Indigenous Knowledge and Perspectives: Science K–12

Context

In B.C.'s redesigned curriculum, Indigenous knowledge and perspectives are integrated throughout all areas of learning and are evident in the curriculum's rationale statements, goals, big ideas, mandated learning standards, and elaborations. The First Peoples Principles of Learning offer a crucial lens for curriculum, placing a significant importance on the authentic integration of Indigenous knowledge and perspectives in relevant and meaningful ways.

The intent behind this integration is to promote a growing understanding of Indigenous peoples in B.C. that will contribute to the development of educated citizens who reflect on and support reconciliation. This approach to Indigenous education encourages enlightened discussion among teachers and students in all areas of learning and grade levels, and this approach values and prioritizes Indigenous knowledge and perspectives that can only be found in B.C.

Purpose

The *Indigenous Knowledge and Perspectives: K-12 Science Curriculum* resource is intended to support teachers in authentically integrating Indigenous knowledge and perspectives into their classrooms. This resource provides a detailed overview of the explicit and implicit references to Indigenous knowledge and perspectives in the Big Ideas, Curricular Competencies, and Content throughout the K-12 Science curriculum.

Explicit References

Explicit references include the Big Ideas, Curricular Competencies, and Content that directly refer to Indigenous knowledge and perspectives. For example, the Grade 8 Science curriculum includes the following explicit reference:

Grade 8, Content, **First Peoples knowledge of:**

- **local geological formations**
- **significant local geological events**

Implicit References

Implicit references are Big Ideas, Curricular Competencies, and Content that indirectly refer to Indigenous knowledge and perspectives. For example, the Grade 1 Science curriculum includes the following implicit reference:

Grade 1, Curricular Competency, **Experience and interpret the local environment**

The implicit references included in this resource represent just one perspective and should not be considered the only interpretation. Identifying implicit references depends on personal and cultural background, prior knowledge and experience, subject-matter expertise, points of view, and connections to place*. As such, the implicit references in this resource serve only as a guide and should not be viewed as a conclusive list.

Note on Elaborations: Explicit references to Indigenous knowledge and perspectives that are found within the Elaborations of Big Ideas, Curricular Competencies, or Content are considered *implicit* unless they are accompanied by an explicit reference in the Big Ideas, Curricular Competencies, or Content.

***Place** refers to any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity.

The key below shows how the information in the chart is structured:

Bolded print	**Mandated Learning Standard**
•	Sub-points of a Learning Standard
⇨	*Elaborations*
○	*Key questions or samples*

Indigenous Knowledge and Perspectives: Science K–12

SCIENCE — Kindergarten

	Explicit	Implicit
Big Ideas		**Plants and animals have observable features.** ⇨ *How do the different features of plants and animals help them meet their basic needs?* **Daily and seasonal changes affect all living things.** ⇨ *How are plants and animals affected by daily and seasonal changes?*
Curricular Competencies	**Recognize First Peoples stories (including oral and written narratives), songs, and art, as ways to share knowledge**	**Questioning and predicting:** *Key questions about patterns:* ○ *What patterns do you see in plant life in your local environment?* ○ *What weather patterns can you observe?* **Experience and interpret the local environment** **Express and reflect on personal experiences of place:** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives of the world.* *Key questions about place:* ○ *What is place?* ○ *What are some ways in which people experience place?* ○ *How can you gain a sense of place in your local environment?* ○ *How can you share your observations and ideas about living things in your local environment to help someone else learn about place?*
Content	**local First Peoples uses of plants and animals** ⇨ *First Peoples practice and knowledge of plant and animal use (e.g., local berries or food, plants and animals, conservation of resources)* **First Peoples knowledge of seasonal changes**	**adaptations of local plants and animals** **living things make changes to accommodate daily and seasonal cycles**

	Explicit	Implicit
Big Ideas		**Living things have features and behaviours that help them survive their environment.** ⇨ *How do local plants and animals depend on their environment?* ⇨ *How do plants and animals use their features to respond to stimuli in their environments?* ⇨ *How do plants and animals adapt when their basic needs are not being met?* **Observable patterns and cycles occur in the local sky and landscape.** ⇨ *What kinds of patterns in the sky and landscape are you aware of?* ⇨ *How do patterns and cycles in the sky and landscape affect living things?*
Curricular Competencies	**Recognize First Peoples stories (including oral and written narratives), songs, and art, as ways to share knowledge**	**Experience and interpret the local environment** **Express and reflect on personal experiences of place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives of the world.* *Key questions about place:* ○ *What is place?* ○ *What are some of the ways in which people experience place?* ○ *How can you gain a sense of place in your local environment?* ○ *How can you share your observations and ideas about living things in your local environment to help someone else learn about place?*
Content	**shared First Peoples knowledge of the sky** **local First Peoples knowledge of the local landscape, plants and animals** ⇨ *e.g., may include oral history with Elder – origins and local stories* **local First Peoples understanding and use of seasonal rounds** ⇨ *Seasonal rounds refer to a pattern of movement from one resource-gathering area to another in a cycle that is followed each year*	**classification of living and non-living things** ⇨ *differences between conventional scientific and indigenous ways of classifying* **names of local plants and animals** ⇨ *e.g., common, indigenous and scientific* **specific properties of materials allow us to use them in different ways** ⇨ *properties of local materials determine use by First Peoples (local examples: cedar for canoes, mountain goat horns used as spoons, etc.)* **common objects in the sky** ⇨ *the sun and the moon are important in different cultures, with respect to customs and traditions*

	Explicit	Implicit
Big Ideas		**Living things have life cycles adapted to their environment.**
Curricular Competencies	**Recognize First Peoples stories (including oral and written narratives), songs, and art, as ways to share knowledge**	**Questioning and predicting:** ⇨ *Cycles are sequences or series of events that repeat/reoccur over time. A subset of pattern, cycles are looping or circular (cyclical) in nature. Cycles help people make predictions and hypotheses about the cyclical nature of the observable patterns.* *Key questions about cycles:* ○ *How do First Peoples use their knowledge of life cycles to ensure sustainability in their local environments?* **Experience and interpret the local environment** **Express and reflect on personal experiences of place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives of the world.* *Key questions about place:* ○ *What is place?* ○ *What are some of the ways in which people experience place?* ○ *How can you gain a sense of place in your local environment?* ○ *How can you share your observations and ideas about living things in your local environment to help someone else learn about place?*
Content	**First Peoples use of their knowledge of life cycles:** ⇨ *stewardship: sustainably gathering plants and hunting/ fishing in response to seasons and animal migration patterns (e.g., clam gardens, seasonal rounds, etc.)* ⇨ *sustainable fish hatchery programs run by local First Peoples* **local First Peoples' knowledge of water** • **water cycles** • **conservation** • **connection to other systems** ⇨ *cultural significance of water (i.e., water is essential for all interconnected forms of life)*	**water sources including local watersheds**

	Explicit	Implicit
Big Ideas		**Living things are diverse, can be grouped, and interact in their ecosystems.** ⇨ *Interconnectedness means that all things are related to and interact with each other and the environment. How does local First Peoples knowledge of living things demonstrate interconnectedness?*
Curricular Competencies	**Identify First Peoples perspectives and knowledge as sources of information**	**Make observations about living and non-living things in the local environment** **Experience and interpret the local environment** **Express and reflect on personal experiences of place.** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives of the world.* *Key questions about place:* ○ *How does what you know about place affect your observations, questions, and predictions?* ○ *How does understanding place help you analyze information and recognize connections and relationships in your local environment?* ○ *How does place connect with stewardship?* ○ *How can you be a steward in your local environment?*
Content	**the knowledge of local First Peoples of ecosystems** ⇨ *the interconnection between living and non-living things in the local environment; our shared responsibility to care for the local environment (i.e., stewardship); information shared from the local First Peoples community and Elders* **local First Peoples knowledge of local landforms** ⇨ *oral narrative about landforms*	**biodiversity in the local environment** ⇨ *characteristics of local plants, animals and fungi* **energy is needed for life** ⇨ *food chains: the flow of food energy from one organism to another (e.g., grass to rabbit to lynx)* **major local landforms** ⇨ *mountains, hills, plateaus, valleys, riverbeds, deltas, glaciers, etc.; oral narrative about landforms* **observable changes in the local environment caused by erosion and deposition by wind, water, and ice**

	Explicit	Implicit
Big Ideas		**All living things sense and respond to their environment.** ⇨ *How is sensing and responding related to interdependence within ecosystems?* **The motion of the Earth and the moon cause observable patterns that affect living and non-living systems.** ⇨ *How do seasons and tides affect living and non-living things?* ⇨ *What changes are caused by the movements of the Earth?*
Curricular Competencies	**Identify First Peoples perspectives and knowledge as sources of information**	**Questioning and Predicting:** ⇨ *Order is a pattern that can be recognized as having levels – big to small, simple to complex – or as a process with a sequence of steps.* *Key questions about order:* ○ *How is order apparent in the adaptations of forest animals in BC?* ○ *How does the order of seasons impact local plants and animals?* **Make observations about living and non-living things in the local environment** **Experience and interpret the local environment** **Express and reflect on personal experiences of place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives of the world.* *Key questions about place:* ○ *How does what you know about place affect your observations, questions, and predictions?* ○ *How does understanding place help you analyze information and recognize connections and relationships in your local environment?* ○ *How does place connect with stewardship?* ○ *How can you be a steward in your local environment?*
Content	**the effects of relative positions of the sun, moon, and Earth including local First Peoples perspectives** ⇨ *teachings and stories about the sun and the moon*	**local changes caused by Earth's axis, rotation, and orbit**

	Explicit	Implicit
Big Ideas		**Machines are devices that transfer force and energy.** ⇨ *What natural machines can you identify in your local environment?* **Earth materials change as they move through the rock cycle and can be used as natural resources.** ⇨ *How can we act as stewards of our environment?*
Curricular Competencies	**Identify First Peoples perspectives and knowledge as sources of information**	**Questioning and Predicting:** ⇨ *How can you observe the concept of interconnectedness within ecosystems in your local area?* **Experience and interpret the local environment** **Express and reflect on personal, shared, or others' experiences of place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives of the world.* *Key questions about place:* ○ *How does place influence your ability to plan and conduct an inquiry?* ○ *How does your understanding of place affect the ways in which you collect evidence and evaluate it?* ○ *How do the place-based experiences and stories of others affect the ways in which you communicate your findings and other information?* ○ *Ways of knowing refers to the various beliefs about the nature of knowledge that people have; they can include, but are not limited to, Aboriginal, gender-related, subject/discipline specific, cultural, embodied and intuitive beliefs about knowledge. What are the connections between ways of knowing and place?*
Content	**First Peoples concepts of interconnectedness in the environment** ⇨ *everything in the environment is one/connected (e.g., sun, sky, plants and animals) and we have a responsibility to care for them* **First Peoples knowledge of sustainable practices**	**the nature of sustainable practices around BC's resources**

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Identify First Peoples perspectives and knowledge as sources of information**	**Experience and interpret the local environment** **Express and reflect on personal, shared, or others' experiences of place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives of the world.* *Key questions about place:* ○ *How does place influence your ability to plan and conduct an inquiry?* ○ *How does your understanding of place affect the ways in which you collect evidence and evaluate it?* ○ *How do the place-based experiences and stories of others affect the ways in which you communicate your findings and other information?* ○ *Ways of knowing refers to the various beliefs about the nature of knowledge that people have; they can include, but are not limited to, Aboriginal, gender-related, subject/discipline specific, cultural, embodied and intuitive beliefs about knowledge. What are the connections between ways of knowing and place?*
Content	**separated using a difference in component properties** **local First Peoples knowledge of separation and extraction methods** ⇨ *historical and current First Peoples use of separation and extraction methods (e.g., eulachon oil, extraction of medicines from plants, pigments, etc.)*	**the basic structures and functions of body systems** ⇨ *First Peoples understandings of body systems in humans and animals* **the position, motion, and components of our solar system in our galaxy** ⇨ *First Peoples perspectives regarding aurora borealis and other celestial phenomena*

	Explicit	Implicit
Big Ideas		**Evolution by natural selection provides an explanation for the diversity and survival of living things.** ⇨ *Why do living things change over time?* ⇨ *How do these changes affect biodiversity?* **Earth and its climate have changed over geological time.** ⇨ *How do people and their practices impact Earth and its climate?*
Curricular Competencies	**Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information** ⇨ *Ways of knowing refers to the various beliefs about the nature of knowledge that people have; they can include, but are not limited to, Aboriginal, gender-related, subject/discipline specific, cultural, embodied and intuitive beliefs about knowledge.*	**Experience and interpret the local environment** **Demonstrate an understanding and appreciation of evidence (qualitative and quantitative)** **Express and reflect on a variety of experiences and perspectives of place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives of the world.* *Key questions about place:* ○ *How does place inform your questions and inquiries?* ○ *How does place influence your ability to plan and conduct an inquiry and make predictions about outcomes?* ○ *How does your understanding of place affect the ways in which you collect evidence and evaluate it?* ○ *As you consider the significance, worth, or value of an outcome or finding, how can you show different ways of knowing?* ○ *How can your understanding of place influence project designs?* ○ *How do the place-based experiences and stories of others affect the ways in which you communicate and collaborate?*
Content	**First Peoples knowledge of changes in biodiversity over time** **local First Peoples knowledge of climate change** ⇨ *local First Peoples knowledge of climate change: oral history, change in traditional practice (e.g., the timing of harvest has been impacted by climate change), etc.*	**Evidence of climate change over geological time and the recent impacts of humans** *change in climate affects:* ⇨ *the interconnectedness of plants and animals, and their local environment* ⇨ *e.g., changes to harvesting dates, changes to schedules due to early/later ripening and runs, lowered water levels in creeks, rivers and lakes, change in humidity impacts the ability to preserve salmon, etc.* *impacts of humans:* ⇨ *humans are capable of changing Earth's landscape, climate and systems* ⇨ *efficacy of sustainable practices*

	Explicit	Implicit
Big Ideas		**The theory of plate tectonics is the unifying theory that explains Earth's geological processes.** ⇨ *What evidence of plate tectonic movement is shared by First Peoples?*
Curricular Competencies	**Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information** ⇨ *Ways of knowing refers to the various beliefs about the nature of knowledge that people have; they can include, but are not limited to, Aboriginal, gender-related, subject/discipline specific, cultural, embodied and intuitive beliefs about knowledge.*	**Experience and interpret the local environment** **Express and reflect on a variety of experiences and perspectives of place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives of the world.* *Key questions about place:* ○ *How does place inform your questions and inquiries?* ○ *How does place influence your ability to plan and conduct an inquiry and make predictions about outcomes?* ○ *How does your understanding of place affect the ways in which you collect evidence and evaluate it?* ○ *As you consider the significance, worth, or value of an outcome or finding, how can you show different ways of knowing?* ○ *How can your understanding of place influence project designs?* ○ *How do the place-based experiences and stories of others affect the ways in which you communicate and collaborate?*
Content	**First Peoples knowledge of:** • **local geological formations** • **significant local geological events**	

	Explicit	Implicit
Big Ideas		**The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them.** ⇨ *How do First Peoples view the cycling of matter and energy?*
Curricular Competencies	**Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information** ⇨ *Ways of knowing refers to the various beliefs about the nature of knowledge that people have; they can include, but are not limited to, Aboriginal, gender-related, subject/discipline specific, cultural, embodied and intuitive beliefs about knowledge.*	**Experience and interpret the local environment** **Express and reflect on a variety of experiences, perspectives, and worldviews through place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives of the world.* *Key questions about place:* ○ *How does place inform your questions and inquiries?* ○ *How does place influence your ability to plan and conduct an inquiry and make predictions about outcomes?* ○ *How does your understanding of place affect the ways in which you collect evidence and evaluate it?* ○ *How can you demonstrate ways of knowing that your work and the work of others is valid, free of bias, and acknowledges limitations?* ○ *How can your understanding of place influence project designs?* ○ *How do the place-based experiences and stories of others affect the ways in which you communicate and collaborate?* ○ *How can you demonstrate an understanding of place and interconnectedness by the ways in which you represent the results of your investigation?*
Content	**First Peoples knowledge of interconnectedness and sustainability** ⇨ *interconnectedness: everything is connected, from local to global; First Peoples perspectives on interconnectedness* ⇨ *sustainability: First Peoples perspectives on sustainability of systems*	**sustainability of systems** ⇨ *a systems approach to sustainability sees all matter and energy as interconnected and existing in dynamic equilibrium (e.g., carbon as a key factor in climate change, greenhouse effect, water cycle, etc.)*

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information** ⇨ *First Peoples perspectives and knowledge:* *Sample questions to support inquiry with students:* ○ *How has the diversity of plants in your local area benefited First Peoples?* ○ *How are First Peoples traditional medicines prepared in your local area?* ○ *How would you safely determine the efficacy of a First Peoples traditional medicine?* ○ *How are First Peoples traditional medicines prepared for different uses?* ⇨ *"Ways of knowing" refers to the various beliefs about the nature of knowledge that people have. They can include, but are not limited to, First Peoples, gender-related, subject/discipline-specific, cultural, embodied, and intuitive beliefs about knowledge.*	**Experience and interpret the local environment** **Express and reflect on a variety of experiences, perspectives, and worldviews through place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives.*
Content	**practical applications and implications of chemical processes, including First Peoples knowledge**	

	Explicit	Implicit
Big Ideas		**Matter and energy are conserved in chemical reactions.** ⇨ *How could you measure negative and/or positive impacts of chemical reactions on human health, society, and the environment in your local community?*
Curricular Competencies	**Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information**	**Experience and interpret the local environment** **Applying and innovating:** *Sample opportunities to support student inquiry:* ○ *Using knowledge shared by First Peoples, explore the uses of traditional medicines. What medicines have been used? Which particular health conditions are/were they used for?* **Express and reflect on a variety of experiences, perspectives, and worldviews through place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives.*
Content		**applications of organic chemistry** ⇨ *First Peoples traditional practices (e.g., medicines), pharmaceuticals, petrochemicals, polymers, cosmetics, metabolism, agriculture, food, biotechnology* **local and other chemical processes** ⇨ *First Peoples traditional practices (e.g., tanning hides; preparation of food, soap, and natural bleach), smelting, pulp and paper production, food chemistry, photosynthesis and cellular respiration, development of petrochemical smog*

	Explicit	Implicit
Big Ideas		**Plate tectonic theory explains the consequences of tectonic plate interactions** *Sample questions to support inquiry with students:* ○ *How does the local plate tectonic setting affect the people and geography of a region?*
Curricular Competencies	**Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information**	**Questioning and predicting:** *Sample opportunities to support student inquiry:* ○ *Explore a First Peoples narrative based on celestial observations.* **Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest** **Experience and interpret the local environment** **Evaluating:** *Sample opportunities to support student inquiry:* ○ *How have First Peoples knowledge and oral traditions contributed to our understanding of geologic events in B.C.?* **Applying and innovating:** *Sample opportunities to support student inquiry:* ○ *How do First Peoples principles and knowledge guide our understanding and strategies for maintaining environmental systems?* **Communicating:** *Sample opportunities to support student inquiry:* ○ *How does the tectonic setting of an area contribute to different people's perspectives, experiences, and sense of place?* **Express and reflect on a variety of experiences, perspectives, and worldviews through place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives.*
Content	**First Peoples knowledge of local plate tectonic settings and geologic terrains** **First Peoples knowledge of climate change and interconnectedness as related to environmental systems** **First Peoples knowledge and perspectives of water resources and processes**	**evidence of climate change** ⇨ *both historical and recent (i.e., the last 100 years) climate change (e.g., ice core data, deep sea sediments, First Peoples knowledge)*

	Explicit	Implicit
Big Ideas		**Human practices affect the sustainability of ecosystems.** *Sample questions to support inquiry with students:* ○ *How do First Peoples traditional practices contribute to dynamic equilibrium in an ecosystem?* ○ *How do healthy ecosystems influence the well-being of humans?* **Humans can play a role in stewardship and restoration of ecosystems.** *Sample questions to support inquiry with students:* ○ *How do First Peoples perspectives and knowledge inform sustainable practices?*
Curricular Competencies	**Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information**	**Experience and interpret the local environment** **Evaluating:** *Sample opportunities to support student inquiry:* ○ *What are the implications of your findings about your ecological footprint? Does traditional ecological knowledge (TEK) align with them?* ○ *How has your ecological footprint affected an ecosystem in your local area?* **Applying and innovating:** *Sample opportunities to support student inquiry:* ○ *How can traditional ecological knowledge (TEK) inform future sustainable practices in your local area?* **Express and reflect on a variety of experiences, perspectives, and worldviews through place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives.*
Content	**First Peoples knowledge and other traditional ecological knowledge in sustaining biodiversity** ⇨ *agriculture, ethnobotany, forestry, fisheries, mining, energy, controlled burning, harvesting cycles* **First Peoples ways of knowing and doing** ⇨ *prescribed fire, selective harvesting, plant propagation and pruning, clam gardens*	**human actions and their impact on ecosystem integrity** ⇨ *harvesting, resource extraction and consumption, population growth, urbanization, habitat loss and fragmentation, climate change, pollution, introduced species, invasive species, forest fires* **resource stewardship**

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information**	**Processing and analyzing data and information:** *Sample opportunities to support student inquiry:* ○ *How do First Peoples traditional clam gardens increase biodiversity of species and population density of clams in the garden area?* **Experience and interpret the local environment** **Evaluating:** *Sample opportunities to support student inquiry:* ○ *What are the pros and cons of fish farms? Consider environmental effects and impacts on First Peoples fisheries.* **Applying and innovating:** *Sample opportunities to support student inquiry:* ○ *Using your knowledge of life cycles and ecosystem interactions, how can you help to preserve fish habitats in local rivers?* **Communicating:** *Sample opportunities to support student inquiry:* ○ *Invite a local First Peoples Elder to share their knowledge about the historical and contemporary use of traditional indigenous resources, including plants and animals.* **Express and reflect on a variety of experiences, perspectives, and worldviews through place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives.*
Content	**First Peoples understandings of interrelationships between organisms** ⇨ *plants as indicators of timing for corresponding events, decaying animals as plant nutrients* **First Peoples knowledge on classification** ⇨ *classification of animals based on use (e.g., traditional clothing, food, hunting seasons)* ⇨ *classification of BC plants based on use (e.g., food, medicine)*	**human actions and their impact on ecosystem integrity** **resource stewardship**

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information**	**Questioning and predicting:** *Sample opportunities to support student inquiry:* ○ *Find examples of simple machines developed by local First Peoples.* **Experience and interpret the local environment** **Applying and innovating:** *Sample opportunities to support student inquiry:* ○ *Using exemplars of First Peoples traditional dwellings, design your own heat-efficient structure.* **Express and reflect on a variety of experiences, perspectives, and worldviews through place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives.*
Content	**applications of simple machines by First Peoples**	

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information**	**Experience and interpret the local environment** **Processing and analyzing data and information:** *Sample opportunities to support student inquiry:* ○ *Describe a First Peoples traditional healing practice and how it is understood to support healing.* **Evaluating:** *Sample opportunities to support student inquiry:* ○ *What could be some social, ethical, and environmental implications of rising sea level to B.C. coastal communities, including First Peoples?* **Express and reflect on a variety of experiences, perspectives, and worldviews through place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives.*
Content	**personal and public health practices, including First Peoples traditional health and healing practices** ⇨ *First Peoples traditional medicines* **actions and decisions affecting the local and global environment, including those of First Peoples**	

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information**	**Questioning and predicting:** *Sample opportunities to support student inquiry:* ○ *Consult Elders and knowledge keepers to find out how local plants are used by First Peoples.* **Processing and analyzing data and information:** *Sample opportunities to support student inquiry:* ○ *Consult with local Elders and knowledge keepers to determine some health conditions that may be treated with First Peoples traditional medicines. Which body systems might be affected?* **Experience and interpret the local environment** **Express and reflect on a variety of experiences, perspectives, and worldviews through place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives.*
Content		**holistic approach to health** ⇨ *health care that integrates mind, body, and spirit with community*

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information**	**Processing and analyzing data and information:** *Sample opportunities to support student inquiry:* ○ *Research the types of materials that are present in clay deposits traditionally used to treat skin conditions.* **Experience and interpret the local environment** **Express and reflect on a variety of experiences, perspectives, and worldviews through place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives.*
Content		

	Explicit	Implicit
Big Ideas		**Living sustainably supports the well-being of self, community, and Earth.**
Curricular Competencies	**Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information**	**Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest** **Questioning and predicting:** *Sample opportunities to support student inquiry:* ○ *How has climate change impacted food sources of Canada's northern First Peoples populations?* **Experience and interpret the local environment** **Evaluating:** *Sample opportunities to support student inquiry:* ○ *How does traditional ecological knowledge (TEK) confirm what you can deduce from climate change data?* **Express and reflect on a variety of experiences, perspectives, and worldviews through place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives.*
Content		**impacts of global warming** ⇨ *increase in extreme weather events, flooding, desertification, ocean acidification, permafrost melting, drought, wildfires, hurricanes, migratory changes, human health, food security, traditional ways of being and doing* **personal choices and sustainable living** ⇨ *diet (e.g., 100-mile diet, organic farming, community gardens, reducing meat consumption), sustainable building products, reduce household energy use, consumerism (reduce, reuse, repurpose, recycle, upcycle), conserve water, alternate transportation methods, traditional ecological knowledge (TEK)* **global environmental ethics, policy, and law** ⇨ *trade agreements, wildlife trafficking laws, Kyoto Agreement, fishing and hunting licences, traditional ecological knowledge (TEK), United Nations Declaration on the Rights of Indigenous Peoples, species at risk, Canadian laws*

	Explicit	Implicit
Big Ideas		**Weathering and erosion processes continually reshape landscapes through the interaction of the geosphere with the hydrosphere and atmosphere.** *Sample questions to support inquiry with students:* ○ *How have wind, water, ice, and mass movements shaped our landscape over time?* ○ *How does First Peoples knowledge further our understanding of weathering and erosional processes?*
Curricular Competencies	**Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information**	**Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest** **Questioning and predicting:** *Sample opportunities to support student inquiry:* ○ *What knowledge do First Peoples have of tectonic events in the local area?* **Processing and analyzing data and information:** *Sample opportunities to support student inquiry:* ○ *Model geologic events in your local area, using shared First Peoples knowledge and personal observations.* **Experience and interpret the local environment** **Evaluating:** *Sample opportunities to support student inquiry:* ○ *Consider the impacts of resource development on First Peoples communities and traditional territories.* **Communicating:** *Sample opportunities to support student inquiry:* ○ *How does the geology of an area influence First Peoples sense of place?* **Express and reflect on a variety of experiences, perspectives, and worldviews through place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives.*
Content	**B.C. resource deposits and others:** • **origin and formation** • **economic, environmental, and First Peoples considerations** ⇨ *Current resource conflicts (e.g., pipelines, oil sands, open-pit mines)* **the local and global fossil record:** • **evidence of evolution** • **First Peoples perspectives** **First Peoples knowledge of geologic events** **First Peoples knowledge of landforms over time**	

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information**	**Processing and analyzing data and information:** *Sample opportunities to support student inquiry:* ○ *How do First Peoples traditional hunting methods apply the principles of relative motion?* **Experience and interpret the local environment** **Communicating:** *Sample opportunities to support student inquiry:* ○ *Visually represent how Inukshuks and cairns demonstrate an application of centre of gravity.* **Express and reflect on a variety of experiences, perspectives, and worldviews through place** ⇨ *Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity. The connection between people and place is foundational to First Peoples perspectives.*
Content	**First Peoples knowledge and applications of forces in traditional technologies** ⇨ *for example, Salmon wheel, canoe paddle design, deadfall traps*	

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information**	**Experience and interpret the local environment** **Consider the changes in knowledge over time as tools and technologies have developed** **Express and reflect on a variety of experiences, perspectives, and worldviews through place**
Content	*This is a flexible course that may be tailored depending on the students' interests and needs and will draw on Content from other Science 11 and 12 curricula.*	