

Skagit Hydroelectric Curriculum Overview

Learning Outcomes — Students will be able to;

- Understand the basic workings of a hydroelectric dam.
- Explain how the Water Cycle makes hydro a renewable energy source.
- Compare the costs and benefits of hydro to other energy sources.
- Understand the relationship between energy demand and Global Warming.
- Take steps to reduce their personal consumption of energy.

Pre-Trip — Build vocabulary, establish key concepts, build anticipation.

- **Hydro Dam Picture Sequence.** Students arrange 15 pictures into a linear illustration of the workings of a hydroelectric dam and the Water Cycle that renews it. Can be coloured and displayed in classroom (14 feet long when complete).
- **States of energy.** Using text and pictures, the teacher can explain how energy transforms through six different *states*, on its way from the sun to your breakfast toaster.
- **Simple Electric Generator.** This can be built using approximately \$10.00 of standard parts. It can be built and demonstrated to students in class, within 15 minutes.

Fieldtrip — Experiential learning; demonstrate vocabulary and concepts with direct experience.

- **Visit to Ross Lake Reservoir.** Students will see the environmental impact of a hydro reservoir, and the scenic mountain watershed that supplies it with water.
- **3-D Hydro Model.** An interactive model will allow students to fill a miniature reservoir with water from the Skagit River, drive a small turbine, and generate electricity.
- **Alternative Energy Discussion.** A quick overview of energy options and their contribution to Global Warming.

Post-Trip — Reinforce vocabulary and key concepts, students investigate further and present their knowledge to the class.

- **Investigate Energy Sources.** Students will research different energy sources and present the costs and benefits to the class. When all the energy options have been presented, a class discussion will follow to determine the best choices for British Columbia's energy future.
- **What Can I Do?** Students will research topics around energy consumption and examine their own lives. By personalizing the information, students can decide how to take action to reduce their energy consumption at home and at school.

Skagit Human History Curriculum Overview

Learning Outcomes — Students will be able to;

- Recognize that First Nations had a trail system in place before European arrival.
- Understand the strategic location of Fort Hope and the Skagit Watershed during the fur trade and gold rush eras (including the rush of 1858, commemorated in 2008).
- Identify key rivers, lakes, mountains, and place names tied to the area's history.
- Understand the north-south stories of the Skagit, where Canadian and American histories intertwine.

Pre-Trip — Build vocabulary, establish key concepts, build anticipation.

- **Mapping Exercise.** Students will receive a base map, showing key rivers, lakes, mountains, and towns. The pre-existing trail network used by Sto:lo, Similkameen, Nlaka'pamux, and Upper Skagit First Nations will be visible. With coloured pens, students will add the major fur trails and gold trails that were built with native help.

The map will reveal Hope's strategic location as a gateway between coast and interior, not just for Europeans, but also during the time when Hope was a Sto:lo village called "Ts'qo:ls".

Fieldtrip — Experiential learning; demonstrate vocabulary and concepts with direct experience.

- **Visit to Whitworth Ranch Site.** Students will walk through Whitworth Meadow, where a family of eight once lived and farmed. Costumes and scripts will allow students to role play and imagine their lives as pioneers in the Skagit wilderness.
- **Visit to Steamboat Gold Rush Town.** Little remains of this townsite today, but students will learn about the gold hoax that lured thousands into the Skagit in 1910, creating no less than three overnight boomtowns in the valley.
- **Visit to Chittenden Meadows.** Students will see the magnificent Ponderosa Pines that inspired Canadian logger Curley Chittenden to fight the flooding of the Skagit.

Post-Trip — Reinforce vocabulary and concepts, students investigate further and present their knowledge to the class.

- **Diary/Journal Entry.** Students write a diary entry, describing a day in their life, from the point of view of a historic character they learned about on the fieldtrip.
- **Historic Scene.** Students place themselves into a historic scene or event, using a photo of themselves combined with artwork.
- **Steamboat Song.** Lyrics that were written during the Steamboat gold rush can be put to music and sung.
- **Gold Rush Banners.** Painted banners could be placed in school gyms, raising school awareness of the 150th anniversary of the Fraser River Gold Rush and the birth of BC.

A Student's Introduction to the Skagit Valley

Skagit River Ecology Curriculum Overview

Learning Outcomes — Students will be able to;

- Understand key concepts such as “riparian zone” and “watershed”.
- Recognize the ecological importance of riparian zones.
- Identify some of the plants and animals that depend on rivers.
- Identify key habitat components within a river ecosystem.

Pre-Trip — Build vocabulary, establish key concepts, build anticipation.

- **Word match exercise.** Students will connect terms with their definitions, to build vocabulary and concepts before the trip.

Fieldtrip — Experiential learning; demonstrate vocabulary and concepts with direct experience.

- **Visit to Strawberry Bar Day-Use Area.** Students will participate in an “Each-One-Teach-One” activity beside the Skagit River. They will see important habitat first hand, and share knowledge with their peers.
- **Salmon Lifecycle Game.** Students will play a physical game that demonstrates the threats and obstacles facing salmon during their migration to and from the sea.

Post-Trip — Reinforce vocabulary and key concepts, students investigate further and present their knowledge to the class.

- **Animal Research Report.** Students can choose a river/riparian animal that they learned about on the fieldtrip, investigate the topic, and present it to class.
- **Artwork Project.** Students can create a 3-dimensional diorama of a river, its key habitat components, and some of the animals that use it. Alternatively, a drawing/painting/collage can be created.
- **Take A Hike!** A walk along the Rotary Park Trails in Hope, or an equivalent riverside walk in Agassiz/Harrison/Fraser Canyon could be used to reinforce the vocabulary and concepts learned in the Skagit. Even an urbanized stream may demonstrate “what not to do to a river”.

A Student's Introduction to the Skagit Valley

Skagit Wildlife Curriculum Overview

Learning Outcomes — Students will be able to;

- Appreciate the great diversity of life in the Skagit watershed and understand the reasons for this diversity
- Recognize the clues that animals leave as signs of their passing
- Identify some of the interesting mammals and birds found in the Skagit Watershed and how they interact with each other and their environment
- Follow the flow of energy and materials through an ecosystem
- Understand the importance of large wilderness areas and habitat protection

Pre-Trip — Build vocabulary, establish key concepts, build anticipation.

- **Energy and Nutrients.** Using diagrams the teacher can explain the flow of energy and nutrients through an ecosystem and relate this to the trophic pyramid.
- **Food Web Demonstration.** Students representing different species use string to demonstrate who feeds on who and how this connects even species that don't have a direct feeding relationship.
- **Biodiversity.** Using pictures or diagrams and a map showing the Skagit Watershed on both sides of the international border the teacher will explain how the geography of the region results in high biodiversity and its part in a network of protected land.

Fieldtrip — Experiential learning; demonstrate vocabulary and concepts with direct experience.

- **Tracks, Scat and Skulls.** Students will learn about different signs animals leave behind and what can be learned from them.
- **Bird Songs.** Students will learn why birds sing and will practice identifying some of the common bird songs heard in the Skagit watershed.
- **Discovery Hike.** Skills learned earlier will be put to use on walk to look for animal signs, listen for birds and discuss the interconnectedness species in the ecosystem and the importance of protection and preservation.

Post-Trip — Reinforce vocabulary and key concepts, students investigate further and present their knowledge to the class.

- **Species at Risk.** Each student will research one of the species at risk found in the Skagit watershed and introduce his or her animal to the rest of the class. The presentation will include a brief overview of the animal's natural history, the reason(s) for it's listing as a species at risk and what is needed to ensure the survival of the species in British Columbia.