

RESOURCE BOOKLET FOR TEACHERS LEADING CHANGE

Grade: 2/3	Sustainable Seafood Unit
Big Ideas:	<ul style="list-style-type: none"> ● <u>Science (Gr.2)</u> <ul style="list-style-type: none"> - Living things have life cycles adapted to their environment. - Water is essential to all living things and it cycles through the environment. ● <u>Science (Gr.3)</u> <ul style="list-style-type: none"> -Living things are diverse, can be grouped and interact in their ecosystems. ● <u>English (Gr. 2)</u> <ul style="list-style-type: none"> -Stories and other texts can be shared via pictures and words. -Through listening and speaking we connect with others. ● <u>English (Gr. 3)</u> <ul style="list-style-type: none"> -Stories can be understood from different perspectives. -Curiosity and wonder lead us to new discoveries. ● <u>Social Studies (Gr.2)</u> <ul style="list-style-type: none"> -Local actions have global consequences and global actions have local consequences.
Critical Questions:	<ul style="list-style-type: none"> ● Why is the ocean important to us? How does seafood end up on our plate? What is sustainable seafood? What is aquaculture? What is wild fishing? How do marine ecosystems support animals and humans? What can we do to ensure the health of marine ecosystems?
Unit Rationale:	<ul style="list-style-type: none"> ● We are all connected to the ocean from the water cycle to the seafood on our plates. Exploring how we produce and consume showcases why choosing sustainable seafood is a valuable act of stewardship. In this unit, your class will discover the methods and techniques of aquaculture and wild fishing through inquiry based content and active play. These modules will emphasize that choosing sustainable seafood and promoting these conversations has a ripple effect upon the health and balance of marine life and us humans. The seven lesson plans include key terms, discussion points, hands on activities and above all opportunities to empower students to be a voice for ocean health.
Students will apply the following CURRICULAR COMPETENCIES:	<p><u>Science (Gr. 2 & 3)</u></p> <ul style="list-style-type: none"> ● Demonstrate a sense of wonder and curiosity. ● Make simple observations about living and nonliving things in the local environment. ● Experience and interpret the local environment. ● Consider environmental consequences of their actions. ● Make simple inferences based on their results and prior knowledge. ● Express and reflect on personal experiences of place. ● Transfer and apply learning to new situations. <p><u>English (Gr. 2 & 3)</u></p> <ul style="list-style-type: none"> ● Use sources of information and prior knowledge to make meaning. ● Exchange ideas and perspectives to build shared understanding. ● Create stories and other texts to deepen awareness of self, family and community. <p><u>Social Studies (Gr. 2 & 3)</u></p> <ul style="list-style-type: none"> ● Recognize causes and consequences of events, decisions, or developments in their lives (causes and consequences). ● Make value judgements about events, decisions, or actions, and suggest lessons that can be learned (ethical judgment).
Students will know the following CONTENT:	<ul style="list-style-type: none"> ● Metamorphic and non-metamorphic life cycles of different organisms (Science Gr.2) ● Similarities and differences between offspring and parent (Science Gr.2) ● Water conservation (Science Gr.2) ● The water cycle (Science Gr.2) ● Biodiversity in the local environment (Science Gr. 3)

- | | |
|--|---|
| | <ul style="list-style-type: none">• Relationships between people and the environment in different communities (Social Studies Gr.2)• Rights and responsibilities of individuals regionally and globally (Social Studies Gr. 2)• Relationship between humans and their environment (Social Studies Gr.3) |
|--|---|

LESSON PLANS: #1-7

	Topic	Objectives	Information & Activities	Resources	Assessment
1.	<p>The Earth has one big ocean with many features ~</p> <p><i>All humans are connected to water.</i></p>	<ul style="list-style-type: none"> Students can identify the stages of the water cycle. Students understand how they are connected to marine life via the water cycle. 	<p>Critical Questions: Why is water important? What is the water cycle? What are the stages of the water cycle? Why is the water cycle important to humans? How are humans and marine animals connected through the water cycle?</p> <p>Background Information: No matter where you live, you are connected to the water cycle; ranging from rain and snow to the water you drink. These connections extend to the wildlife with whom we share the land, lakes, oceans and rivers. The water cycle is an impressive force of nature that has varying states throughout its rotation and these states create a large branch of connections with people, animals and ecosystems. This exercise of critical analysis will facilitate a basic understanding of the water cycle and link the water cycle to the students' personal experiences.</p> <p>Task:</p> <ol style="list-style-type: none"> Workbook Page 1: What is the water cycle? The water cycle is a massive force of nature that recycles all water through different physical states: liquid, solid and gas. This means that all water is connected! The same water humans rely on is the water animals rely on too. Learn about key terms of the water cycle by labelling this page in your workbook. Activity: Water cycle voting game on Google slides. Have three areas designated to be voting areas A, B and C marked by a piece of paper with the assigned letter on it. The students reply to the slide prompts by standing in the corresponding letter of their choice. Have the kids explain their choice before revealing the answer. Reflection: Encourage students to respond to the questions below by journaling using workbook page 2: <ol style="list-style-type: none"> <i>How are you connected to the water cycle?</i> <i>How are fish connected to the water cycle?</i> <i>How is water connected to the health of fish and humans?</i> <p>Action: I will keep my garbage out of rain drains because they lead to streams, rivers and lakes.</p>	<p>Books:</p> <ul style="list-style-type: none"> 'One Well: The Story of Water on Earth' by Rochelle Strauss 'Drop Around the World' by Dawn Publications 'Water Is Water' by Miranda Paul <p>Videos:</p> <ul style="list-style-type: none"> It's AumSum Time: Water Cycle for Kids Crash Course Kids: The Great Aqua Adventure Ocean Futures Society: We are all connected to the ocean <p>Activities:</p> <ul style="list-style-type: none"> Science World: Water Cycle Game South East Water: Natural Water Cycle Online Game Worksheetplace.com: Water Cycle Worksheets <p>Websites:</p> <ul style="list-style-type: none"> Go With the Flow Yellow Fish Road 	<p>Formative;</p> <p>Students label stages of the water cycle and use drawings or words to show their connection to the water cycle.</p>

2	<p>The ocean made the earth habitable ~</p> <p><i>A variety of seafood that we eat can be produced in an aquaculture/farmed environment.</i></p>	<ul style="list-style-type: none"> • Students learn about the key life cycle stages of some fish. • Students label the life cycle of arctic char 	<p>Critical Questions: What is aquaculture? What are the key terms of aquaculture? How does a fish life cycle relate to aquaculture?</p> <p>Background Information: Aquaculture is a growing industry that yields large amounts of seafood for us to consume worldwide. To evaluate how aquaculture raises and harvests seafood, this lesson will introduce key life cycle stages of arctic char via an active game of song and play. The students will understand this basic system of aquaculture and how those methods relate to the fish life cycle. Introduce the key terms listed above with the slideshow attached. As the teacher, feel free to explore Monterey Bay's Fishing and Farming Methods page to review key concepts.</p> <p>Task:</p> <ol style="list-style-type: none"> 1) Introduction: Introduce the key terms of aquaculture with the slideshow attached here. As a main goal of aquaculture is to successfully raise sea animals or seaweed to maturity for consumption (the National Aquaculture Association Kids Corner article emphasizes this point), we'll focus on arctic char as an example of how life cycles are connected to aquaculture. Arctic char is raised via land based systems in the Yukon, Nova Scotia, New Brunswick, Quebec, B.C and Manitoba. 2) Workbook Page 3: Review and fill in the life cycle. Watch Arctic Char Eggs from Whitehorse to help showcase how the cycle takes place in an aquaculture facility. 3) Activity: Divide an open space into 4 sections. The students begin to mingle in the first section as "eggs" and the teacher is on the outside overseeing the group as the fish farmer. Students start by walking around singing "Eggs, Eggs, Eggs" (to the tune of your choice) until the teacher says: "Next stage!". At that cue, the students will scurry to find a partner to play rock, paper, scissors. Winners cross into the next section to be smolt in which they will then sing "Smolt, Smolt, Smolt". The losers will remain in the egg section to sing "Eggs, Eggs, Eggs" again. The game continues until most have reached the spawner stage. 4) Reflection: What were the stages you experienced as a growing fish? As you went through the arctic char life cycle, why would the fish farmer want to move you to a different tank? Think about size differences and the amount of food a growing fish needs. How often do you think the seafood you've eaten has come from aquaculture? Surprise: Aquaculture provides half of all seafood people eat. So there's a very good chance you have eaten seafood from aquaculture! <p>Optional: Adjust the number of stages in the game your class completes as needed.</p> <p>Action: I will talk to my family about the life cycle stages of arctic char and arctic char aquaculture.</p>	<p>Books:</p> <ul style="list-style-type: none"> - 'Pea Soup and the Seafood Feast' by Anna Burger - 'What's It Like To Be A Fish' by Wendy Pfeffer - 'Meat and Fish' by Izzi Howell <p>Activites:</p> <ul style="list-style-type: none"> - DFO: Lesson Plan- Salmonids in the Classroom-Primary <p>Videos:</p> <ul style="list-style-type: none"> - Arctic Char Eggs from Whitehorse - WGPU Curious Kids: Aquaculture - What is land-based fish farming? <p>Websites:</p> <ul style="list-style-type: none"> - National Aquaculture Association Kids Corner - Canadian Farmed Arctic Char - Easy Science for Kids 	<p>Formative; Students participate in discussion about raising and harvesting arctic char.</p>
---	---	--	--	--	--

3	<p>The ocean is a major influence on climate and weather ~</p> <p><i>Healthy oceans support healthy humans.</i></p>	<ul style="list-style-type: none"> • Students can make inferences about how their actions impact ocean health • Students can identify why healthy sea life connects to healthy communities. 	<p>Critical Questions: What is ocean health? How does ocean health relate to seafood? How do people contribute to ocean health? Why is ocean health important for marine life and humans? How can you promote ocean health?</p> <p>Background Information: This module will outline how the seafood we eat is a direct reflection of how we treat our oceans. This lesson prompts exploration of where our seafood comes from and how consumers are connected to that process. This exploration is facilitated by comparing and contrasting everyday habits to the impacts upon sea life to showcase how healthy seafood are a central component of supporting healthy communities. This relationship is reciprocated in healthy communities supporting healthy oceans.</p> <p>Task:</p> <ol style="list-style-type: none"> 1) Introduction: Introduce the concept of ocean health: what does a healthy ocean mean to you? Brainstorm on a whiteboard with students discussing what does a healthy ocean look like versus an unhealthy ocean? <i>Examples:</i> if there's garbage in the ocean is that healthy or unhealthy for the ocean? If the temperature rises does the ocean have a fever? 2) Activity: How does healthy oceans relate to the seafood we eat? Follow the prompts in the presentation here to have the students vote true or false about the statements about seafood production, consumption and ocean health. 3) Workbook Page 4: Complete the page to outline the connections between our everyday actions, ocean health and the seafood we consume. 4) Reflection: Repeat the slideshow activity and discuss how the students' answers are different the second time round. Highlight the actions students wrote down to keep the ocean healthy. What animals are in the ocean? What seafood do people eat? How are our actions connected to the seafood we eat? Why is it important to keep our oceans healthy? <p>Action: I will help my family learn the Ocean Wise Seafood Guide here and choose sustainable seafood.</p>	<p>Books:</p> <ul style="list-style-type: none"> - 'Reduce, Reuse and Recycle: The Secret to Environmental Sustainability: Environment Textbooks' by Baby Professor - 'The Earth and I' by Frank Asch - 'Compost Stew' by Mary McKenna Siddals - 'Michael Recycle' by Ellie Bethel <p>Activities:</p> <ul style="list-style-type: none"> - Recycle Nation: fun Activities to Teach Kids Sustainable Practices - The Chalkboard: 15 Sustainability Activities and Ideas for the Classroom <p>Videos:</p> <ul style="list-style-type: none"> - What is Sustainability by Mocomi Kids <p>Teacher Resources:</p> <ul style="list-style-type: none"> - Ocean Wise on Responsible Aquaculture - EU Environment on Aquaculture & Sustainability - Being Ocean Wise blog post 	<p>Formative; Students list what food we eat that comes from the ocean and know the characteristics of a healthy ocean.</p>
---	--	---	--	---	---

4	<p>The ocean and humans are interconnected ~</p> <p><i>Humans have a significant connection to wild fishing</i></p>	<ul style="list-style-type: none"> • Students can observe the outcomes of wild fishing. • Students are able to identify key terms of wild fishing. 	<p>Critical Questions: What is wild fishing? What are key terms related to wild fishing? Who is involved in wild fishing? Why is wild fishing important?</p> <p>Background Information: In discussing the dynamics of aquaculture, it's important to address the value of wild fishing to ensure the balance of understanding the various forms of sustainable seafood. This lesson highlights key wild fishing methods and thereafter learning about the day in the life of a girl named Roe growing up in a fishing family in Canada. The students will learn about wild fishing and its connection to generations of Canadians- especially the role of women in the industry.</p> <p>Task:</p> <ol style="list-style-type: none"> 1) Workbook Page 5 &6: Introduce keys terms by using the word search provided. 2) Activity: Read out loud the story of Roe to have a peek in the day of the life of a fishing family and learn what wild fishing means to those within the industry. 3) Workbook Page 7: Now that the terms have been reviewed and the story read, complete the worksheet where the student draws themselves with Roe to demonstrate how they connect to the ocean and can write down a question for Roe about fishing. <p><i>Optional:</i> This is a true story based on the life of Tiare Boyes who grew up in a fishing family with an environmental activist mother and a father with a Masters in marine biology so she calls her upbringing 'pretty fishy'. Learn more about Tiare Boyes under the 'Resources' section.</p> <p>Action: I will share stories about local people who either work in fish farms or wild fishing boats.</p>	<p>Books:</p> <ul style="list-style-type: none"> - Five Silly Fishermen' By Roberta Edwards - 'Fishing in the Air' by Sharon Creech - 'Kids' Incredible Fishing Stories' by Shaun Morey' <p>Activities:</p> <ul style="list-style-type: none"> - Bycatch Activity: MyFish Education <p>Videos:</p> <ul style="list-style-type: none"> - Pew: What is Bycatch? <p>Teacher Resources:</p> <ul style="list-style-type: none"> - Video by Seafood Watch: How Seafood is Caught: Bottom Trawling <p>Tiare Boyes Links:</p> <ul style="list-style-type: none"> - BBC Earth: Tiare Boyes Narrates and Guides 3D 360 Tour - Tiare Boyes Narrates Video of the system of Wild Pacific Fishery Management - Tiare Boyes: Canadian fisherwoman breaks social stereotypes 	<p>Formative; Students learn key terms of the wild fishing and engage in a story about women in the fishing industry.</p>
---	--	--	--	--	---

5	<p>The ocean supports a great diversity of life and ecosystems</p> <p>~</p> <p><i>The environment supplies key components for the survival of animals and humans</i></p>	<ul style="list-style-type: none"> • Students can identify key components of ecosystems. • Students understand the connections between the needs of animals and humans. 	<p>Critical Questions: What is an ecosystem? What are some characteristics of ecosystems? How do these characteristics help animals to survive? How are the survival needs of animals similar to those for humans? How does aquaculture provide these basic needs?</p> <p>Background Information: Ecosystems are interconnected systems made up of living (biotic) and nonliving (abiotic) components which support life. Aquaculture systems mimic natural ecosystems to raise and harvest healthy seafood with the basic needs of the animals being met to ensure survival. Your students will collaboratively create their own aquaculture system to demonstrate their understanding of marine ecosystems and the basic needs of all animals.</p> <p>Task:</p> <p>1) Introduction: What is a marine ecosystem? It is a community of animals that live in water that survive on what the habitat offers. An ecosystem must offer: food, shelter, oxygen and water. Sea creatures need these 4 basic components to survive just like us humans!</p> <p>2) Workbook Page 8: Provide this worksheet or use this slide to identify (by circling or writing down individually) the terms that are the basic needs of marine animals.</p> <p>3) Activity: Break the class into groups with each group receiving a blank piece of poster paper; they can create their own type of fish farm that must include: food, shelter, oxygen and water for their fish to survive. The terms circled/written beforehand on the worksheet/slide are to inspire the students in what to include in their farm. Additionally, magazines can be provided to cut out pictures to be used in creating their fish farm.</p> <p>4) Reflection: Have a couple students share their aquaculture site with the class. Discuss with the class what was easy and challenging about this activity. Why is it important for a fish farm to have certain components of a marine ecosystem?</p> <p>Action: I will visit a local park and discover a variety of different habitats.</p>	<p>Books:</p> <ul style="list-style-type: none"> - 'Over and Under the Pond' by Kate Messner - 'Dory Story' by Jerry Pallotta - 'The Big of the Blue' by Yuval Zommer <p>Songs:</p> <ul style="list-style-type: none"> - 'A Hole at the Bottom of the Sea' <p>Videos:</p> <ul style="list-style-type: none"> - MrOliver and Company: Aquatic Ecosystems - Smile and Learn- Aquatic Animals for kids <p>Teacher Resources:</p> <ul style="list-style-type: none"> - Sciencing: Aquatic Ecosystem Facts - Scholastic: Aquatic Ecosystems - STEM Curriculum for Aquaponics - Squamish Nation Stewardship 	<p>Formative;</p> <p>Students can identify and give examples of the 4 basic needs of marine animals.</p>
---	---	---	---	---	--

6	<p>The ocean, and the life in the ocean shapes the earth ~</p> <p><i>Sea life has a major social impact</i></p>	<ul style="list-style-type: none"> • Students can demonstrate an understanding of social connections to marine life. • Students observe how sea life relates to individuals they know. 	<p>Critical Questions: How are people connected to the ocean? Who is employed by the seafood industry (farmers, restaurant owners, fishermen, retail etc.)? Why is ocean conservation important to people? How do marine ecosystems support animals and humans?</p> <p>Background Information: The seafood industry is not only important because it supplies us with food and resources, but also it provides countless jobs for those who are involved in both aquaculture and wild fishing. These jobs support livelihoods and furthers the importance of supporting sustainable seafood to ensure these roles are stable for future generations. Students will reflect upon how ocean health is important to them and to others.</p> <p>Task:</p> <ol style="list-style-type: none"> 1) Activity: Introduce the concept that marine life not only supports the health and balance of our environment, but also has connections to peoples' lives. To have the students engage with the various ways in which people rely on the ocean, read the stories/watch the videos listed in the resources and discuss these connections. 2) Workbook Page 9: Match the voice blurb to the character to match the fisherman, the seafood chef, the fish farmer and the fish scientist. Afterwards, have the students draw in the blank who else is connected to the ocean who wasn't featured (such as a fish farmer or consumer) and have them write in the voice blurb to describe the connection. 3) Reflection: Use think/ pair /share to discuss the following: who they matched to each blurb. Who is connected via aquaculture? Who is connected via wild fishing? What other connections can you identify? How are you connected to seafood? How do these connections make sustainable seafood choices important? <p>Action: I support people who promote and provide sustainable seafood by choosing Ocean Wise menu items.</p>	<p>Books:</p> <ul style="list-style-type: none"> - 'Chefs and What They Do' by Liesbet Slegers - 'The Little Fisherman' by Margaret Wise Brown - 'Five Silly Fishermen' by Roberta Edwards - 'A Salmon for Simon' by Betty Waterton <p>Videos:</p> <ul style="list-style-type: none"> - Ned Bell: How to Source Sustainable Seafood - Parks Canada: Coast Salish Peoples Clam Gardens (scroll to bottom of page for video) <p>Teacher Resources:</p> <ul style="list-style-type: none"> - Ocean wise: Top 10 Frequently Asked Questions About Ocean Wise - MOA: Musqueam: An Introduction- Hunting and Fishing 	<p>Formative; Students identify jobs within the seafood industry.</p>
---	--	--	--	--	---

7	<p>The ocean is largely unexplored ~</p> <p><i>Aquaculture is a valuable resource for sustainable seafood.</i></p>	<ul style="list-style-type: none"> • Students are able to critically evaluate seafood sustainability and technology. • Students can develop their own interpretations of seafood sustainability. 	<p>Critical Questions: Why are healthy oceans important? What is aquaculture? What questions about sustainable seafood linger? Why is it important to ask questions about where our food comes from?</p> <p>Background Information: This final module is built to prompt students to reflect on their learning of sustainable seafood and be confident in asking questions about the industry. It is a fun filled game that encourages students to acknowledge the importance of ocean health while also having the opportunity to practice questioning the industry to learn more.</p> <p>Task:</p> <ol style="list-style-type: none"> 1) Activity: To elaborate on what the students have learned from this education kit and what they would like to discuss further is the following relay game (Video of game inspiration for the relay found here. The sticky note and writing down answers portion isn't shown in this video. More detailed instructions can be found in the workbook under lesson 7): <ol style="list-style-type: none"> a) Divide the students into 2 teams in an open space. The teams are standing in opposite corners of the space from each other. b) In each team's corner, place on a hard surface place 3 headings (poster paper, notebook etc.) with space to reply below: 'Why is Ocean Health Important?', 'What is Aquaculture?' and 'What Questions Do You Have about Seafood?'. Writing utensils near the board to write answers should be nearby. c) The relay begins with students from opposite teams hopping through hula hoops one at a time until they meet with the team member hopping over from the opposite direction. d) Once the two students of opposite teams meet in the middle, they play rock paper scissors. Winner receives a sticky note from the teacher. Both students hop back to high five the next participant. e) The student with the sticky note writes down an answer to one of the 3 question headings in a column. 2) Reflection: Have the students reflect on what they wrote by having them explain their answers and questions. <p>Action: I will share what I learned about fish farming and continue to ask questions!</p>	<p>Books:</p> <ul style="list-style-type: none"> - 'World Without Fish' by Mark Kurlansky - 'Why Should I Save Water' by Jen Green - 'Skyfishing: (A Grand Tale with Grandpa)' by Gideon Sterer <p>Videos:</p> <ul style="list-style-type: none"> - AquaKidsTV: Sustainable Seafood Part 1 - AquaKidsTV: Sustainable Seafood Part 2 - AquaKidsTV: Sustainable Seafood Part 3 <p>Teacher Resources:</p> <ul style="list-style-type: none"> - Ocean Wise Sustainable Seafood Homepage 	<p>Formative; Students have group discussion and reflection about sustainable seafood.</p>
---	---	--	--	--	--