

Explore the Salish Sea Curriculum

How can we improve the environment in our own community using Science and Traditional Ecological Knowledge to help heal the Salish Sea?



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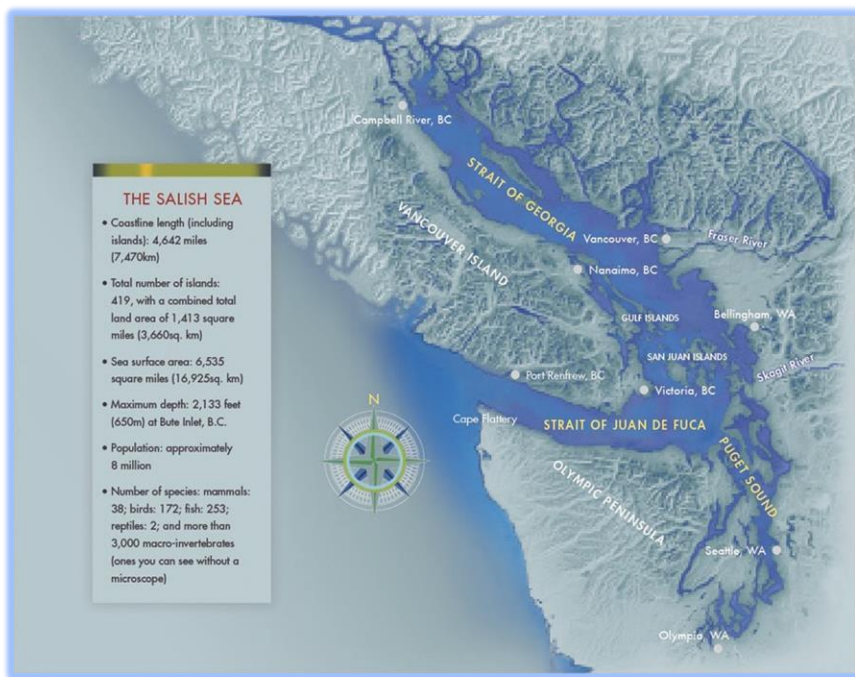
Introduction: A Case for Local, Authentic Learning and Hope



Explore the Salish Sea was developed to illuminate pathways of hope for grade 5 students and empower teachers to meet science standards using the sea in our own backyards. It is based on the book, *Explore the Salish Sea A Nature Guide for Kids* and contains ideas, lessons, games, and activities contributed or inspired by classroom teachers, marine scientists, and marine and

tribal educators who participated in Explore the Salish Sea educator workshops around the sea. These collaborators inspired great hope themselves. Hope and empowerment here begin with an understanding that, no matter what academic or physical ability level, gender, race, color, orientation, or creed they are, as humans, young people are an important and powerful part of one awesome estuary ecosystem and together we can heal the sea.

The Salish Sea is a semi-enclosed body of water where many rivers meet the Pacific Ocean. It stretches from Campbell River, British Columbia all the way to Olympia, Washington and out to the tips of NW Washington and SE Vancouver Island. This is an ecosystem that students are in right where they live and go to school, making its wonders and issues inherently relevant.



As the relevance of the sea to a 5th grader's recreation, subsistence, water and health is revealed through curiosity-piquing phenomena, active games, outdoor explorations, and hands-on investigations, student motivation grows. Their natural curiosity to understand their wild

neighbors and their habitats will inspire students to help ensure the components of wildlife health, like clean air, water, food, and shelter, which in turn improves our own health. The curriculum culminates with the chance to contribute to or even lead an environmental improvement project in their own community, joining the thousands of other Salish Sea Heroes helping to heal the sea.

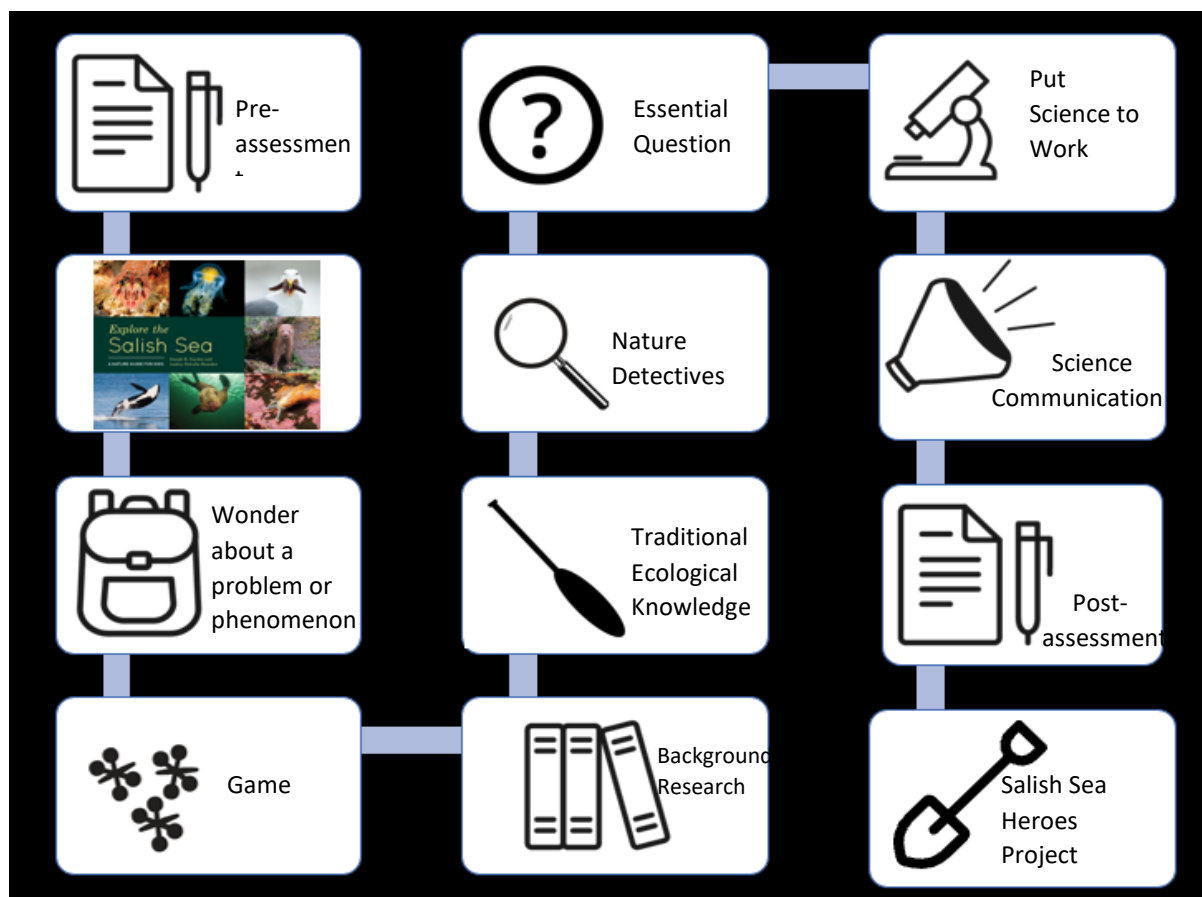
Each unit starts with kids witnessing the wonder and the beauty of a component of this vast estuary, presented in Explore the Salish Sea A Nature Guide for Kids (Explore). Next, they are presented with a phenomenon to spark wonder and curiosity. This sets them on a path of clue-gathering, nature detective exploration within the chosen theme from each chapter. Some phenomena are serious challenges that scientists, tribal, First Nations, and state and federal agencies and organizations are working together to solve. Many of these experts are excited to work with school groups to support your science content or share ecological wisdom. Partnering with one or more experts in your own community can break barriers to teaching effective science and bring science to life in your classroom, even if you have little science background. It can also break barriers to building cultural understanding and respect for indigenous ways of knowing. A key component to this curriculum is reaching out to form these relationships. If you don't already have a community expert partner, we provide a [webmap](#) of willing organizations and individuals on the [Junior SeaDoctors website](#).

Exposure to experts already working on solutions to tough problems, whether in person or in literature and film, prevents the ecological overwhelm too often set on the next generations' shoulders and instead offers hope. Providing students with the tools of science, engineering, and traditional ecological knowledge empower them to pitch in on and even lead actions that improve ecosystem health and our own.

Hope shines the light necessary to see a way forward from a challenging place. We celebrate the release of this curriculum as our celebration of World Oceans Day, 2020. In the midst of the current pandemic and uprising for racial equality, may it bring hope to you and the next generation of Salish Sea citizens in your care, that together we can know, connect with, and protect the Salish Sea, and one another as well.

Explore the Salish Sea Curriculum Overview

Each Explore the Salish Sea unit follows the same general sequence of events, as shown in the graphic below, but not always in the exact order. Students will form Explore Teams and take on roles found in a research organization. You'll let them know that they are going to learn the process of science with a lot of help at first, but by the end of Exploring the Salish sea will be able to design and carry out an investigation themselves. Treat them as scientists, expect professionalism, and they will rise to that bar, especially knowing that their research is real and they may make science-based recommendations for improvement to community leaders.



The general sequence of exploration in each Explore the Salish Sea unit.

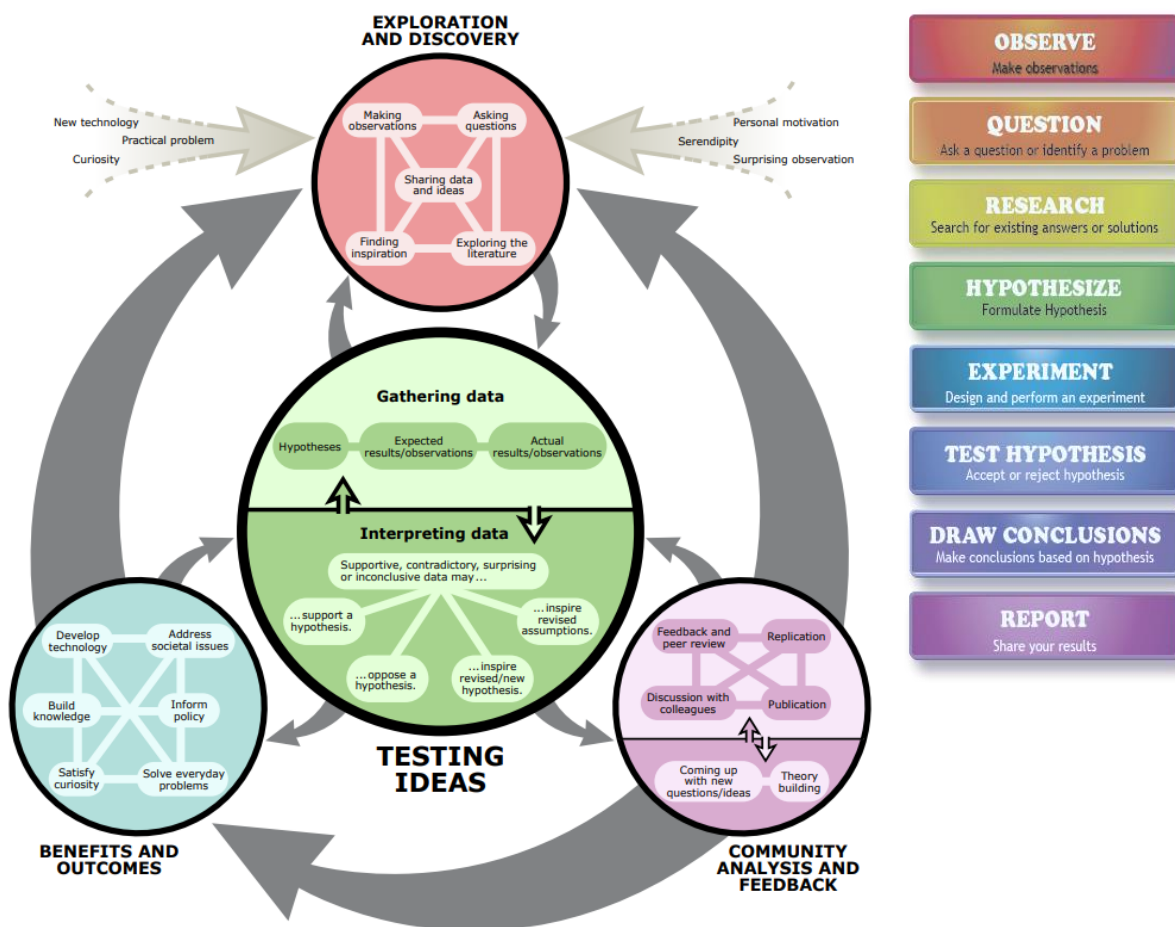
Before the unit begins, you'll administer a pre-assessment to collect a baseline against which to measure student growth. The Explore chapter reading sets the stage for a particular theme. Here they will peruse one area of the Salish Sea, like you would a good coffee table book, then identify and define unfamiliar vocabulary, and free-write or draw thoughts about the chapter. Next you will present them with a phenomenon or problem to spark wonder and inspire the formation of an overall, or essential question. This will launch the official exploration through games, activities, video clips, literature readings, interviews, class visits, and field trips, all to inform the development of a scientific investigation in each unit. Working with the support of one or more community experts will enrich this process and usually take a load of prep and materials-procurement off of your hands. Students will analyze their data and draw conclusions in a "Get CERIAS" (Claim Evidence Reasoning Implications, and Applications) format, then argue using evidence with their scientific community (their class). Without communicating one's science to the greater community, it may as well have not been done. You are encouraged to showcase your students' research in your choice of formats and venues; options and instructions are provided or you may get creative with your team.

A Note About Science

All of these steps are part of the [Real Process of Science](#), which for scientists, looks a whole lot more like the diagram on the left than what has traditionally been taught with a diagram like the one on the right, and so also meets the NGSS and BC's New Curriculum Science Standards. The Real Process of Science resource by the UC Berkeley Museum of Paleontology in the link above is a great way to familiarize yourself in the process and how to teach it. They have also made the process into an interactive web tool for students to track their explorations.

How science works

Not really how science works



A Note About Traditional Ecological Knowledge

In each unit there is a suggestion to incorporate indigenous ways of knowing to support students' ecosystem understanding. This recognizes that the science brought to these lands and waters by non-native peoples is just one way to understand how natural systems. The many Coast Salish peoples who have lived with the Salish Sea since time immemorial have deep ecological understanding of their traditional territories based on thousands of years of living within the ecosystems, not just as caretakers, but as relatives to the living things. For Coast Salish tribes in Washington and First Nations in British Columbia there has never been a separation between ecology, economy, and spirituality. Using science and the teachings that indigenous neighbors are willing to share will help students to broaden their world view and support their decisions in how they choose to help heal the sea in their own community, the culminating project of Explore the Salish Sea.

Invite and welcome this sharing but keep these things in mind. Every tribe and First Nation is a unique and sovereign nation with their own governance, stories, songs, and traditions. A non-tribal or band member should not teach about their culture or traditions, except in ways approved of by the tribe or First Nation. Instead, invite indigenous knowledge sharers to join you to share what they deem appropriate within your current theme and framework. Work with the indigenous liaison in your district, which may be the Indian Education or Title Programs Director, if you have one, or reach out and begin the process of building a relationship with outreach specialists for your indigenous neighbors, keep an open heart, and don't give up. It can take a long time to build trust, for good reason, but it is worth it. These partnerships will dually support the Since Time Immemorial (STI) curriculum for social studies as well. Let your science, social studies, math, and ELA overlap around the Salish Sea. See OSPI's STI further suggestions for things to consider here:

<https://www.k12.wa.us/sites/default/files/public/indianed/tribal sovereignty/partnering/partneringwlocaltribes.pdf>



A Samish Indian Nation elder addresses Conway School students before their community-supported project, assessing a restored beach for forage fish habitat on Samish land.

Making it Your Own

You may use this curriculum as is or modify it to fit your needs. While lessons and units are built around a learning progression, with skills and content scaffolded in sequence, individual units and even individual lessons and activities can also stand alone. Either way, there are places in the student journals and slideshows where you will need to replace images or maps to represent your region. Documents, such as unit plans, student journals, and slideshows are left as Word or PowerPoint files so you may download and customize them for your unique needs.