



Grade 8 Science

Unit 1: Water Systems on Earth's Surface

Over two-thirds of the Earth's surface is covered by oceans and freshwater features. Because of this, our planet has been nicknamed the “Blue Planet” due to its appearance from space. A study of the Earth's marine and freshwater systems provides opportunity for students to learn about the relationship between the geomorphology of the Earth, and the dynamics of oceans and freshwater basins. As students develop these understandings, they should be able to explain how these geological features have developed and their impact on society. In Newfoundland and Labrador, we have considerable shorelines, ranging from towering steep cliffs to flat sandy beaches. In addition, most people in our province live close to the ocean and have many experiences with it. Our province's close proximity to the ocean, as well as the influence the ocean has on our climate, economy, and lifestyles should make this unit particularly relevant to many students.

Specific Curriculum Outcomes

112-5, 112-6 Provide examples of public and private Canadian institutions that support scientific and technological research involving the oceans.

113-2 Describe some positive and negative effects of marine technologies on ocean species – recognize that aquaculture technologies can impact marine environments.

113-10 Recognize that problems related to the oceans cannot be completely resolved using scientific and technological knowledge

- Incorporate a discussion of sustainable development
- Identify the environmental, economic and social/cultural implications of decisions made related to ocean resource use and development of new technological knowledge.

208-2, 306-3 Identify the effects of abiotic factors on plant and animal distributions in marine and freshwater ecosystems: temperature, oxygen, phosphates, acidity, turbidity, pollution and upwelling

311-8 Analyze factors that affect productivity and species distribution in marine and fresh water environments

311-9 Describe the interactions of the ocean currents, winds, and regional climates

311-10 Describe how waves and tides are generated and how they interact with shorelines

Suggested Teaching and Learning Strategies

Use the Oceanography section of the **Oceanography and Planktology Presentation Resource** to learn about the ocean currents and climate influences, and then complete the following activities.

- **Ocean Currents Activity**
- **Thermohaline Activity**

Using the **General Aquaculture Presentation Resource** mussel and salmon life cycle sections learn about the different species and production cycles.

As an overall activity not pertaining to any SCO if tools are available:

- **Mussel Meat Yield Activity (important for the mussel aquaculture industry)**
- **Mussel Dissection Activity**
- **Salmon Dissection Activity**
- **Mussel and Salmon Life Cycle Card Games**

Other activities that can be incorporated into the teacher's repertoire:

- **Aquaculture and Fisheries Trivia**
- **Make an impression of a fish activity**
- **Hypothesis in Science activity**
- **Husbandry techniques and recording data activity**
- **Designing fish and fish anatomy activity**
- **Backyard fish farming techniques**

Videos about aquaculture and habitats:

- Videos on mussel farming
- Videos about sustainability in salmon farming
- Salmon farming video
- Virtual dissection of a salmon
- Seaweed video – Integrated Multi-Trophic Aquaculture