



Indigenous Content for Science Curriculum Grades 10-12

“The oral histories of the many First Nations in BC and beyond are rich with stories where plants, animals, mountains and stars are portrayed as sentient and powerful.” (Science First Peoples, FNEESC)

Curricular Competencies (for all Science Courses)

Questioning and Predicting

- Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest

Planning and Conducting

- Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods and those of others

Processing and analyzing data and information

- Experience and interpret the local environment
- Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as a sources of information

Evaluating

- Consider social, ethical, and environmental implications of the findings from their own and others' investigations

Applying and Innovating

- Co-operatively design projects with local and/or global connections and applications (Not in Science 10)

Communicating

- Express and reflect on a variety of experiences, perspectives, and worldviews through place

Science 10, Chemistry 11/12, and Physics 11/12 Content

Science 10	<p>Practical applications and implications of chemical processes, including First People’s perspectives</p> <p>First Peoples perspectives on energy</p>
Chemistry 11	<p>Periodic Table</p> <ul style="list-style-type: none"> - chemical and physical properties of the element - periodicity - the similarities and trends in the properties of elements - <i>Example Topic: Mineral Processing and Associated Waste and the Environmental Impacts on First Nations Communities *</i> <p>Solution Chemistry and Organic Chemistry</p> <ul style="list-style-type: none"> - <i>Example Topic: Water and Wastewater Treatment for First Nations Water Works *</i>
Chemistry 12	<p>Acid and Bases</p> <ul style="list-style-type: none"> - general environmental problems associated with non-metal oxides reacting with water - <i>Example Topic Ocean Case Study: Ocean Acidification and Hypoxia, “Science First Peoples” (FNESC) *</i>
Physics 11	<ul style="list-style-type: none"> - Dynamics - Momentum - Energy - <i>Explore Movement and Energy concepts through traditional First Nations tools (hunting, fishing, building), modes of transportation (canoes) and structures (longhouses, tipi)*</i>
Physics 12	<ul style="list-style-type: none"> - 2D Kinematics - 2D Dynamics - 2D Momentum and Energy - Equilibrium - Circular Motion and Gravitation - <i>Explore Movement and Energy concepts through traditional First Nations tools (hunting, fishing, building), modes of transportation (canoes) and structures (longhouses, tipi)*</i>

* These topic suggestions and resources have been contributed by the SD8 Aboriginal Education team and as such are supplementary to the Ministry of Education curriculum documents.

Earth Sciences 11 and Geology 12 Content

<p>Earth Sciences 11</p>	<p>Earth Materials</p> <ul style="list-style-type: none"> - Earth materials can be identified and classified based on their properties - <i>“The oral histories of the many First Nations in BC and beyond are rich with stories where plants, animals, mountains and stars are portrayed as sentient and powerful.” <u>Science First Peoples (FNESC)</u>*</i> - Economic and environmental implications of geologic resources within BC and globally: First Peoples perspectives <p>Plate Tectonic Theory</p> <ul style="list-style-type: none"> - Plate tectonic settings within BC and local geological terrains: <ul style="list-style-type: none"> - features and processes - First Peoples knowledge <p>Atmospheric Science and Climate</p> <ul style="list-style-type: none"> - The composition of the atmosphere has changed over time: <ul style="list-style-type: none"> - evidence of change - impacts on the carbon cycle - The interaction of water, air, and energy creates weather - <i>Suggested Resource: Wright, John and Duane Johnson. Indigenous Knowledge and Cultural Weather Perspectives: Lessons to Support Science 10. Saskatchewan Teachers Federation. 2007. *</i>
<p>Geology 12</p>	<p>Earth Materials</p> <ul style="list-style-type: none"> - Earth materials can be identified and classified based on their properties and composition. - <i>“The oral histories of the many First Nations in BC and beyond are rich with stories where plants, animals, mountains and stars are portrayed as sentient and powerful.” <u>Science First Peoples (FNESC)</u>*</i> - Resource deposits within BC and globally: Economic, environmental, and First Peoples considerations <p>Geologic Time</p> <ul style="list-style-type: none"> - The fossil record – First Peoples perspective <p>Plate Tectonic Theory</p> <ul style="list-style-type: none"> - First Peoples knowledge of geologic events <p>Surface Processes and the Hydrosphere</p> <ul style="list-style-type: none"> - Periods of glaciation produce characteristic erosional and depositional features and landforms – First Peoples knowledge of landforms over time

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Environmental Science 11/12 Content

<p>Environmental Science 11</p>	<p>Diversity in Local Ecosystems</p> <ul style="list-style-type: none"> - Biodiversity: <ul style="list-style-type: none"> - Species and their ecological roles - relationships and interactions in ecosystems - <i>First Peoples’ knowledge of changes in biodiversity over time*</i> - First Peoples’ knowledge of interconnectedness and sustainability* <p>Sustainability in Local Ecosystems</p> <ul style="list-style-type: none"> - Humans as agents of change: First Peoples and other traditional ecological knowledge <p>Conservation and Restoration of Ecosystems</p> <ul style="list-style-type: none"> - First Peoples concept of interconnectedness as related to conservation and restoration engagement in ongoing and potential stewardship projects - <i>Lu Lax Kyook Ecological Monitoring Project <u>Science First Peoples</u> (FNESC) *</i>
<p>Environmental Science 12</p>	<p>Global Water Systems</p> <ul style="list-style-type: none"> - Water quality - Availability and water use - Conservation and personal choices - <i>Example Topic: Water and Wastewater Treatment for First Nations Water Works*</i> <p>Land Use and Sustainability</p> <ul style="list-style-type: none"> - Soil quality - Land use practices - Global food security and technologies - Land management and personal choices - <i>Example Topic: First Peoples Traditional Knowledge about survival needs of organisms – Clam gardens, controlled burning, herring roe harvesting *</i> <p>Global Environmental Changes</p> <ul style="list-style-type: none"> - Human health and environmental impacts of population growth - Environmental ethics - First Peoples Perspectives, philosophies, and responsibilities

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Life Sciences 11, Anatomy and Physiology 12, and Science for Citizens 11 Content

Life Sciences 11	Taxonomy <ul style="list-style-type: none">- First Peoples understandings of animal body plans- First Peoples uses of local plants
Anatomy and Physiology 12	Organization <ul style="list-style-type: none">- First Peoples holistic approach to health
Science for Citizens 11	Personal/Home Science <ul style="list-style-type: none">- Health science<ul style="list-style-type: none">- non-Western health practices, including First Peoples- health and healing practices Global Science <ul style="list-style-type: none">- Sustainability of resources<ul style="list-style-type: none">- First Peoples worldview and sustainability