**Teaching Notes**

The following learning activity was created to help students meet learning goals contained in both Science 9 and Career Education 9. It was designed to be completed in one lesson, and requires only general grade level skills and knowledge.

**Goals**

*-Students will engage with food chains and nutrient cycling through exploration of the real world process of aquaculture.*

*-Students will consider the sustainability of aquaculture and marine ecosystems.*

*-Students will explore the economics of the aquaculture industry in BC and reflect on the future of work for themselves and their community.*

**The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them**

**Big Ideas**

***Science 9:***

**-The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them.**

Science 9 Curricular Competencies/Content Links:

* Sustainability of systems
* Matter cycles within biotic and abiotic components of ecosystems
* First Peoples knowledge of interconnectedness and sustainability

The value of work in our lives, communities, and society can be viewed from diverse perspectives.

***Career Education 9:***

**-The value of work in our lives, communities, and society can be viewed from diverse perspectives.**

Career Education 9 Curricular Competencies/Content Links:

* Local and global needs and opportunities
* Factors affecting types of jobs in the community
* Influence of technology in learning and working

First Peoples Principles of Learning: Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors.

Traditional Ecological Knowledge and links to modern resource management and sustainability.

Core Competency: Critical Thinking - Question and investigate, consider perspective and ideas.

**Lesson Outline**

**Before the lesson:**

 -Copy or provide digital access to the student materials (Parts 1-3).

 -Provide access to the linked You Tube videos (2) and web-based document.

**Part 1: The Ecology of Aquaculture in Canada** Suggested time: 25 minutes

▢ Direct students to read the introductory paragraph or go over as a class.

▢ Direct students to view the Fisheries Canada video or watch as a class.

▢ Discuss, and provide time for students to complete Part 1 Questions

**Part 2: Aquaculture and Sustainability** Suggested time: 25 minutes

▢ Direct students to read the Vancouver Sun article or go over as a class

▢ Direct students to view the CBC video or watch as a class.

▢ Discuss, and provide time for students to complete Part 2 Questions.

**Part 3: Reflection** Suggested time: 15-20 minutes or homework

▢ Students brainstorm careers connected to aquaculture, and examine their local industry and opportunities.

**Assessment Rubric**

|  |  |  |  |
| --- | --- | --- | --- |
| Goals | 1 | 2 | 3 |
| Considers IMTA in the context of a food web and energy and nutrient cycling | Not done or minimally done. | Demonstrates basic understanding of energy transfer or ecosystem roles.  | Demonstrates in depth understanding of ecosystem dynamics including eutrophication. |
| Analyses the potential risks of modern aquaculture and considers threats to healthy marine ecosystems  | Not done or minimally done | Mentions one risk and one threat to marine ecosystems | Response includes at least 2 risks (ex. excess nutrients, spreading disease) and one threat (ex. microplastics) |
| Brainstorms careers connected to the aquaculture industry in Canada | Not done or minimally done. | Lists at least 3 careers connected to aquaculture | Lists at least 5 careers connected to aquaculture |
| Considers local industry activities and opportunities, and the sustainability of this industry. | Not done or minimally done. | Mentions local aquaculture activities. | Mentions local community specific aquaculture economy and opportunities, and evaluates sustainability. |

Total: /12