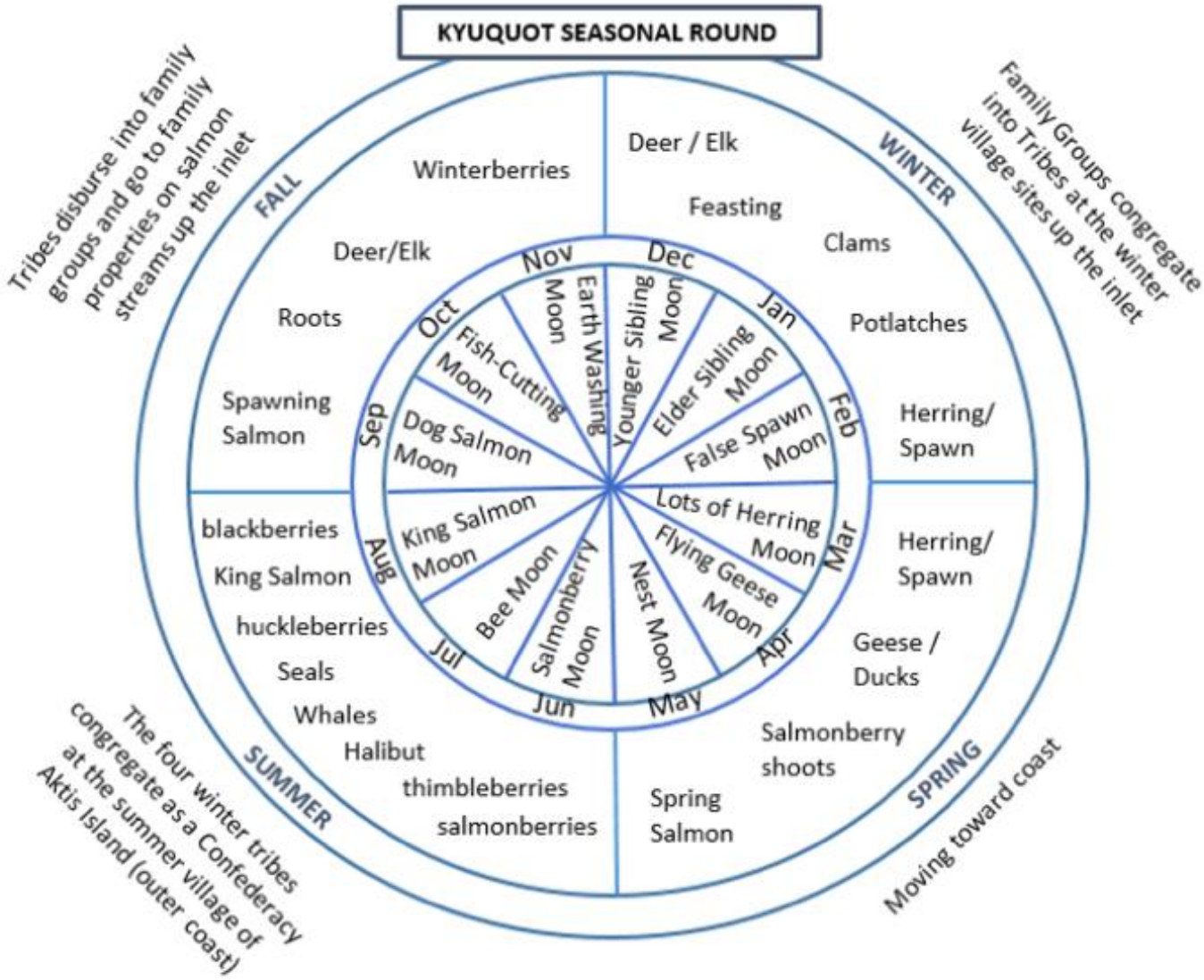
We provided one or two project ideas based on each month of the school calendar. Some are interdisciplinary. We decided not to provide in-depth project plans with lessons because it allows teachers to make these projects their own.

Write and illustrate a children's story of herring. The story can incorporate Indigenous language. There are various ways to illustrate a book – using digital methods, collage, paint. Students will blend their knowledge of the herring lifecycle, issues for this species, and story-boarding to create a final product.

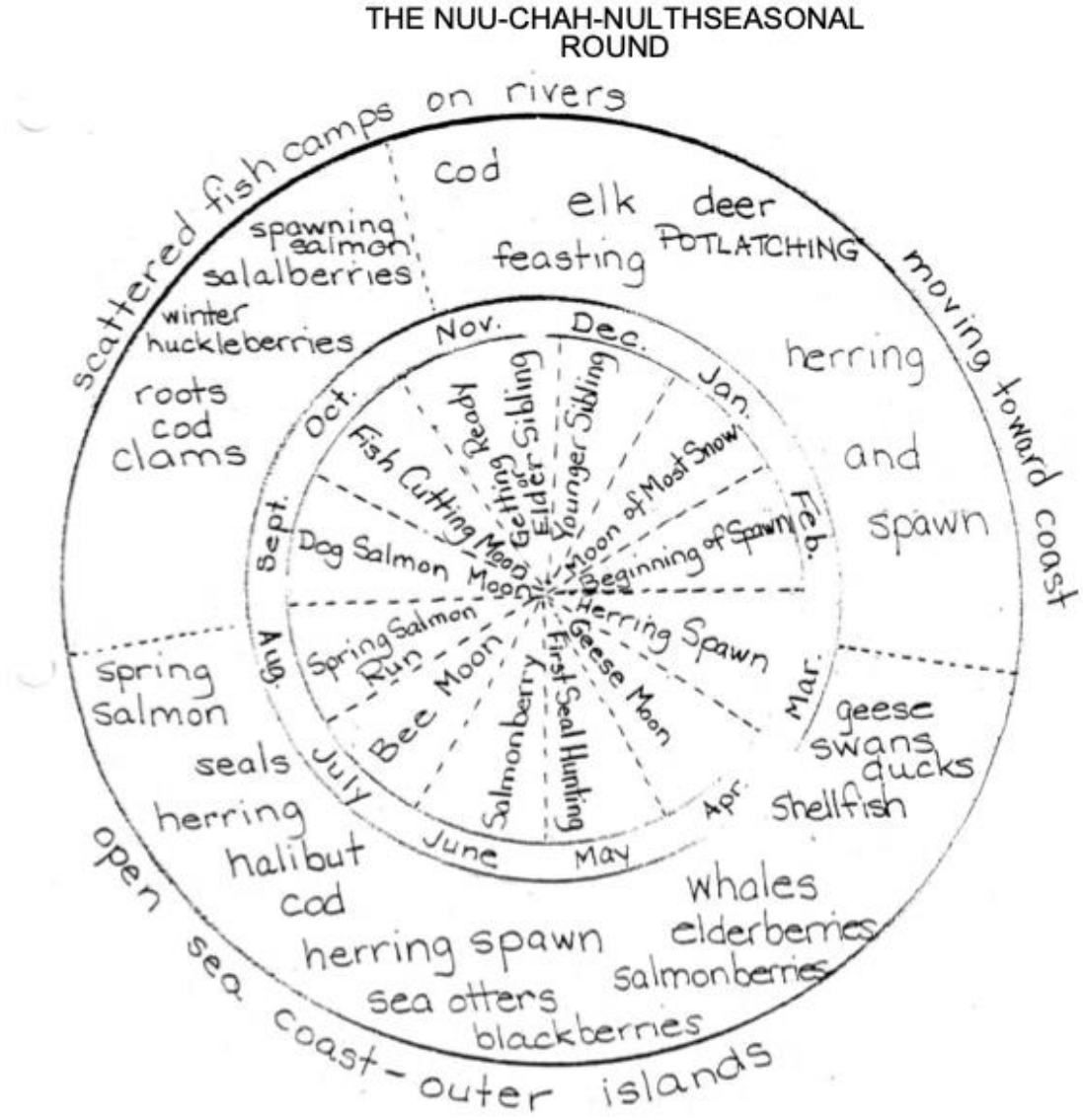
Outdoor Activities:

- Create traditional spears and practice fishing
- Visit a spawning river
- Paddle-board, kayak, snorkel or canoe near or around a river during spawn
- Practice line-in-hand fishing for dog salmon

We wanted to provide a few examples of land-based activities that are connected to the seasonal themes. These could be done as part of your summative projects or as individual lessons or experiences.



Borrowed from Mindy Ogden's blog (Educator at Houpsitas Pre-School Kindergarten in Kyuquot): https://missmindy1.wordpress.com



Seasonal Round from SD70 (http://www.guidethewildside.com/resource/Foods-Curr-1.pdf)

Hinkoosimtl

September: Dog Salmon Moon

Themes: Salmon, staple foods, fishing, rivers, spawn, hahoulthee

Subject	Connections	Inquiries
Science	• Salmon life cycle • Energy transfer in an ecosystem during spawn • Salmon migration in British Columbia	• How do animals ensure survival of their young? • What are the human impacts on salmon habitat? • How can we protect salmon? • What role do salmon play in their local environment and communities?
English	• Stories of salmon in Indigenous culture • Read and analyze different opinions on salmon management	• How do stories convey cultural values? • What is the significance of salmon in my community today? • How can I investigate a topic or access traditional information in a respectful way?
Math	• Understand and calculate appropriate distribution of fish to community • Investigate upstream travel and slope with salmon spawn (rise over run)	• How can I use math to calculate and distribute food to my community? • How can math tell a story about spawning salmon? What type of exertion does a salmon experience when spawning? (Students may calculate slopes of rivers travelled, number of eggs versus survival rates, distance and speed over time)
Social Studies	• Halhoulthee and chief rights to land • History of salmon and fishing industry in BC • Mock salmon farm debate • Significance of salmon	• How is the halhoulthee connected to the salmon? • What are the positive and negative impacts of fish farms in BC? • What types of fishing technologies or regulations could help the sustainability of salmon in BC?

Sample Project:
Tell the Story of the Salmon in Your Community (Social Studies, English, Art/Photography)

Using their own words and photos, students will answer the question – *what is the significance of salmon in my community*? Students will use references including a historic, and present-day piece of evidence. They must use a primary source by conducting an interview with a community member to support their story. They will be given the chance to visit a spawning river and smokehouse to take photos for their project.

This can be a choice project, where students decide how to produce the story - podcast, poster, power-point presentation, photo-essay, creative writing piece etc.

Outdoor Activities:

- Create traditional spears and practice fishing
- Visit a spawning river
- Paddle-board, kayak, snorkel or canoe near or around a river during spawn
- Practice line-in-hand fishing for dog salmon

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October - Fish Cutting Moon

Themes: Food preparation and preservation, distribution of resources to community, preparing for winter

Subject	Connections	Inquiries
Science	• Dehydration and food preservation/science of smoke or heat • Human impact of changes to diet and nutrition • Nutritional science	• How have people preserved food over time? • What does the body need to survive? • What makes a healthy diet?
English	• Documenting food preservation • Recipes/instructions – writing for different audiences/purposes	• What was the relationship between my ancestors and food? • What evidence is there of old recipes and food preservation? • How do old recipes and food preservation methods compare to modern day ideas on food?
Math	• Food budgeting and personal finance • Carpentry math	• How can I use math to organize food and other expenses in my family and if I live independently? • What math skills are involved in building construction?
Social Studies	• Cross-cultural approaches to food harvesting and preservation • Food history (globalization of food) • Cross-cultural relationships to food	• How has the relationship with food changed for NCN people since colonization? • What factors have influenced the human relationship with food over time? • How do different cultures harvest food and prepare for winter?

Sample Project: Smoked Salmon Lab (Science)

Developing a hypothesis based on how much time is required to fully dehydrate fish and under what conditions. Students will conduct experiments by smoking fish using community smokehouse.

Sample Project: Design and Build a Miniature Smokehouse (Math, Art)

Students will use carpentry math skills to plan, and construct a miniature model smokehouse. Within their plans students will need to demonstrate skills of measurements, units, and scale.

Outdoor Activities:

- Cutting fish
- Monitoring smokehouse

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November - Earth Washing Moon/Getting Ready for Elder Sibling Moon

Themes: Weather, cleansing, hunting

Subject	Connections	Inquiries
Science	• Weather analysis • Moon cycles • Ecosystem science	• How does the cycle of the moon impact the ocean? • What is the relationship between climate and vegetation in the provincial bio-geoclimatic zones? • If we compare ourselves globally, are we really a wet coast? • What is the relationship between climate change and storms? • How can we adapt to storms in our community?
English	• The impact of the environment on stories	• How can I tell the story of rain in my community? • How has weather affected different characters of stories? • How is weather conveyed in local stories?
Math	• Weather patterns – wind speeds, rainfall • Storm and/or climate change math	• How are weather patterns reflected in graphs and charts? • What do numbers and data tell me about changing climate?
Social Studies	• Spiritual beliefs around cleansing • How communities and cultures have adapted to different environments • Settlements and civilizations and how they connect to environment	• How is weather understood by various cultures? • Does weather and climate impact how humans develop and interact? • What makes a place good to live? • How does the climate impact elements of my identity?

Sample Project: Designing a Tiny Home (land or float) that Adapts to Local Weather/Environment (Math, Science, STEM, Art)

Students will research and develop a design for a tiny home that may include architectural math and even a miniature model prototype. The idea is to develop a building that adapts to local weather and climate. There are various disciplines that can be included in this project depending on what criteria are emphasized.

Sample Project: Adaptation Idol (Social Studies, English)

Named after 'American Idol' this project combines skills of research, teamwork, and communication with a flavour of competition. With this project students will be placed in teams to be given one species or group of humans to examine that adapts to their local climate. In light of the *Earth-Cleansing Moon*, this is a way to explore the drastic weather changes from fall to winter that occur in November on the coast. Throughout this unit, the teacher will use pre-contact NCN people as the example to help inform students in their own case studies. Students will use this background knowledge to learn about other people around the world from different times in history and develop an argument to explain how their group has been most successful. To add competition and fun, the teacher may decide to have 'judges' from outside the classroom and various rounds/stages that see students go on to secondary, and tertiary presentations.

Outdoor Activities:

- Storm watching
- Establishing weather-proof winter shelters (wilderness survival)

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December: Younger Sibling Moon

Themes: Hunting (deer, duck, elk), potlatch, feasting, seafood harvesting

Subject	Connections	Inquiries
Science	• Intertidal zone • Red tide/algae blooms • Contamination - human impacts on shellfish • Butchering and preserving animals	• What are adaptations of intertidal species? • How does red-tide impact shellfish? • What is the impact of human activity on shellfish? • How do we properly manage animals we have caught and plan to eat?
English	• Imaginative/creative writing - life as an animal • Understanding potlatch protocols through oral history • Examining differences between oral and written traditions in Canadian history	• How would I record and understand the world if I was a different animal? • What are the strengths and drawbacks of different methods of communication? • What do oral stories and texts tell me about potlatch in NCN culture?
Math	• Species mapping and distribution • Health of species using data • Population patterns	• How can I use math to calculate species health? • What does the data tell us about biodiversity on the coast? • How can math assist in conservation efforts and increasing populations of different animals?
Social Studies	• Spiritual beliefs around hunting • Seafood harvesting agreements and management • Potlatch	• What are my ethics? How do they apply to different topics? • How can my community ensure sustainable access to shellfish? • How has potlatch changed and stayed the same?

Project Idea: Potlatch Protocol and Classroom Protocols (any subject)

Teacher will activate student's knowledge on Potlatch protocols and invite in NEW and other community members to help further explore these protocols. As a group, these Potlatch protocols will be used to make connections to the classroom and the development of a 'classroom charter'. Students can vote on protocols they would like to have in place, and may argue why a rule within Potlatch may or may not be appropriate for the classroom environment. This idea can be conducted in a single class or over time depending on how the charter is created.

Outdoor Activities:

- Seafood harvesting
- Cooking outdoors
- Hunting/firearm safety
- Animal awareness
- Butchering animals
- Tanning hides

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January: Moon of Most Snow

Themes: Winter, cold, survival, adaptation, seafood harvesting

Subject	Connections	Inquiries
Science	• Winter weather • Storms • Psychology of survival	• What factors help us predict storms? • How do waves work? • How can communities adapt to challenges of storms on the coast?
English	• Survival stories in history • Text study: 'Captive of Friendly Cove' or 'Moon of the Crusted Snow'	• What are common themes in survival stories? • How is human nature reflected within survival circumstances? • How do communities navigate food shortages? • What was winter like for my ancestors or older community members?
Math	• Tidal and oceanography math • Sinusoidal nature of tides	• How can I use coordinate planes to navigate maps? • How can I use data to create graphic representations? • What tools have been used over time to aid navigation?
Social Studies	• Comparative study of Indigenous adaptations to cold climates • Mapping and exploring use of NCN winter camps on Vancouver Island	• Where and why did NCN have different camps? How did NCN organize this way? • What is the significance of weather in adaptations and lifestyles of different Indigenous groups around the world? • How have NCN winter lifestyles changed and stayed the same? • How did NCN prepare for survival over winter?

Sample Project: Food Across Time (Social Studies, English, Foods, PHE)

Students will choose an older community member to interview about their diet growing up. What did they eat? What did they have access to? What was their experience with food? This interview can then be used to compare and contrast how this historical diet compares to their own. Teachers may decide to do a group map or annotated timeline to track changes to community diet over time in addition to student's individual reflection. It should be noted that the final product of this exploration could take on a variety of forms – podcast, presentation, essay/report, annotated timeline, video, etc. Students may require in-depth modelling and instruction of these options. There is also opportunity to extend this project into discussions or planning on health and nutrition.

Outdoor Activities:

- Visit winter camp site with community member (students to prepare questions in advance)
- Wilderness survival games using historic and modern NCN practices
- Seafood harvest and cooking

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February: False Spawn Moon

Themes: False spawn, waiting for the end of winter (mental/emotional), fisheries, species at risk, fishing regulations

Subject	Connections	Inquiries
Science	• Commercial fishing techniques and fisheries management • Herring patterns on the coast • Mental health	• How do forage fish impact ocean ecosystems? • What factors determine a healthy herring spawn? • What do we know about herring and what are we curious about?
English	• Reading legal documents • Crafting opinions about controversial topics	• How do reports and legal writing differ from other forms? – How to read and write about a topic in multiple styles and voices? • What are the different opinions on commercial fishing and how do I form my own?
Math	• Stats/data on mental health based on place • Rebounds and fisheries management	• How can I calculate the health of a herring spawn? • How can math help us to support and manage fisheries? • What is the data-driven story behind mental health as it relates to seasonal changes?
Social Studies	• Fishing regulations • Ocean governance • History of overfishing in various areas	• How do cultures cope with seasonal changes and survival? • How have fisheries been managed historically in Canada? • What is a sustainable herring fishery? • What has changed and stayed the same for herring on the coast?

Project Idea: Developing a personal health plan and community initiative (PHE, English, Careers)

Within NCN culture, this period of the year was defined by tension around the long winter and keeping community morale and strength high. How can we do that currently in our own lives? Using the context of emotional challenges related to wintertime and the general maintenance of one's wellbeing, students will learn about strategies and coping mechanisms to manage their own mental health and come up with ideas to support their community. Students will explore their individual health needs and may develop a weekly plan to share with others. Perhaps the class will also practice elements of students' individual plans. As well, teachers may ask students to brainstorm ways to improve community health and morale during this season by developing an initiative or event that may also be trialed.

Outdoor Activities:

- Make a herring rake
- Work with the Nation's stewardship/Wit-Wak or fisheries department to conduct herring assessments
- Document herring spawn
- Harvest herring eggs (kwakmis)

Remember to work with the NEW at your school to arrange permission to access certain locations and to harvest resources

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March: Herring Moon

Themes: Herring spawn, end of winter

Subject	Connections	Inquiries
Science	• Intertidal ecosystems • Nearshore species • Fishing technology	• What is the impact of a spawn on an ecosystem? • How do animals guarantee the survival of their young? • How does the intertidal ecosystem function in my territory?
English	• Documenting herring spawn • A day in the life of a herring • Creative writing	• How do people around the world view herring? • What stories exist about herring in my community? • If I was a herring, what would life be like?
Math	• Mapping herring spawn on shoreline using specific length and depth measurements (consult DFO and/or local fisheries department) • Characteristics of graphs - examining herring activity over time	• How can we use math to assess ecosystem health? • How do graphs explain the story of herring?
Social Studies	• Food history (globalization of food) • Changes to fishing technology over time • The functions and realities of local and historical ownership over spawning grounds	• How did NCN manage herring? • How did NCN use natural signals and cues to understand environmental events? How have these strategies changed and stayed the same?

Project idea: Children's Story of Herring (English, Social Studies, Art)

Write and illustrate a children's story of herring. The story can incorporate Indigenous language. There are various ways to illustrate a book – using digital methods, collage, paint. Students will blend their knowledge of the herring lifecycle, issues for this species, and story-boarding to create a final product.

Project Idea: Using Quadrat Survey to Assess Intertidal Ecosystem Health (Math and Science)

Quadrats are rectangular frames used to analyze information about the environment in specific areas. Students can use a quadrat survey on coastlines during spawning as a tool to reflect the state of an ecosystem. The information within the quadrat can show abundance of species where density and frequency are calculated. These characteristics can help students come up with ratios to determine ecosystem health.

Outdoor Activities:

- Herring exploration on the water (finding signs of spawn)
- Creating a herring rake or seafood harvesting tool using materials available outside
- Collecting and distributing kwakmis

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April: Geese Moon

Themes: Migration, spring, birds, whales, halibut, reproduction

Subject	Connections	Inquiries
Science	• Animal migration • Plant science (around spring flowering) • Birth and sexual reproduction	• How do different species reproduce and raise their young? • What factors influence migration and how does migration practice compare across species? • How are plants used in medicines?
English	• Travel and immigration stories • Text study 'Spirit of our Whaling Ancestors'	• What stories exist about human and animal movement? • What was the relationship between whales and people on the coast over time?
Math	• Measurement exploration of species migration • Applying scale while mapping • Species growth	• Which species on the coast are the greatest travelers? • How do maps accurately or inaccurately reflect data?
Social Studies	• Migration in history • Cultural practices and ceremony around spring-time	• Why and how do people and/or animals migrate? • What patterns did Indigenous populations follow in their seasonal migrations?

Project Idea: Mapping Migration and Movement of Species (Social Studies, Science, Math, English)

Alone or in a group, students will make a map of various species in their community and their migratory movements. Criteria for this project should be adapted and designed based on the unit and flow of learning during this time. Maps can be constructed using a variety of formats and provide information related to distance traveled, appropriate scale, annotations to explain the reasons why species migrate and where they go etc. Teachers may also wish to have students focus on one species and create a large classroom map together using everyone's examples.

Outdoor Activities:

- Hunting
- Birding
- Plant collection or walk
- Big canoe

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May: Moon of the First Seal Hunt or Nest Moon

Themes: Seal hunt, whales, halibut, plants, spring, reproduction, migration

Subject	Connections	Inquiries
Science	• Reproduction – plant and animal • Sustainable hunting • Animal anatomy	• How do animals take care of their young? • How can hunting be conducted sustainably? • How do plants and animals reproduce?
English	• Persuasive writing • Debate • Developing an argument	• What is my opinion on seal hunting? • How can I express my opinions respectfully and acknowledge the opinions of others?
Math	• Measuring distance and unit conversion • Reproductive math • Analyzing gestation periods across species • Calculating basal area	• What role do numbers play in the survival of species young? • How do gestation periods compare across species? • How can I use basal area calculations to determine phyto-mass of plants?
Social Studies	• Ethics of hunting and contemporary issues in seal/whale hunting • Relationship to and uses of whale over time • Historical perspective	• What ethical issues exist around hunting in Canada? • What practices were involved in historical hunting of seals and/or whales? How have these practices changed and stayed the same? • What was the significance of whaling in NCN culture?

Project Idea: Ethical Hunting Debate (English, Social Studies)

Students will spend time alone or in teams drafting arguments for a class debate around seal or whale hunting using historical, modern, and cross-cultural perspectives. This debate provides room for students to practice developing written and oral arguments leading up to the debate and an in-depth exploration into the social studies thinking concept ‘historical perspective’.

Outdoor Activities:

- Plant walk
- Hunting
- Wildlife exploration on the water
- Birding
- Big canoe

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June: Salmonberry Moon

Themes: Plants, migration, cedar, forestry, summer

Subject	Connections	Inquiries
Science	• Ethnobotany • Plant care and sustainable harvesting • Forestry	• Which local plants provide food and medicine? • How can we care for plants and animals when harvesting them for human purposes?
English	• Stories around summertime and Indigenous practices of harvesting/gathering • Texts based on forests and trees	• How did foraging and harvesting lend itself to family and/or community connection? • How do gathering practices on the coast compare to other Nations across Canada?
Math	• Trigonometry within cedar pulling • Math tools/equipment (clinometer, diameter tape, angle gauge, prism, Biltmore stick)	• How do people use mathematical and measurement tools to calculate the health of trees and forests? • How can cedar harvesting help us explore trigonometry?
Social Studies	• Significance of cedar in NCN culture • NCN migration and modern immigration issues	• What is the significance of cedar in NCN culture? • How did the movement and activities of NCN change after European contact?

Project Idea: Cedar Bridge (Math, Science, STEM)

Using last year's pulled and dried cedar, students will design a miniature model bridge that will be subject to a weight test. Students will be given limited supplies to fasten their cedar bark together. They could also be asked to build within a certain budget, with different items priced out to help students develop financial literacy and planning skills. Students will compete to see whose design can withstand the most weight – they could also be given 'style' points for any designs that include traditional weaving and/or designs. You may also wish to take class out to harvest cedar to replenish the school's supply.

Consult NEW and other advisors to see if this would be an appropriate use of cedar.

Outdoor Activities:

- Making traveling fires with skunk cabbage
- Plant walks
- Cedar pulling
- Berry picking
- Big canoe