

“Solutions-Oriented Learning” Storyline

2 Wetland: Habitat

Storyline introduction and overview:

The goal of the second grade Wetland: Habitat storyline is to introduce students to wetlands and the living things that call them home. In this storyline students develop an understanding of what a habitat is, different types of habitats, what living animals and plants can be found in a wetland, and what plants need to grow.

[NGSS Learning Progression for Wetland Storyline:](#)

The 2nd grade storyline is part of a larger learning progression that includes students mastering standards pre-K to 12th grade. Look at how the 2nd grade performance expectations fit in a continuum of learning for your students.

<p>Placemaking: Take students outside to observe their schoolyard. Have them give characteristics of the land; hard, soft, cool, hot, wet, dry, etc. You can have them record these observations in their science journals (if they have one). Ask them what happens to the ground when it rains and discuss. Introduce the term wetland and engage in discussion around what they think a wetland is and how it would compare to their schoolyard.</p>	<p>Anchoring phenomena: Wetlands are diverse habitats. Wetland Habitats Slide Show</p>	<p>Drawdown: Drawdown: Coastal Wetland Restoration</p>
<p>Indigenous and other relevant cultural connections: Wetlands have been part of Indigenous communities since time immemorial. They harvested traditional medicinal plants and fished their waters while watching over and stewarding these wetlands for future generations.</p>	<p>NGSS Pes (progress towards): 2-LS2-1: Plan and conduct an investigation to determine if plants need sunlight and water to grow. 2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats.</p>	

Estimated time required to implement this storyline: 2 to 3 weeks

NGSS PEs:

2-LS2-1: Plan and conduct an investigation to determine if plants need sunlight and water to grow.
2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats.

“Solutions-Oriented Learning” Storyline

2 Wetland: Habitat

Science & Engineering Practice (SEP)	Disciplinary Core Idea (DCI)	Cross Cutting Concept (CCC)
<p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. 	<p>LS2.A: Interdependent Relationships in Ecosystems</p> <ul style="list-style-type: none"> Plants depend on water and light to grow. 	<p>Cause and Effect</p> <ul style="list-style-type: none"> Events have causes that generate observable patterns.
<p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> Make observations (firsthand or from media) to collect data which can be used to make comparisons. <hr style="border-top: 1px dashed #ccc;"/> <p style="text-align: center;">Connections to Nature of Science</p> <p>Scientific Knowledge is Based on Empirical Evidence</p> <ul style="list-style-type: none"> Scientists look for patterns and order when making observations about the world. 	<p>LS4.D: Biodiversity and Humans</p> <ul style="list-style-type: none"> There are many different kinds of living things in any area, and they exist in different places on land and in water. 	<p>None listed</p>

Materials:

Learning Session	Materials
1	<ul style="list-style-type: none"> Nisqually Story: Water from the Mountain (Nisqually) Roger Fernandes "Salmon Boy" (Coast Salish) Beaver and Mouse (Tulalip) Changer and the Dog Salmon (Western Washington tribes)
2	Wetland Habitats Slide Show
3	Pre-Assessment Rubric
4	Animal Habitat PowerPoint - Bing video The Habitat Song w/Lyrics - Bing video

“Solutions-Oriented Learning” Storyline

2 Wetland: Habitat

5	Habitats: What is a habitat? [FREE RESOURCE] - Bing video Habitat Game
6	Fabulous Wetlands by Bill Nye Wetland in a Pan
7	Wetland Plants Investigating Plant Needs
8	What’s in a wetland? Do you really want to visit a wetland
9	Animal Research Graphic Organizer Plant Research Graphic Organizer
10	Food Chain - BrainPOP Jr.
11	Plant Growth (Print version) Plant Growth (online version) Investigating Plant Needs
12	Dependent on careers and off ramps chosen
13	Paper and Pencil: Comparison Chart Performance Based: Diversity Investigation Rubric

Learning Sessions

1.	Grounding Native Ways of Knowing	Estimated time: 45 minutes
<p>To connect to native ways of knowing, consider exploring the following ideas in connection with your local tribal nation by researching stories of the past and learn about current work and actions the Tribe is taking to mitigate, adapt to, and find solutions to a changing climate.</p> <ul style="list-style-type: none"> • Traditional plants found in wetlands • Management of estuaries and wetlands • Wetland ecosystem changes <p>Below are some stories connected with animals, water, the land and wetlands that might be useful to connect students to native ways of knowing. <u>Select one of these stories to share with students or find a more local story to your region.</u></p>		

“Solutions-Oriented Learning” Storyline

2 Wetland: Habitat

- [Nisqually Story: Water from the Mountain](#) (Nisqually)
- [Roger Fernandes "Salmon Boy"](#) (Coast Salish)
- [Beaver and Mouse](#) (Tulalip)
 - Go to “Native American Story Connections” and select the audio “Beaver and Mouse”
- [Changer and the Dog Salmon](#) (Western Washington tribes)
 - Go to “Native American Story Connections” and select the audio “Changer and the Dog Salmon”

Suggested activity for teachers and students: 3-2-1 research process*

- Three new learnings about the Tribe most local to you
- Two questions that you still have about the Tribe most local to you
- One action you can commit to begin a partnership with the Tribe most local to you

*For younger students, do this as a class anchor chart.

Below are some examples of tribal science connections to wetlands for the teacher to gain background knowledge.

- Western Washington
 - [Squaxin Island Tribe Resolution 15- Skookum Watershed Fish and Wildlife/Riparian Habitat Acquisition and Protection Action Plan](#) (Squaxin)
 - [Squaxin Island Tribe, Capitol Land Trust and LOTT Acquire Wetland Property](#) (Squaxin)
 - [Floating Wetlands in an Urban Estuary](#) (Duwamish)
 - [Reservation Wetlands Ranked by Culturally Important Plants](#) (Swinomish)
 - [Wetland and Habitat Mitigation Bank](#) (Lummi)
 - [Water Quality](#) (Puyallup Tribe of Indians)
 - [Port of Tacoma's Restoration Project on Lower Wapato Creek to Move Forward \(Puyallup Tribe of Indians\)](#)
 - [Where the Salmon Run](#) (Nisqually)
- Olympic Peninsula/Coast
 - [Skokomish Estuary](#) (Skokomish)
 - [Skokomish Community Center Wetland Report](#) (Skokomish)
 - [Suquamish Tribe Wins Land Use Case](#) (Suquamish)
 - [Suquamish News: Tribe Purchases Kitsap Parks Property](#) (Suquamish)
- Central and Eastern Washington
 - [Restored Wetland Brings Wapato Back to Yakama Nation](#) (Yakama)
 - [Return of the Wapato](#) (Yakama)

Additional resources on working with Indigenous students and tribes:

To access information on how to reach out and build relationships with local tribes, visit the [OSPI Office of Native Education: Partnering with Tribes](#), and contact your district’s tribal liaison/Title VI coordinator.

To learn more about respecting and building upon Indigenous Peoples’ Rights visit the [Learning in Places website](#), a project led by Dr. Megan Bang then read Practice Brief #10:

“Solutions-Oriented Learning” Storyline

2 Wetland: Habitat

	Teaching STEM In Ways that Respect and Build Upon Indigenous Peoples' Rights and Practice Brief #11: Implementing Meaningful STEM Education with Indigenous Students & Families published on the University of Washington's STEM Teaching Tools website .	
2.	Examine phenomena: Wetlands are diverse habitats.	Estimated time: 30 minutes
	Show students the Wetland Habitats Slide Show and ask the students, “What do you notice that is living? What do you notice is nonliving?” This could be done in a discussion format or on an OWL (observe, want to know, learn) chart. This could also be done on site if you have access to a wetland.	
3.	Pre-Assessment: Wetlands are diverse habitats.	Estimated time: 30 minutes
	Have students draw and label a wetland. Ask students to include living and nonliving features. Pre-Assessment Rubric	
4.	Guiding question: What is a habitat?	Estimated time: 30-45 minutes
	Discussion: What is a habitat? Start by asking students if they know what a habitat is and record their responses. Next, show them the following video and tell them to listen for the requirements of a habitat. You can have them record these in their science notebooks (if they have them). Animal Habitat PowerPoint - Bing video After the video, ask students to answer the following question: What are the four requirements living things need to survive in their habitat? (food, shelter, space, and water) The Habitat Song w/Lyrics - Bing video	
5.	Guiding question: What are different types of habitats and how are they alike/different?	Estimated time: 45-60 minutes
	Discussion: Each habitat provides resources for a diverse group of living things and each one plays an important role in the survival of that habitat.	

“Solutions-Oriented Learning” Storyline

2 Wetland: Habitat

	<p>Start with a recap on what a habitat is and what each habitat has to have. Next, watch the following video to introduce different types of habitats. Habitats: What is a habitat? [FREE RESOURCE] - Bing video</p> <p>After the video, discuss the following habitats: forest, wetland, and shrub-steppe. Have students share what they think grows and lives in these habitats and create (either together as a class or individually) pictures capturing their thoughts.</p> <p>What’s My Habitat? Show the students the landscape pictures from the habitat activity, but not the animals. Put the pictures in three different areas around your classroom and hand each child an animal card. Tell the students that they are going to go to the habitat where they think their animal lives. Let them know that they will be asked to share why they think is the correct habitat for their animal. They can either share to a person in the group or out loud to the rest of the class. Have students come back and hand out cards a second time. You can play this as often as you like. You can also set this up as a sorting activity where students would write down the habitat and animals for each in a science journal and pick an animal for each habitat to give the reasoning for that placement.</p> <p>Habitat Game</p>
--	--

6.	Guiding question: How do humans help restore wetland habitats?	Estimated time: 30-45 minutes
	<p>Discussion: Wetlands, like other ecosystems, do not usually need humans to make them work. They sustain themselves and have for 100s of years. However, sometimes humans affect wetlands through development, pollution, or land use that has negative impacts on a wetland. They then need to step in to repair the damage they caused.</p> <p>Watch the video below and discuss the answers to the following questions afterwards.</p> <ol style="list-style-type: none"> 1. What happened to the original wetland? 2. Why was this project so important? 3. What happened when the dike was removed? 4. Are there any areas in your community where people have had to restore a natural area? <p>Rivers and Tides: Restoring the Nisqually Estuary</p>	

7.	Guiding question: What do plants need to grow?	Estimated time: 60 minutes
-----------	---	-------------------------------

“Solutions-Oriented Learning” Storyline

2 Wetland: Habitat

	<p>Watch: Wetland Plants</p> <p>Discussion: What do plants need to grow?</p> <p>Share with the students that they will be investigating what plants need to grow.</p> <p>Set up the investigation: Investigating Plant Needs and answer the questions as a whole group.</p> <p>This investigation will need you to record data after two weeks. A reminder will be in learning session 11.</p>
--	---

8.	Guiding question: What kind of plants and animals live in a wetland?	Estimated time: 45 minutes
	<p>Brainstorm on chart paper with students: “What kind of plants and animals live in a wetland?”</p> <p>Watch this video: What's in a wetland?</p> <p>Add to your brainstormed list if needed.</p> <p>Watch the video or read “Do you really want to visit a wetland?” if you have a physical copy.</p> <p>Add to your brainstormed list.</p>	

9.	Guiding question: What kind of plants and animals live in a wetland?	Estimated time: 60-90 minutes (teacher discretion)
	<p>Discussion: What are the different plants and animals that make the wetland their home?</p> <p>At this point in the storyline, students have learned about habitats, wetlands, and the types of plants and animals that live in wetlands. They are now going to become experts on one plant or animal from a wetland by doing some research. Assign a plant or animal to each child in class and give them the following graphic organizer to collect their notes.</p> <p>Animal Research Graphic Organizer</p> <p>Plant Research Graphic Organizer</p> <p><u>List of plants to consider:</u> alder tree, black cottonwood tree, big leaf maple, skunk cabbage, lady fern, stinging nettle, snowberry, willow, salmonberry, velvet grass, Canadian thistle, cattail, nightshade</p> <p><u>List of animals to consider:</u> rough-skinned newt, black-tailed deer, beaver, river otter, peregrine</p>	

“Solutions-Oriented Learning” Storyline

2 Wetland: Habitat

	<p>falcon, vole, pond turtle, pacific treefrog, coho salmon, American bittern, bald eagle, garter snake, wooly bear caterpillar, blue heron, wood duck, western sandpiper, great horned owl, coyote, northern red-legged frog</p> <p><i>This can also be done in small groups if access to technology and access is an issue.</i></p> <p>Use the following links (and any others you may have access to) and have students conduct their research. Have them create a poster of their plant and animal after they have completed their research. You can choose to have them present their findings to the class or in small groups before moving to session 8.</p> <p>Some safe student research sites: DK Find Out! Fun Facts for Kids on Animals, Earth, History and more! National Geographic Kids Home - Billy Frank Jr. Nisqually - U.S. Fish and Wildlife Service (fws.gov)</p>
--	---

10.	Guiding question: How do plants and animals interact in a wetland?	Estimated time: 45-60 minutes
	<p>Discussion: How do plants and animals interact in a wetland?</p> <p>Now that the students are experts on a plant or animal, introduce the idea of simple food chains; producers and consumers, and explain that all living things need to eat. Watch the video below to the 4:10 minute mark that explains these simple food chains. Food Chain - BrainPOP Jr.</p> <p>After the video, have students discuss the components of a food chain discussed in the video:</p> <ol style="list-style-type: none"> 1. Living things need each other to survive; producers, consumers, herbivores, carnivores, and omnivores 2. Have them try and brainstorm different animals and plants that fall into each of those categories based on the research they did. 3. What is a food chain? Have students discuss how certain animals eat plants and are then eaten by larger animals. <p>Outside! Take your students outside and have them play the part of their researched plant or animal. Have them create short lines of 3-4 students creating their own food chains. Examples: snowberry, deer, bobcat; salmonberry, robin, eagle/falcon</p>	

11	Guiding question: What do plants need to grow?	Estimated time:
-----------	---	-----------------

“Solutions-Oriented Learning” Storyline

2 Wetland: Habitat

		40 minutes
	<p>Read: Plant Growth (print version) or Plant Growth (online version)</p> <p>Return to the investigation: Investigating Plant Needs and record data about the lettuce seed growth.</p> <p>Discuss: What do plants need to grow?</p>	

12	Possible next steps/off-ramps/actions:	
	<p><u>Career Connections:</u></p> <p>Wildlife Management and Restoration Technician</p> <ul style="list-style-type: none"> • Wildlife Technician Job Description: Salary & More (thebalancecareers.com) <p>Environmental Education Instructor</p> <ul style="list-style-type: none"> • CPC-Emma Pesis <p>Restoration Biologist</p> <ul style="list-style-type: none"> • Brian Combs Career Profile <p>Water Quality Biologist</p> <ul style="list-style-type: none"> • Joel Green Career Profile <p>Aquatic Plant Specialist</p> <ul style="list-style-type: none"> • Aquatic Plant Specialist <p>Land Steward</p> <ul style="list-style-type: none"> • Land Steward <p>Watershed Coordinator</p> <ul style="list-style-type: none"> • Watershed Coordinator <p>Kayak Nisqually Owner</p> <ul style="list-style-type: none"> • Owner and Founder of Kayak Nisqually <p>Off ramps and extensions:</p> <ul style="list-style-type: none"> • Wetland Art and Poetry • Drawing Wild Washington: Puget Sound Wetlands • Wetland Metaphors lesson - students create riddles about animals of the wetlands Wetland Metaphors (pwnet.org) • Read aloud: There Was an Old Lady Who Swallowed a Trout • Read aloud: Squish! A Wetland Walk • ELA Performance Task and Reading Booklet: Grade 2: Estuaries • Wetland prezi example • Wetland Duck’s Unlimited: Wetland Activities • Wetland Coloring Book • Discover wetlands field studies • Library of videos: Wetlands LIVE - Resource Center - Videos (pwnet.org) • Wetlands by Nikki McClure 	

“Solutions-Oriented Learning” Storyline

2 Wetland: Habitat

13	Post Assessment:	Estimated time: Dependent on choice of assessment
<p>This post assessment has two options: paper and pencil or performance based.</p> <p>Option 1: Paper and Pencil: Comparison Chart</p> <p>Option 2: Performance Based: Diversity Investigation</p> <p>Rubric</p>		

OER Tracker - [2-Wetland: Habitat](#)

Pacific Education Institute would like to acknowledge and thank the writing team for their work. The team included Molly Griffiths and Hattie Osborne. In you have comments or questions please contact info@pacificeducationinstitute.org

Except where otherwise noted, this work developed by [Pacific Education Institute](#) (PEI) for the [Washington Office of Superintendent of Public Instruction](#), is available under a [Creative Commons Attribution 4.0 License](#). All logos and trademarks are the property of their respective owners.

