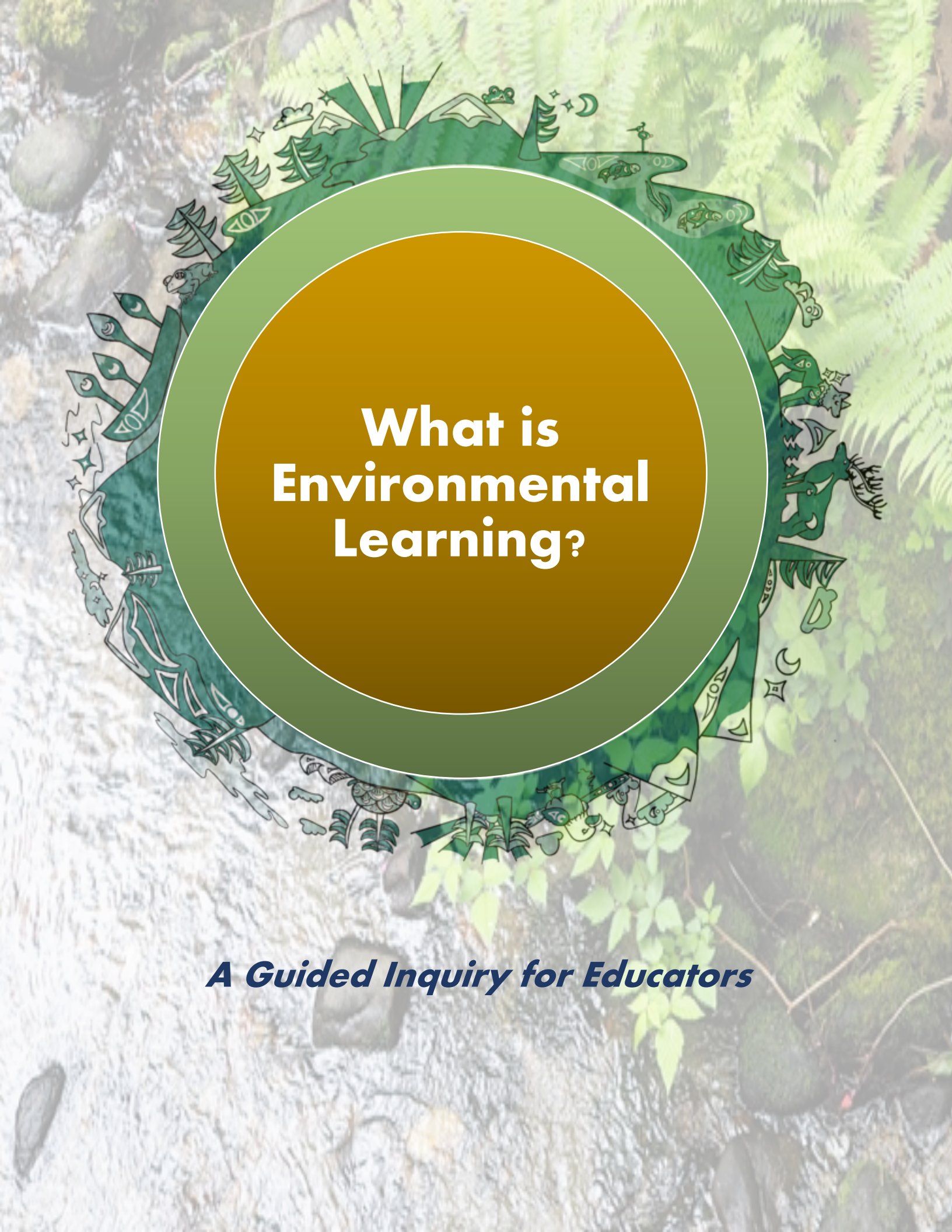


What is Environmental Learning?

A Guided Inquiry for Educators

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Before the world was here, the Sun and Moon fell in love; they sent their emotions and feelings towards each other, and where those feelings met; that was where the world was created.

In the beginning, the world was covered with water and through time and evolution some beings took different shape and form: some became the winged; some became the four-legged fur-bearing; some became the plant people and the root people; some became the ones that swim in the rivers and oceans; and some became the humans.

Early in time, we, the humans, were the weakest, and we needed the most help to survive. All our relations felt sorry for us; they took pity on us.

An agreement was made, and they agreed to give themselves to us, for: food shelter, clothing, utensils, and medicine. The only thing they asked for in return was to: be respected; be remembered; only take what we need; share with those that are less fortunate; and not to gather or harvest at certain times and places to allow them to reproduce.

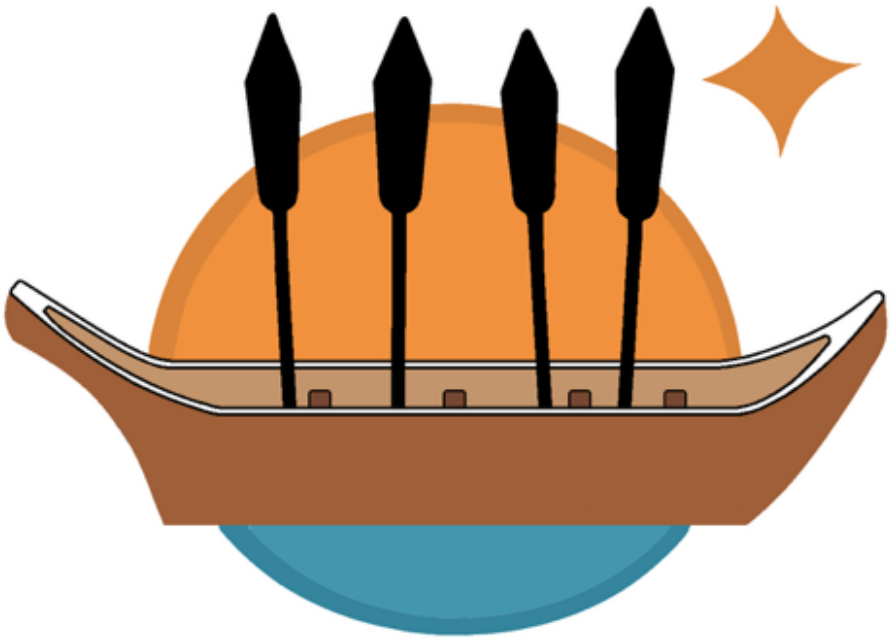
Before we gather, harvest or hunt, we say a prayer of forgiveness and a prayer of thanks to "All Our Relations" for taking their life to feed our family, we commit to use everything, and we will share with those that are less fortunate.

In honouring the sacred agreement, we are the Stewards of the Land, Environment, the Winged, the Four-legged, the Plants and the Ones that Swim in the rivers and oceans. All my relations.

The narrative on the opposite page is shared with permission from the leaders of the *Sts'ailes* (Chehalis) community and has been recounted by storytellers at gatherings (since time immemorial) to pass on lessons to others about our relations on the Land, in the waters, and in the skies. The *Sts'ailes* community first shared a written version of this story to convey their shared responsibility as Stewards of the Land in their 2017 Ratified Land Code. The story was shared with us by team member Leanne Joe (a member of the *Sts'ailes community)*.



Many of the ideas presented in this document were shared with us as part of a broad community consultation effort that saw us workshop our ideas, weaving in new content shared from Indigenous and K-12 educators, youth and business leaders, Ministry representatives, graduate students, postsecondary researchers and a variety of other stakeholders from around the province. In total, we held more than 35 consultations over a two-year period (in person and online). We are deeply grateful for the many ideas shared with us and we have strived to include these voices accurately and concisely throughout this work.



SOME OF WHAT WE HEARD …

Nothing about us, without us … Personally, (I) learned more when out on the Land … (we need to) invite local knowledge keepers … learning with all the senses, engaging. (Indigenous educator, Okanagan valley)

We need different perspectives from Indigenous communities and people of colour … Make it a sustainability framework that clearly connects environmental education & climate action. (Highschool student, Vancouver)

As a new teacher, I would want a guide that is practical in giving tips that are tangible and easy to implement … (Early career teacher, Northern BC)

Empathetic and humility driven communication strategies (are needed) that are sensitive and compassionate to the audience ...(Business leader, Vancouver)

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CONTENTS

Foreword 1

Introduction
What is Environmental Learning? 2
Overview 3

First People's Principles
What are the First People's Principles of Learning? 4
What is Biocultural Diversity? 5

Environmental 'Seeing'
What is Two-Eyed Seeing? 8
Seeing through Experience 8
Seeing as Inquiry: The '7E's Model 9
Inquiry Questions 10

Environmental Communication
Narratives and Storywork 14
Communication and Action 15
Is Communication Cultural? 16
Eight Ways Pedagogies 17

Environmental Thinking
Learning to CARE 20
What are the 4Rs? 21
Thinking with Care: A Guided Inquiry 22
Thinking with 4R's 25

Eco-Citizenship
The Educated Citizen 26
Sustainability and the Green Economy 27

Core Competencies
Core Competencies are Environmental Competencies 28

Summary and Next Steps 29

Acknowledgements 32
References 33

FOREWORD

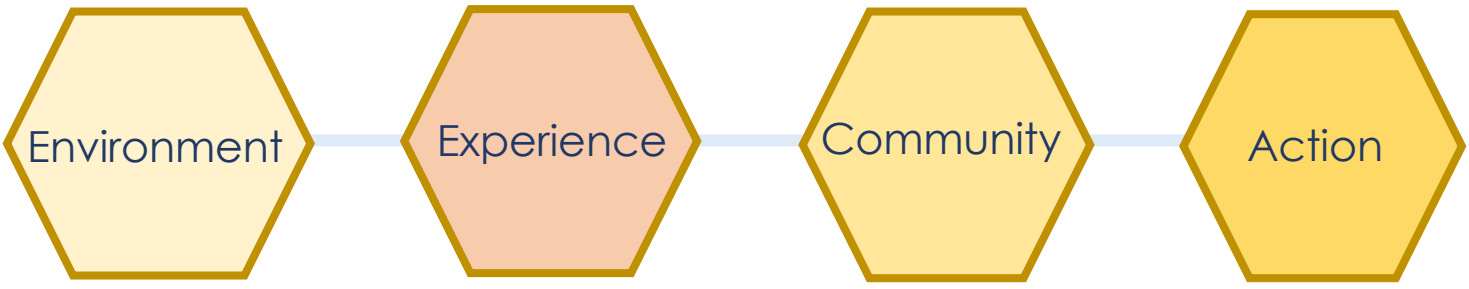
This guide was developed with the belief that the *environment* is the context for *all* teaching and learning and that *all* students should understand how their lives both shape and are shaped by their local ecologies. Importantly, the notion of ethical reciprocity among cultures, environments and societies has been a mainstay of Indigenous thought for millennia, and we have much to learn from the diversity of Indigenous cultures that thrive across BC and from the knowledge they hold about the Land.

It is also important to acknowledge that the work builds on two documents previously endorsed by the BC Ministry of Education. The first, *Environmental Concepts in the Classroom: A Guide for Teachers* (1995) introduced environmental thinking to BC students for the first time. A second publication: *Environmental Learning and Experience: An Interdisciplinary Guide for Teachers* (2007), extended this work to include ideas about teaching and learning. Together, these formed the foundation for this revision of the framework.

Since these first steps in sharing our thinking around the environment, there have been some key developments in the field. These are informed by international agreements, such as UNESCO's Sustainable Development Goals (UNESCO, 2015), and the more recent Education for Sustainable Development: A roadmap (UNESCO, 2020). Also, the UN Declaration for the Rights of Indigenous Peoples (2007) came into force in Canada on June 21, 2021. Most recently, in 2024, Environment and Climate Change Canada (ECCC) launched an ambitious national program in support of Environmental Learning programs across Canada. This momentum is supported by research on learning theory from a variety of disciplines, including Indigenous ways of thinking and knowing.

Environmental learning: as it encompasses Land-based and place-based forms of education, climate change education, education for sustainable development (ESD), ocean literacy, and education for social and environmental justice (among many other forms) aims to holistically integrate environmental thinking and ideas into students' everyday lives. In this way, it is hoped that all students will enact personal responsibility and leadership in creating a more ethical, socially just, and sustainable way of life.

Finally, this document is ultimately about our experiences in life: how they shape our thinking and our worldview … It is about the questions we ask today and the inquiries we take up moving forward. It is also about hope: for the responsible actions we take now in developing a strong relationship between people and the environment: and for the socially just, and sustainable society we will create for a shared future.



INTRODUCTION



If you answered yes to any of the above, then this framework is for you. This guide poses a series of important questions for your practice, combining these with an integrated approach towards environmental issues because *all* disciplines touch on the environment in important ways. By emphasizing that the study of environment is not a unique subject area, but instead an overarching theme, students will learn to understand how their actions affect both local and global ecologies.

What is Environmental Learning?

In consultations with many Indigenous knowledge holders, teachers, informal educators, youth leaders, and members of the business community– it is now clear that there is not one answer to this important question. Rather than seek clever answers, what we need is to learn how to ask better questions about the cultural practices and environments that sustain us. The answers to these questions will differ according to who we are, where we live and what we do. For these reasons, this document takes the form of a guided inquiry into what makes up environmental learning within the diverse cultures and communities that make up BC today.

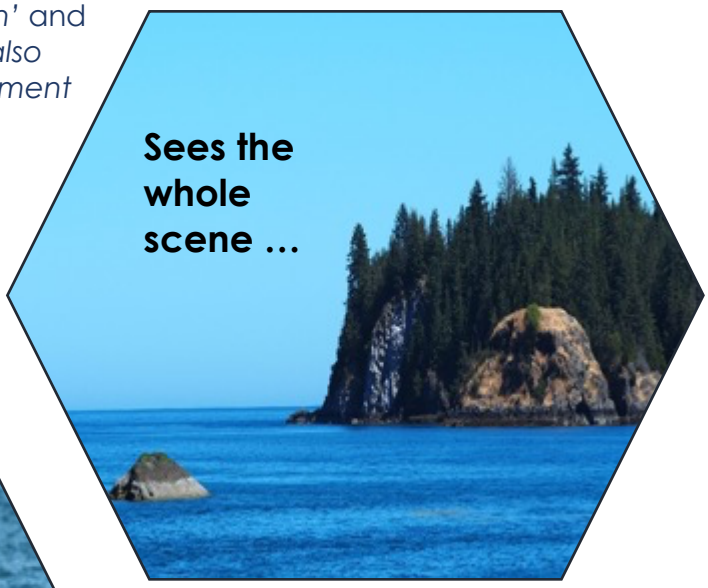
Using guided forms of inquiry, educators can help learners use their own experiences for constructing knowledge through active listening and questioning. While all learners work to explore and investigate a problem, educators can guide students to talk through their thinking, supporting the development of a wide range of personal, social, communication and thinking skills relative to the environment. This model of learning also fosters the development of important 'core competencies' that inform how students learn now while preparing them for their lives as active citizens and contributors to an emerging 'green economy.'

Importantly, the framework also offers a model for introducing environmental learning in all settings, while providing principles for learning and teaching that can guide educators in designing integrated activities for a variety of learning contexts. The document aims to provide diverse perspectives around which culturally and environmentally focused lessons may be developed. Multiple and overlapping perspectives help to facilitate students' varied ideas about the environment. For example, a student inquiry on climate should respectfully incorporate diverse forms of knowledge, such as aspects of Traditional Ecological Knowledge (TEK) practised by the First Peoples in the diverse ecologies, Landscapes and communities found around the province.

OVERVIEW

Environmental learning in the BC context can be seen as a composite of three distinct, yet overlapping forms of learning: *Environmental 'Seeing', 'Communication and Action'* and *Environmental 'Thinking.' In sharing the themes, we also weave Indigenous and western ideas about environment together – asking the reader to make sense of these in the unique context of their local community.*

An environmentally literate person:







How can we enhance environmental literacy for all students?

FIRST NATIONS PRINCIPLES

What are the First People's Principles of Learning?

A first step towards exploring environmental learning is described in a document first published by the BC Ministry of Education and First Nations Education Steering Committee (FNESC) in 2006/2007. The First Peoples Principles of Learning describes a set of learning principles common among many First Peoples in BC. When first shared, these were articulated by Indigenous Elders, scholars and knowledge keepers in a process guiding curriculum development and they apply to a variety of disciplines. However, FNESC explicitly acknowledges that these principles do not capture the full reality of approaches or practices used in any single First Peoples' society.

The First People's Principles of Learning are:

- Learning supports the well-being of the self, the family, the community, the Land, the spirits, and the ancestors.
- Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place).
- Learning involves recognizing the consequences of one 's actions.
- Learning involves generational roles and responsibilities.
- Learning recognizes the role of Indigenous knowledge.
- Learning is embedded in memory, history, and story.
- Learning involves patience and time.
- Learning requires exploration of one 's identity.
- Learning involves recognizing that some knowledge is sacred and should only be shared with permission and/or in certain situations.

For BC educators these principles resonate closely with our ideas about environmental learning -- creating a unique synergy where cultural and ecological knowledge can be shared in a holistic way. While the principles described here represent an attempt to identify common elements in teaching and learning approaches among a diversity of First Nations communities – they provide only a starting point in considering the broader picture of Land and place. Therefore, it is important to develop inquiry in partnership with local Indigenous knowledge holders to ensure that these are correctly validated for use in specific local contexts and communities. In so doing, we can begin to learn together from the true diversity of approaches to Land-based and cultural learning that reside in this province.



BIOCULTURAL DIVERSITY



In order to give the larger context, it is important to acknowledge and celebrate our natural and cultural heritage. In BC, we have been blessed with a form of biocultural diversity that is unique in Canada. This is due to the diversity of Land and seascapes we enjoy but also to the diversity of Indigenous languages and cultures which encode important knowledge about these local ecologies and communities.

What is Biocultural Diversity?

Most people are familiar with the concept of *biodiversity*: the millions of species of plants and animals that have evolved on earth and its oceans, interconnected with one another and the ecosystems in which they live. More recently, the broader idea of **bio*cultural* diversity** has gained ground: the idea that the diversity of life on earth is made up not only of biodiversity, but also a diversity of human cultures and languages, and that all these diversities are interrelated and interdependent. Thinking in terms of biocultural diversity gives us a new perspective on the web of life: as an interlinked web of diversity in nature and culture.

How does *biocultural* diversity come about? Simply put, for millennia, humans have been a part of nature and have co-evolved with it. Over time, place-based peoples adapted to their respective environments while drawing both material and spiritual sustenance from the Land. Through this mutual adaptation, human communities around the world developed thousands of different cultures and languages: distinct ways of seeing, knowing, doing, and speaking that have been shaped by the long-standing interactions between people and the natural world. In the words of Luisa Maffi, one of the first proponents of this idea: "Biocultural diversity is the expression of the bountiful potential of life on earth. It's what gives vitality and resilience to this planet — our home — and sustains the life systems that sustain us. It's a precious gift to be cherished and nurtured for the future of all life."

The idea of biocultural diversity has implications for our learning. First and foremost, it brings together understandings from many disciplines and knowledge systems --not only Western ways, but also a diversity of place-based traditional knowledge systems developed by Indigenous communities worldwide. Opening ourselves to a diversity of perspectives on the relationship between people and nature offers a starting point for thinking of and acting toward sustainable living. For educators, a biocultural perspective also provides a key avenue for achieving diversity and inclusion in educational settings, welcoming Indigenous and local ways of knowing and overcoming urban-rural divides.

Notes and Sketches

Notes …

Sketches …

Local examples

What does Biocultural Diversity mean to you?



Biocultural diversity means …

Biocultural diversity means …

Biocultural diversity means …

ENVIRONMENTAL SEEING



The first environmental learning concept: 'seeing' is closely related to the principle of 'two-eyed seeing' in that Indigenous and Western scientific ways of knowing are valuable, achievable, and inform how we live in the world. This concept originates from the traditional territory of the Mi'kma'ki people (from Atlantic Canada) and in their language *Etuaptmumk* essentially means 'the gift of multiple perspectives.' Throughout this document we will model a two-eyed seeing approach by juxtaposing western ideas along Indigenous ones so we more deeply come to understand our local ecologies and communities. The phrase *Two-Eyed Seeing* is credited to Mi'kma'ki Elders Albert and Murdena Marshall.



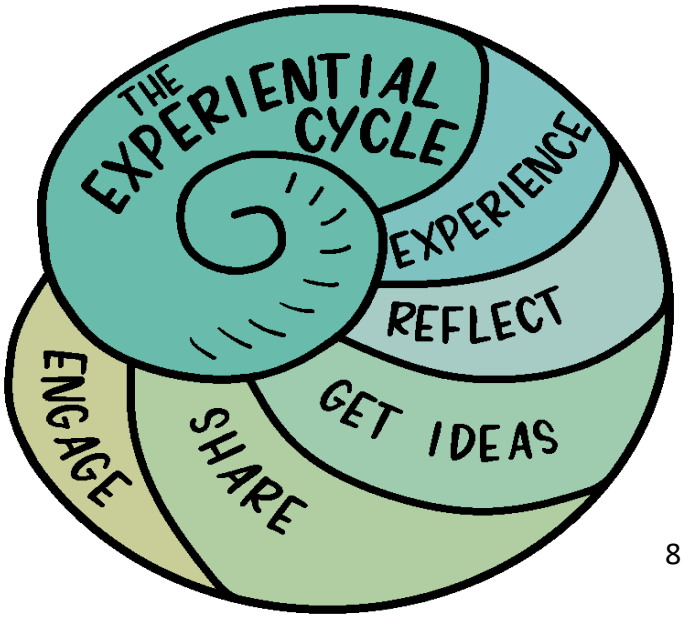
So, this is the first way that we can 'envision' environmental learning: environmental 'seeing' informed by the concept of 'two-eyed seeing' encourages us to view the world from an Indigenous knowledge perspective, together with a Western knowledge perspective. Through engagement with 'two eyes' we acknowledge the importance of both types of knowledge while perceiving a more holistic view of the world and our environment. Importantly, the way we experience the world is informed by our own cultural identities and by the norms and values of the communities where we live. For this reason, we weave Indigenous knowledges with western ones throughout this document, so we begin to see the true, deeper picture of environment.

Naturally, we also 'see' the world is through our own direct experiences. By interacting with local communities and ecologies, we can challenge our cultural perspectives on environmental issues and examine these critically. For this to be relevant, the development of critical and reflective capacities is important: when we are given adequate time to reflect, we can actively engage with environmental learning – connecting it to personal knowledge. This involves solitary activities (such as a nature journaling) before moving to other forms of shared knowledge.

Later in this 'learning cycle' we evaluate our experiences against the experiences of others. Central in this process is actively negotiating among multiple perspectives or ideas. This involves actively seeking out differences or looking for common themes or consensus around an issue or concept.

Seeing through experience …

A view of teaching and learning that includes experience, critical reflection, and negotiation is a foundation for all learning



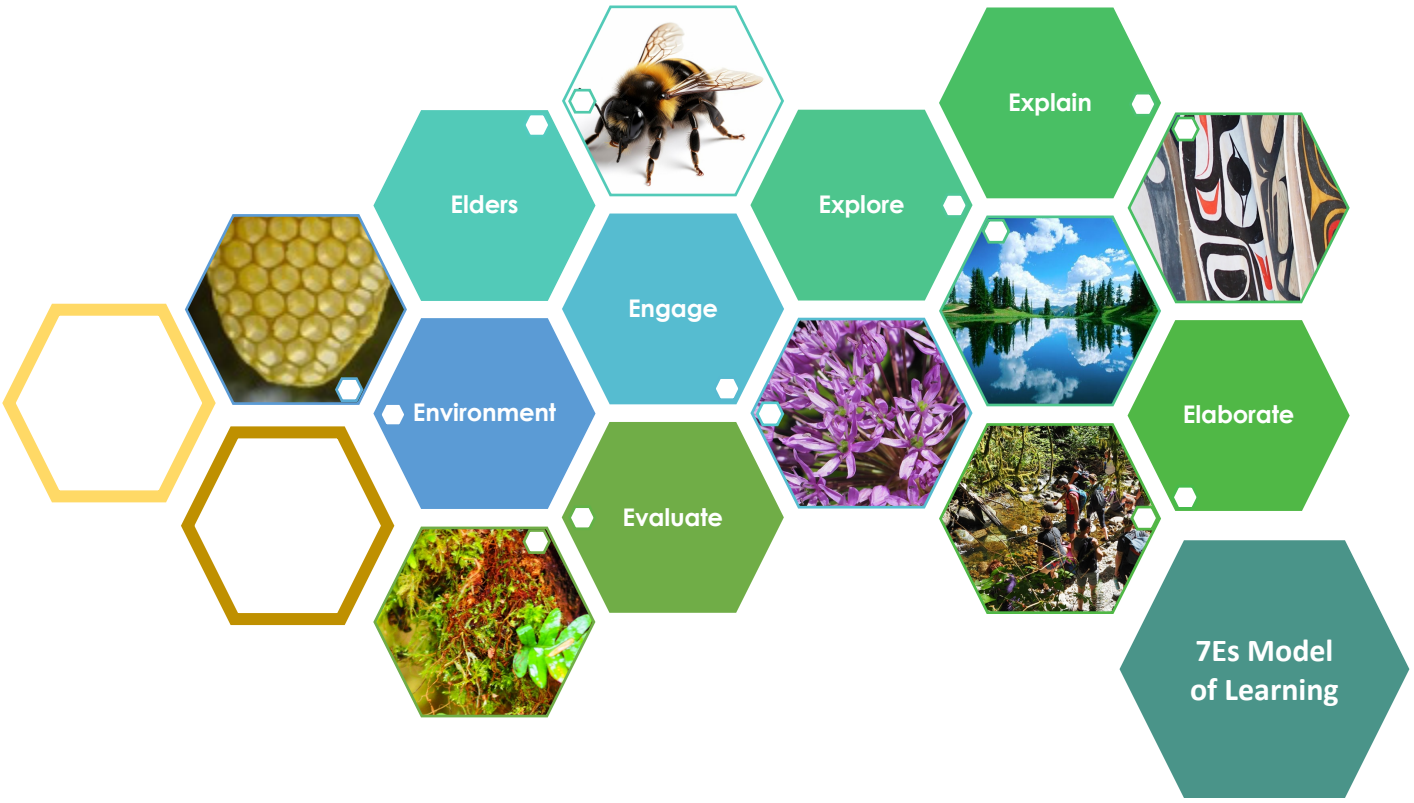
What is Inquiry?

Another way to engage with environmental 'seeing' is imbedded in the broad types of inquiry that we use to shape our learning. Given long-standing calls for guided and inquiry-based approaches in education, many schools have adopted the **5Es constructivist model** to support teachers and learners to engage in authentic inquiry processes (e.g. in science or social studies).

The ***5Es model*** has been adopted around the globe. It supports teaching and learning through five iterative phases: Engage, Explore, Explain, Elaborate, and Evaluate. Each phase builds on the other to support a gradual understanding of a problem or concept (with the guidance of the teacher) in contrast to the teacher-centred approach. Here the teacher is the 'guide on the side' rather than the 'sage on the stage'.

In BC, the ***5Es model*** was adapted and expanded to include First Nations perspectives by the First Nations Education Steering Committee (FNESC) in what is described as the ***7Es model***. This version of inquiry is an extension of the ***5Es***, through the inclusion of *Environment* and *Elders*. This ensures that the inquiry relates to the local environment and builds an appreciation of connectedness and a sense of place, with direct engagements in the community. The ***7Es model*** promotes traditional ways of teaching and learning (e.g., guest speakers, guided labs, and fieldtrips) while supporting an authentic inquiry process. Further, it embodies the First Peoples Principles of Learning as praxis.

Seeing as Inquiry …



Inquiry using 7'E's

Environment

Have you gone out to the environment, and explored your question?

Directly observe what is going on in our communities both culturally and ecologically. During the experience take pictures or video, draw, or make maps, write journal entries, or tally the activities that are observed.

Don't rush, take time to reflect and internalise what we observe.

Engage

What do you know? What do you 'want to know' about the question?

In this stage, we engage with others -- sharing what we observed in the first stage and comparing this to what others noticed. As we fine tune our inquiry question, we reflect on what we have learned using KWL strategies (or other methods) and develop an authentic inquiry derived from our natural curiosity about local conditions.

Explore

How will you find out more details about the question?

In this stage, we develop research skills in relation to the questions we ask. This might involve considering primary and secondary sources (such as books, web, other sources) or interacting with other community members about our question. In some cases, this stage may also involve further field experiences in the local community or environment.

Seek out and learn from an Indigenous Elder or knowledge-keeper. Are there traditional stories related to your topic? What words are there in the local First Nations language?

In this stage, you will access Indigenous knowledge related to your question. Here it is important to realize that knowledge and stories about your topic give the longer-term context. Listen carefully, respectfully. Don't look for quick answers - see the big picture.

Elder

Record your observations and research findings. How will you share your new knowledge related to the question? Are there any protocols that should be observed?

In this stage, you may need to refer to the first observations you made in the Environment or Explore stages. What are your key findings? Can you find a way to creatively share or represent your new knowledge so that others will understand?

Explain

What other questions come out of your research? Complete your project.

A good inquiry will lead to other questions! What ideas do you have for further inquiry?

Elaborate

How did you do?
Are you satisfied with the answers to your question?

Did you share your results with those you learned from on the way?
What else did you learn?
Would you do anything differently for your next inquiry topic?

Evaluate

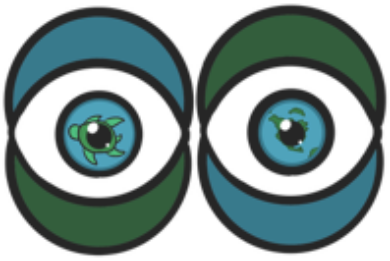
Notes and Sketches

Notes …

Sketches …

Local examples

What could 'ENVIRONMENTAL SEEING' look like in your community?



Inquiry Idea #1

Inquiry Idea #2

Inquiry Idea #3

Indigenous Storywork

In BC, Indigenous oral narratives are an important source for, and component of local knowledge and communication systems. Indigenous (*Stó:lō*) scholar Joanne Archibald shares that stories are not only recounted and passed down; they are tools for teaching about local culture and the important connections to the Land. Her research about *Indigenous Storywork* demonstrates that stories have the power to educate and heal the heart, mind, body, and spirit. In sharing a framework for understanding stories, she helps us to appreciate storytelling, as a way to facilitate a receptive learning context. In this way we can see that how we communicate are informed by local cultures and assist learners to engaging in more holistic models of knowledge sharing.

To begin sharing the ideas held in this document, we deliberately began with a narrative from the the *Sts'ailes* community which was first shared in written form in their 2017 Ratified Land Code, this was shared with us by a member of our research team (graduate student, Leanne Joe). The story emphasizes respect and appreciation for the Land, water, and all relations on Earth. As this story and knowledge was shared with us, oral traditions have guided many Indigenous communities in their decisions about Land, water, air, and social issues. As such this is an effective and important way to communicate about environmental learning.

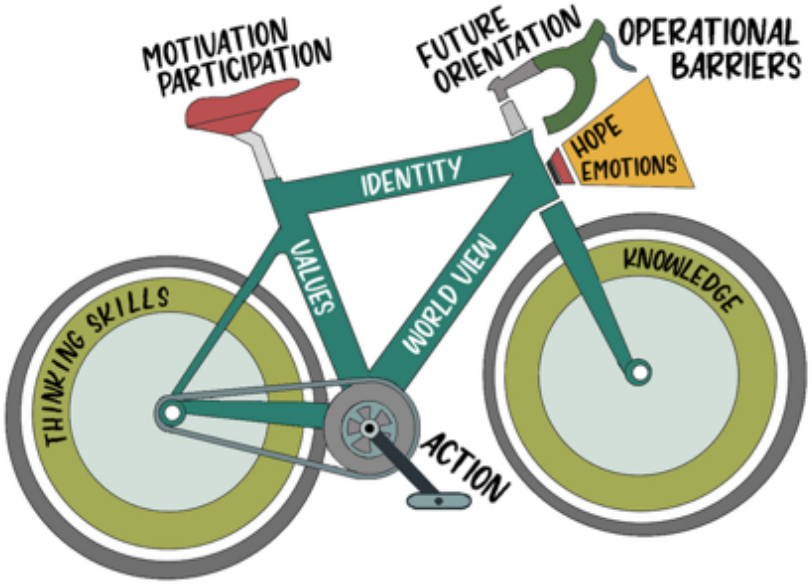
As one example, in *Stó:lō* ways of learning and sharing, storytelling is the basis of how information is shared for learning, entertainment, and providing evidence for important decisions. Only recently have these stories been recorded for distribution outside of Indigenous families and communities. As shared with us, these can be the *sqwélqwel*, roughly translated as 'true stories or news,' describing experiences in people's lives (current events), or the *sx̱wōx̱wiyám*, which could be considered deep time events in history that had great significance for the community. Labelling these as myths or legends is counterproductive as the stories hold great power as communication tools for our learning: they also embody important messages about culture and sustainability. The figure below represents a methodology for both the art and pedagogy of Indigenous Storywork.



The image at left illustrates the importance of 'Storywork' in Stó:lō ways of living as a key method for holding and sharing knowledge, while also encapsulating Stó:lō pedagogies. The model consists of four spheres, then four elements observed since time immemorial. This 'Storywork' model relates to teachings across generations and connects Land and community.

Communicating then Acting

Communicating about climate and the environment in many ways is also a complex undertaking and should lead to action. The holistic nature of environmental communication and action taken together, has also been represented in a western (systemized) way with the bicycle model for climate communication developed by Finnish educator Cantell (and colleagues). This model notes that knowledge and thinking skills together support and 'drive' effective environmental communication. The model considers together the role of such factors such as emotions, sense of hope, future orientation, motivation, and participation – all of these inform our capacity or desire to communicate and take positive actions (move forward) on environmental issues.



The bicycle model represents holistic climate change education but can also be applied to other cultural or environmental issues. The bicycle metaphor is symbolic of the idea that all of the parts must work together in order to move forward.

Importance of Positive Action

It has also been said that a*ctions speak louder than words*. For example, communicating about climate change and the environment should mean much more than just a concise transmission of ideas from one person (or group) to another. It should lead to concrete actions that demonstrate more clearly – our knowledge and values about climate change, ocean literacy and a range of other environmental issues. Our actions are how we take responsibility and enact an ethos towards the environment. Therefore, environmental learning is about 'walking the talk'. *It's also about being a good listener.*

Environmental learning encompasses much more than environmental knowledge but includes effective communication skills about ecology, environmental change, attitudes, motivations, and the cultural values that are needed to make informed and responsible decisions. For example, in a world of 'doom and gloom' scenarios about climate change, biodiversity loss, or other issues, it is important that this communication focuses on hope and positive action. The use of negative language in the communication of environmental issues has been shown to disempower individuals and can lead to issues such as 'climate anxiety' in children, youth and adults. Positive action on an issue or problem has been shown to reduce these effects.

Is Communication Cultural?

While acknowledging the importance of Storywork, Indigenous knowledge can also be transmitted through other methods (eg. carving or graphic arts) and through experiences on the Land (eg. observing seasonal patterns in hunting or gathering protocols). According to Indigenous scholar, Tyson Yunkaporta, there are *8 ways* to understand how Indigenous knowledge is constructed or communicated to others. Together, these interconnected elements and the spaces between them carry the underlying concept of learning through Indigenous pedagogies. He states these models of communication are more about the 'process' rather than the 'product':

8 Ways knowledge can be shared:



STORY SHARING:
Teaching and learning through narrative. Here, stories are central. Learners connect through the stories they share.



LEARNING MAPS:
Make learning pathways and processes visually explicit. Learners can visualise connections and picture the pathways of knowledge.



NON-VERBAL:
Hands-on learning, critical reflection, and non- intrusive strategies. Ancestral, spiritual knowledge comes through this way of learning. Learners see, think, act, make, and share without words.



SYMBOLS AND IMAGES:
Exploring content through imagery and using visual cues and signals. Learners can keep and share knowledge through art and objects.



LAND LINKS:
Place-based pedagogy, linking content to the local Land and environment. Learners work with lessons from the Land and from nature.



NON-LINEAR:
Indirect strategies, lateral thinking, comparing and synthesising diverse cultural viewpoints and knowledge, innovating, adapting, working within cycles, and working with holistic knowledge.



DECONSTRUCT/RECONSTRUCT:
Modelling and scaffolding, balancing teacher instruction with independent learning. The learners work from the whole-- to smaller parts, watching and then doing.



COMMUNITY LINKS:
Grounding learning content and values in community knowledge, working on projects and using or displaying knowledge products publicly for local benefit.

8 Ways Pedagogy

Eight Ways Pedagogies highlight the relationship among learners, teachers, and place—and how all elements, people, variables, and materials are interconnected. In BC, storywork is a key component in local knowledge systems, so we have adapted our diagram with permission from Yunkaporta's model to highlight the BC context and the importance of Storywork. The table below further elaborates on this ecology.



(adapted from Tyson Yunkaporta, 2009)

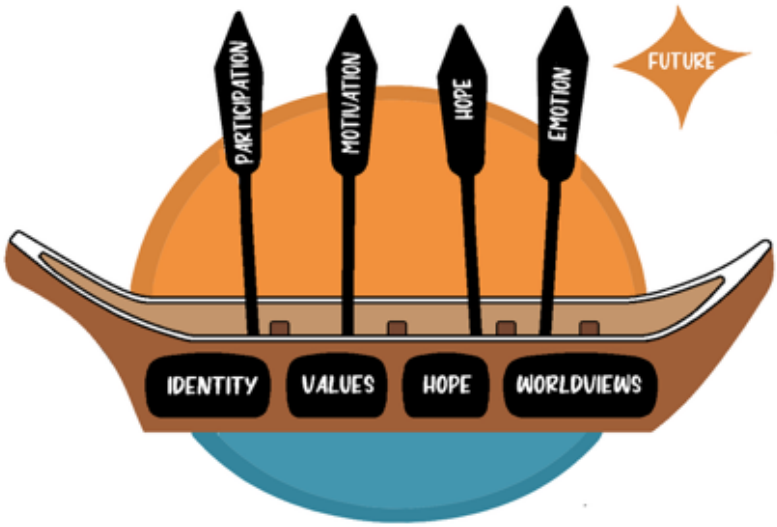
The 8 Ways framework might be expressed as:

1. Tell a story
2. Make a plan
3. Think and do
4. Draw it
5. Take it outside
6. Try a new way
7. Watch first, then do
8. Share it with others

Storywork is for Learning and Sharing

Storytelling is used through all stages of life for learning and sharing. Simply put, it provides:

1. A way to communicate multiple lessons at once for multiple age learning opportunities
2. Opportunities for real demonstrations and hands on learning experiences with time for trial and error
3. Learners can move freely between stages and cycles according to their current situation
4. Each learner forms a complete understanding to develop a reciprocal relationship with what they have learned and how they will share it with others



Example: Reinterpreting messages for Culture

The canoe above represents a reinterpretation of the bicycle model as developed by Cantell and colleagues (see pg. 22). This is an example of how environmental messages can be formatted or interpreted differently to communicate more effectively with another culture or community.

Notes and Sketches

Notes …

Sketches …

Can you find some LOCAL STORIES to share?

What are some ways you might have students represent a story or message?

Story sharing idea #1

Story sharing Idea #2

Story sharing Idea #3

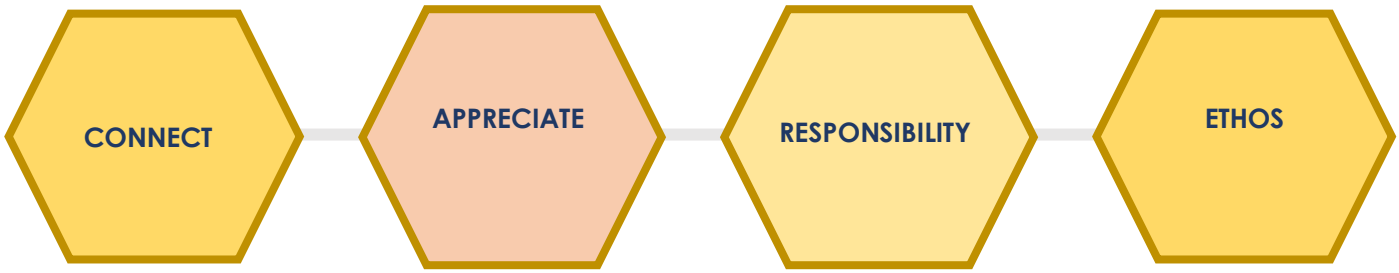
Learning to 'CARE'



Learning deeply about environmental issues involves the principle of environmental 'thinking': which is seen as a flexible and interdisciplinary undertaking. Principles for organizing and conceptualizing this type of learning, will 'frame' how we learn to care for the environment from differing perspectives and across disciplines.

Environmental thinking begins with a focus on holistic cultural / ecological **connection** with (and in) the environment and ends with the development of a collective ecological understanding in community. On the way, we can develop a deeper **appreciation** for the environment and how it sustains us. Making an emotional connection to the Land and water can also lead to enhanced individual and collective actions. This ultimately requires taking **responsibility** for our collective care (or stewardship) of the environment. Finally, this type of thinking should lead to an ***ethos*** about the environment in which we are all required to be a participant in our schools, in the workplace, and at home. The mnemonic and metaphor of **CARE** (*connection*, *appreciation*, *responsibility*, *ethos*) can be used to describe the various forms that environmental knowledge can take.

Taking ***CARE*** for the environment, our communities, and ourselves, demonstrates the interdisciplinary nature of culturally and ecologically embedded thinking, while showing the development of ideas that can lead towards deeper engagement with environmental learning and for the diversity of cultural forms it can take. The ultimate outcome is for students to strengthen their values towards environmental and cultural diversity. This idea is sometimes described as an environmental *ethic* when we are talking about individuals, however, when considering environmental learning as a *cultural* undertaking, the collective and cultural term: ***ETHOS*** is better suited to describe the types of collective values that are imbedded in local communities. Ultimately, these values will support an enhanced student agency that is ethical and sustainability focused.



What are the 4 R's?



(adapted from Michelle Pidgeon, 2020)

As we consider our own responsibility and the collective ethos in our communities it is important to remember that learning and thinking is both an individual and collective activity. Place-based and ecological frameworks acknowledge first that learning and thinking should occur 'in, 'with' and 'for' local communities.

For example, when engaging in activities within First Nations communities, there is an important set of ethics that were first described by First Nations scholars (Verna Kirkness and Ray Barnhardt). The guidelines are sometimes referred to as the FOUR R'S: signifying the importance of the interrelated concepts known as ***RESPECT, RELEVANCE, RECIPROCITY,*** and ***RESPONSIBILITY***.

These guidelines are important to frame all thinking and learning practices as the answers to our inquiries should always benefit those around us too. The 4R's remind us to think 'in and 'for' community.

The first R means **Respect** for cultural integrity. Cultural knowledge, traditions, protocols and core values should be recognized and respected. Empower students to share their culture and knowledge for the benefit of all.

The second R is **Relevance** to First Nations perspectives. The inclusion of Indigenous knowledge and skills should also include aspects of oral traditions and ceremony.

The third R means **Reciprocity**. Teachers engaging in reciprocity create a new kind of education through relationships. Schools engage in reciprocity when learning benefits a community where students reside.

The final R means **Responsibility** and action. With First Nations perspectives, education processes have not been neutral: this means listening to, and supporting Indigenous communities as they work to maintain the Land.

NOTE: In recent years, a fifth R (Relationship) has often been included. In this idea, ***relationship*** is seen as a foundation for all environmental learning and thinking. We are all connected by our local communities and ecologies.



Learning with CARE: guided inquiry



Look for **CONNECTIONS**.

Environmental learning should look for and study complexity: what connections can be made between natural systems, and how humans interact with and affect these? Study the built environment, but also the fabric of your community (as each of these are embedded in the natural world). Inquiry helps us understand how we relate to and are sustained by local eco-systems.

How would you describe the ecology where you live? What are the main types of plants/animals nearby?

What evidence can you find of climate change in your community? Who is most affected by the changes?



APPRECIATE *nearby nature.*

The natural world helps us appreciate beauty, inspires artistic expression, and promotes a physiological response in us. Environmental learning helps students to develop a sense of respect and appreciation for the natural world through our experiences in nature. An appreciation of nature leads to greater self-awareness and personal fulfilment: helping us clarify our personal values in nature.

Are there nearby parks/ reserves /natural areas where you live? What do you do there if/when you visit?

Is there an artistic community where you live? How / where is local culture or ecology being expressed?



Take **RESPONSIBILITY**.

Environment learning explores the impact of decisions made at personal, community and global levels. Studying impacts, we explore and develop solutions to our concerns. Issues, such as the distribution of wealth, food production, and transportation are essential to establishing a sustainable society. A focus on decisions / actions contributes to how to live more sustainably.

How do local Indigenous communities manage the Land? What (local) words name/describe these ways?

How can nearby natural areas be preserved or enhanced? What food crops are suitable to grow here?



Develop an **ETHOS** *in community.*

Environmental learning helps us to develop a collective environmental ethos where we live. This requires examining our personal and collective values and questioning cultural assumptions. A cultural inquiry can create new visions: however, it also encourages us to make decisions based on our understanding of the issues, as well as our own values and the values of other community members.

What is our responsibility to future generations? How do local media portray environmental issues?

In what way can you help your community develop more positive environmental values for the future?

Local examples

Environmental Thinking

I appreciate that …

I connect with …

An ethos for my community includes …

I take responsibility for …

Notes and Local examples

Local Examples & Inquiry Questions

RESPECT means …

RELEVANCE is …

RECIPROCITY shows …

RESPONSIBILITY means …

Thinking with 4R's

How do I ensure that the learning is ***Relevant*** for First Nations perspectives?

Make sure you are asking this question in an authentic way and that you are prepared to 'listen' more than 'talk' about how to make this happen in your curriculum and your community. The inclusion of Indigenous knowledge and skills, almost always includes important aspects of oral tradition and ceremony (eg. drumming, dance, song). These protocols are important and take time.

Don't rush it -- all learning is embedded in culture if it is to be relevant.

How do I ensure ***Respect*** for the cultural integrity of local First Nations?

Are you authentically asking to learn (in a sustained way) about the cultural knowledge, traditions and core values of local First Nations communities? Ask thoughtful questions, and build relationships for the long term. This process takes time to build trust if you are to become a true ally to local communities.

Don't rush the process and ensure that you empower all students to share their culture and knowledge for the benefit of all.

What does ***Responsibility*** mean in the context of First Nations communities?

Education has not been neutral across Canada. Each of us must acknowledge our own responsibility and complicity. For many First Nations, responsibility for action means taking power and authority back, exercising control over the affairs of everyday life and over the education of First Nation's peoples and communities. In collaborating with First Nation's, it is important that they lead and direct the educational activities. Teachers and schools must adapt to the unique needs and values of local communities. In this way we honour the true gift of biocultural diversity in BC communities.

How do I engage in ***Reciprocity*** in my own community?

Teachers and schools are engaging in 'reciprocity' when the learning that happens directly benefits FN communities. What challenges are First Nations communities experiencing where you live?

In what ways can you engage in community-service forms of learning?

Can the community-based projects that you engage with ensure an equitable distribution of resources / livelihoods?

Ask how you can best contribute to benefit communities.

The Educated Citizen

Finally, as we have shown, the overarching goal of a sustainability-focused education resonates very strongly with Indigenous ways of knowing and being. Holistic ideas about Land and connection to nature are the cornerstone of Indigenous pedagogies (e.g. preserving resources for seven generations). This is a fundamentally different viewpoint than regarding 'Land as resource' that is used when considering education from a viewpoint of developing local or global economies,

As one example of this critique we draw on the important work of Dwayne Donald, (of the Beaver Hills Cree in Alberta). His work critiques education's unspoken relationship to economic goals as part of the Western worldview on which most curriculum is built. He argues that this *Homo economicus* way of thinking centres human development as important only in relation to industry and economic growth. A better foundation for education, he suggests, is to centre the interdependence of our relationship with the entire world around us.

"We acknowledge that our bodies are comprised of sunlight-inspired energy that inhabits the air, water, minerals, plants, and animals that we consume. We acknowledge, too, that despite any current and future technological advances in how we live our lives, we will remain fully dependent on this sacred ecology to keep us alive." (Dwayne Donald)

In British Columbia, "the concept of the educated citizen continues to guide educational decisions… ensuring that students across the province are supported and that future generations of British Columbians are empowered by their school experience" (BC Curriculum Overview, n.d.). An expanded view of the 'educated citizen' should include connections with the natural world and articulate a more holistic view of what it means to be human. In our view, the inclusion of environmental learning focused on sustainability and action in K-12 classrooms contributes to the educated citizen and further shifts pedagogy away from colonial paradigms that are found in curriculum models worldwide, including British Columbia.

Despite our efforts here, the tension between colonial ideas and Indigenous models of education are often left unexamined, which is of great consequence when considering the global need to shift education practices toward stewardship and sustainability. Settler allyship practices in education that include Indigenous knowledges and pedagogies can help us to guide curriculum revisioning efforts in the future. Together, these perspectives can help us achieve ecological balance, cultivating a more holistic, fully realized version of the *educated citizen.*

Sustainability and the Green Economy



Global policies are also an important context when considering what is to be included in our model for environmental learning. For example, in 2015, the Sustainable Development Goals (SDGs), were adopted by the United Nations as a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity. The 17 SDGs are integrated—recognizing that action in one area will affect outcomes in others, and that development must balance social, economic and environmental sustainability. SDG 4 relates specifically to the need for a Quality Education for all. The UN recognizes that creativity, know-how, technology and financial resources from all of society will be necessary to achieve the SDGs. In this, a green economy and healthy environment become implicitly linked – this view is often described as Education for Sustainable Development (or ESD).

Defining the Green Economy

Considering this policy driven desire to develop a green economy, the United Nations defines a 'green job' as work that includes activities which: restore or preserve environmental quality; reduce energy, materials, and water consumption; decarbonize the economy; and / or minimizes or altogether avoids the generation of all forms of waste and pollution. Traditionally, industry and education have defined skills and competencies as:

> **Skills** are the specific learned abilities you need to perform a given job.
> **Competencies** are a person's knowledge and behaviour that leads them to be successful in a job.



Vancouver Economic Commission, State of the Green Economy Report 2018

CORE COMPETENCIES



Core Competencies are Environmental Competencies

CORE COMPETENCIES	ENVIRONMENTAL COMPETENCIES
PS Positive Personal & Cultural Identity 1. Relationship and cultural contexts 2. Personal values and choice 3. Personal strengths and abilities	Identifying positive personal attributes and actions that connect humans and the natural world.
PS Social Responsibility 1. Contributing to community & caring for the environment 2. Solving problems in peaceful ways 3. Valuing diversity 4. Building relationships	Recognizing the connection between personal values & choices and environmental health.
PS Personal Awareness & Responsibility 1. Self determination 2. Self-regulation 3. Well-being	Awareness of oneself as part of nature - connected to plants, animals and the Land.
T Creative Thinking 1. Novelty and value 2. Generating ideas 3. Developing ideas	Question and investigate environmental and human health concerns.
T Critical Thinking 1. Analyze and critique 2. Question and investigate 3. Develop and design	Design and develop solutions to problems related to environmental degradation.
C Communication 1. Connect and engage with others 2. Acquire, interpret & present information 3. Collaborate to plan, carry out & review constructions & activities 4. Explain/recount & reflect on experiences & accomplishments	Communicate with local First Peoples
	Working in communities towards a common goal of improved environmental health.

SUMMARY

This guide has demonstrated that the *environment* can be the context for *all* teaching and learning, while highlighting the need for students to understand how their lives both shape and are shaped by their local communities and ecologies. The environmental learning framework shared here models a form of 'two-eyed seeing' which can be applied across the diversity of ecological contexts and cultures that make up BC today. Through learning to view the world from an Indigenous knowledge perspective, together with a Western knowledge perspective we gain a more holistic view of the world and environment. Importantly, it also helps us to acknowledge our own cultural identities and the norms and values of the local communities where we live.

Guided inquiry is another important concept we have modelled in this framework. In fact, many of the ideas presented here were first shared with us as part of our own inquiry: a 2-year community consultation that included diverse stakeholders from around the province. We are deeply grateful for the ideas that were shared with us by the various partners consulted. Our findings indicate that environmental learning is best seen as a composite of three distinct, yet overlapping forms of learning: *Environmental Seeing*, *Communication and Action,* and *Environmental Thinking*.

Experiential and Inquiry based models of education form the core ideas behind the principle of ***Environmental Seeing*** – influenced as it is by the concept of two-eyed seeing. By going out and directly experiencing our local communities and ecologies, students learn about the issues and problems facing their community and can begin to ask important questions for their learning.

Indigenous narratives, positive communication strategies and the importance of other forms of culturally inclusive communication form the core of the second environmental learning principle known as ***Communication and Action***. Implied by this moniker is the need for students to take immediate and positive action, as it can often be true that 'our actions speak louder than words.'

The final principle known as **Environmental Thinking** is informed by interdisciplinary concepts such as CARE (Connection, Appreciation, Responsibility and Ethos) as well as a need to think 'in and with community' referencing important ideas such as the 4 R's (Respect, Relevance, Reciprocity, and Responsibility). Finally, it highlights a need for students to think critically and creatively about the problems we face.

Importantly, the framework also makes reference to the **Core Competencies** (*Personal* and *Social*, *Communication*, & *Critical/Creative Thinking*) for which BC Educators are all responsible. These address skills and knowledge reaching across subject areas and are important in supporting an educated citizenry. We have argued the case that these are also environmental competencies.

Finally, we have shared that environmental learning can take many forms including Land-based and place-based forms of education, climate change education, education for sustainable development (ESD), ocean literacy, and education for social and environmental justice. The purpose of all these forms of environmental learning is to holistically integrate environmental ideas into students' everyday lives. In this way, each of us will enact personal responsibility and leadership in creating a more ethical, socially just, and sustainable way of life.

NEXT STEPS

The research team and its collaborators have worked diligently to craft the 'What is Environmental Learning? framework, but it is important to note that there is more work to do in supporting environmental learning in its diverse forms and cultural contexts. The following are some shared goals that we hope will be collaboratively implemented over time:

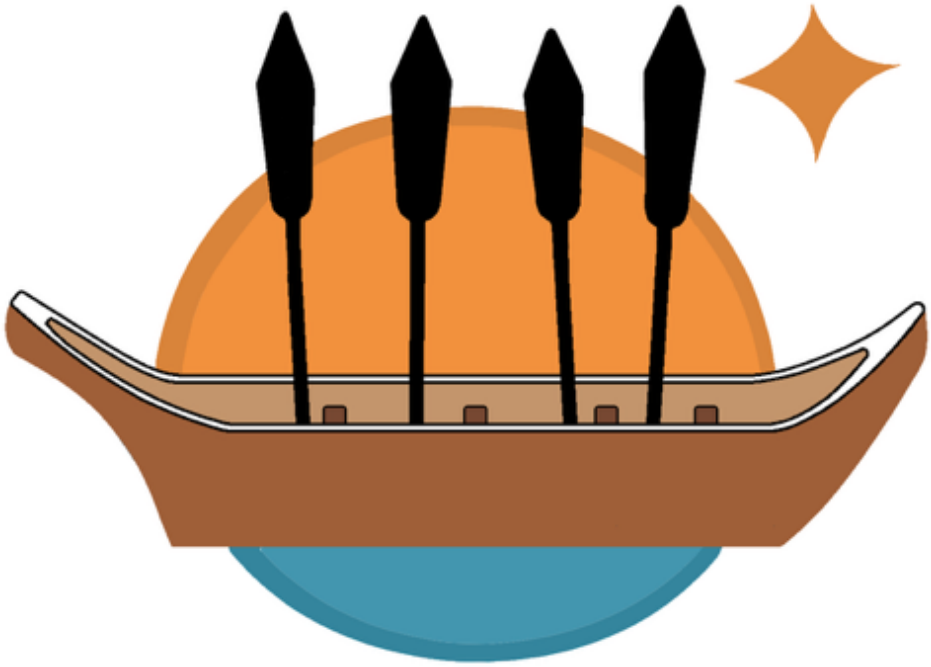
***CREATE A LIVING DOCUMENT** -- Create and host a web version of the ideas shared here which will include a blog where teachers, and educators continue to share ideas and allow the principles shared in the framework to evolve over time.*

***MULTIMEDIA CASE STUDIES** -- Develop a series of curated multimedia case studies that showcase the framework in action in different regions of the province, highlighting the cultural and ecological diversity that is the hallmark of this province*

***CURRICULUM MAPPING** -- Develop an updated curriculum competencies document which maps environmental learning and Indigenous knowledge principles across the broad spectrum of K-12 subjects and grade levels (including the important 'core' competencies).*

***ADVOCATE FOR RESOURCES** -- Encourage others to develop and curate suitable resources for the teaching of environmental learning principles (including diverse forms such as Land and place-based education, climate change education, ESD, ocean literacy and eco-justice perspectives). Link these explicitly to the What is Environmental Learning? framework.*

We are all paddling together!



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INSIDE BACK COVER



What is Environmental Learning?

A Guided Inquiry for Educators

Institute for ENVIRONMENTAL LEARNING

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