Decolonizing Environmental Science Education:

(Re)storying Relations for Settler Educator Unsettling

MEd Portfolio

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"Miigwech, my friend. In [Anishinaabemowin] that is often translated as "thank you." Miigwech comes from the verb migiwe, which means "to give." For Nishnaabeg, miigwech isn't a thank-you; it is a start to gift-giving" (Leanne Betasamosake Simpson in Maynard & Simpson, 2022, p. 263).

To my supervisor, mentor, and personal motivator – you have been my compass throughout this process and have brought out the very best in me. I could not have developed my stamina without your humble and gracious guidance. *Miigwech.*

To my committee member, teacher, and canoe stern – you have shown me what it means to lead with love and humility, and have instilled within me a critical curiosity while I continue learning in, from, and through place/Land. *Miigwech.*

To my graduate school colleagues – you have gifted me with a lifelong learning community and pushed me into deeper intellectual, emotional, physical, and spiritual learning. *Miigwech.*

To all my loved ones – you have always been my breath of fresh air when I needed you most, kept me grounded when my head was in the clouds, and nourished my whole being throughout my entire academic (and life) journey. *Miigwech.*

To the trees and lakes of Treaty 16 – you have fueled my body, held me in place, and taught me to look for joy, even in the smallest of moments. *Miigwech.*

To the mountains of Treaty 7 – you have challenged me to keep putting one foot in front of the other even when gravity is working against me. I am graciously reminded to stop carrying my mountains; instead climb them. *Miigwech.*

To my four-legged girl – you make my heart smile at the end of each and every day. I could not have typed my way through this work without your unconditional love and snuggles. *Miigwech.*

To my life partner – you have always held space for every part of my being and have stood by me and loved me harder through all of my growing, stumbling, and un/re-learning. You keep my feet on the ground and support all of my wandering. I could not have made it to the other side of this work without your unwavering encouragement, love, and support. *Miigwech.*

To all who shaped this work into being, my heart is full of gratitude. For those in Treaty 16 territory: *Miigwech.* For those in Treaty 7 territory: *Ayyy.* Hand to heart.

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CHAPTER 1: INTRODUCTION

Description of the Portfolio

"[F]rom a decolonial perspective, the very idea of sustainability is suspect, and it therefore becomes necessary to ask: What are we trying to sustain, and why?" (Stein, 2019, p. 201).

Eight years after the Truth & Reconciliation Commission of Canada released the 94 Calls to Action (TRC, 2015), and while Indigenous activists, scholars, Land defenders and water protectors continue to tirelessly advocate for a "curriculum reform for hope" (Donald, 2022), there has been a waning of energy by settlers and settler educators to enact actionable change. This portfolio responds to the lag of settler actions by engaging in a decolonizing self-study with critically reflexive, decolonial, anti-oppressive, and relationally accountable methods, such as *Keeoukaywin* (The Visiting Way) to inquire into the following research question: *How can Indigenous Knowledge (IK), stories, and decolonial perspectives of Land relations impact settler educators' reconciliatory capacities with Indigenous peoples and the Land?*

As a settler educator moving from Treaty 16 (Barrie, Ontario) to Treaty 7 (Calgary, Alberta) territory, I deeply explore this research question through the following self-examination tasks for the portfolio:

(i) a comprehensive review of the literature exploring environmental science education's complicity in settler colonialism and re-examining its potentiality for decolonization;

(ii) my own decolonizing self-study through the synthesis of three reflexive, decolonial frameworks [See Appendix B] and personal vignettes of decolonization [See Appendix B] to reflect on my roles and responsibilities as an educator and visitor on Treaty 7 territory; and

(iii) a demonstration of my critical consciousness and "unsettling" (Regan, 2010, p.1) by visiting, learning, and (re)storying the Lands of Treaty 7 aimed at (re)centering and (re)membering (Stein, 2018) First Nations' voices and stories of this place; that are often oppressed, marginalized, excluded, assimilated, or *hidden* in plain sight [See Appendix D]. Task iii also includes a pedagogical framework for decolonizing Land relations and weaving local IK and decolonial perspectives into inquiry-driven, experiential, culturally-responsive science programs in Treaty 7 territory [See Appendix E, Figure E4 & E5].

The purpose of this portfolio is to emphasize, demonstrate, and role-model the inherent responsibility that all settler educators have in decolonizing their own ways of knowing, being, doing and belonging *before* they can respectfully and ethically decolonize their pedagogies of any subject, including environmental science education. Settler educator decolonization is necessary for teachers to become active, engaged and informed treaty partners who then fulfill treaty obligations to "*ka-miyo-ohpikihitoyahk* (for us to raise each other's children well), learning from each other in balanced ways and sharing wisdom that comes from living together in the spirit of good relations" (Donald, 2022, para. 15). Consequently, the portfolio's self-study purpose is two-fold: (i) to challenge and document my personal un/re-learning[1] as a settler educator and visitor on Treaty 7 territory, in order to (ii) help encourage/guide/motivate/support settler (science) educators' "stamina" (Stein et al., 2021, p.1) through their own unique decolonizing journeys; a stance of affective-cognitive-reflexive awareness and examination, required for a lasting decolonizing engagement and commitment to reconciliation.

[1] Building off of Madden's (2019) de/colonizing and Styres (2018) (re)membering theories, I intentionally use an oblique method of *un/re-learning* to denote the unique experiences of settler de/colonization, signifying the prior *unlearning* of biases and colonial logics (Donald, 2012) before one can *relearn* how to ethically engage in treaty relationships.

Background & Rationale

As a white settler who formerly resided in Ontario on the traditional lands of the Anishinaabe under Lake Simcoe Treaty 16, I write this portfolio eight years after the Truth and Reconciliation Commission of Canada released the 94 Calls to Action (2015) and at the socio-cultural-historical moment of waning response and actions in Ontario education. The Calls to Action #6-12 and #62-66 specifically address children, youth, and education, which are not limited to the following actions: the elimination of educational and employment gaps between Indigenous and non-Indigenous Canadians; adequate funding and annual reports of all educational funding; mandated curriculum on treaties, residential schools, and historical and contemporary contributions of Indigenous peoples; and building student capacity for intercultural understanding (People for Education, 2021). Eight years later, the shallow depths or superficial responses of Ontario education's truth and reconciliation efforts can be observed when calls remain incomplete in policy implementation (People for Education, 2021), when schools recite tokenized, rote land acknowledgements, and when new curriculums are either waiting to be released or are rewritten by ministry staff to conform to Western ways of knowing; despite having had Indigenous representation, collaborations, and knowledge holder writers on curriculum advisory boards (People for Education, 2021). For example, the Ontario Science and Technology Curriculum for Grades 1-8, released in the spring of 2022 removed sections and suppressed additions written by Indigenous collaborators as the government made a "unilateral decision to remove or substantially modify sixteen Indigenous-related expectations… just three weeks before its release" (People for Education, 2021, p. 4). Evidently, covert politics that emphasize colonial economies over any ethical relationality (Donald, 2022) with Indigenous peoples are preventing efforts to move toward reconciliation in Ontario's environmental science

education, when “connecting Indigenous… and Western science and technology, using ways of knowing such as the Two-Eyed Seeing approach” are changed to a watered-down statement of “analyz[ing] science and technology contributions from various communities” (People for Education, 2021, p. 4).

As a new visitor to Treaty 7 Lands, the traditional territory of the Blackfoot Confederacy (Siksika, the Piikani, and the Kainai First Nations), the Tsuut’ina First Nation, the Stoney Nakoda (Chiniki, Bearspaw, and Goodstoney First Nations) and Métis Nation of Alberta (MNA), I recognize the growing outrage, fueled by colonial “habits-of-being” (Stein, 2019, p.209) and modern promises, and insistent demands for change led by Indigenous scholars, water protectors, and Land defenders across Turtle Island in this era of climate crisis/Land disconnection. Settler colonial structures and institutional systems, including education, continue to ignore relations with Indigenous peoples and deny responsibilities to Land, waters, and animals. Indigenous and decolonial scholars counter these colonial habits by advocating for curriculum that educates differently through a “curriculum reform for hope” (Donald, 2022) and a “gesturing towards decolonial futures” (Andreotti et al., n.d.).

Curriculum scholar, Dr. Dwayne Donald of Papachase Cree descent, moves beyond the standard definition of curriculum by acknowledging its purpose for developing foundational philosophies that guide how one thinks about knowledge and knowing systems and ways of teaching and learning. As such, Donald (2022) argues that iterations of curriculum hold great potential to honour other ways to know and be a human being. In order to address the healing and reparation required for equitable ecological justice and ‘sustainability’ for all living beings, environmental/climate science education must consider what systems or colonial habits of being

are (not) trying to be sustained and reflect these ways of knowing, being, and doing within educational curriculum, pedagogies, and practices.

Curriculum reform that inspires hope must acknowledge and ethically include IK; as this wisdom was derived from centuries of living within the bounds of nature's capacities while engaging in reciprocal, consensual relationships. Respectfully emphasizing and bringing in Indigenous wisdom to the forefront of science education not only serves Indigenous peoples to see their culture reflected in the learning environment, but it also allows settlers (including teachers, administrators, and students) to contend with their own Euro-western ways of knowing and consider how colonial logics (Donald, 2012) implicate their relationships to both humans and more-than-humans.

All teachers, including science educators, need to (re)consider their habits of being steeped in coloniality and challenge the cognitive imperialism of Western ways of knowing in/beyond their teaching to prevent further reproductions of colonial social relations in future generations (Clarysse, 2023). These "settler grammars" (Calderon, 2014, p.313) reinforce Western compartmentalization and binary framing logics which involve "division for purposes of categorization" (Clarysse, 2023, p.3). Settler science and/or environmental educators are cautioned to consider Western compartmentalization and binary logics to prevent reducing differences between IK and Western science and contributing to further fragmentation, marginalization and/or exclusion (i.e., extractive/reciprocal, hierarchical/holistic, natural resource/kin, authoritative/consensual, stranger/relative). Educators must consider holism and relationality (embedded within IK systems) by positioning these two knowledge systems "in relation to each other" (Donald, 2009, p.6) in order to build connectedness rather than division and disconnection. Environmental science pedagogy that calls for ethical relationality and

Land-based "wisdom associated iterations of curriculum and pedagogy" (Donald, 2022, 4:20) can guide educational reform towards a curriculum of hope in an era of disconnection; as one builds relations/kinship with the Land and Indigenous peoples of the Land.

Purpose of the Portfolio

The purpose of this portfolio is to emphasize the inherent responsibility that settler science educators have in decolonizing their ways of knowing, being, doing and belonging before they can respectfully and ethically decolonize pedagogical approaches in order to: (i) expose and counter the dual oppression that settler-colonial extractivism has had on (stolen) Indigenous Land and life; (ii) relinquish settler power and privileged Western ways of knowing, being, doing, and belonging by decolonizing Land relations; and (iii) repair and restore reciprocal relations with both the Land and Indigenous peoples of the Land. And as a settler educator, my purpose in this portfolio is twofold: (i) to challenge and document my personal un/re-learning as a settler educator and visitor on Treaty 7 territory and (ii) to help inform other settler educators through role-modeling this journey and demonstrating the "stamina" (Stein et al., 2021, p.1) required for lasting engagement in education-as-reconciliation (Korteweg & Fiddler, 2018, p.254).

Through a decolonizing self-study, I reflect on my own complicities and entanglements with settler colonialism and critically analyze how these biases, assumptions, and worldviews are embedded in both my teaching practices and relationships before considering how to decolonize my colonial "habits-of-being" (Stein, 2019, p. 198) that extend into my teachings. Through this self-study, I document my personal and professional decolonizing stories with the intention to guide/support/motivate other settler educators ready to start or continue their own decolonizing journey; so that they too can ethically respond to the Truth & Reconciliation Commission of

Canada's Calls to Action (TRC, 2015) in their learning spaces, schools, and greater communities. Through *Keeoukaywin* (The Visiting Way; Gaudet, 2019), I uncover the layered and complex history of Mohkinstsis, Treaty 7 territory, and work to (re)story (Styres, Land relations to guide a deeper "unsettling" (Regan, 2010, p.1). Through the prioritization of settler accountability, my portfolio supports settler educators, such as myself, to begin/continue a decolonization journey so that we are better equipped in upholding respectful, reciprocal relationships with the Land and the Indigenous people of the Land.

Guiding Question & Research Goals

This portfolio addresses the research question: *How can Indigenous Knowledge (IK), stories, and decolonial perspectives of Land relations impact settler educators' reconciliatory capacities with Indigenous peoples and the Land?* This research question is examined through the following five research goals:

1. Identify major themes, tensions, gaps and generative alliances between decolonial environmental pedagogies (Land education) and environmental science curriculum within Indigenous/decolonial scholarship and educational literature;
2. Synthesize the following decolonial guiding frameworks to document and reflect on my personal and professional un/re-learning and decolonizing experiences through stages of awareness, engagement, responsive practices, and allyship/advocacy and levels of sticking, stumbling, and swimming (Korteweg et al., 2014, p. 26); recognizing the non-linearity (rather circularity) of my evolving identity:
    - "Circle Continuum of Teacher Identity Growth" (Korteweg et al., 2014, p. 26);
    - "Developing Stamina for Decolonizing Higher Education: A Workbook for Non-Indigenous People" (Stein et al., 2021, p.1);

- "Decolonize First: A liberating guide & workbook for peeling back the layers of neocolonialism" (Nahanee, 2020, p.1);

3. Through *Keeoukaywin* (The Visiting Way) methodology (Gaudet, 2019):
    - Learn the histories and current realities of the treaties in Treaty 7 territory that govern my new relationships with Indigenous nations/Lands/waters *before* hearing the stories held in the Lands of Mohkinstsis (Calgary, AB);
    - Join community learning spaces, local events, and public gathering spaces (i.e.. performing arts productions, museums, forts, historic sites, treaty signing sites, etc.) to decolonize myself by learning my new roles and responsibilities as a guest, treaty partner, and settler educator in Treaty 7 territory;
4. Examine my roles and responsibilities as a settler (science) educator working to decolonize ways of knowing, being, doing, and belonging within/beyond my classroom; as well as demonstrate my evolving critical consciousness and readiness for decolonizing relations through (i) conscious Land (re)storying and (ii) cultivating Indigenous-respectful learning spaces with Indigenous community collaborations (i.e., Elders, Knowledge Keepers);
5. Finally, I present a guiding framework for Treaty 7 settler science educators committed to decolonizing their relationships with the Lands, peoples, and knowledge systems of the traditional territories they live/teach on, through: (i) pedagogical/planning considerations, (ii) a decolonial Land pedagogy circle framework based on the Holistic Lifelong Learning Model (CBE, 2022), and (iii) weaving Blackfoot ways of knowing and being into the science learning environment.

CHAPTER 2: SITUATING MYSELF

As a white settler whose home resides on the traditional territories of the Anishinaaabe, I seek to honour traditional Anishinaabe circle teachings of Roy Thomas as depicted by Korteweg et al. (2014) through the following four identity questions: (i) Where are you from?; (ii) Where have you been?; (iii) Where are you now?; and (iv) Where are you going? (p.18) These four identity questions intend to honour Anishinaabe knowledge systems and orient my identity/stories with humility and trust so that I can better ground myself and bring a good heart and mind to my portfolio research.

Where are you from? Confronting my Unrootedness

Who am I? Where am I from? How does where I am from influence who I am? These are the questions I continue to unpack as I grapple with my own unrootedness. Kaitlyn Lampic. Second generation Canadian? Slovenian? European? White settler. If you asked me where my home was only a few years ago, I would have simply said Simcoe County; a small but growing region just off the shores of Lake Simcoe and north of Toronto, ON. I have come to learn that the Lands where I grew up and began teaching on are the traditional territories of the Anishinaabe peoples and historic Wendat communities; and the waters of Zhooniyaang-zaaga'igan (Lake Simcoe; Lippert & Engel, 2015) are medicine and hold ancestral memories and time-immemorial teachings.

My maternal family always refers to themselves as "Heinz 57" – a blend of Scottish, English, French, and Irish ancestry, among others. As a second-generation Canadian with Slovenian roots on my paternal side, I deeply contemplated my Euro-Canadian identity. I never felt truly at home or *of* a particular place; however, the majority of my K-12 classmates had very similar stories of families migrating to Canada from Europe. My identity was therefore validated

by the identity of other Euro-settlers. As a child growing up in a divorced family, I did lots of driving back and forth between the suburbs and the city (which accentuated my disconnection even more). I was always on the move; transient; visiting. I never felt rooted; grounded; held in place. I have lots of memories in my father's car driving along Highway 400; admiring the Land and wanting to hear their stories. Maybe if I heard theirs, I would better understand my own.

Where have you been? Weighed down by my Settler Colonial Cloak

Growing up in a white suburban community, my settler whiteness remained unchallenged and constituted what I now call a settler-colonial K-12 miseducation. My learning spaces, including classrooms, never questioned the accepting, welcoming multicultural identity of Canada; with no mention of Land contestations nor treaty signing deceptions. I now understand that I have formally learned a one-sided account of Canadian history; where Indigenous-settler relations were depicted as mutually beneficial and the exchanges/trading of goods have made Canada the (settler) thriving nation it is today. Indigenous-settler interactions were always presented as something of the past; a colonial history with no continuity or connection to the present day. Contemporary realities and/or relations were rarely discussed nor reflected upon, and I remained uninformed about the closest reserve in proximity to my hometown until I was an adult. I vividly remember reading about residential schools and seeing the word 'assimilation' in my history textbook. However, the full truth of this weighted word would remain hidden, tucked underneath the "colonizer's protective cloak" (Higgins, Madden & Korteweg, 2015, p. 251), for another decade of my life.

I continued my education through a Bachelor of Science (BSc) degree program at McMaster University in Life Sciences; where I took many math, biology, chemistry, and climate courses, among others. I believe my passion for science stemmed not only from wanting to

understand how the world works (and hoping to make it a better place), but also finding comfort in the objectivity of Western science and its dualistic thinking. Reject or fail to reject a hypothesis; black and white but never grey. And science and culture? They do not mix. I would later come to learn that settler whiteness is a culture and Western supremacy has yet again tucked this underneath the colonizer's cloak (Higgins, Madden & Korteweg, 2015).

My science courses allowed me to study everything from atoms to planet Earth at large. However, they failed to educate me about my role as a human, an ecological being, and my inherent responsibilities to the natural world. Interconnections and interdependencies were not emphasized; rather disconnection and independence prevailed. The cartesian approach to science that I studied informed my unconscious assumption that humans are separate and superior to the natural world rather than intricately enmeshed with it. The 'wild' lands that instilled my love for the natural world were cottages and parks; commodified 'homes away from homes' in the bush and privatized green spaces to be protected *from* humans rather than restored *with* humans. Throughout my science (mis)education, I never questioned the supremacy of cartesian Western science, nor the validity of and necessity for other ways of knowing such as IK until I embarked on my Bachelor of Education.

When I started my Bachelor of Science (BSc) degree, I originally thought it would take me towards the health field. I realized that studying all the intricacies of human body systems and fixing physical ailments was not my purpose in life. I realized that I wanted to heal the hearts, minds, and spirits of people in my community. This is what led me to Lakehead University's Bachelor of Education program; a period of my life I refer to as the unweaving of my "colonial cloak" (Korteweg & Fiddler, 2018, p. 255).

Where are you now? Unweaving my Colonial Cloak through Conscious Decolonization

Throughout my time at Lakehead University, I have been challenged to confront my settler identity through a variety of courses taken in both my BEd and MEd. I have had opportunities to grapple with my colonial experience and hold the tensions of my identity as I unearth the truths of Canada's settler colonial past *and* present. I began asking myself what it means to be a treaty person after learning the deception and unethical practices that were involved throughout the treaty signing process across the nation. As a teacher candidate, I was reacquainted with a social studies curriculum that did not view Indigenous-settler relations as an entity of the past; but rather relations continuing to be shaped in the present and impacting our futures on Turtle Island. My decolonizing journey and "conscientization" (Tuck & Yang, 2012, p.4) had officially begun. Through critical reflexivity and intentional introspection, I started deconstructing my Western ideologies, assumptions, worldviews, biases, and experiences in both my professional and personal lives. In a COVID-19 world, this meant a lot of reading from Indigenous authors alongside my studies that led to a rapid unravelling of my "colonial cloak" (Korteweg & Fiddler, 2018, p. 255). Without reservation, this cloak was torn apart.

As I continue my decolonizing journey and grapple with my settler identity, I realize that my role as a treaty partner is to acknowledge my identity as a settler educator and meet my responsibilities to the Land and the Indigenous peoples of this Land by teaching and educating youth. Currently, my most pressing responsibility is to hold myself accountable to my un/re-learning journey and to continue decolonizing my Western worldviews/science/ways of knowing; and model this for other settler science educators to work towards *truer* truth and reconciliation. Although there are many tensions between Western and Indigenous ways of knowing, there is something valuable to be learned about holding these knowledge systems in

tandem or direct contrast. When these knowledge systems are brought into relation, science education can then acknowledge its over-emphasis and complicity in Western science supremacy before ethically making space for and validating IK systems.

After a medicine walk in Jasper, AB, the Knowledge Keeper shared an excerpt from Robin Wall Kimmerer's (2013) *Braiding Sweetgrass,* that has/continues to guide me through my decolonizing journey and portfolio tasks. Through Kimmerer's teachings, I have come to learn that I can never be Indigenous to this place (Canada, or Turtle Island), as this is a birth-right word (Kimmerer, 2013). I *can* work to decolonize my settler worldview and become "naturalized" (Kimmerer, 2013, p.215) to place, which means to:

> "live as if this is the land that feeds [me], as if these are the streams from which [I] drink, that build [my] body and fill [my] spirit… to know… [I] will give [my] gifts and meet [my] responsibilities… to take care of the land as if our lives and the lives of all our relatives depend on it. Because they do" (p. 215).

As a settler educator, I must continue working towards intentional naturalization (Kimmerer, 2013) in/of place so that I can ethically bring decolonial perspectives/knowledges into my teachings and encourage settler accountability along this path; accountability to the roles and responsibilities of the original treaties promised to both Indigenous peoples and the Land, along with the Calls to Action for educators (#62-65; TRC, 2015) in the TRC's final report.

Where are you going? Tenaciously Tearing Threads

As a settler educator and curriculum researcher, I bring to my portfolio research much humility and recognize that I am not an expert in IK nor Land-based pedagogies; rather I have the ability to offer curriculum planning/design skills and use my voice and settler privilege to advocate for an ethical space (Ermine, 2007) where IK is respectfully included in science

education. As a settler who is moving from Ontario to Alberta, I also recognize my role as a visitor and co-learner, and responsibility to learn the treaties *before* I learn the stories. My research sought to amplify the voices of Indigenous/decolonial scholars, while concurrently examining my own decolonizing journey as a settler educator and treaty partner. My portfolio supports other settler (science) educators in decolonizing their own ways of knowing *about* the Land and Indigenous peoples; motivating them to begin their journey inward before looking outward to engage respectfully *with* community. Through my portfolio tasks, I hope that my stories/experiences will help other settlers who are tentative or lost in their own decolonizing journey to develop the stamina (Stein et al., 2021) to begin/continue unweaving their settler colonial cloaks and seeking decolonial community forums to hold themselves accountable as active treaty partners to both the Land and Indigenous peoples.

This work holds many implications for future research involving decolonial Land pedagogy and IK-respectful science curriculum reform/approaches. It is with a good heart and mind that I continue advocating for IK/perspectives to be respectfully and ethically included in science classrooms that honour Indigenous ways of being, knowing, doing, and belonging; learning that is community-driven and Land-based. Although my portfolio does not directly impact an Indigenous community, I firmly believe that my role as a settler educator on this decolonizing journey indirectly contributes to Indigenous justice as I actively disrupt the settler spaces I take up and encourage other settler educators to do the same. Through this portfolio, I challenge myself and other settler (science) educators to embrace *wâhkôhtowin* (Cree for kinship and relationality; Donald, 2021, p. 58) and develop the stamina (Stein et al., 2021) required for continued, lasting engagement as they participate in introspective reflection, decolonial Land/Indigenous relations, learning treaties/truths, and embracing co-learning in community.

CHAPTER 3: LITERATURE REVIEW

Introduction

For decades, most Canadians graduate from secondary school with (i) minimal education on Indigenous peoples with whom they share treaties (Tupper & Cappello, 2008; Schaefli et al., 2018), and (ii) a colonial narrative of Canadian curricula that continues to undermine Indigenous Knowledge (IK) of the Land (Donald, 2022; Wildcat et al., 2014). This settler cultivated ignorance and perfect stranger position (Higgins, Madden & Korteweg, 2015) to both historical and contemporary Indigenous realities perpetuates the current settler-colonial education system, where many gaps in pedagogy and curriculum result in profound failures to ethically address teachers' roles and responsibilities for truth and reconciliation (TRC, 2015).

Environmental science education is also complicit in settler colonialism, as hierarchical, compartmentalized thinking dictates how one is expected to know nature (Hatcher et al., 2009); where humans are separate and superior to rather than interconnected with and learning from nature (Bang et al., 2022; Simpson, 2014). Indigenous and decolonial scholars rigorously theorize that the education system has and continues to sever relationships between humans/settlers and the Land, engendering the climate crisis, and deny or ignore relationality with Indigenous peoples of this Land, engendering denialism, oppression, and violence (Bang et al., 2014; Hatcher et al., 2009; Simpson, 2014; Stein, 2019; Wildcat et al., 2014). In spite of these socio-cultural-historical truths and structures, educators must remain optimistic that "[e]ducation has gotten us into this mess, and education will get us out" (Sinclair, 2016, para. 10), especially when environmental science education recognizes and centers IK systems that respect Land as both first teacher and curriculum (Simpson, 2014).

This literature review explores the possibilities for decolonial Land pedagogies in environmental science education and addresses the following research question: *How can Indigenous Knowledge (IK), stories, and decolonial perspectives of Land relations impact settler educators' reconciliatory capacities with Indigenous peoples and the Land?* I review the literature through a critical analysis of the following elements: (1) settler relations, both historic and contemporary, with Indigenous Land and life; (2) the role of education in decolonization; (3) ways of knowing and being (onto-epistemologies) in decolonizing education; and, (4) the potential for Land education to move the field of place-based education towards its TRC responsibilities.

Historical and Contemporary Relations

Human-Human Relations: Indigenous-Settler Relations Calls for Reconciliation

Canada's existence is predicated on settler-colonial forces that trace back to the 16th century when European explorers began colonizing Indigenous Land (Mullins, Lowan-Trudeau & Fox, 2016). Although Indigenous peoples had well-established, time-immemorial knowledge and social systems based on reciprocity and relationship, assimilationist colonizers were adamant in forcing their Eurocentric values, culture, and worldviews upon both the peoples and Lands of Turtle Island (Mullins, Lowan-Trudeau & Fox, 2016). Since contact, Indigenous-settler relations have been turbulent through periods of forced displacement/removal from ancestral Lands, deceitful treaty negotiations (Treaty 7 Elders et al., 1996), cultural genocide through the residential school systems and Sixties Scoop (Woolford, 2015), insidious Land claim negotiations (Snow, 2005) ongoing exploitation and extraction from reserves (Treaty 7 Elders et al., 1996), inequitable environmental degradation of Indigenous Lands without proper reparation or consultation (Lowan-Trudeau, 2015).

Currently, decolonial scholars posit that one of settler colonialism's most oppressive feature is its embedded denial to recognize its very existence (Bang et al., 2014; Tuck, McKenzie & McCoy, 2014); or the (un)conscious desire for "colonial cloaks" (Higgins, Madden & Korteweg, 2015, p. 251) to remain tightly threaded to maintain invisibility/avoidance of Indigenous peoples. This phenomenon is troublesome for Indigenous-settler relations as settler colonialism is not situated in the past; it prevails in the present and must be acknowledged in order to break down the barriers that obstruct more equitable and respectful relationships.

Decolonial scholars urge the field of environmental education to critically uncover neocolonialism in the present to reconcile relations by: analyzing underlying beliefs, assumptions, and biases that entrench colonial pedagogies/relations (Scully, 2020) and repairing relationships with Indigenous peoples (Hansen, 2018; Mullins, Lowan-Trudeau & Fox, 2016; Simpson, 2014) through ethical relationality (Donald, 2012). Mullins, Lowan-Trudeau & Fox (2016) caution settlers of shallow reconciliation attempts and appropriation, while Tuck & Yang (2012) describe many "settler moves to innocence" (i.e., settler nativism, fantasizing adoption, colonial equivocation, conscientization, at-risking and asterisk-ing, etc.; p. 4) that are incommensurable with Indigenous-settler decolonization/reconciliation; which ultimately reify settler colonialism, as 'moves to innocence' resolve settler guilt and maintain complicity rather than relinquish power/privilege. Evidently, decolonial environmental science education that repairs and restores Indigenous-settler relations is rooted in Indigenous (not settler) futurity (Tuck & Yang, 2012) and seeks to unravel settlers' "colonial cloaks" (Higgins, Madden & Korteweg, 2015, p. 251); shifting from perfect stranger to informed treaty partner who recognizes one's decolonizing roles and responsibilities.

Colonial 'Habits-of-Being' and Modern Promises

Stein (2019) sheds light on colonial violences in contemporary systems (including education), stating how "[w]e don't just have a knowledge problem — we have a habit-of-being problem" (Shotwell, 2016 p. 38 as cited in Stein, 2019, p.198). These habits-of-being are supported by interrelated colonial structures complicit in genocide, ecocide, oppression, commodification, extractivism, displacement, and exploitation; which include but are not limited to: capitalism, a nation state political system, a universal (Eurocentric) knowledge system, a hierarchical social system, and a foundation of separation. These systems work together to promote a set of Western ideals or "modern promises" (p. 198), such as the following: 1) where the modern promise of accumulation in a capitalist system supports the racialized exploitation of human and more-than-human beings; 2) where the promise of certainty through a universal Western knowledge system idealizes certainty and denies any countering knowledges (i.e., IK) in order to maintain control/order; and. 3) where the promise of mobility founded within a hierarchical social system ensures that one's worth is solely tied to their capacity to produce economic value. As Stein (2019) argues, these habits-of-being can never be fulfilled and are "ethically harmful and ecologically unsustainable… premised on the denial of our entanglement and the ceaseless racialised exploitation and expropriation of labour, land and 'natural resources'" (p. 198). Decolonial environmental/climate science education must expose and counter harmful modern promises and support a divestment from unsustainable systems.

Western Science and Indigenous Knowledge

What is defined as knowledge or science is "deeply steeped in social and cultural tradition and reflects the worldview of the definer" (Little Bear, 2000 as cited in Hatcher et al., 2009, p. 142). When colonizers came to Turtle Island, they brought with them their own

definition of knowledge based on 17th century Renaissance philosophers whose findings were derived from empirical observation (Hatcher et al., 2009). Since contact, Western and IK have long been compared and contrasted as "jagged worldviews colliding" (Little Bear, 2000, p. 77); where Western knowledge seeks to categorize, compartmentalize, and isolate, and IK works within the bounds of nature through an ethical engagement or coming to know process in the natural world (Cajete, 2000). Since time immemorial, IK has been based on interdependence and interconnection rather than separation and isolation; as learning prioritized harmony with all living beings and developed through ethical relationships between Indigenous peoples and the Land over millennia (Cajete, 2000; Kapyrka & Dockstator, 2012). IK systems "represent a way of knowing which is relevant to all aspects of Indigenous tradition… contextual and experiential" (Hatcher et al., 2009, p. 143) and learning is rooted in Land-based wisdom traditions. Through this theoretical exploration of both Western and IK systems, it is evident that one's ways of knowing is intricately enmeshed in a worldview that can lead to deeper dis/connection between humans and the more-than-human world.

Human-More-than-Human Relations: Land Disconnection and Climate Crisis

"The story of our relationship to the earth is written more truthfully on the land than on the page. It lasts there. The land remembers what we said and what we did. Stories are among our most potent tools for restoring the land as well as our relationship to the land. We need to unearth the old stories that live in a place and begin to create new ones, for we are storymakers, not just storytellers" (Kimmerer, 2013, p. 341).

Kimmerer's statement on Indigenous relationality to the Land (or Mother Earth) stands in sharp contrast to Stein's (2019) aforementioned "modern colonial habits-of-being." Both authors write of "onto-epistemologies" (Williams, 2013 p. 95), or ways of knowing and being in the

world with the Land. Onto-epistemologies determine not only how one views themselves in connection to (or as an extension of) the Land; it further molds how one interacts with, shows responsibility for, and relates to more-than-human beings (Williams, 2013). Through themes of hierarchy/holism and individualism/interdependence, this next section highlights Indigenous and decolonial scholars who posit how current disconnection from the Land (evident through the climate crisis) could be attributed to the ongoing supremacy of Western ways of knowing/being.

Western science prioritizes empirical, objective and quantifiable observations that work beyond the bounds of nature, as humans are viewed as separate and superior to the Land (Little Bear, 2000; Hatcher et al., 2009). In contrast, Hatcher et al. (2009) emphasize how the "basic premise of Indigenous sciences is participating within nature's relationships, not necessarily deciphering how they work" (p. 141). Kapyrka & Dockstra (2012) further this notion, sharing that IK's aim is not to *explain* the universe by forming theories/conclusions/facts, rather it seeks to understand one's *responsibility to* the universe. IK honours kinship relations as they learn *from/with/for/on* (not *about*) the Land, as Land is considered first teacher (McGinty & Bang, 2016; Simpson, 2014), the content and context of all learning (Simpson, 2014). Euro-western theories that emphasize individualism, independence, and hierarchy must be closely analyzed and deconstructed in order to combat settlers' inherent teachings that deny ethical relationality (Donald, 2022) and exacerbate settler disconnection from both the Land and Indigenous peoples of the Land. It could be argued that settlers' continued denial of ethical relationality to both human and more-than-human beings have rendered both the climate crisis and demand for decolonization in Canada; as Indigenous peoples continue to be oppressed/suppressed and Land or 'natural resources' are unsustainably commodified and extracted. It is evident that in order for settlers to reconcile relationships to Indigenous Land and life, the process of decolonization must

first be addressed. The next section will discuss education's historical and contemporary complicity in the institutionalization of Western knowledge to support the argument for the field's responsibility in decolonization.

Education's Responsibility in Decolonization

From a Colonial Weapon to a Tool of Decolonization

Recognizing that education has been historically linked to the cultural oppression and genocide of Indigenous peoples in Canada is essential to move education from a colonial weapon to a decolonial tool. The education system has been/continues to be assimilationist and perpetuates divisive colonial legacies (Donald, 2022); not only through the residential school system, but through the continued undermining and perpetuation of false narratives and tokenistic inclusion of Indigenous peoples, culture and knowledge (McGregor, 2017; Simpson, 2014; Wildcat et al., 2014). In brief, colonization has replaced kinship relationality with Canadian nationality (Donald, 2022). Evidently, there is much collaboration that must occur, through Indigenous leadership, in order to decolonize educational systems, curriculum, and pedagogies. Donald (2021) profoundly expresses this gap in pedagogy best, asking: how can we "facilitate the emergence of a new story that can repair inherited colonial divides and give good guidance on how Indigenous peoples and Canadians can live together differently[?]" (p. 53).

Challenges with 'Indigenizing' Curriculum as Settler Educators

Environmental science education cannot stay neutral (or claim that they are non-colonial within a settler colonial system) as there is no longer "the time or privilege to ignore or avoid the devastating sociocultural and political costs of colonization" (Korteweg & Russell, 2012, p. 6). In decolonization efforts, it is important to rebalance power dynamics through the integration of Indigenous experiences, voices, stories, perspectives, knowledges, etc. However, Indigenous

peoples cannot carry this load alone; they require the support of settler allies to decolonize the spaces they take up. Therefore, a distinction between how settlers can decolonize (not Indigenize) their pedagogy/curriculum/practice must be made; since "the English language (the colonizer's tongue)" (Korteweg & Russell, 2012, p. 9) can (un)consciously assimilate, misinform, belittle, or racialize a culture/knowledge system. Therefore, decolonial education requires creative, inclusive, and respectful ways to approach decolonizing environmental/climate science education in alliances with Indigenous peoples, so that IK is included as opposed to assimilated or oppressed (Kapyrka & Dockstator, 2012).

Decolonization: A Settler Responsibility

Indigenous peoples have resiliently resisted colonialism through community strength, cultural reclamation, self-determination, language revitalization and IK resurgence (Simpson, 2014). Undoubtedly, the onus of decolonization work falls on the shoulders of settler-Canadians to be (re)educated so that they can engage with Indigenous peoples in an ethical and respectful way (Scully, 2012; Simpson, 2012); as settler-cultivated ignorance and perfect stranger positioning (Higgins, Madden & Korteweg, 2015) continue and remain ever apparent in dominant settler-colonial culture. Donald (2009) states that "decolonization in the Canadian context can only occur when Aboriginal peoples and Canadians face each other across historic divides, deconstruct their shared past, and engage critically with the realization that their present and future is similarly tied together" (p. 5). In order to confront the dual degradation of settler relationships to the Land and people of the Land, one must practice "learning to listen differently" (McGregor, 2017, p. 7) in order to un/re-learn the interconnections between Western onto-epistemologies and modern colonial processes (Stein, 2019). Decolonizing also involves the constant questioning of colonial myths in order to counter "colonial frontier logics" (Donald,

2012, p.91) that (sub)consciously divide and racialize. In order to deconstruct and "desettle" (Bang et al., 2012; p. 302) one's nature-culture relations (McGinty & Bang, 2015), environmental/climate science curriculum and pedagogy must critically examine settler onto-epistemologies so that there can be respectful, collaborative cross-cultural exchanges in an "ethical space" (Ermine, 2007, p. 193).

Critically Examining Onto-Epistemologies for Decolonizing Education

White Supremacy in the Institutionalization of (Western) Knowledge

Schools are complex institutions that define, mobilize, and apply what counts as knowledge, truth, fact or theory (McGregor, 2017). This phenomenon that McGregor (2017) denotes as the 'institutionalization of knowledge' (p.9) is the "making and unmaking of what knowledge is and does… is increasingly encultured and enculturating in a two-way transaction that produces new outcomes" (p.9). Seeing the inherent responsibility that comes with how knowledge is institutionalized, decolonial and Indigenous scholars discuss the "supremacist structures of knowing and being" (Varga & Shear, 2022, p.2) in education that are deeply entrenched in settler-colonial thinking and call for revised approaches to respond to the needs of their students. Seeing as the universality of Western knowledge has continued to suppress/oppress IK, settlers must come to know themselves as cultural beings (Higgins, Madden & Korteweg, 2015) and critically analyze their own Western onto-epistemologies (Bang & Medin, 2010; Williams, 2013) through a Two-Eyed Seeing approach.

Two-Eyed Seeing or "Two-Worlds" Approach

Mi'kmaq Elder Albert Marshall coined the term *Etuaptmumk,* or Two-Eyed Seeing (TES; Marshall, 2012, p.1). TES is defined as a gift of "learning to see from one eye with the strengths of Indigenous ways of knowing and from the other eye with the strengths of Western ways of

knowing and using both of these eyes together" (Hatcher et al., 2009; p. 146). Although Marshall highlights how this approach seeks to avoid the blending of ways of knowing, there are some criticisms regarding the possible perception of a binary approach; where one might dichotomize knowledge systems or even try to amalgamate them (Rich, 2012). However, Dockstator & Kapyrka (2012) counter this argument: "it does not merge two knowledge systems together… rather it avoids knowledge domination and assimilation by engaging in a learning philosophy based in equitable inclusion" (p. 106). Hatcher et al. (2009) propose that integrative science, the interface between Indigenous and Western science, could allow students to understand elements of both knowledge systems, holding cross-cultural potential to "move beyond borders to connectedness, to accept the 'interdependency of one with the other and with all of 'creation'" (Marshall, Marshall, & Iwama, 2010, p. 174 as cited in McKeon, 2012, p. 136). Kapyrka & Dockstator (2012) remind us that there is "much to be learned from holding different knowledge systems in tension" (p. 104), and decolonial education that juxtaposes both ways of learning and doing is essential in order to develop a critical, compassionate consciousness in students.

Decolonial Environmental (Science) Education:

Moving Place-based Education Forward into Decolonizing Land Relations

Many decolonial scholars reflect on place-based education (PBE) models as limiting and complicit to settler colonialism as they fail to engage in the historical and contemporary contexts of neocolonialism in relation to Indigenous Land and treaty rights (Bang et al., 2014; Korteweg & Russell, 2012; Tuck & Yang, 2012). In order to move towards greater ethical relationality with Indigenous peoples, decolonizing Land relations (Simpson, 2014; Tuck, McKenzie & McCoy, 2014; Wildcat et al., 2014) through PBE holds great "potential for centering indigeneity and confronting educational forms of settler colonialism" (Wildcat et al., 2014, p. 2). Land education

shifts from hierarchies to circular pedagogies as human life is viewed as embedded in and extending from the Land. Bang et al. (2014) state:

> "[W]e might imagine that ontology of place-based paradigms is something like 'I am, therefore place is,' in contrast, the ontology of land-based pedagogies might be summarized as 'Land is, therefore we are'" (p. 45).

Indigenous and decolonial scholars have been examining the benefits of Land pedagogies for both Indigenous and settler education; where teaching/learning is rooted in the Land, waters and stories of Indigenous peoples and recognize the reciprocal relations shared since time immemorial (Wildcat et al. 2014). Land education is inherently tied to Indigenous futurity (Wildcat et al., 2014; Eve & Tuck, 2014) and is not just for Indigenous peoples; rather settler-Canadians have an inherent responsibility to learn Indigenous ways of living and being in relation. Scully (2020) supports this notion, emphasizing how settlers must understand themselves in relation to Land and to Indigenous peoples so that they can uphold treaty responsibilities and move forward towards right relations.

Land as Context, Curriculum, Process and Pedagogy

Indigenous scholars emphasize how Land education honours Indigenous ways of knowing, living, being, and doing. Simpson (2014) shares how "it is unthinkable to impose an agenda onto another living thing – in essence, the *context is the curriculum* and land, *aki,* is the context" (p. 10). Land education honours IK as one learns *through, with,* and *for* the Land. Humans cannot impose an 'agenda' on the Land, rather they come to know through "consensual engagement" (Simpson, 2014, p. 15); or the informed, honest consent of all beings involved. Land education honours Indigenous ways of learning that have existed, and thrived, since time

immemorial; learning that requires one to go out on the Land and engage with it (Simpson, 2014). Land is therefore the context and curriculum, as well as the process and pedagogy.

(Re)membering and (Re)storying Land

An ethical engagement of Land education calls for settlers to both *(re)member* (Styres, 2018) Land as Indigenous Lands, and *(re)story* themselves as settlers occupying contested (stolen) Lands and benefiting from privileged colonial relationships (Bang et al., 2014; Styres, 2018; Tupper & Capello, 2009; Twance, 2019); therefore, a decolonizing praxis where settlers (re)member and (re)story Land requires the development of the following orientation:

> "[A] critical consciousness about the realities of oppression and social inequities for minoritized peoples… to trouble the ways purposeful ignorance twists the historical realities and the ways colonialist ideologies become normalized within national discourses… that explores the ways colonial relations are and continue to be perpetuated and maintained through relations of power and privilege" (Styres, 2018, p. 32).

Scholars further discuss the value of (re)membering and (re)storying Land, offering opportunities to do the following: (re)inhabit spaces and (re)tell stories *in* and *of* place (Styres, 2018); discuss treaties not only as historical documents but of relationships upheld in the present (Tupper & Cappello, 2008); explore Land rights, self-determination, and acts of sovereignty (Lowan-Trudeau, 2015); deconstruct the removal and/or replacement of "original Lands with new Land structures" (Bang et al., 2014, p. 38); and visit landmarks and local spaces that force a (re)membering of Land as storied place (Twance, 2019). Ultimately, Land education "values Indigenous peoples' knowledge and history… [connects] to territory, and positions these relationships in the present, rather than perpetuating the idea that we… are fixtures of the past" (Twance, 2019, p. 1330).

Kinship and Ethical Relationality

Land education honours Indigenous ways of knowing as kinship responsibilities and reciprocal relations are embedded in this way of learning (Simpson, 2014; Twance, 2019). For settlers, this kinship begins when decolonial Land education breaks down settler forts and juxtaposes the tensions of shared colonial histories and colonial frontier logics (Donald, 2012). Donald (2012) proposes the concept of ethical relationality, where one is asked "to see ourselves implicated in the lives of others not normally considered relatives" (p. 93) as it is "the denial of connectivity that allows such violence and exploitation to continue" (p. 102). Ethical relationality for the Land and Indigenous peoples of the Land serves as an important meeting place for settlers decolonizing Land and Indigenous relations.

Language as a tool for Cultural Transformation

Land education could also make space for settlers to explore/expand/extend relations to Indigenous peoples and the Land through the critical analysis and deconstruction of language. Scholars not only highlight the potential for Land education to support Indigenous language revitalization (Twance, 2019), but it can also serve as a tool for greater cultural transformation due to the rich body of IK embedded in animate, verb-based languages (Styres, 2011; Twance, 2019). Including Indigenous languages and deconstructing colonial place names that have overridden original Indigenous names could allow settlers to: (i) retrace colonial histories; (ii) uncover underlying Western or Indigenous values and patterns of relationships with the Land; and (iii) unsettle colonial place names and their complicity in Indigenous erasure and/or appropriation (Bang et al., 2014). Bang et al. (2014) make visible the importance of colonial language deconstruction through their analysis of the term 'invasive species' with a youth program in urban Chicago Lands. They found a colonial worldview embedded within the term

invasive as non-native species were not *ancestral* relatives to Chicago Lands; therefore, 'invasive' disposes them as relatives to *any* human and fails to make visible ecological imperialism; or the "motivation of settlers that brought flora and fauna from their homelands to make these new lands like home" (Bang et al., 2014, p. 47). These findings signify the many opportunities for Land education to integrate Indigenous languages, (un)learn place names, and unpack settler-colonial terms that have implicit biases embedded within them.

Hope (and where we place it) Matters: Climate Science & Indigenous Land/Life

IK-approaches to Land relations must finally be respected, acknowledged, and ethically included in environmental science education as the ramifications of climate change extend across Turtle Island; implicating the interconnected "personal, social, political, and economic spheres of life" (Wynes & Nicholas, 2019, p. 1). In fact, Indigenous peoples of Turtle Island continue to experience disproportionate burdens of morbidity and mortality (Ford et al., 2009) that are exacerbated by the multiple adverse effects from the climate crisis. Ford et al. (2009) explain how these disparities, "combined with a proportionally higher dependence of… livelihoods on the environment, spiritual and cultural ties to the land, demographic trends, and experience of marginalization, makes Indigenous peoples particularly vulnerable" (p. 668). To ethically address neocolonialism in environmental/climate science education, adopting community as curriculum and decolonizing settler relations could support *all* learners to imagine, negotiate, and co-create their futures living in a "climate-altered world" (Field, 2017, p. 83). This approach would welcome and respect Indigenous climate knowledge/perspectives and validate time-immemorial knowledge systems learned *through, from, on* and *for* the Land; seeing as the Land is also a community member and should be identified as first teacher (Simpson, 2014). Reibold (2022) similarly suggests that "decolonization of the ontologies of land and concepts of

self-determination is a precondition for a just response to climate change" (p. 1). I would extend this notion to climate science education, as both Land and Indigenous-settler relations must be de/re-constructed and ethically engaged with, so that sovereignty and self-governance structures are respectfully included in equitable climate change discourse.

When considering environmental/climate science education's dual responsibility for addressing settler-Land and settler-Indigenous relations, the theme of hope surfaces. In her book titled, *Hope Matters,* Kelsey (2020) breaks through the doom and gloom of climate reporting with evidence-based hope; reminding readers of nature's dynamic resilience to climate change. I propose the sources of hope should be called into question by considering the connection to the distinct socio-cultural-historical Lands of Turtle Island, as well as what knowledges are included or excluded within a settler-colonial nation. Andreotti & Stein (2022) share a similar sentiment considering *where* one places hope:

> "Rather than place our hope in an idealized, imagined future, we might place our hope in the quality and integrity of repairing relationships in the present that will in turn enable us to collectively confront whatever wicked problems might come our way" (para. 12).

Rather than place hope in a colonial-idealized, techno-solutionist future, hope must first be placed in the reparation of relationships with all peoples and beings. Environmental science educators must place hope in the present truth and reconciliation process and its potential to strengthen relationships with Indigenous peoples/Lands by walking forward in a new way through *wâhkôhtowin* (Cree for kinship and relationality; Donald, 2021, p. 58), and honouring relationships with all life forms through *mino-bimaadiziwin* (Anishinaabe for living "a good and balanced life with all of Creation"; Toulouse, 2013, as cited in Chief & Smyth, 2017, p. 16). Educators must place hope in restoring the Land presently so that the care we place in the Land

today can be reciprocated for future generations. Hope must be placed in the potential for climate education to support youth in developing “stamina, resilience, and the intellectual and relational rigour that will be required in order to face complex challenges" (Andreotti & Stein, 2022, para. 11). Challenges that will not only be associated with a warming planet, but also the socio-cultural-political challenges that prevent settlers from upholding treaty responsibilities and ethical relationality with Indigenous Land and life across Turtle Island.

CHAPTER 4: METHODOLOGY

Critically Reflexive, Decolonial, Anti-Oppressive Approaches

All research is inherently political in nature: it can marginalize, oppress, and suppress or empower, uplift, and liberate. Potts & Brown (2015) make clear that social justice research requires ongoing critical reflexivity and is not anti-oppressive with good intentions alone; rather it requires the researcher to challenge dominant ideas about the processes and outcomes to ensure each step is done in socially just ways. Critical reflexive methodologies guided me throughout the research process as I was reminded to "uncover and challenge the power relations and… hegemonic assumptions about the nature of the world, the self, and research" (Strega & Brown, 2015, p. 8). To ensure my research was anti-oppressive in nature, I critically reflected on my identity and role as a white settler scholar seeking to hold space for and amplify Indigenous voices in science education by examining my own motivations, assumptions, biases, and privileges; attending "to the gap between how we see ourselves (well meaning, caring, grounded in our own experiences of marginalization) and how others may see us (privileged, representing dominant institutions, not having as much at stake)" (Potts & Brown, 2015, p. 22). By working through three different decolonizing workbooks (See Appendix A), I researched how to reveal to myself my own inherent privileges wrapped up in my settler identity (i.e., opportunities and benefits, affordances of disengagement, moves to innocence, etc.). "De/colonizing" (Madden, 2019) my story through reflexive, decolonial, and anti-oppressive methods was outlined in the decolonizing workbooks and frameworks (Korteweg et al., 2014; Nahanee, 2020; Stein et al., 2021) but also required that I hold myself accountable to do this work as a commitment to right relations with Indigenous peoples and Lands (Scully, 2012; Bang et al., 2014).

Complexities of Engaging in Indigenous Research Methodology (IRM) as a Settler Scholar

As a settler researcher conducting decolonial research in education, I followed Donald (2012) by centering IK and Indigenous research methodology (IRM) grounded in Indigenous paradigms to ensure that ethical relationality was central to my work. And guided by Indigenous scholars and Treaty 7 educational spaces necessitating Indigenous voices, I committed to holding myself accountable to my positionality as a settler researcher enacting the principles of IRM in this territory and by "troubling [my own] good intentions" (Greenwood, de Leeuw & Lindsay, 2013, p.381).

Wilson (2008) describes how a researcher's ontology (nature of reality), epistemology (ways of knowing), axiology (values) and methodology (research processes) are not separate entities or processes; rather they are interconnected and blend into one another to form a research paradigm. As I situate my settler self-study as de/colonizing work, I continuously challenged my implicit ontology, epistemology, and axiology to uncover my inherent Western assumptions, biases, and worldviews. This introspective task allowed me to confront my discomfort, ignorance, and settler-colonial "moves to innocence" (Tuck & Yang, 2012, p.1) in order to nurture not only a good heart, but a "good mind" (Styres & Zinga, 2013, p. 284) for my portfolio research. To ethically ensure that my encounters, interactions, dialogue, writing, and pedagogical tools were relationally accountable to the Land and Indigenous peoples of Treaty 7, I remained critically reflexive and attentive to my changing onto-epistemologies challenged and unsettled throughout this un/re-learning journey. Enacting IRM as a settler scholar, I acknowledge the "multiparadigmatic space… coproduced by Western and Indigenous scholars with the aspiration of… full[er] decolonization" (Held, 2019, p.2). This multiparadigmatic space, with all of its

potential explorations, tensions, discomfort, pivots, and un/re-learning moments, was critically documented and reflected on throughout the self-study portion of my portfolio (Task 2).

As Wilson (2008) posits, Indigenous research is a ceremony that maintains accountability to all relations (including peoples, Land, waters, and ideas) and involves "the building of more relations" (p. 79). Absolon (2011) extends this notion through *Kandossiwin,* describing how Indigenous researchers re-create and re-theorize methodologies as IRMs are not only relational, but wholistic, inter-relational, and interdependent with Indigenous philosophies, ways of knowing, being, and living; methodologies that are otherwise repressed/suppressed in Western research. As wholistic relationality is fundamental to IRMs, I authentically positioned myself as a white settler in my research and located my relations: my ancestral ties, my living history, the Land and waters of my residence, and Indigenous nations with whom I share treaty, within the context of settler colonialism. As a settler who recently moved to new Lands (leaving Treaty 16 of Barrie, Southern Ontario to Treaty 7 of Calgary, Southern Alberta), I took seriously my role as a new visitor and associated treaty responsibilities as I seek to establish relations in community with Indigenous peoples/Lands in this new treaty territory.

IRM & Relational Accountability through *Keeoukaywin:* The Visiting Way

To uphold relational accountability as a visitor on Treaty 7 territory, I was guided by Gaudet's (2018) IRM of *Keeoukaywin;* where Land education, or *milo pimatisiwin* (Cree for living and being well in relation or 'the good life'), connects with Métis-Cree ways of being through visiting. Gaudet (2018) describes how *Keeoukaywin* methodology emerged from her research, time and relationships with the Omushkego people of Moose Cree First Nation. *Keeoukaywin* honours ancestral ways of learning, the wellbeing of community, the importance of being visited by relatives, and reciprocity through the giving and receiving of this gift.

I recognize that Gaudet's IRM was created in collaboration with a (Swampy) Cree community in the Far North (James Bay) of Ontario, and that (Plains) Cree nations (as well as Blackfoot, Tsuut'ina, Stoney Nakoda, and Métis) who are present and reside in Treaty 7, each have their own unique cultures and protocols. As an IRM, *Keeoukaywin* served as the *starting point* that guided and prompted me to ensure all engagements (i.e., community events, local initiatives, historic sites, gatherings, visiting the Lands) were reciprocal and respectful; as the visitor also has responsibilities to uphold to a host. As I visited both human and more-than-human teachers (e.g., Lands, waters, animals, etc.), I necessitated reciprocity by asking what gift I could share to express gratitude from the heart. By researching with this IRM, I ensured that my visits promoted the wellbeing of human and more-than-human communities and served to bring about more respectful kinship relations.

The questions shared by Wilson (2008, p. 77, as quoted in Gaudet, 2018), guided my relational accountability throughout the entirety of my portfolio research. I continuously asked:

- How do my methods help to build respectful relationships between the topic I am studying and myself as a researcher (on multiple levels)?
- What is my role as a researcher in this relationship, and what are my responsibilities?
- What am I contributing or giving back to the relationship?
- Is the sharing, growth, and learning that is taking place reciprocal?

Through *Keeoukaywin,* I grounded my research methodology in respect, relationship, responsibility, and reciprocity as I uncovered my visiting responsibilities to Treaty 7 nations, Land, and life.

Living & Learning Unsettled: A Self-Study of Decolonization

Before I learned the treaties and unearthed the stories held within Mohkinstsis (Calgary, AB) through the *Keeoukaywin* IRM described above, I first engaged in a self-study by integrating three decolonizing workbooks/frameworks by prominent Indigenous/decolonial scholars. Through Korteweg et al.'s (2014) "Circle Continuum of Teacher Identity Growth" (p.26) ebook, I highlighted key moments or 'epiphanies' along my decolonization journey, which Ellis, Adams & Bochner (2011) define as "remembered moments perceived to have significantly impacted the trajectory of a person's life, times of existential crises that forced a person to attend to and analyze lived experience, and events after which life does not seem quite the same" (p. 275). These epiphanies speak to moments where I circled back/through stages of awareness, engagement, responsive practices, and allyship, and passed through levels of cognitive and affective sticking, stumbling, and swimming; ultimately representing the non-linearity or circularity of my decolonizing journey.

By synthesizing the decolonizing workbooks by Stein et al. (2021) and Nahanee (2020), my decolonizing self-study was documented and analyzed through a variety of written prompts, critical questions, and reflective opportunities to document the non-linearity of my growth, obstacles, roadblocks, uneasiness, uncertainty, frustration, empowerment and commitment. The workbooks encouraged me to challenge my own settler biases, assumptions, complicities, and worldviews needed to further develop my stamina and critical consciousness (Tuck & Yang, 2012) for lasting engagement. Serving as vital pre-sensitization homework, these decolonizing workbooks helped me move forward with a good mind and prepare my future self for building respectful relations with Treaty 7 nations, communities, Lands, and waters.

CHAPTER 5: PORTFOLIO RESEARCH FINDINGS

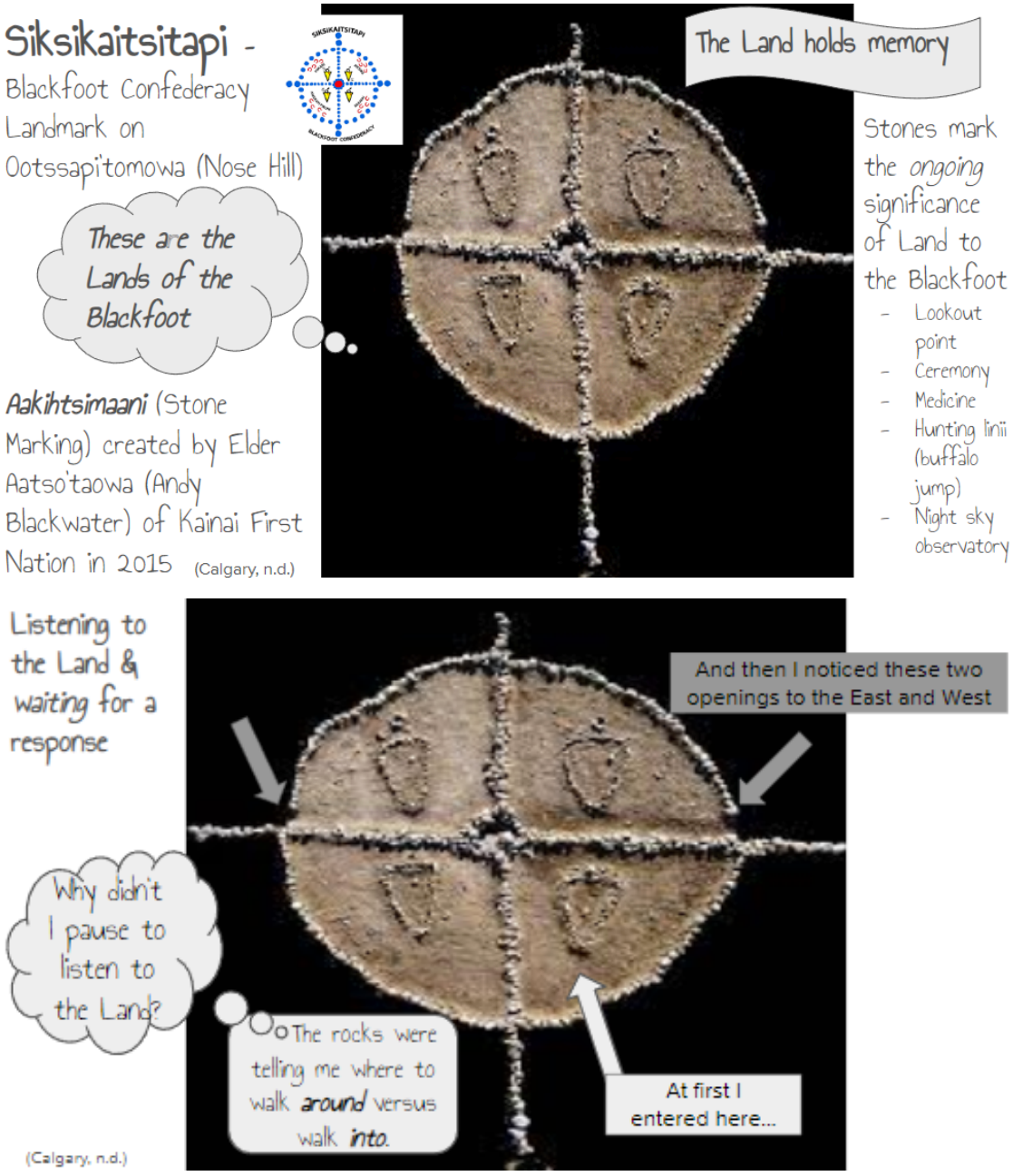
Portfolio Task 2 – Through My Settler Eyes: Documenting my Decolonizing Journey of Treaty Responsibilities as a Settler-Visitor on Treaty 7 Territory

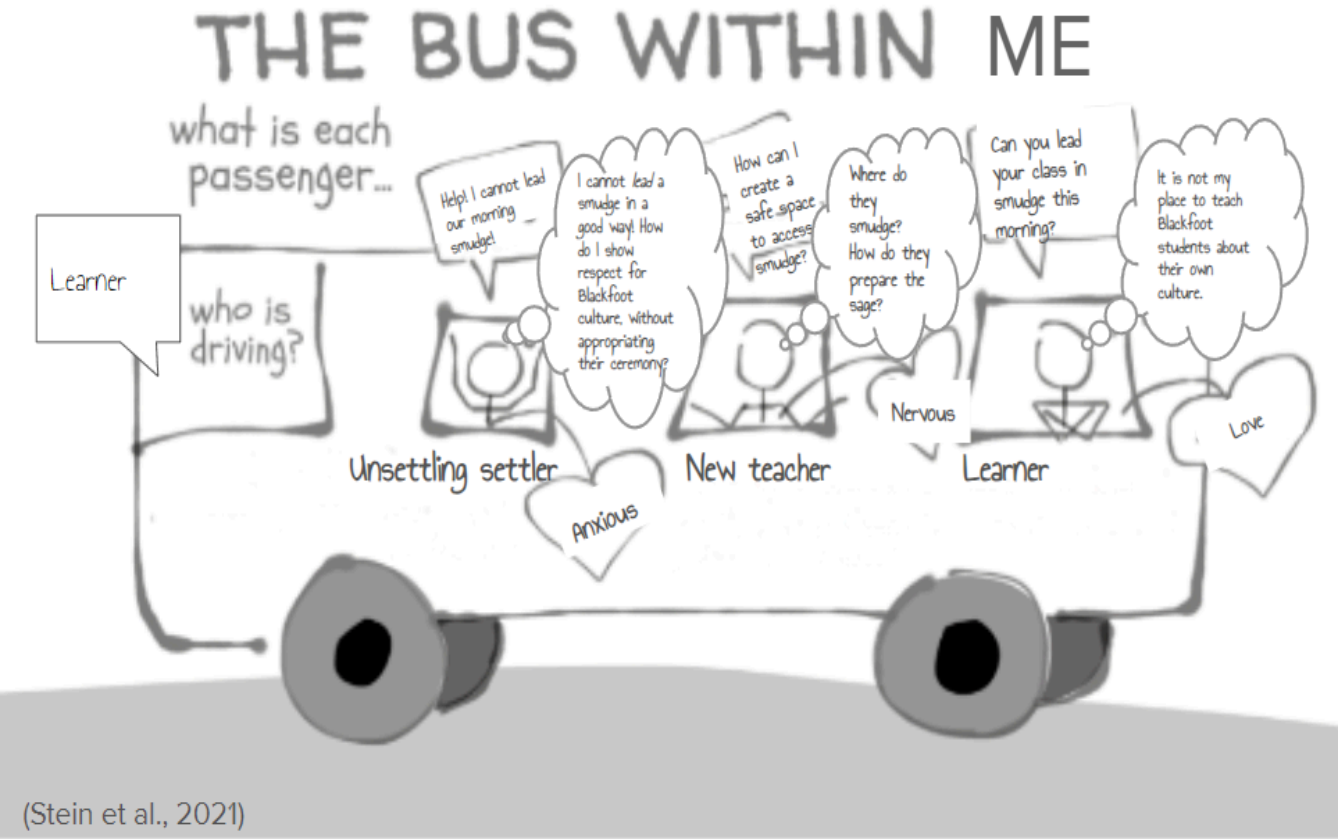
My decolonizing self-study documents my journey as I continue in my decolonizing work and building new relations on Treaty 7. As a new settler educator moving across Turtle Island two years after I began this un/re-learning journey, I recognize my role and inherent responsibility to continue challenging my Western beliefs while also necessitating the learning of the treaty and stories of the Lands/peoples of Treaty 7 territory; in order to reciprocally enter into relationships in a good way, with a good heart and mind. Beginning this journey with critical reflexivity through self-decolonizing work allows me to continue challenging my own assumptions/biases, feel the tensions, and work through them in meaningful ways; rather than succumbing to "impervious ignorance" (Korteweg & Oakley, 2014, p. 139).

Guided by the Visiting Way IRM (Gaudet, 2019), I sought to get out on the Land and find public learning opportunities to unearth the truths waiting to be heard in Treaty 7 territory (i.e., visiting local parks, neighbourhoods, libraries, museums, forts, National Heritage Sites, UNESCO-designated World Heritage Sites, powwows, Indigenous-led performing arts and storytelling events, etc.). Through reflexive journaling and photo documentation, I recorded my experiences, guiding questions, and reflections while visiting Treaty 7 Lands, as well as when substitute teaching in a local school board. I also used Korteweg et al.'s (2014) "Circle Continuum of Teacher Identity Growth" (p.27) as a reflexive tool to document and reflect on my growth as a settler-guest seeking to build new relations; shifting through awareness, engagement, responsive practice, and into advocate/ally [See Appendix A, Figure A1]. See Appendix A to

view the *'Vignettes of my Personal Decolonizing Journey'* where the circular, non-linear growth of my decolonizing teacher identity growth is reflected upon.

- Click on the hyperlink here to view the full version of the *Vignettes of My Personal Decolonizing Journey*: https://docs.google.com/document/d/14qSG2l0WHxBODb5-vYofGPSZx4_1zo6a56uta4GGJD8/edit?usp=sharing





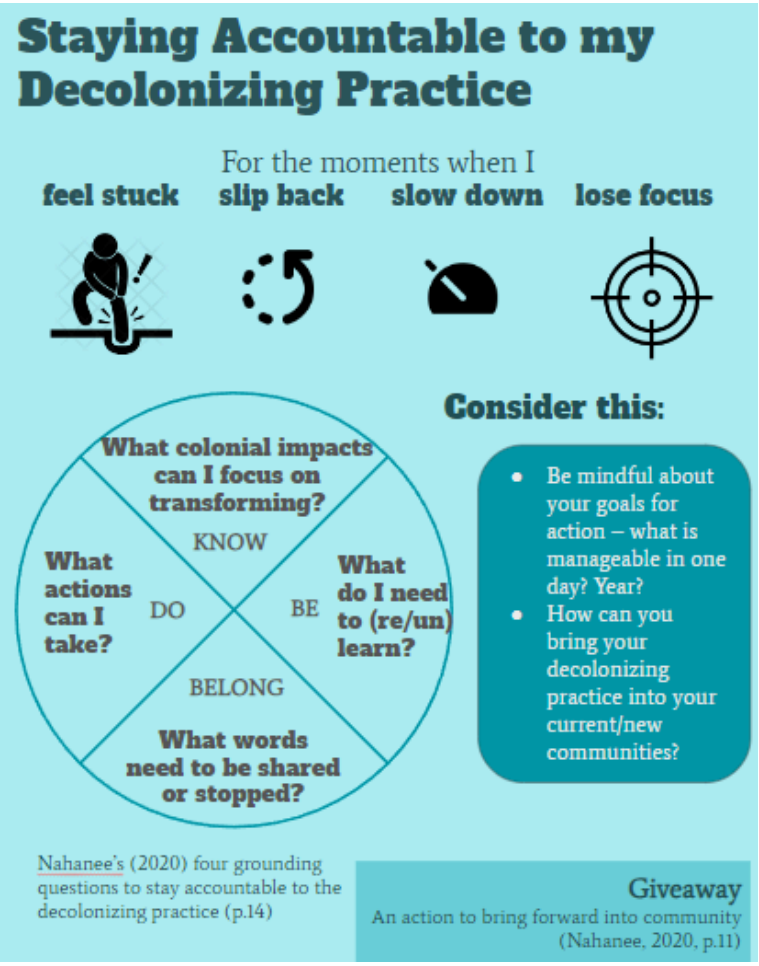
Decolonize First

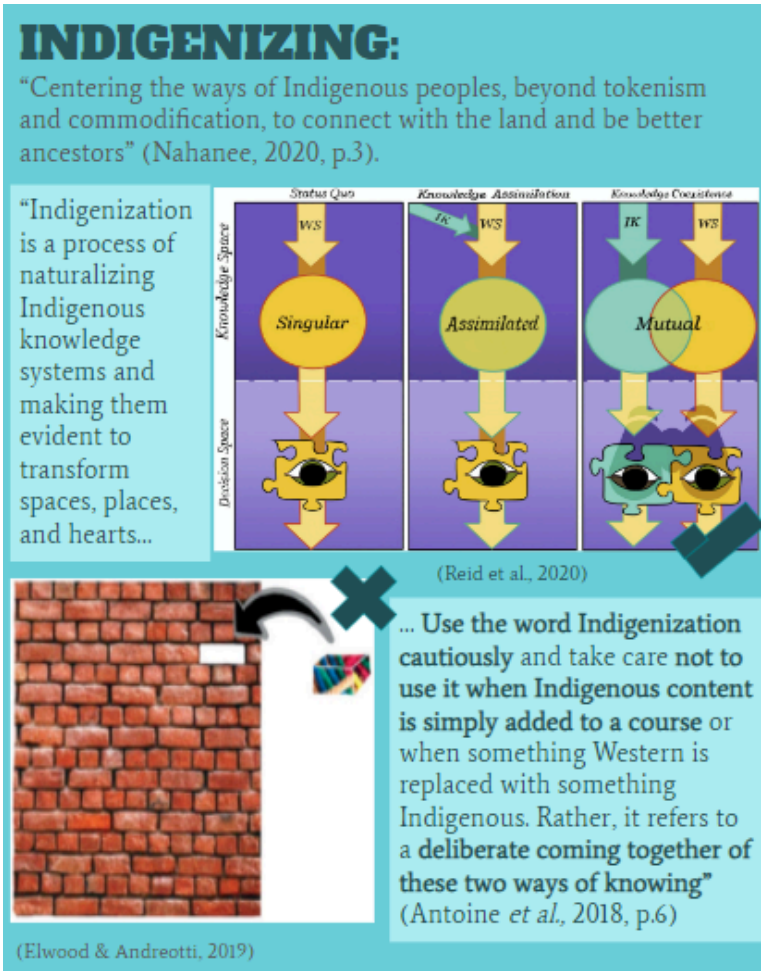
Both Nahanee (2020) and Stein et al. (2021) prefaced their decolonial workbooks with the intention to redistribute labour off Indigenous peoples' backs; rightfully transferring the load onto settlers who must stay accountable to this de/colonizing work for approaching reconciliation. As white settlers are called to question their own worldviews, investments, and assumptions, too often there is a perception that these answers and/or aid can or should be sought only from Indigenous peers, colleagues, friends, acquaintances, etc. Although there might be certain questions that can only be respectfully addressed by Indigenous peoples firsthand, much of the decolonizing work that requires reflecting on complicity in colonial habits of being and investments in complicit systems can actually be harmful to Indigenous peoples and an unnecessary load to bear or endure the brunt of as they work to support the needs of their own

communities contending with ongoing inequities. Moreover, settlers *choosing* to engage in decolonizing work still represents a privilege as settlers do not have as much at stake or a load that carries over into their own daily lives or communities. In order to take accountability for my own decolonizing process and redistribute any labour away from Indigenous peoples, I used Nahanee's (2020) *Decolonize First* and Stein et al.'s (2021) *Developing Stamina for Decolonizing Higher Education: A Workbook for Non-Indigenous People* to continue my decolonizing journey when I moved to a new treaty territory and began building new relationships to the Lands and peoples here while simultaneously uncovering my new responsibilities as a treaty partner, settler visitor, and educator on Treaty 7 Lands. See Appendix A to view my personalized *'Decolonize First Reflections'* Google Slide deck where I was challenged to reflect deeply on my intent for decolonization, consider my complicity in settler colonialism/neo-colonialism along with the (un)conscious privileges afforded to me in this system, and further, deconstruct my worldviews and assumptions

through a decolonial lens. Given my experiences teaching in a local school board as well as Nahanee's (2020) provocation of Land acknowledgements as a decolonizing practice that acknowledges *and* honours Indigenous stewards of the Lands that have/continued to sustain us, I have created a Land acknowledgement to elicit both ethical relationality (Donald, 2022) and colonial entanglements in order to make greater commitments to this work for my future audience(s) [See Appendix A].

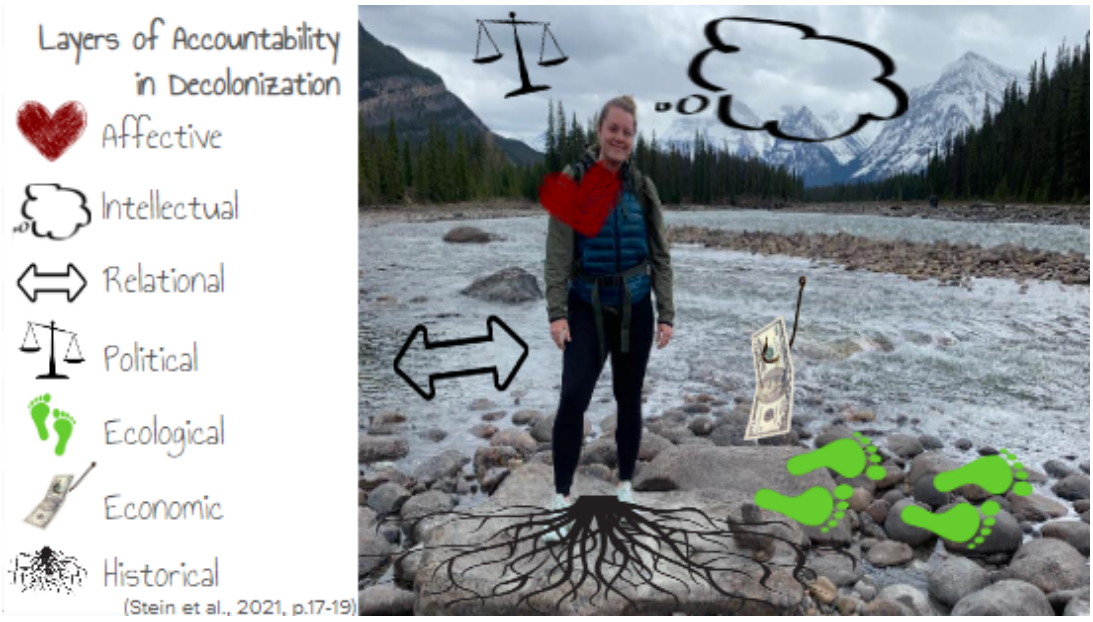
- Click on the hyperlink here to view the full presentation for my *Decolonize First* Reflections*:* *https://docs.google.com/presentation/d/1uw5Wvcx Solcy7vd7hSGzogkIEX1HPmsGQKs7H5C5Gd8/edit?usp=sharing*





Layers of Accountability in Decolonization: Personal & Pedagogical Reflections

Stein et al. (2021) describe the many layers of accountability in decolonization work, which include the following: affective, intellectual, relational, political, ecological, economic, and historical accountability. They describe how interconnected these layers are and how they can help settlers consciously reflect on their own ignorance of colonial institutions' histories and ongoing entanglements, as well as the personal, often unconscious desires and investments in the certainties and securities that colonization provides. Considering the various systems that settler colonialism continues to fuel (a capitalist economic system, a nation-state political system, a universal Eurocentric knowledge system, a hierarchical social system, and a foundation of separation; Stein, 2019), the ongoing colonial harms they perpetuate signify their unsustainability (i.e., exploitation of human and more-than-human beings, sanctioned violence, denial of other knowledge systems, personal value equated to means of production, and perceived independence from the larger ecological metabolism). In this work, I must attend to my own entanglements and investments in these colonial systems and the modern promises (accumulation, security, certainty, mobility, and autonomy; Stein, 2019, p. 200) that they provide.

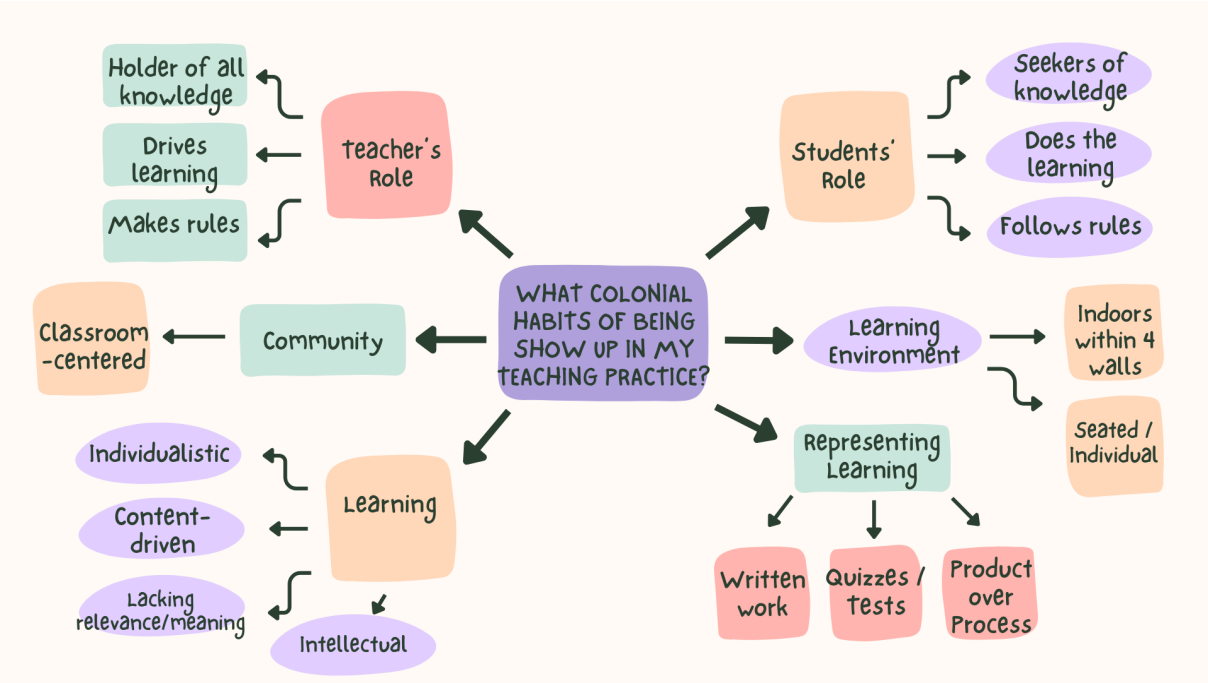


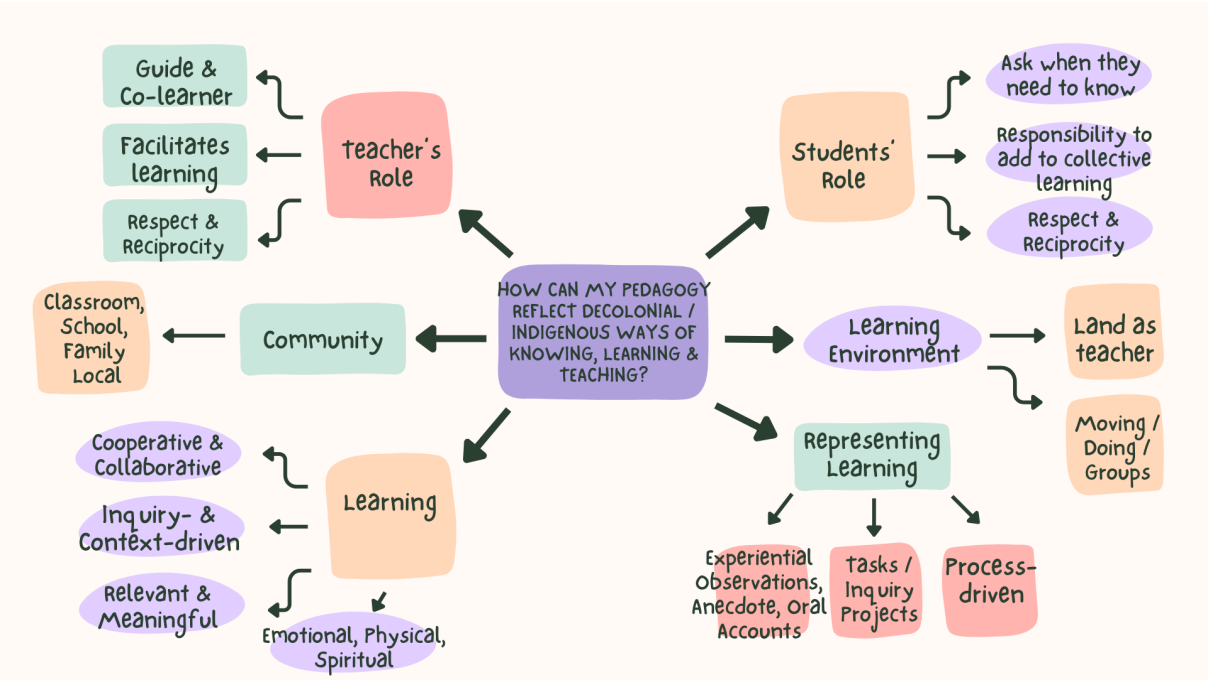
I recognize my own complicity in these colonial systems by directly benefiting from a hierarchical social system and universal knowledge system based on white Eurocentrism. I recognize how my family has benefitted from intergenerational wealth, migrating to Indigenous Lands and contributing to a Canadian nationality that has/continues to privatize and commodify stolen Land through the dispossession of Indigenous peoples. I further recognize how my culture, language, and worldview continue to be reflected in my learning and working spaces and how this privilege, as an absence of barriers, permitted me to move directly from high school into three different post-secondary programs and then secured my place in the teaching profession (an education field that continues to be dominated by white settlers). Furthermore, having a family to help navigate me through succeeding in a capitalist system instilled the sentiment that hard work and dedication "pay off," opened more doors and provided opportunities to move "up the ladder." It would be arrogantly naive to attribute my achievements and experiences to simply hard work and determination. I now recognize that many doors are blocked with chains, locks, planks, and bars to my Indigenous peers. These blockades and barriers were not a reality for me, as my white settler identity affirmed in the dominant society afforded me the privilege of not having to learn how to live in two worlds.

Addressing these privileges holds many implications for how I approach my work as a teacher and community member: I must critically and creatively consider ways to relinquish my power and privilege in this system while contributing to educational reform that demands and necessitates the futurities of Indigenous peoples/Lands (Tuck & Yang, 2012). There is so much work that still needs to be done not only within K-12 classrooms, but within the policies and practices that support the bedrock of our current educational systems. As Stein et al. (2021) succinctly summarize, minor and major reform within education settings should include the

following: redistribution of resources (i.e., additional resources to Indigenous students/families, hiring Indigenous educators), harm mitigation (i.e., Indigenous education training/professional development for intercultural empathy), and both short-term (creating and protecting spaces for decolonial engagements) and long-term engagements ("mobiliz[ing] what might be possible beyond what is currently imaginable and viable within existing institutions"; p.15).

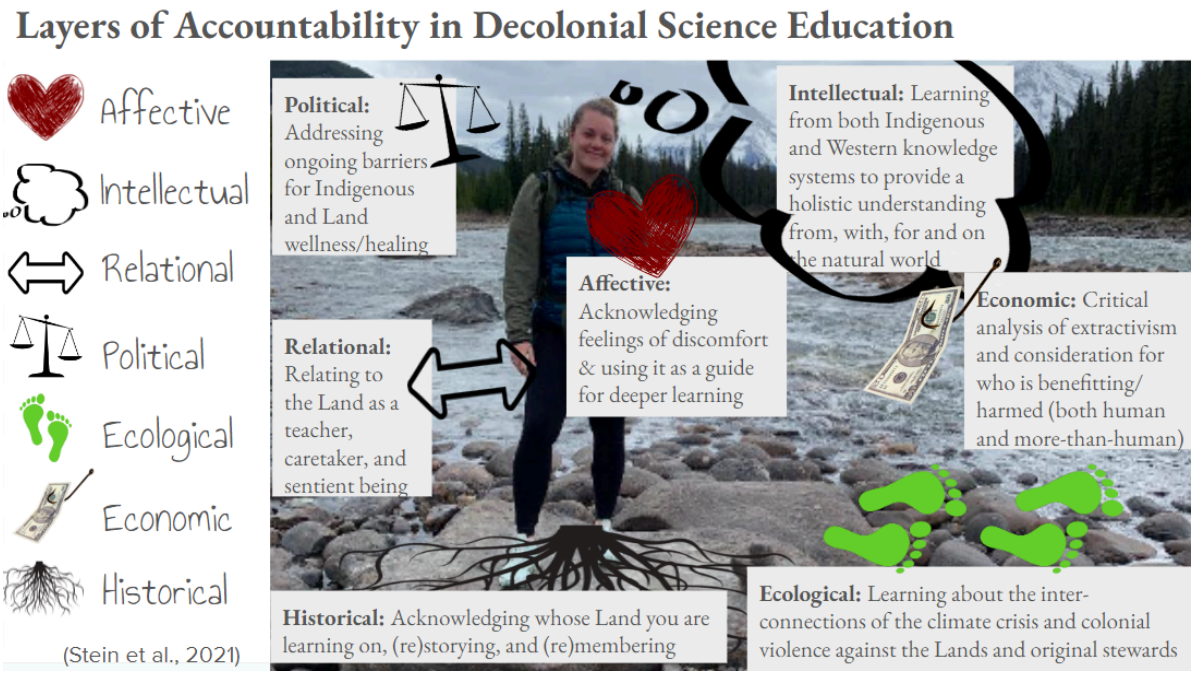
To connect this learning to my continuously evolving teaching practice and stay accountable to actionable minor reform in my professional teaching practice, I have created two mind maps [See Appendix A, Figure A2 & A3]: (i) the first, Figure A2, illustrates the colonial habits-of-being (Stein et al., 2021) that tend to show up in my teaching; and (ii) the second, Figure A3, illustrates decolonial pedagogy that honours Indigenous ways of knowing, learning, and teaching. Rather than preparing students to become passive citizens and reducing them to producers and consumers in an extractivist colonial system, decolonial pedagogy holds potential to empower students in finding their gifts and meeting their responsibilities within their communities as capable, active contributors in a system that considers the lives of all humans and more-than-humans. I strongly encourage settler educators to not only reflect on their privileges and complicity in a colonial education system, but also consider what actionable decolonial engagements they can contribute within their classrooms, schools, boards, and provincial systems as well. What do short-term and long-term engagement look/feel like? What is *one* first step we can take to mobilize our communities in this process? I have adapted guiding questions for Stein et al.'s (2021) aforementioned seven layers of accountability with the intention to help mobilize K-12 educators within their school communities [See Appendix B, Figure B1].



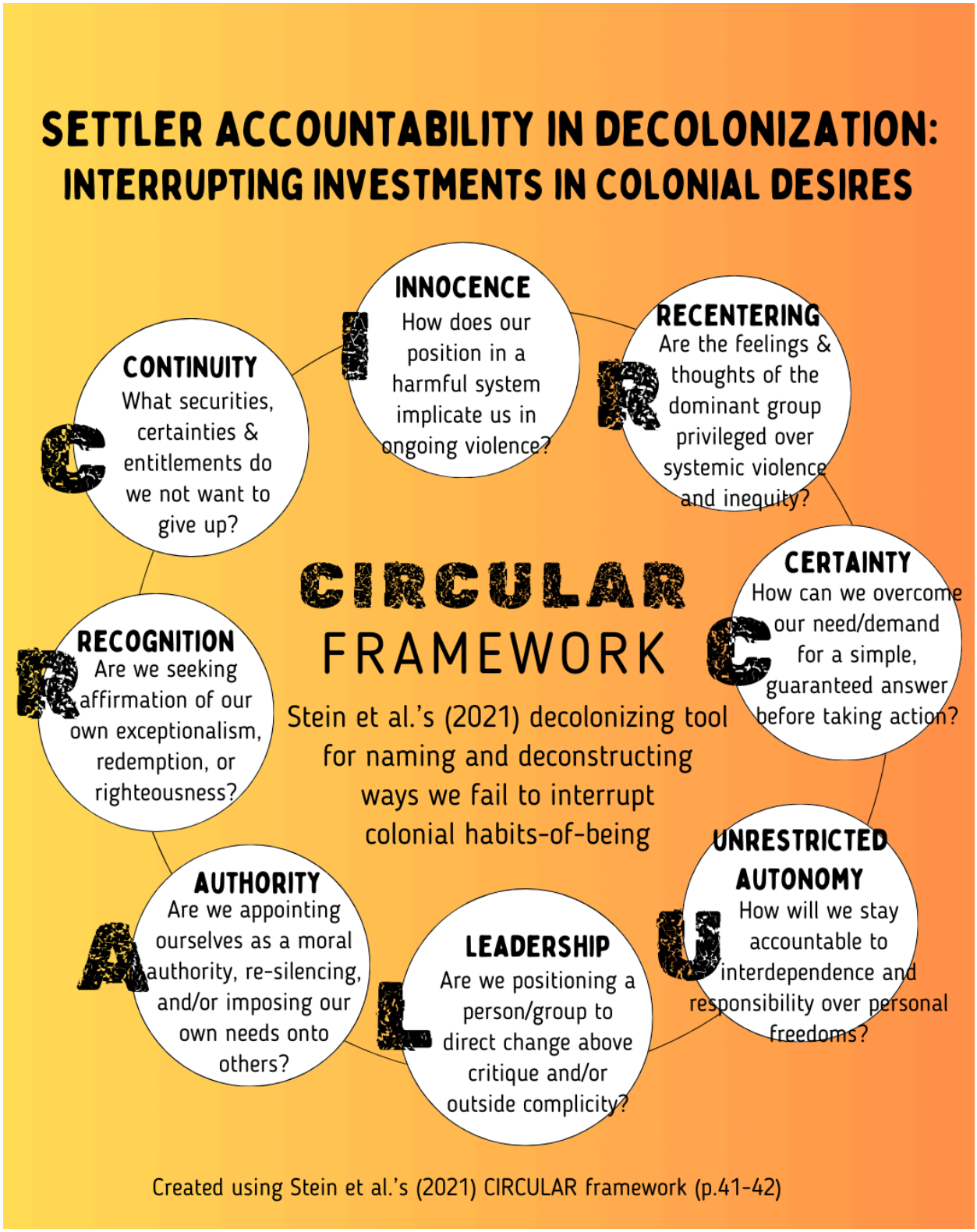


Although Stein et al. (2021) describe the difficulty of addressing all seven layers of accountability at a given time in one's decolonization efforts, I want to share my personal imaginations of the possibilities for minor curriculum reform in decolonial environmental science pedagogies [See Appendix B, Figure B2]. For each layer of accountability, I choose one

guiding question from the workbook (Stein et al., 2021) to reflect on and represent my response to address these decolonial components in my pedagogical practice in the image below.



Finally, considering the challenge of ongoing accountability in disrupting settler investments in colonial desires, I created an infographic to summarize Stein et al.'s (2021) "CIRCULAR Framework" (p.41) with intentional guiding questions to provoke critical reflexivity and divestment from colonial habits-of-being by "idenfy[ing] and deconstruct[ing] common approaches to decolonial change that fail to interrupt colonial desires" (p.41). Illuminating these (un)conscious circular desires, or personal investments to settler colonial habits-of-being (Stein et al., 2021), offers settler educators an opportunity to contend with their personal complicity in colonial systems and provides questions for deeper unsettling.


SETTLER ACCOUNTABILITY IN DECOLONIZATION:
INTERRUPTING INVESTMENTS IN COLONIAL DESIRES
INNOCENCE
How does our position in a harmful system implicate us in ongoing violence?
RECENTERING
Are the feelings & thoughts of the dominant group privileged over systemic violence and inequity?
CONTINUITY
What securities, certainties & entitlements do we not want to give up?
CIRCULAR
FRAMEWORK
Stein et al.'s (2021) decolonizing tool for naming and deconstructing ways we fail to interrupt colonial habits-of-being
CERTAINTY
How can we overcome our need/demand for a simple, guaranteed answer before taking action?
RECOGNITION
Are we seeking affirmation of our own exceptionalism, redemption, or righteousness?
UNRESTRICTED AUTONOMY
How will we stay accountable to interdependence and responsibility over personal freedoms?
AUTHORITY
Are we appointing ourselves as a moral authority, re-silencing, and/or imposing our own needs onto others?
LEADERSHIP
Are we positioning a person/group to direct change above critique and/or outside complicity?
Created using Stein et al.'s (2021) CIRCULAR framework (p.41-42)

Nothing About Us Without Us: Settler-Accountable Relationships to Indigenous Ways of Doing, Knowing, Being, & Belonging and Un-doing Neo-colonialism

"There is a responsibility that comes with witnessing and with truth" (Leanne Betasamosake Simpson, as cited in Maynard & Simpson, 2021, p.84)

Through my personal teaching and learning experiences, I have noticed that there continues to be much hesitation, confusion, (un)conscious ignorance, and/or misunderstanding when it comes to settler educators ethically responding to the TRC's Calls to Action; specifically for education to address the inclusion of curriculum on treaty and/or Indigenous peoples' historical and contemporary contributions (Call #62), building intercultural empathy (#63), and understanding best practices for teaching curriculum related to residential schools and Indigenous history (#63; TRC, 2015). Even in this moment of nearly a decade post-TRC, I have observed first-hand the fallacy of educational professionals who recite as rote "tick-the-box Land acknowledgement[s]" (Stein et al., 2021, p. 38) without building relations, who prefer "selective inclusion" (Stein et al., 2021, p. 38) of historical content based on settler comfort, and who refer to this shared history as being 'of the past' without recognizing the true spirit and intent of treaty. Throughout my academic journey, I have also stumbled or tripped upon my own settler ignorance, not fully understanding the difference between appreciation versus appropriation of Indigenous ways of knowing/being when I briefly considered burning a braid of sweetgrass to conclude a course presentation on Robin Wall Kimmerer's (2013) book, *Braiding Sweetgrass*. This moment reminds me that even with my dedication to ongoing un/re-learning by reading Indigenous scholarship and being guided by the TRC's calls to action, the actual embodiment of these issues, or distinctions between appreciation and appropriation, are completely different experiences. This moment strikingly reminds me to step out of my mind and listen to the

response of my body as I realize that my good intentions might actually align with the potentially harmful impact of adoption or appropriation by taking something that was not mine to take.

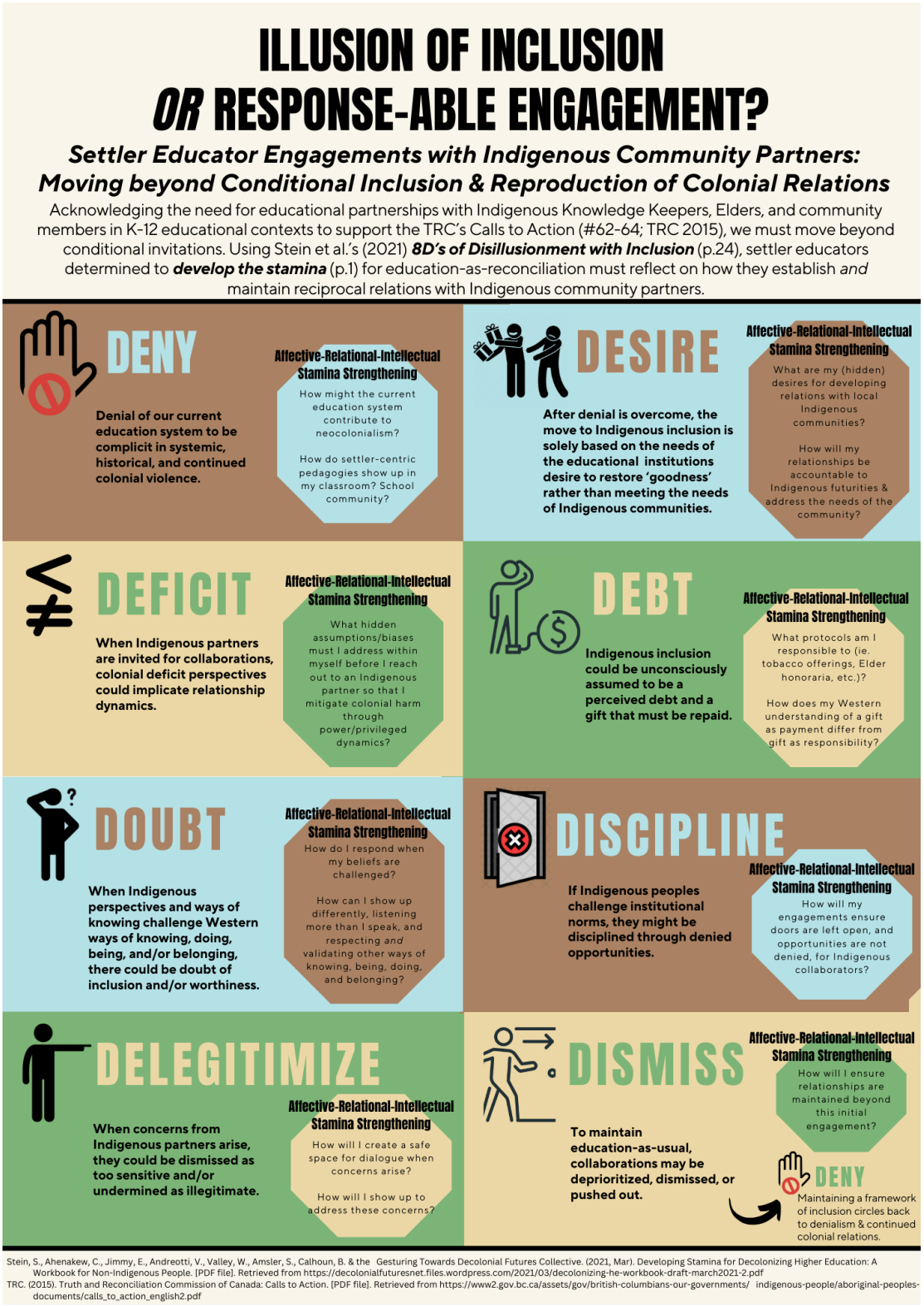
I have also learned about the sacredness of stories and how my settler tongue can unconsciously alter, construe, appropriate, and/or assimilate a way of knowing; learning to constantly question who has the right and responsibility to tell a story and who does not. I have learned about the importance of building relationships with local Indigenous communities and staying accountable to ongoing reciprocal relations in order to work towards "education-as-reconciliation" (Korteweg & Fiddler, 2019, p. 254). I have learned that there is a fine line between cultural appropriation and assimilation of IK, as opposed to ethically making space (Ermine, 2007) for Indigenous ways of knowing, being, doing, and belonging through ongoing relations with Elders, Knowledge Keepers, teachers, and community members. I am reminded of the important phrase in African disability rights activism, "Nothing about us without us" (Masutha & Rowland, as cited in Charlton, 1998, p. 3) and that my role as a settler is not to become an expert and educate students on IK and culture. Rather, my responsibility is to ethically hold space for oppressed and suppressed ways of knowing, being, doing, and belonging, and to facilitate meaningful learning experiences that center Indigenous voices, knowledges, stories, experiences, and perspectives. Although I am new to Treaty 7 territory and currently working to build relations, I am committed to continuing my decolonizing journey and carrying this learning forward so that I am better prepared to show up differently when the opportunity for relationship building arises.

Through Stein et al.'s (2021) *Developing the Stamina* workbook, I have learned about my responsibility as a settler educator (in a white settler-dominated education field) to not only address its relationship to systemic, historical, and ongoing colonial violence, but to also remain

accountable to the (lack of) relationships with Indigenous communities and ways of doing, knowing, being, and belonging. In order for education to responsibly respond in Indigenous-respectful, decolonial, reconciliatory efforts, we must understand how to walk beside (not in front or behind) and actively work towards addressing harmful policies/practices. We cannot simply *sustain* a harmful system (Stein, 2019); we must repair, restore, relinquish, and return. In hopes for education professionals to consider their complicity and perpetuation of harm, I have included Stein et al.'s (2021) table, "Mapping approaches to engagement with Indigenous ways of being" (p. 38) [See Appendix B, Figure B3] to serve as a reminder to not rely on good intentions alone in this work. Educators must critically assess how they are devaluing, appreciating, or staying accountable to Indigenous peoples, as well as ignoring, understanding, or staying accountable to their own complicity in colonial violence. My hope is that teachers can use this decolonizing tool to assess how their own intention of harm interruption aligns with their impact, or if they fall somewhere else on this scale (harm reduction, harmful, very harmful).

The final decolonizing tool I have included for intentional self-reflexivity is an infographic representation of Stein et al.'s (2021) "8Ds of Disillusionment with Inclusion" (p. 24) to assess settler relationships with Indigenous peoples. These colonial patterns refer to ways in which settler power/privilege are exerted and perpetuated in *seemingly* inclusive partnerships with Indigenous peoples. This disillusionment refers to conditional invitations and reproductions of colonial ways of being, belonging, knowing, and doing (Stein et al., 2021, p. 24). In this infographic, I ask settler educators to consider whether they are falling into an *illusion* of inclusion or truly enacting response-able engagement. I offer a summary for each of these colonial patterns and add in self-reflexive questions for educators working to develop their

"stamina" (Stein et al., 2021, p. 1) for decolonizing relationships with Indigenous peoples through a holistic affective-relational-intellectual approach (Stein et al., 2021).



As I personally reflect on the 8Ds of Disillusionment, along with my experiences as a new teacher, it is apparent to me that I have not yet built relations with Treaty 7 nations. This tool, however, sensitized me to my Western ways of belonging so that when the time comes for me to build or maintain relationships, I am conscious of how I can develop ethical relationships based on trust, mutual respect, and reciprocity as an equal treaty and educational partner. Tuck & Yang (2012) remind me that I cannot "allow conscientization to stand in for the more uncomfortable task of relinquishing stolen land… [and] critical consciousness does not translate into action that disrupts settler colonialism" (p. 19). This exercise not only increases my awareness in noticing and naming harmful colonial patterns in one-sided relationship-building, it also holds lasting potential for accountability to Indigenous (not settler) futurities and response-able engagement that disrupts ongoing neo-colonial harm in the spaces and systems I am and will be part of. As Cannon (2018) reminds me,

> "Schools should also be challenged to think instead about how to foster a collective responsibility to reject settler capital and land exploitation and the ecological devastation brought on by both. They should be challenged to think about what it might mean to bring both settler and non-Indigenous populations into a relationship with land and with the Indigenous nations endeavouring to safeguard and recover them. Finally, schools should be challenged to find a cause for rebuilding Indigenous-settler relationships and to invite all Canadians to see themselves as standing in historic and current contemporary relation with Indigenous peoples" (p. 172).

It is with much hope that these reflections and takeaways from my de/colonizing journey (Madden, 2019) will guide, motivate, inspire, affirm, provoke, and support settler educator decolonization required for upholding ethical relationality (Donald, 2022) for the Lands and its

caretakers; and becoming (and teaching) active, engaged and informed treaty partners by fulfilling our obligations to "*ka-miyo-ohpikihitoyahk* (for us to raise each other's children well), learning from each other in balanced ways and sharing wisdom that comes from living together in the spirit of good relations" (Donald, 2022, para. 15).

Portfolio Task 3 – Reimagining Settler Science Pedagogies: (Re)storying Relations & Inquiry-Based, Culturally-Responsive Teaching

This final task displays my learning of the histories and current realities of Treaty 7 so that I can better understand my role as a treaty partner and settler (science) educator in my new community. As Gaudet (2018) describes through *Keeoukaywin,* visitors are accountable for upholding responsibilities to their hosts. As such, learning about the historical and contemporary realities of Treaty 7 nations/Lands (before hearing the stories held within this Land) serves as my visiting role or pre-sensitization homework in preparation for living, teaching and learning on Treaty 7 Lands; with the intention of preparing myself to build reciprocal relations to Indigenous peoples, Lands, and waters based on the "true spirit and original intent of Treaty 7" (Treaty 7 Elders et al., 1996, p.1).

In this section, I describe my learning journey visiting the Lands, waters, and peoples of Treaty 7 as I sought out local, public events, gathering spaces, and places of significance for learning about treaty stories and contemporary realities. I also reflect on my new understandings of Treaty 7, through historical settler colonial realities and contemporary neo-colonial realities, for Indigenous Lands and peoples of Treaty 7. Finally, I provide settler science educators with decolonial planning considerations so that they can work towards inquiry-driven, culturally-responsive science programs that ethically reflects the diverse ways of knowing of their students and local Indigenous peoples of the Land they reside upon. Task 3 serves to model

how settler educators can address unbalanced power relations in science education by doing the following: (i) recognizing the ways in which science curriculum reflects the dominant settler culture; (ii) confronting how dominant Euro-western worldviews/ways of knowing in science has and continues to cause harm to the Land and Indigenous peoples of the Land; (iii) cultivating an ethical space in the science learning environment that respectfully honours Indigenous ways of knowing, doing, being, and belonging; and (iv) necessitating Indigenous-led learning opportunities to welcome authentic Land-based learning experiences, storytelling, and Indigenous ways of knowing in science education. This task helps guide settler science educators to move beyond the inner decolonization work of Task 2 in order to integrate their un/re-learning in their classroom through decolonial science pedagogy (Task 3) that honours ethical relationality (Donald, 2022).

Searching for the True Spirit & Intent of Treaty 7

"What has become abundantly clear is that in 1877, two peoples with mutually exclusive worldviews attempted to communicate with each other as they negotiated Treaty 7… much work still needs to be done before either side can be effectively understood by the other" (Elders, T. 7 & Carter, S., 2014, Preface XIV)

After settling into my new home in Mohkinstsis, I quickly began researching Treaty 7 and sought out texts and community learning spaces that reflected Indigenous understandings of treaty. This research served to rebalance power and privilege of settler-centered narrations; as "those who hold [the cultural power] control who tells the story" (Elders, T. 7 & Carter, S., 2014, p. 327). My learning spaces and reading materials included, but were not limited to, the following experiences: Fort Calgary, Blackfoot Crossing Historical Park (the place where Treaty 7 was signed), an Indigenous-led, settler-supported performing arts production of *O'kosi*

(Thrush, 2023) put on by Making Treaty 7 Cultural Society, a text curated by Treaty 7 Elders titled *The True Spirit and Original Intent of Treaty 7* (Elders, T. 7 & Carter, S., 2014), and a text written by Chief John Snow (2005) of the Stoney Nakoda nation titled *These Mountains are our Sacred Places: The story of the Stoney people.* To demonstrate my new understandings of Treaty 7, I have documented (i) pre-treaty accounts of Indigenous nations and (ii) colonizers, (iii) the signing of Treaty 7, and (iv) post-treaty accounts [See Appendix C]; while focusing on the goals, worldviews, and spirit of both the Canadian government and Treaty 7 nations. In order to understand my new visiting responsibilities as a treaty person, I must come to learn Treaty 7 nations' *true* spirit and original intent of treaty that was left out of written colonial records.

Treaties were the starting point for defining Indigenous peoples' relations with colonial newcomers, and evidently reflected an imbalanced power dynamic that necessitated colonial motivations (and worldviews) of capitalist greed; and underlying notions of Indigenous Land and peoples as property to be bought, sold, extracted, commodified, and divided. As Treaty 7 Elders proclaim, "oral history… must be understood for what it can tell us… written histories often hide their real purpose and create an illusion of objectivity" (Elders, T. 7 & Carter, S., 2014, p. 328). In order to rebalance the power scale and begin the work of rightfully repairing relations, Treaty 7 nations' stories, understandings, perspectives, and voices must be heard and understood as orally communicated on September 22, 1877.

After reading accounts of Elders in the *True Spirit and Original Intent of Treaty 7* (Elders, T. 7 & Carter, S., 2014), it became clear that within Indigenous languages (and worldview), there is no word for 'surrender' or 'cede' (as strikingly stated in the text of Treaty 7). From a Blackfoot worldview, it is believed that "[w]e are one with the land. Is it possible to relinquish part of oneself?" (p.24). As the colonizers considered Land as commodity, Treaty 7

nations understood the Land as a gift and living being, spiritually connected and a part of oneself. Treaty was a long understood, enacted, and sacred act, not only shared with other nations, but also extended to the Land, four-leggeds, fish, winged ones, etc. since time immemorial as a means to uphold reciprocal relations with all living beings (Thrush, 2023). One could presume that from this worldview, it would be impossible to propose the ceding, transferring, or giving up of Land and reducing the treaty to a one-time transactional encounter.

Within Blackfoot language, Treaty 7 is referred to as *istsist aohkotspiy* or "the time when we made a sacred alliance" (Elders, T. 7 & Carter, S., 2014, p.4). This peace alliance was understood to be binding for all time, rather than a one-time transaction, as Chief Crowfoot states, for "as long as the sun shines, the grass grows, and the water flows" (Siksika Nation, 2023, para. 1). The Îyârhe Nakoda understanding of shaking hands meant that for "as long as we live, we will not oppose each other in any way" (Elders, T. 7 & Carter, S., 2014, p.118). The Tsuut'ina describe peace as "to live as brothers and sisters" (p.119).

Settler Responsibilities as a Treaty Partner: Renewing Relations through 'Inaistsyi'

"Inaistsyi was a sacred covenant that was to last for the lifetime of the parties. These treaties were intended to establish peace and prosperity for both sides" (Blackfoot Confederacy, 2021, para. 6)

Settlers living on the traditional territory of the Blackfoot Confederacy (Kainai, Piikani, Siksika), the Îyâxe Nakoda (Wesley, Bearspaw, Chiniki), and the Tsuut'ina First Nations must recognize themselves as a treaty partner in order to honour the true spirit of Treaty 7 and begin uncovering neo-colonialism in the present (not just of the past). Settlers must put themselves in relation to the nations who have taken care of these Lands/waters since time immemorial, and reconcile their own complicities and tensions that arise from this un/re-learning in order to

ethically show up and bear the responsibilities that come with being a treaty partner. Treaty 7 bonded First Nations and settlers in an everlasting commitment through *inaistsyi,* to uphold peace and prosperity for *both* sides (Blackfoot Confederacy, 2021). As a new settler to Treaty 7, I have learned that my responsibility is to continue in my inner decolonization journey so that I can step back and decenter my voice when needed, show up and advocate when called upon, and enter into reciprocal relations within my community when welcomed. The following questions are included to promote deeper reflections into one's treaty responsibilities:

- Who am I? Where am I from? How did I get here?
- Whose Land am I on? What did the treaty mean to both parties? How have these treaty promises been broken? How should these promises (begin to) be fulfilled?
- How are ancestral, personal, and/or professional identities complicit in settler colonialism? How can I begin to build a new relationship?
- What might my role be in truth and reconciliation? How can my impact contribute to ethical, reciprocal relations (settler-Indigenous and settler-Land) for future generations?

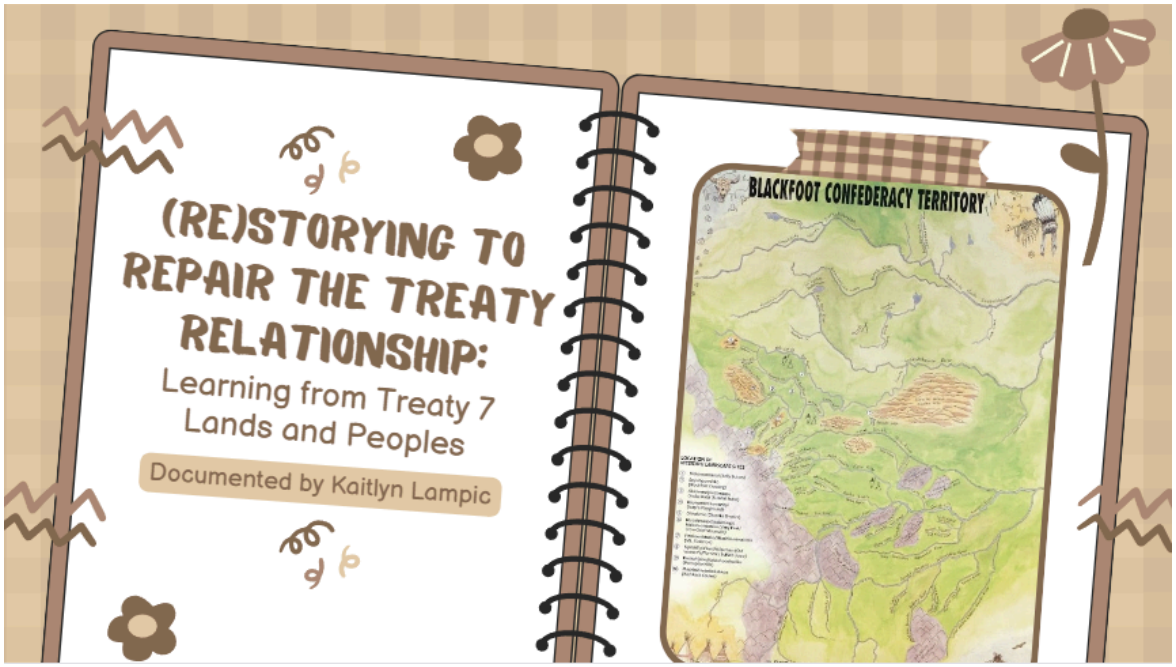
(Re)storying to Repair the Treaty Relationship: Learning from Treaty 7 Lands and Peoples

In order to respond to my settler responsibilities in my personal and professional teaching practice, I sought out various learning opportunities on Treaty 7 Lands that necessitated the voices, knowledges, perspectives, experiences, and stories of Treaty 7 nations. Throughout my (re)storying journey titled as "(Re)storying to Repair the Treaty Relationship: Learning from Treaty 7 Lands and Peoples" [See Appendix D, Figure D4], I was provoked by the various learning spaces that encouraged me to confront the power of storytelling and challenge dominant discourses. I was called to not only (re)member (Styres, 2018) the often suppressed, silenced, and disappearing narratives, but of the immense strength and resilience of Indigenous

communities continuing to reclaim the narrative of their lives and Lands. Carey Newman profoundly states how “bearing witness [to these stories] doesn’t mean just looking backward at the past… [it] means taking responsibility for the future” (CMHR, 2022, para. 5). By sharing my (re)storying experiences on Treaty 7 Lands, it is my intention to work towards my dual role, as an educational and treaty partner to Indigenous peoples/Land, by honouring the true spirit and original intent of treaty and emphasizing education as the new buffalo (Alberta Teachers’ Association, 2016) through *ka-miyo-ohpikihitoyahk* (raising each other’s children well; Donald, 2019, para. 15).

- To view the full interactive presentation titled *(Re)storying to Repair the Treaty Relationship: Learning from Treaty 7 Lands and Peoples*, please click on the hyperlink below:

https://www.canva.com/design/DAF9cr8lRes/pnjsXjuMO0uC0V6qnnYg6Q/edit?utm_content=DAF9cr8lRes&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton



Settler Science Educator Responsibilities: Decolonizing Science Education through Decolonial Land Pedagogy

As a settler (science) educator who recently moved to the urban center of Calgary, AB, I realized that I needed to continue in my un/re-learning and reflect on my pedagogy as I began teaching urban Indigenous youth in local schools on Treaty 7 territory. I recognize my ongoing responsibility to respond to the strengths, needs, interests, gifts, experiences, and perspectives of my students, as well as making spaces for their cultures and ways of knowing, being, doing, and belonging. Reflecting on my role as a treaty partner and settler science educator, I recognize how settler colonialism is steeped in a Western way of knowing in science curriculum; and how often, math and science are deemed to be 'acultural'. After completing a Bachelor of Science degree premised on a Eurocentric way of knowing that hierarchically categorizes and considers humans as separate and superior to nature, I have come to learn that Western science is "deeply steeped in social and cultural tradition and reflect the worldview of the definer" (Little Bear, 2000 as cited in Hatcher et al., 2009, p. 142). If science educators are to respond to their role as a treaty

partner, to ensure the peace and prosperity of *both* settlers and Indigenous peoples, then science pedagogies can no longer stay neutral, ignoring Indigenous ways of knowing or denying the Eurocentric culture predominantly reflected in science education. Centering Indigenous ways of knowing in science programs not only benefits Indigenous students by having their culture reflected in their learning environments (so they do not have to live in two worlds), but it also increases intercultural empathy and understanding for non-Indigenous students when there is an understanding that scientific observations and complex knowledge systems were/continue to be practiced by Treaty 7 nations and the diverse nations across Turtle Island. Science curriculum that does not ignore, oppress, dismiss, or appropriate Indigenous ways of knowing offers students and teachers to reflect on their worldviews and uncover/question personal biases and assumptions previously held. If we are to walk together in a new way, science education must respond through pedagogies necessitating ethical relationality (Donald, 2022) to both Indigenous peoples and the Land.

Settler science educators not only have a responsibility to respond to truth and reconciliation, they are also in the unique position to address climate change education. Climate education that denies settler colonial, extractivist ways of being and living on Turtle Island and ignores Indigenous experiences/knowledge cannot be considered as working towards ethical relationality, truth and reconciliation, or equitable climate justice. In order for environmental science education to address this dual responsibility of Indigenous relations (truth and reconciliation) and Land relations (climate crisis), decolonial Land education should be considered as a pedagogical framework for promoting inquiry-driven, experiential, culturally-responsive learning. It is important to note that Land education is a pedagogical practice that has been and continues to be used by Indigenous peoples. In her book, *As We Have*

Always Done: Indigenous Freedom through Radical Resistance, Leanne Betasamosake Simpson (2017) explains how "Education comes from the roots up… being enveloped in the land. An individual's intimate relationship with the spiritual and physical elements of creation is at the centre of a learning journey that is lifelong" (p. 154).

As a settler educator, I cannot appropriate the cultural and spiritual practices of Land pedagogy; however, I can facilitate learning experiences with Indigenous community partners, Knowledge Keepers, and Elders to reflect these ways of knowing within the science classroom. I can also bring in a decolonial perspective of Land by adopting "critical pedagogies of place" (Greenwood, 2019, p.1) or place-conscious learning by asking "What happened here? What is happening here now? What should happen here?" (p. 7) to shed light on the interconnected dimensions of place (i.e., perceptual, intellectual, sociological, ideological, epistemological, political, economic, ethical, etc.; p.7). Reflecting on what has/is happening here in Calgary/Mohkinstsis/Treaty 7/Southern Alberta permits youth to reflect on the layered stories, experiences, and perspectives by addressing relevant, meaningful projects, initiatives, actions, and/or community needs that reflect both Western and Indigenous ways of knowing. In the next section, I describe insightful planning considerations for settler educators working to decolonize their science programs.

Planning Considerations for Settler Science Educators.

Although educators are bound to a government-mandated curriculum, settler science educators are called to consider decolonial Land relations, and "inquiry-based discovery theor[ies] of learning" (Gilbert, 2015, p.97) where students can co-construct new understandings of knowledge systems. Through the incorporation of inquiry-driven, culturally relevant, and local science knowledge, educators can responsibly and ethically address their role of welcoming,

presenting, co-learning, and bridging in local, Land-based educational pedagogies in meaningful ways to address both settler-Indigenous and settler-Land relations (i.e., in community, welcoming local Elders and Knowledge Keepers, seeking out learning experiences that necessitate Indigenous voices speaking to local knowledge, etc.). As Simpson (2017) proclaims, "it is unthinkable to impose an agenda onto another living being – in essence the *context is the curriculum,* and land, Aki, is the context" (p. 155). Rather than designing learning opportunities from the curriculum, settler science educators should necessitate learning on/with/for/through the Land, where the context for learning is prioritized and the curricular goals are then assigned to the unique educational experiences. Educators are in the unique position to plan learning opportunities that prioritize getting out on the Land and learning from more-than-human beings, seeking out community collaborations, sharing the learning space with Indigenous Knowledge Keepers and Elders, incorporating Indigenous languages for plant, animal, and place names to uncover relational ways of knowing, and bringing in culturally relevant, local projects that address the unique needs of the community.

Considering Sutherland & Swayze's (2012) lifelong learning model for culturally-relevant Indigenous science education, important planning considerations for decolonial, Indigenous-respectful science planning, instruction, and pedagogy are: (i) welcoming Elders to expose students to intergenerational knowledge sharing and a worldview that respects/honours interdependence of all living beings; (ii) reflecting culture that reflects one's traditional territory and cultural knowledge of humans as intricately enmeshed, spiritually connected to and dependant on the natural world; (iii) integrating language as a means to explore IK systems and relations to plants, animals, and places; and (iv) experiential learning that engages students in local (rural and urban) contexts and permits learning on, through, with, and

for the Land. Through this lifelong learning model of Ininiwi-kiskānītamowin, which translates "from the Swampy Cree language as 'the knowledge of the people in how we understand the earth'" (Sutherland & Henning, 2009, p. 174 as cited in Sutherland & Swayze, 2012, p. 84), four developmental levels for science learning are identified [See Appendix E, Figure E1] that promote the "mastery of one's person" (p. 88) rather than the mastery of content; which is the final level and goal of the Indigenous-respectful science lifelong learning model.

When designing lesson plans for inquiry-driven, culturally responsive science curricula, Gilbert (2015) makes clear that students become the main focus of learning and that

> "the learning cycle… is not a method of teaching science… [it] comes from the discipline itself; it represents science. If science is to be taught in a manner that leads students to construct knowledge, they must make a quest" (Renner and Marek, 1998, p.170 as cited in Gilbert, 2015, p.100).

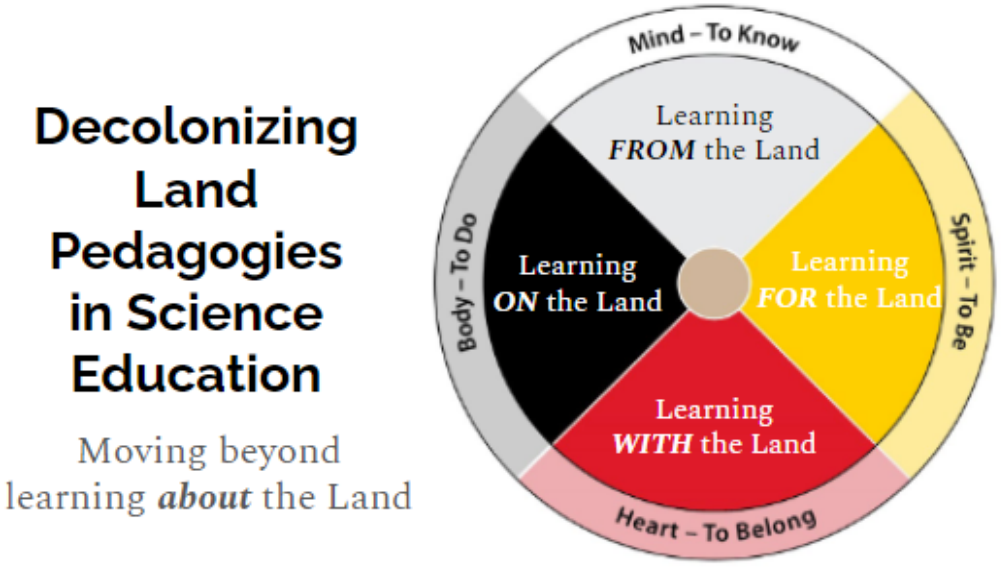
Therefore, students must be engaged to observe, measure, interpret, experiment, and predict through the learning cycle as they build upon previous knowledge and integrate new learning experiences. Gilbert (2015) highlights six key stages of a learning cycle: (i) Introduction, (ii) Gathering Data, (iii) The Idea, (iv) Expanding the Idea, (v) Evaluation, (vi) Additional Topics. A summary of the purpose and planning considerations for each stage can be found in the Appendix [See Appendix E, Table E1].

Pedagogical Guiding Frameworks for Treaty 7 Science Educators.

The Calgary Board of Education's Holistic Lifelong Learning model [See Appendix E, Figure E2], conceived with Elders and Knowledge Keepers across Treaty 7 Lands (CBE, 2022), addresses Indigenous ways of knowing, being, doing, and belonging on these Lands. This model honours Indigenous ways of learning by centering learning that is holistic, lifelong, experiential,

communal, spiritual, and rooted in cultural knowledge (Canadian Council for Learning, 2007; CBE, 2022). Within the four interconnected domains of the medicine wheel, the holistic approach to supporting not only mental learning/wellbeing, but also balancing physical, emotional, and spiritual learning, honours all essences of one's being and permits students (and teachers) to consider: "Where do I come from? Where am I going? Why am I here? Who am I?" (Honourable Murray Sinclair as cited in CBE, 2022, p.10). I propose this framework not only supports "improved achievement and well-being" (p.9) of Indigenous students, but it can also serve as a starting place for settler educators (and students) to decolonize personal assumptions of learning taking place solely within the mental domain; supporting cross-cultural understanding and meaningful un/re-learning opportunities.

Considering this lifelong learning model for education in Treaty 7, I adapted the medicine wheel to specifically illustrate what decolonial Land pedagogy might look/feel like in the learning environment; intended to guide deep, holistic considerations of how we as humans relate to the Land we are standing on [See Appendix E, Figure E3]. Within this model, educators and students are provoked to reflect upon not only the physical aspect of learning on the Land; it also promotes deeper emotional, spiritual, and mental aspects of learning *with, from,* and *for* the Land. This framework honours Indigenous ways of knowing, being, doing and belonging by (re)centering relationships to Mother Earth and connecting with her as a sentient being who teaches us how to live in relationship with the Land and the cohabitants we share it with, if we are insistent on learning to listen in a new way. I encourage educators to use this model to not only guide their Land-based learning experiences, but also as a tool to reflect on the holistic ways of learning reflected in their pedagogical approaches.



Finally, I have reflected on my new understanding of both relational (ways of being) and epistemological (ways of knowing) responsibilities in science programs on Treaty 7 Territory through Bastien's (2004) *Blackfoot Ways of Knowing: The Worldview of the Siksikaitsitapi.* Reflecting Blackfoot ways of being, or relational responsibilities, into science education honours *Kimmapiiyipitsinni* (be kind and compassionate), *Isskanaitapstssi* (inter/relationship), *Isspomotsisinni* (sharing/support), and *Ainnakowa* (respect); and the ways that these teachings are reflected in the universe [See Appendix E, Figure E4]. Finally, reflecting Blackfoot ways of knowing, or epistemological responsibilities, in science education can guide educators in not only addressing the reciprocal nature of teaching/learning with their students; there are also opportunities for addressing how Blackfoot knowledge systems are intimately tied to spirituality, that knowledge has a spirit and is revealed through every aspect of nature, and that the process of coming to know, *Mokaksin,* is a lifelong journey that is prefaced on coming to know your responsibilities to your relatives (both human and more-than-human) [See Appendix E, Figure E5].

CONCLUSION

To conclude this portfolio, I circle back to the purpose of this research: to demonstrate the inherent responsibility of settler educator decolonization in order to fulfill treaty obligations of "*ka-miyo-ohpikihitoyahk* (for us to raise each other's children well; Donald, 2022, para. 15). My research findings exhibit "meaningful coherence" (Tracy, 2010, p.840) to my un/re-learning goals as a new visitor to Treaty 7 territory, passing a torch forward to support fellow settler (science) educators in meaningful and lasting decolonial engagements. The entirety of this research necessitated ethical relationality (Donald, 2022) as I continued in "the building of more relations" (Wilson, 2008, p.79), and relational accountability was upheld to my family, treaty partners, students, educational professionals, learning spaces, Knowledge Keepers, Elders, Land/waters, and stories shared with me. This research is of substantive sincerity (Tracy, 2010) and integrity, and challenged every part of my being (heart, mind, body, and spirit) as I journeyed through self-reflexive decolonization workbooks, actively sought out Indigenous-led events/learning spaces, and authentically acknowledged how my biases and worldviews revealed themselves along the way. As relational accountability requires giving back to the relationship (Wilson, 2008), these research findings are rich in rigor (Tracy, 2010) and provide numerous autoethnographic journal accounts, photo documentation, and critical, decolonial analyses that support the implementation of IK-respectful, decolonial Land/Indigenous relations into environmental science pedagogy.

Through *Keeoukaywin* (The Visiting Way; Gaudet, 2019) methodology, I grounded myself in humility and honoured each stage of the research process by "leaving no part of [myself] behind" (p.59). Referring to Haig-Brown & Green's (2022) requirements for responding to the TRC's calls to action for settler people, the iterative model proposes that settler educators

must: (i) raise awareness [relevance], (ii) create space [responsibility], (iii) get out of the way [reciprocity], and (iv) be available [respect]. Through this research, I have thoroughly documented the interconnectivity and non-linearity of these iterative phases and modeled the importance of constant un/re-learning to inform myself and others, to intentionally step back and share space by shifting from speaker to listener, to consider creative ways to renounce my settler privilege, and to actively build respectful relations so that I can be available when invited and called upon as a "co-conspirator" (Haig-Brown & Green, 2022, p.213) colleague, and/or ally.

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APPENDICES

Appendix A: Developing my Decolonizing Stamina

Vignettes of my Personal Decolonizing Journey

https://docs.google.com/document/d/14qSG2l0WHxBODb5-vYofGPSZx4_1zo6a56uta4GGJD8/edit?usp=sharing

Decolonize First Reflections

https://docs.google.com/presentation/d/1uw5WvcxSolcy7vd7hSGzogkIEX1HPmsGQKs7H5C5Gd8/edit?usp=sharing

Land Acknowledgement

https://docs.google.com/document/d/1pWtA-OGdffT300FUsNM6sORYApyZeQuvNlaKj12Q6h0/edit?usp=sharing

Decolonizing Reflective Tools

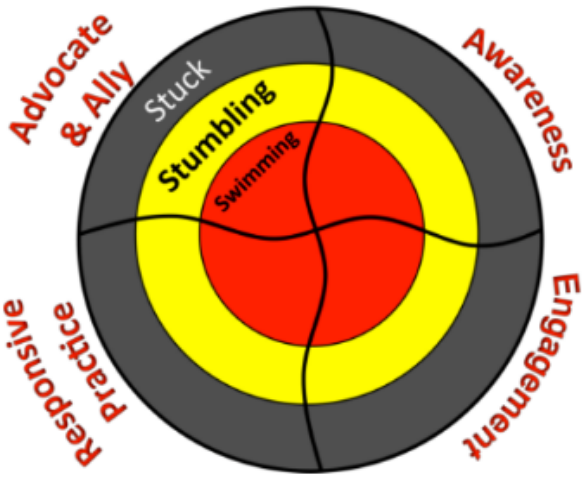


Figure A1. "Circle Continuum of Teacher Identity Growth or Cycles of Decolonizing" (Korteweg et al., 2014, p.26). Korteweg et al.'s framework represents the cycles of growth in teacher identity while also representing the fluidity and non-linearity of movement between stuck, stumbling, and swimming decolonizing stances.

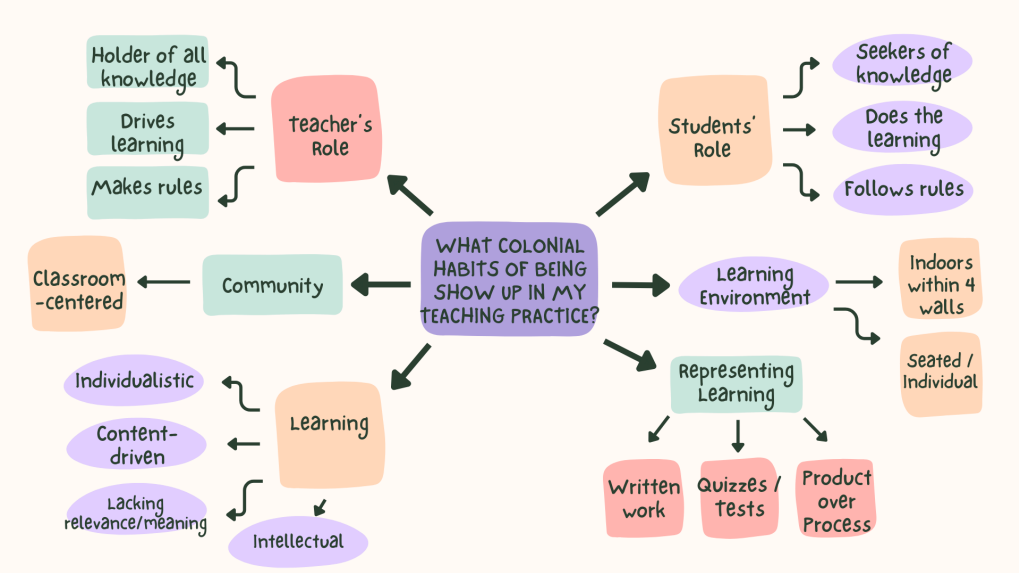


Figure A2. Mind map illustrating how colonial habits of being are reflected through one's teaching practice. It is important for educators to consider asking themselves the central question in order to deconstruct their own assumptions, biases, investments, and complicity in a settler-colonial education system before considering how to respond to decolonial, reconciliatory education.

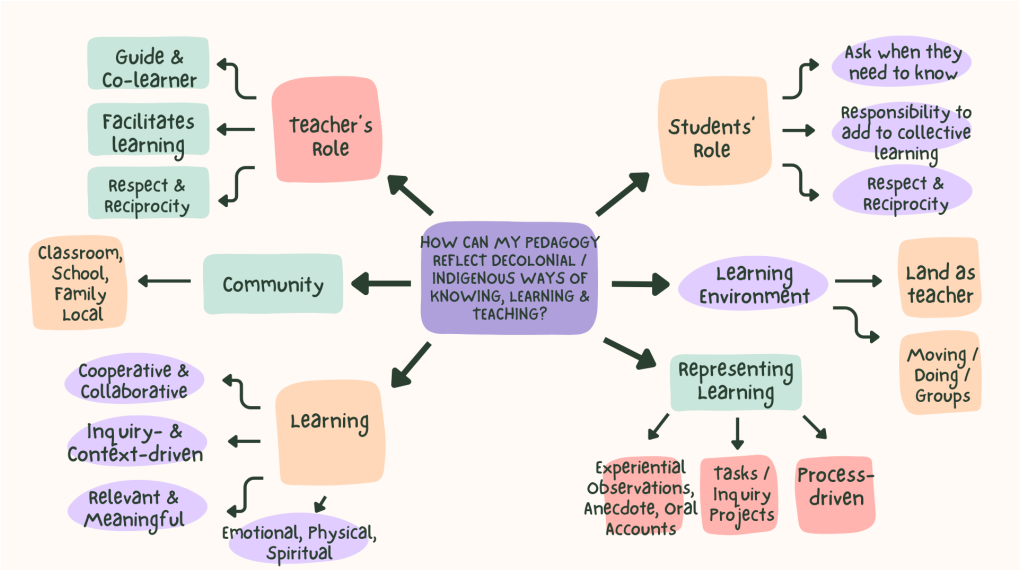


Figure A3. Mind map illustrating what classrooms could look like when decolonial approaches and Indigenous ways of teaching and learning are reflected in education.

Appendix B: Takeaways for Settler Educators: Tools for Maintaining Accountability in Decolonization

Mobilizing K-12 Educators

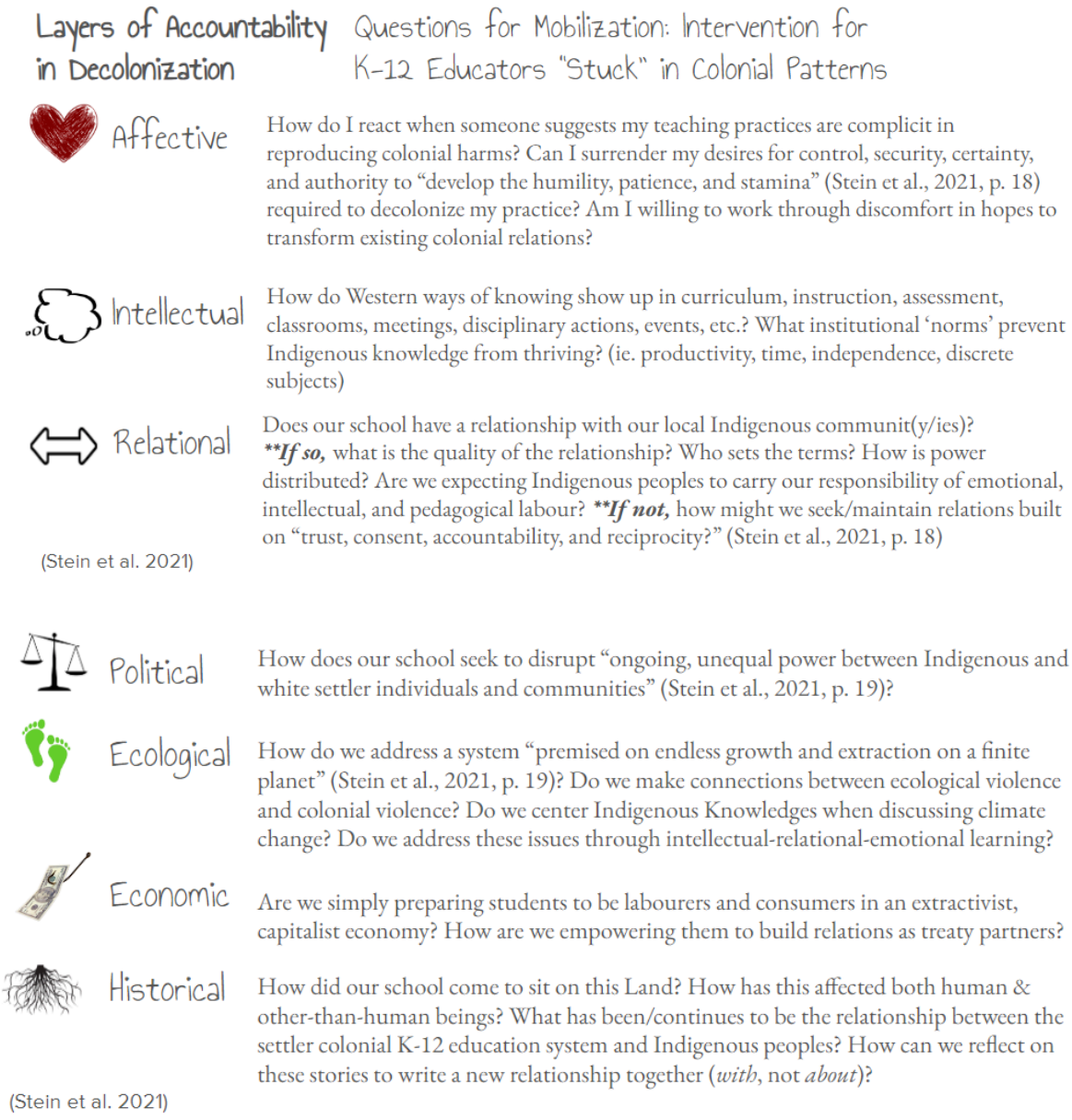


Figure B1. Layers of Accountability in Decolonization: Mobilizing questions for K-12 educators stuck in colonial patterns based on Stein et al.'s (2021) seven layers of accountability. For each

layer of accountability needed in decolonization work, I created guiding questions for educators, schools, and school boards who seek to begin their personal/shared decolonization process.

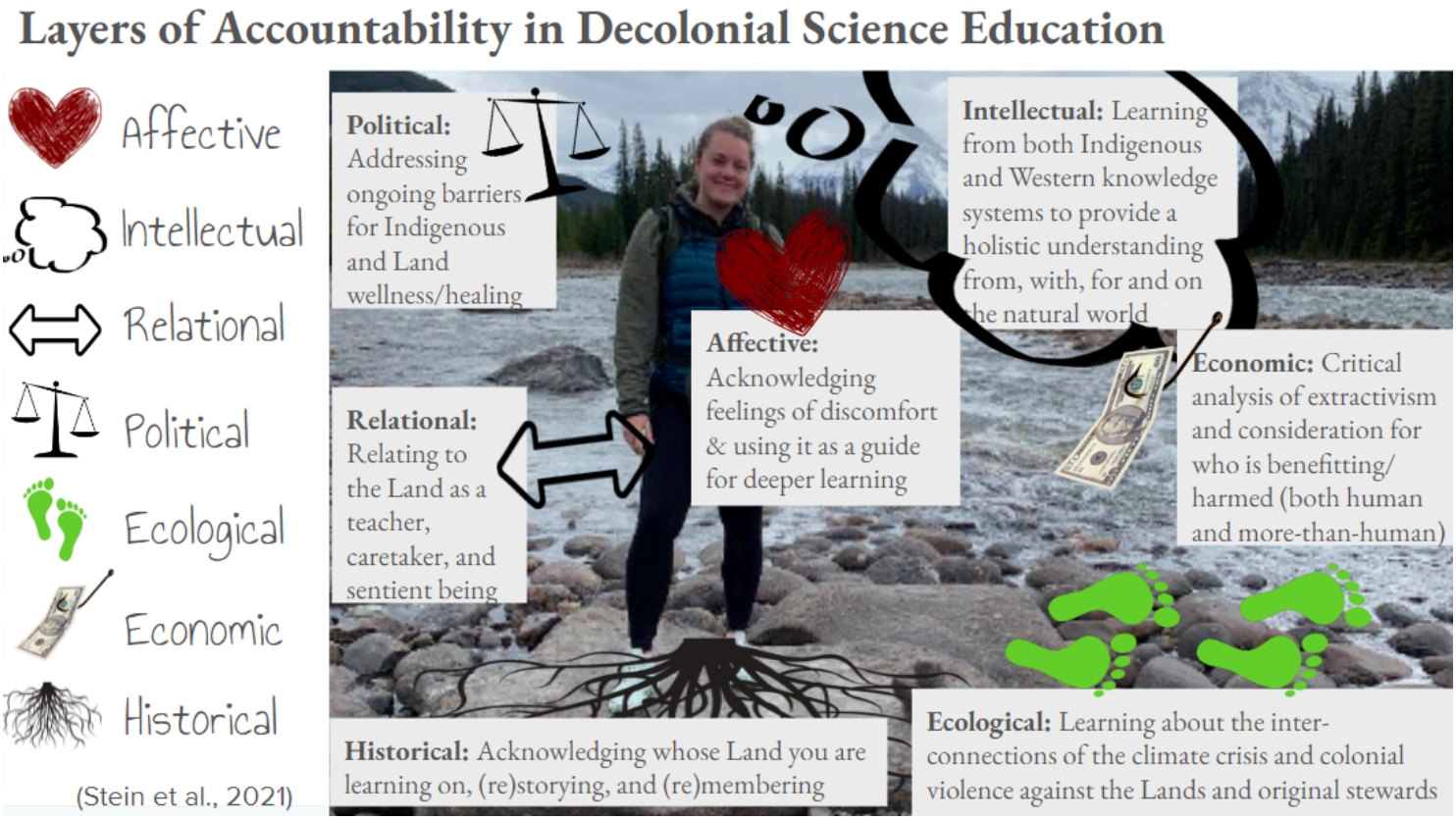


Figure B2. Layers of Accountability in Decolonial Science Education: Personal un/re-learning and possibilities for decolonial science education through Stein et al.'s (2021) seven layers of accountability.

Settler-Accountable Relationships to Indigenous Ways of Doing, Knowing, Being, & Belonging and Un-doing Neo-colonialism

	relationship with systemic, historical and ongoing colonial violence			
		(sanctioned) ignorance *of complicity in harm*	***awareness*** *of complicity in harm*	***accountability*** *as self-implication and commitment to harm interruption*
relationship with Indigenous ways of doing, knowing and being	***devaluation***	**pathologizing approach** (deficit theorization of Indigenous peoples)	**tokenistic approach** (e.g. tick-the-box land acknowledgement)	
	appreciation	**appropriative approach** (spiritual or ecological bypassing of ethical-political responsibilities)	**additive approach** (selective inclusion of Indigenous content)	**virtue-signalling "ally" approach** (redistribution without depth of relationship)
	accountability *(harm interruption, respect, trust, consent, long term relationship)*		**virtue-signalling "ally" approach** (relationship without privilege renunciation)	**"towards braiding" approach** (reverence without idealization; showing up differently)

very harmful	harmful	harm reduction	harm interruption
attachment to notion of settler superiority	self-interested cognitive engagement	selective affective answerability	visceral responsibility before will
active refusal of accountability for violence and denial of the worth of Indigenous knowledges	Indigenous content + business as usual; extraction and consumption of Indigenous knowledges	solidarity when convenient (makes one feel and look good)	commitment to difficult, painful, complex and complicated long haul process

Figure B3. "Mapping approaches to engagement with Indigenous ways of being" (Stein et al., 2021, p.38-39). Stein et al.'s graphic organizer depicting settler relationships with neocolonialism and Indigenous ways of knowing, being, and doing should be used to maintain accountability and mitigate harmful relations. K-12 educators cannot rely solely on good intentions to build relationships with Indigenous peoples and/or incorporate Indigenous ways of knowing into their pedagogy. This model demonstrates the need to address colonial harms

perpetuated through appropriation, devaluation, and/or shallow inclusion of Indigenous knowledges, perspectives, and peoples; as well as the tokenistic and/or transactional relationships where power/privilege are not renounced.

Appendix C: Searching for the True Spirit & Intent of Treaty 7

Pre-Treaty for the *Niitsitapi:* The Real People.

Since time immemorial, the *Siksikaitsitapi* (Blackfoot) lived freely on the Land following bison across the plains, stretching from "the North Saskatchewan River in Alberta and Saskatchewan to the Yellowstone River in the state of Montana, from the Continental Divide in the west to the Great Sand Hills in the province now known as Saskatchewan" (Blackfoot Confederacy, 2021, para. 5). These Lands were gifted to them by Creator and thereby lived, and continue to live, by the laws of nature; taking only what they needed so that there would be enough for future generations (Elders, T. 7 & Carter, S., 2014). The Îyâxe Nakoda (Mountain Nakoda, or settler-termed Stoney Nakoda) have oral histories that speak of their ancestors always having lived along the foothills of the Rocky Mountains; ranging east to the prairies for hunting buffalo, and west for hunting, harvesting, and fishing deep into the mountains (Snow, 2005). Their spirituality is also intimately bound to the Land. Finally, the Tsuut'ina (also known as the Sarcee to the Blackfoot for their boldness/hardiness) were once part of the northerly Dene (Athabaskan) First Nation, who migrated south along the Great Plains in the mid-1700s (Calgary Foundation, 2019). The Tsuut'ina knew the sacredness of the Land which must be respected and shared by all. Evidently, all Treaty 7 nations had intimate relationships with the Lands, waters, four-leggeds, winged ones, and all living beings within this region; and had complex systems of governance that spanned generations.

Decades leading up to the signing of Treaty 7, nations were already deeply impacted by both settler diseases transmitted across the plains and the illegal whiskey trade coming in from the United States drastically harming their people and reducing populations. Meanwhile, the buffalo, which once heavily roamed the plains and shared in kinship relations with Treaty 7

nations, were being slaughtered by settler newcomers. Not only were they overhunted for furs, but they were also excessively killed as railroads expanded west across the prairies, and food was needed to feed settlers in established trading/military posts (Culture in Contact Exhibit, 2023). The buffalo had become so scarce that the First Nations people knew they needed to adapt to a new way of life (Chief Crowfoot Exhibit, 2023) to ensure peaceful relations were established with the colonial government; a relationship based on mutual respect and equal partnership. Elders summarize the goals of treaty making for Treaty 7 nations with four objectives: (i) to ensure the physical survival of their people; (ii) to establish peaceful relationships with the government; (iii) to ensure the spiritual and cultural survival as separate and distinct nations, keeping their own forms of government and institutions; and (iv) to begin the transition to a new way of life (agriculture and ranching) as they could no longer rely on the subsistence of the buffalo (Elders, T. 7 & & Carter, S., 2014).

Pre-Treaty for the Colonizers: Paving the way for National Identity.

"The accumulation of wealth… justif[ies]... the need[s] of the colonizers to dominate the land and make it bountiful in ways that those who originally occupied it have been unable to do" (Elders, T. 7 & Carter, S., 2014, p.194).

Long before the signing of Treaty 7 in 1877, the Robinson Treaty (1850) set a precedent for the upcoming numbered treaties of the plains; where reserve land and government promises (annuity, continuance of hunting/fishing rights, etc.) were granted for surrendering title to the land (Elders, T. 7 & Carter, S., 2014). After Rupert's Land was sold to the Canadian government by the Hudson Bay Company (HBC) in 1870, the motives that once prioritized the trading of furs quickly shifted to land ownership (Elders, T. 7 & Carter, S., 2014). As treaty signing continued west through the numbered treaties (Treaty 1 to 6), the colonial vision for a sea-to-sea nation was

realized as Indigenous peoples were displaced from traditional territories onto reserves, and Canadian Pacific Railway (CPR) tracks were laid on ‘surrendered’ land (Elders, T. 7 & Carter, S., 2014). The quick succession of treaties expanding west was also fueled by the need to create safety for western settlements, as the threat of a potential Blackfoot and Lakota alliance and the need to secure the US-Canada border put pressure on the national agenda (Elders, T. 7 & Carter, S., 2014). To establish a military base and colonial settlement, Prime Minister Sir. John A. McDonald sent out several hundred North West Mounted Police (NWMP) in 1867 (Fort Calgary, 2023) but they were ill equipped for their travels. In 1874, Colonel James Macleod, the first Commissioner of the NWMP arrived in present day Calgary and was welcomed by Chief Crowfoot to stay one winter. One year later, Fort Calgary was established at the confluence of the Bow and Elbow Rivers so that the NWMP would be better positioned to maintain relations, as they noticed First Nations travelled here frequently (Fort Calgary, 2023).

Historically, Chief Crowfoot and Colonel MacLeod’s relationship is seen as one of friendship, as MacLeod had a hand in stopping the harmful whiskey trade on Crowfoot’s people and was even gifted the name of Bullhead (Elders, T. 7 & & Carter, S., 2014). However, through a recent art installation surrounding the Colonel Macleod monument on Fort Calgary grounds, artist Sikapinakii Low Horn (2023) (re)stories this relationship depicting the dark, hidden colonial interests of MacLeod. In summation, the intent of treaty making for the Canadian government was to gain legal title to Land through Indigenous surrender documents, so that they could achieve their goals of national identity, assimilation, resource extraction, advancement of the CPR, capitalist economy, and mitigating the threat of US invasions (Elders, T. 7 & Carter, S., 2014).

The Signing of Treaty 7 at *Soyoh'powah ko* (Blackfoot Crossing).

"Oral history… must be understood for what it can tell us… Written histories often hide their real purpose and create an illusion of objectivity by avoiding the significance of the speaker or the ideological context of the message" (Elders, T. 7 & Carter, S., 2014, p. 328).

On September 22nd, 1877, Treaty 7 was signed at *Soyoh'powah ko* ("ridge under the water"; Blackfoot Crossing, 2023), otherwise known as Blackfoot Crossing on Siksika territory, after Chief Crowfoot of the Siksika tribe insisted for negotiations to take place here. This Land was an important ceremonial, settlement, and gathering place for thousands of years, and the gravel ridge underwater made it commonplace to cross the Bow River (Blackfoot Crossing, 2023). As Treaty 7 nations and government agents gathered at Blackfoot Crossing, after many days of negotiations, it became evident that the understanding of treaty as an everlasting peace agreement was overridden by the overpowering motives of the colonial government as reflected in the written text of Treaty 7; as agreements thought to be included were omitted, and negotiations that were never discussed were included (Elders, T. 7 & Carter, S., 2014; Sikapinakii Low Horn, 2023).

Inscribed in the document of Treaty 7, the Blackfoot, Stoney, and Sarcee (Tsuut'ina) nations "do hereby cede, release, surrender, and yield up… all their rights, titles, and privileges whatsoever to the lands included" (Government of Canada, 1996, para. 5). From the perspective of Treaty 7 nations, they agreed to share the Land in good faith with the Crown in exchange for annuity, education, medical care, ammunition, farming and ranching supplies/assistance programs, and hunting/gathering rights to sustain themselves in the ways they have since time immemorial (Elders, T. 7 & Carter, S., 2014). Interestingly, the hunting rights defined in the treaty were "subject to such regulations… for settlement, mining, trading or other purposes by

Her Government of Canada" (Government of Canada, 1995, para. 8). This colonial understanding is in direct contestation to the words of Treaty 7 Elders, as traditional territories would continue to be used (not restricted) and the Land below was never given up. The language of reserves and square miles surveyed as outlined in the Treaty, and how little Land was actually to be surveyed, "one square mile for each family of five persons" (Government of Canada, 1996, para. 9), was not clearly described nor understood by the signing nations. In addition, mineral rights were never granted for extractive agendas, rather an oral agreement to use the Land solely for agricultural purposes was agreed upon, going no deeper than the depth of the plough (2 feet; Elders, T. 7 & Carter, S., 2014).

Post-Treaty: Who lived up to their responsibilities?

"At first they gave us some of their promises but it never lasted" (Victoria McHugh as cited in Elders, T. 7 & Carter, S., 2014, p. 122)

Although the peaceful cohabitation of nations was initially thought to be understood as a partnership, it was not long before Treaty 7 nations were seen as "impediments to civilization" (Elders, T. 7 & Carter, S., 2014, p. 197). Following the signing of Treaty 7, the assimilationist motives of settler colonialism came to light as treaty promises were continuously broken. The Indian Act of 1867, legislated the year before Treaty 7 was signed, was never brought forth by the Treaty Commissioner, David Laird (Elders, T. 7 & Carter, S., 2014). This policy is oppressive in nature (i.e., recognizing a person as anyone other than an Indian), imposed a multitude of restrictions/barriers (i.e., banning Sun Dance ceremony, legalizing a Pass System that restricted movement on off reserves, etc.) and rights to self-determination (i.e., through marriage, education, leaving reserve, etc.), and continues to be recognized as law in the present day. These regulations, seeking to control the Blackfoot, Îyârhe Nakoda, and Tsuut'ina peoples, were

evasively hidden to deceive nations into believing that Treaty 7 would guarantee their rights as sovereign nations (Elders, T. 7 & Carter, S., 2014). Not long after the reserves had been surveyed, the Department of Indian Affairs was established in 1880 to implement government policies on Indigenous Land and life (Elders, T. 7 & Carter, S., 2014).

Beyond the coercive measures of the 'failed to mention' Indian Act (a set of laws created one year prior to the signing of Treaty 7 but was omitted from negotiations due to its oppressive and restrictive nature governing the rights of First Nations), treaty promises were broken when agricultural tools promised were not provided based on the terms discussed. The Peasant Farming Policy in the 1880s also restricted nations from growing, selling and using only basic equipment (Elders, T. 7 & Carter, S., 2014). There was also an underlying assumption that all nations would fully adopt a sedentary, agrarian lifestyle, after orally promising that the treaty would not interfere with traditional ways of life (Snow, 2005). The government assumed that the reserves would turn into an agricultural economy overnight. Given the nature of the reserve lands and what minimal farming tools were actually provided (along with the near extinction of the buffalo), Treaty 7 nations had little choice: either "starve or move onto reserves and depend on the ration houses" (Snow, 2005, p.59). Interestingly, at a time of mass starvation and game scarcity in the 1880s, government measures were taken to blame Indigenous nations for overhunting and overharvesting (rather than the government's hand in imperialistic ecocide); which cultivated further colonial harm as the settler-public demanded game warden policies/confinements for Indigenous peoples to restrict hunting/harvesting to reserve Land (Snow, 2005). Moreover, "the Whiteman's law recognized boundaries different from [Treaty 7 nations]" (Snow, 2005 p.65). Their traditional territory, once stretching to the Yellowstone River in the south (now the United States) was no longer accessible at the border crossing.

Aside from coercive legislation and mass starvation/malnutrition quickly following the signing of Treaty 7, these assimilationist progressions continued harming the treaty relationship. Previously promising the protection of the buffalo in treaty negotiations, buffalo slaughters continued to occur. In 1885, the Pass System was also enforced to restrict movements; imposing further barriers to trade, family/social relations, gatherings, ceremony, hunting/ harvesting, etc. Government rations were also implicated through favouritism in ration distribution for particular reserves and tampered through lyme poisoning (Elders, T. 7 & Carter, S., 2014). There was also a shift in the treaty promise to provide rations for starving nations, which moved to a work for rations contingency; and the government even threatened nations by withholding flour rations to the Siksika if they did not let "the CPR to pass through the reserve" (Elders, T. 7 & Carter, S., 2014, p.162). Crowfoot agreed to a temporary railway track to feed his people, however the CPR still runs through the Siksika reserve to this day (Elders, T. 7 & Carter, S., 2014).

The residential school system, operating between the 1830s and 1996 (Miller, 2024), aimed to "kill the Indian in the child" (Indigenous Corporate Training INC., 2016, para. 5), were substantially underfunded and employed racist, assimilationst officials who forced Canadian and Christian values onto children, and punished Indigenous ways of learning, knowing, living, and being in schools. Children were not only treated poorly and harmed physically, mentally, emotionally, and spiritually, but familial and cultural bonds were broken as children were sent away for extended periods of time (Elders, T. 7 & Carter, S., 2014). In the 1960s, the Sixties Scoop continued to break up families by putting Indigenous children in the welfare system. Evidently, the events that followed the once understood 'peace treaties' have served settler colonizers and have contributed to both cultural genocide and the ongoing intergenerational trauma presently experienced by Treaty 7 nations. If there will ever be *true* truth and

reconciliation, we must honour Treaty 7 nations' stories of the past to understand how we are each uniquely positioned to move forward based on the true spirit and original intent of Treaty 7.

Appendix D: Where Place meets Story on Treaty 7 Lands

Exploring Treaty 7 Territory

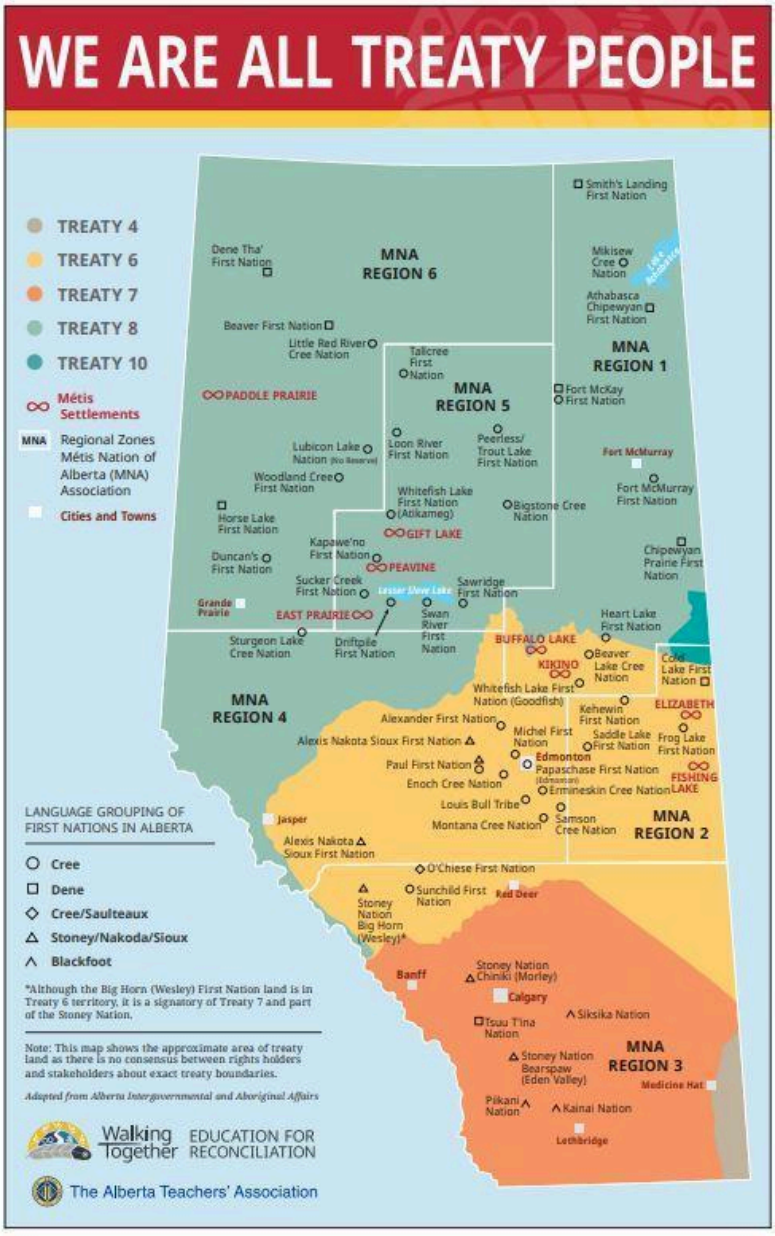


Figure D1. We are all treaty people (Alberta Teachers' Association, 2017). Map of Alberta depicting all Treaty 7 Nations, including the Blackfoot Nations (Siksika, Kainai, and Pikani), Stoney Nakoda Nations (Bearspaw, Chiniki, and Goodstoney), Tsuu T'ina Nation, and Metis Nation of Alberta Region 3.

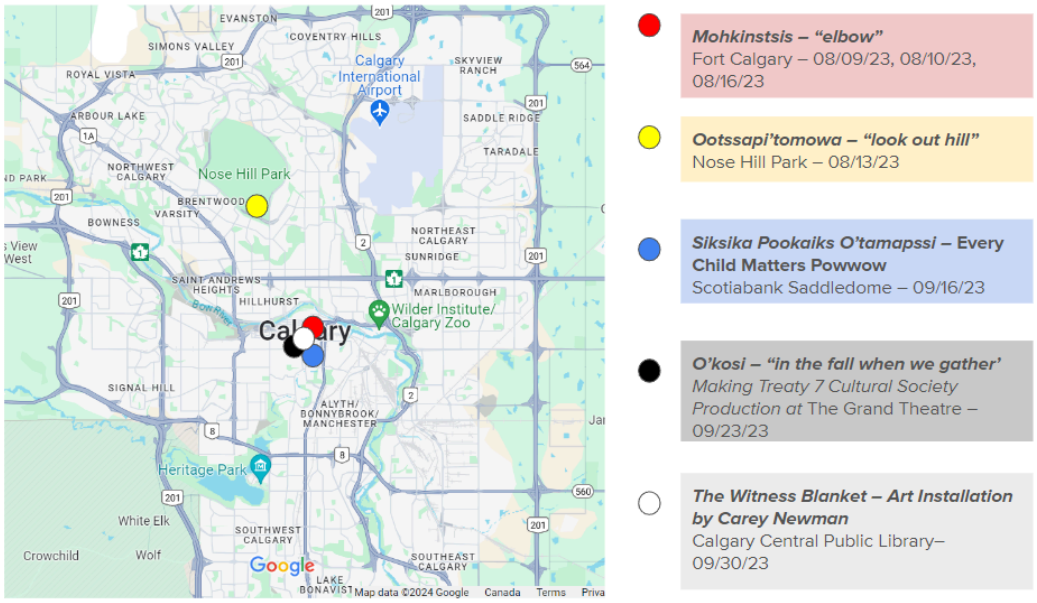


Figure D2. Unearthing stories held within the Lands of the urban center, Calgary, AB, in Treaty 7 territory.

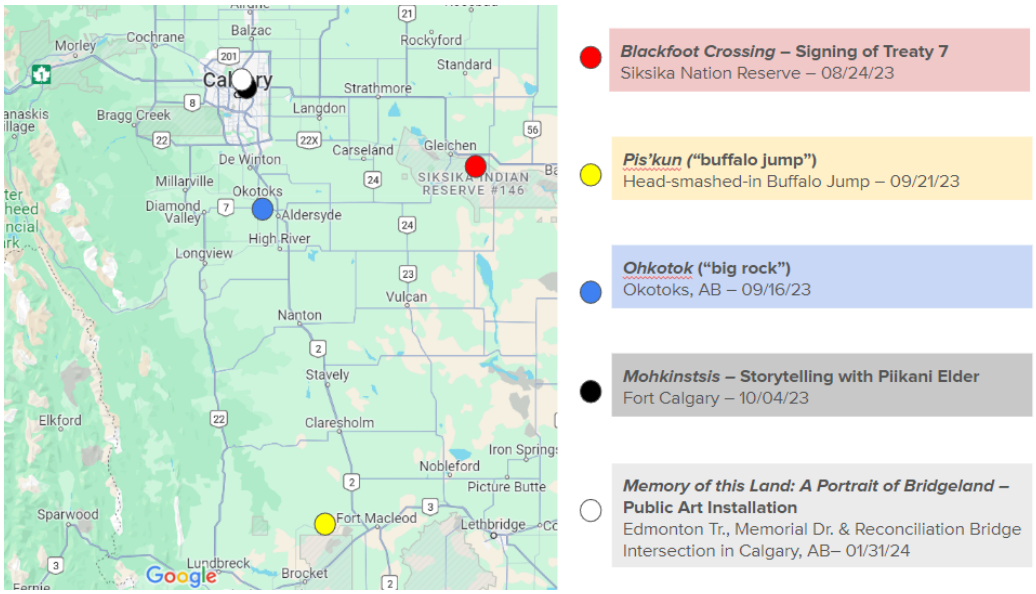
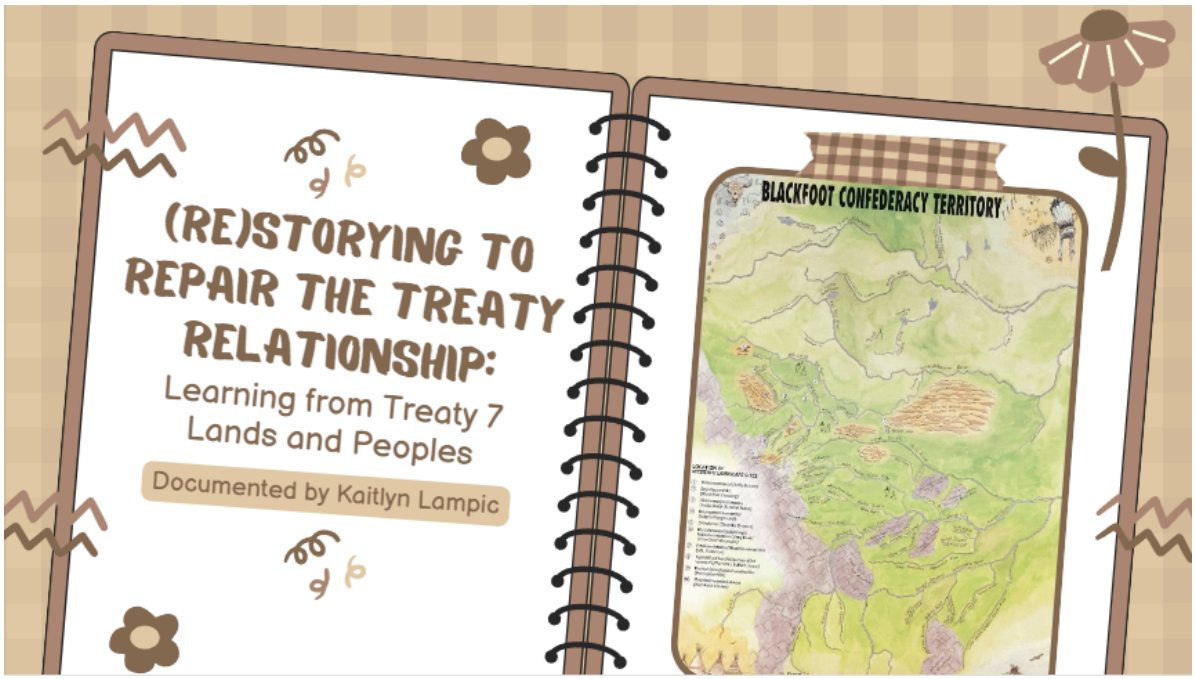


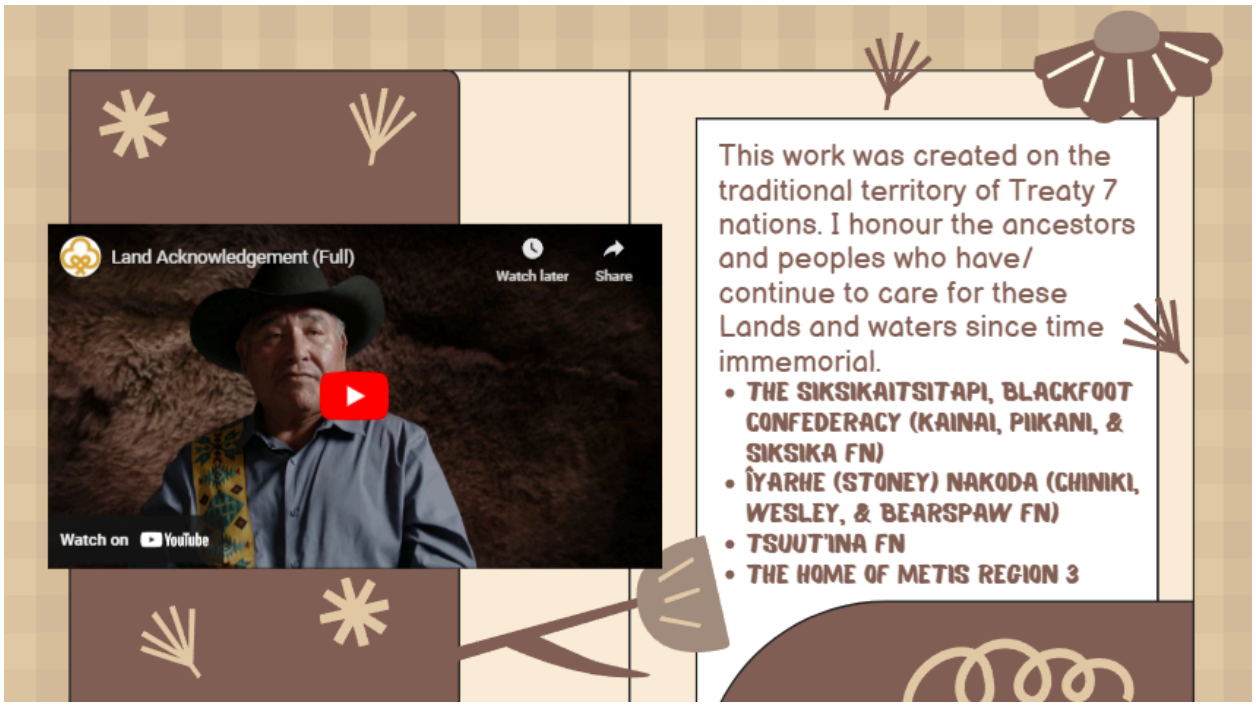
Figure D3. Unearthing stories held within the Lands of Treaty 7 territory.

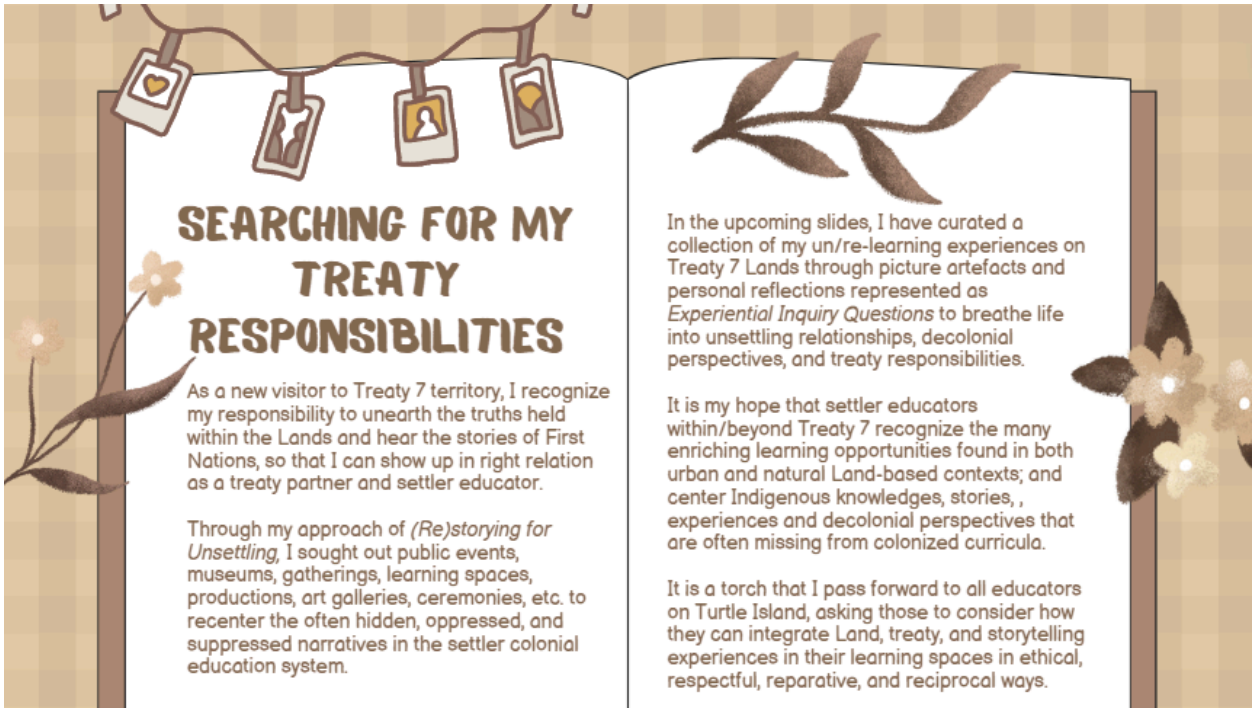
(Re)storying to Repair the Treaty Relationship: Learning from Treaty 7 Lands and Peoples

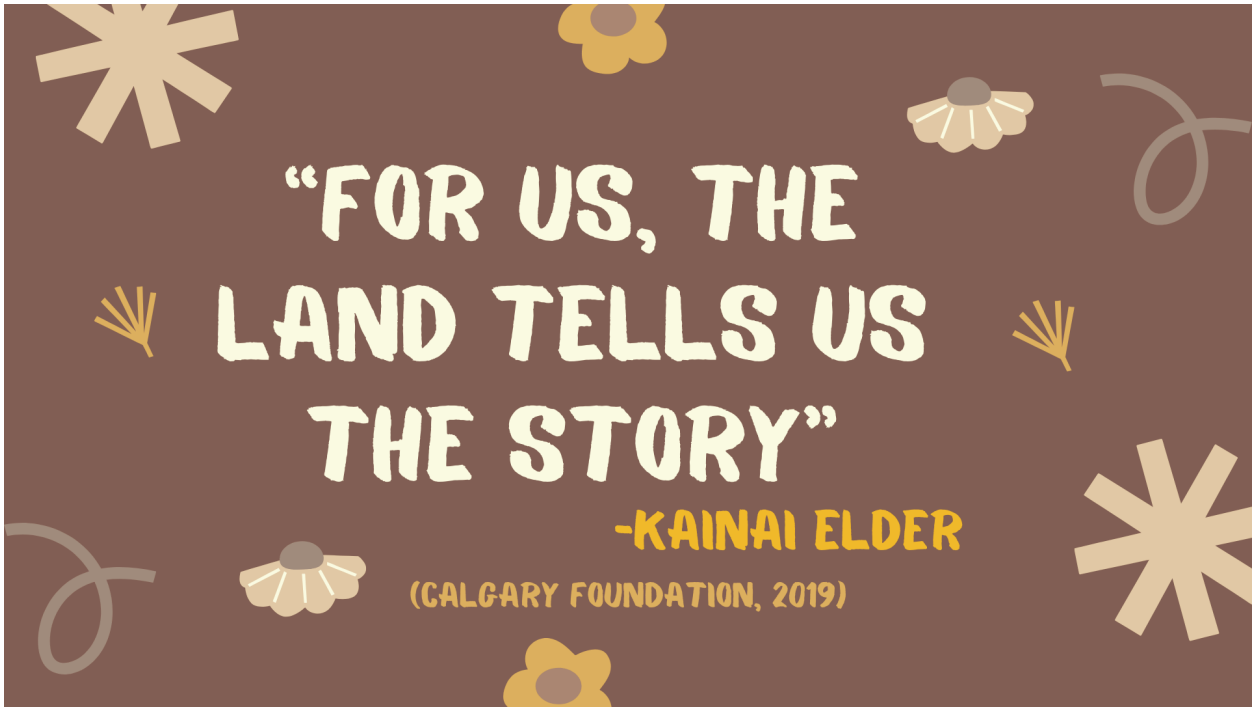
Link to full interactive presentation:

https://www.canva.com/design/DAF9cr8lRes/pnjsXjuMO0uC0V6qnnYg6Q/edit?utm_content=DAF9cr8lRes&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton






SEARCHING FOR MY TREATY RESPONSIBILITIES
As a new visitor to Treaty 7 territory, I recognize my responsibility to unearth the truths held within the Lands and hear the stories of First Nations, so that I can show up in right relation as a treaty partner and settler educator.
Through my approach of *(Re)storying for Unsettling,* I sought out public events, museums, gatherings, learning spaces, productions, art galleries, ceremonies, etc. to recenter the often hidden, oppressed, and suppressed narratives in the settler colonial education system.
In the upcoming slides, I have curated a collection of my un/re-learning experiences on Treaty 7 Lands through picture artefacts and personal reflections represented as *Experiential Inquiry Questions* to breathe life into unsettling relationships, decolonial perspectives, and treaty responsibilities.
It is my hope that settler educators within/beyond Treaty 7 recognize the many enriching learning opportunities found in both urban and natural Land-based contexts; and center Indigenous knowledges, stories, , experiences and decolonial perspectives that are often missing from colonized curricula.
It is a torch that I pass forward to all educators on Turtle Island, asking those to consider how they can integrate Land, treaty, and storytelling experiences in their learning spaces in ethical, respectful, reparative, and reciprocal ways.


"FOR US, THE LAND TELLS US THE STORY"
-KAINAI ELDER
(CALGARY FOUNDATION, 2019)

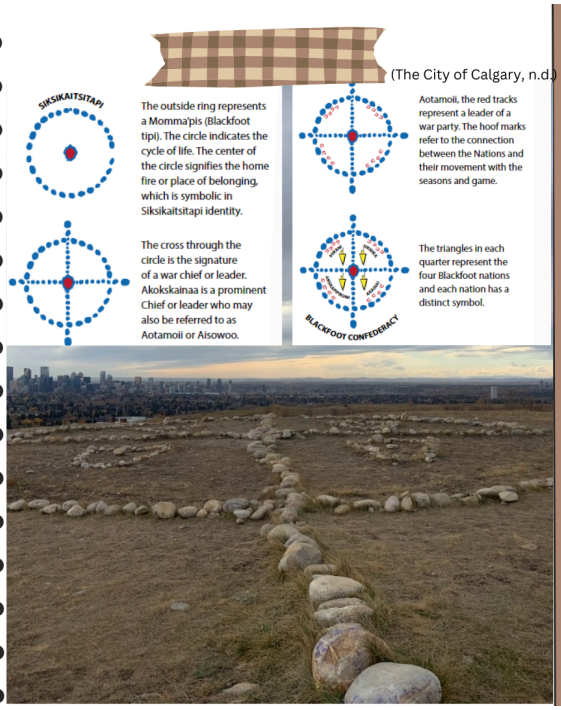
08/13/23

Nose Hill Park
Siksikaitsitapi Landmark by Elder Aatso'taowa (Andy Blackwater)

OOTSAPI'TOMOWA (LOOK OUT HILL)

Experiential Inquiry Questions:

- How does the topography of the Land influence the story of this place?
- How are stories of ancestors written on the Land?
- What stories continue to unfold here?
- How might leaving a landmark on the Land reinforce kinship to the Land?
- How did the Land communicate to us how we can respectfully enter into this space?
- What are our responsibilities for respecting protocols at sacred sites?



(The City of Calgary, n.d.)

08/09/23

Fort Calgary
Exhibit at the Confluence of the Bow & Elbow River

INNA'TSYIYAAWA (THEY MADE TREATY)

Experiential Inquiry Questions:

- Whose stories are centered here?
- How has Sikapinakii Low Horn's (2023) art installation (re)centered the true spirit and intent of Treaty 7?
- How is the history of the confluence layered and complex?
- How might sharing these (hidden) stories of the past influence our responsibility to move forward in a good way?

(Sherif, 2023)

Fort Calgary
Self-Guided Audio Tour of the Land

08/16/23

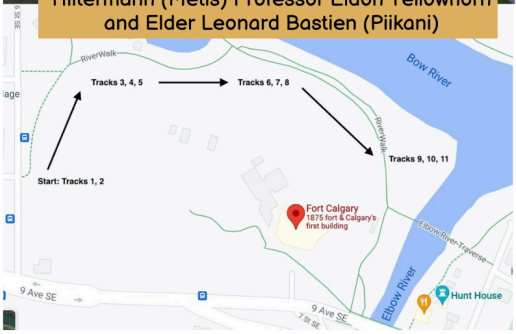
EXPLORING THE CONFLUENCE (MOHKINSTSIS)

Experiential Inquiry Questions:

- How are stories/worldviews revealed through place names? Calgary? Mohkinstsis?
- How does (re)membering the significance of the confluence (pre-dating NWMP arrival) reveal the layered history of this place?
- What has/continues to be the significance of this gathering place?
- How does oral storytelling play a role in mental maps? (i.e. Napi stories shaping the Land)

(Fort Calgary, n.d.)

Speaker Series:
Elder Saa'kokoto (Kainai), Knowledge Keeper Hal Eagletail (Tsuut'ina), Historian Matthew Hiltermann (Metis) Professor Eldon Yellowhorn and Elder Leonard Bastien (Piikani)



Blackfoot Crossing
Historical Park

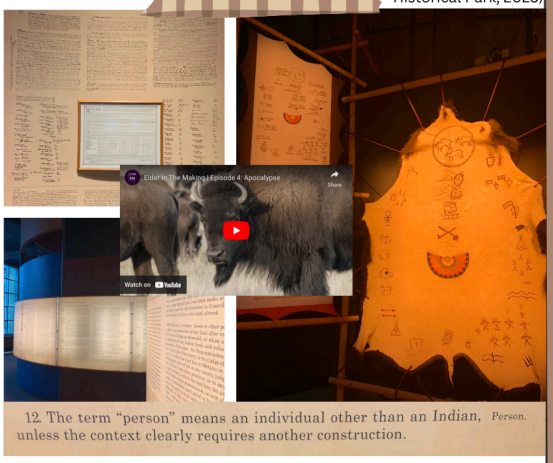
08/24/23

SOYOH'POWAH KO (RIDGE UNDER THE WATER)

Experiential Inquiry Questions:

- What was the true spirit and intent of Treaty 7 for the colonizers? First Nations?
- How do the written accounts differ from oral accounts of Treaty 7?
- How are Blackfoot stories recorded over time?
- How have varying worldviews impacted treaty relationships in the past and present? (i.e., transaction vs. everlasting relationship, land surrender vs. sharing, capital/private property vs. animate being, natural resource vs. caregiver)
- How might learning from our ancestors' relations help guide us in the present for a better future?

(Blackfoot Crossing Historical Park, 2023)



09/16/23

Scotiabank Saddledome
Siksika Every Child Matters Powwow

SIKSIKA POOKAIKS O'TAMAPSSI POWWOW

Experiential Inquiry Questions:

- *O'totama'pssiks* translates to "recognizing our most important." Why are children seen as the heart of Siksika culture?
- What is our responsibility as settler treaty partners on Orange Shirt Day?
- How do the vacant stadium seats, typically filled with Calgary Flames fans, reflect societal values?
- How do we contribute to a legacy that respects and honours Indigenous resilience & excellence?
- How does powwow ceremony, regalia, community, drums, etc. symbolize cultural reclamation, strength and healing?

(Scotiabank Saddledome, 2022)

09/23/23

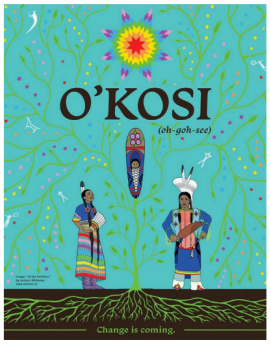
The Grand Theatre
Making Treaty 7 Cultural Society

O'KOSI (IN THE FALL WHEN WE GATHER)

Experiential Inquiry Questions:

- How does the meaning of treaty, *Inaistsyi*, reveal itself throughout the show between:
  - Blackfoot and more-than-human beings?
  - Blackfoot parent and child?
  - Blackfoot Nations to Settler nations?
- How have/do broken treaty promises contribute to harm, spanning across generations?
- What might our role be in dismantling harmful colonial systems by the year of 2077 (200 years after Treaty 7 was signed)?

(MT7CS, 2022)



09/30/23

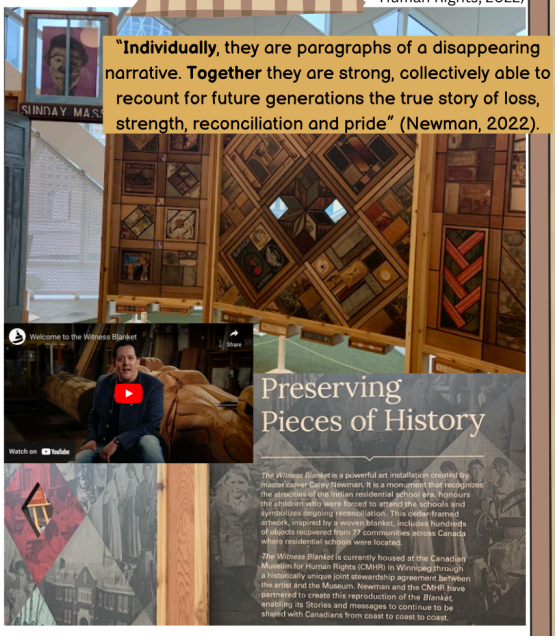
Calgary Central Public Library
Art Installation by Carey Newman

THE WITNESS BLANKET

Experiential Inquiry Questions:

- What does bearing witness mean to you?
- How does the action of bearing witness demonstrate a reciprocal relationship between the storyteller and the viewer?
- What is our responsibility of bearing witness?
- How does the reclamation of these artefacts gathered from Residential School survivors across Turtle Island invite us to (re)member a once silenced story?

(Canada Museum for Human Rights, 2022)



"BEARING WITNESS DOESN'T MEAN JUST LOOKING BACKWARD AT THE PAST. BEARING WITNESS MEANS TAKING RESPONSIBILITY FOR THE FUTURE."

-CAREY NEWMAN

(CANADIAN MUSEUM FOR HUMAN RIGHTS, 2022)

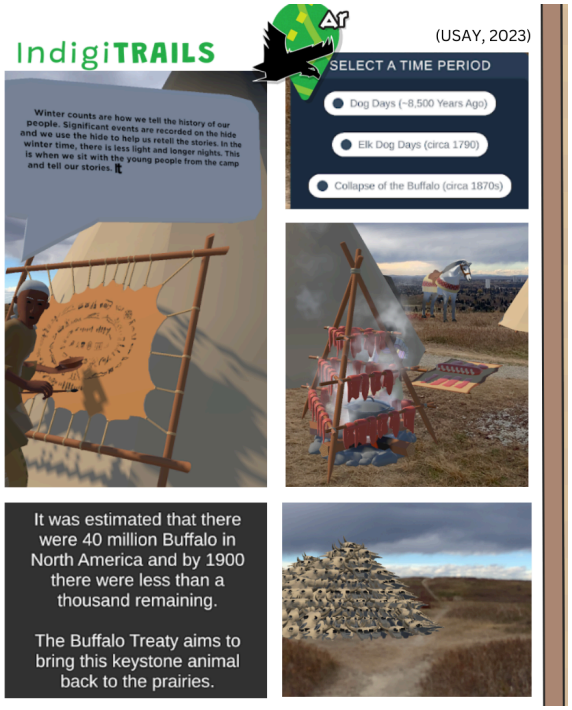
10/17/23

Nose Hill Park
Augmented Reality Tour by Urban Society for Aboriginal Youth (USAY)

"ECHOES OF THE PAST" INDIGITRAILS APP

Experiential Inquiry Questions:

- How does the significance of Look Out Hill evolve over time?
- How have the seasons impacted movement on these Lands? (i.e., during the Dog Days, Elk Dog Days?
- What impacts of colonization are evident on these Lands? (i.e., CPR, slaughter of buffalo, deforestation)
- How has colonization impacted these Lands? Treaty 7 nations?
- Why are Winter Counts important to Blackfoot culture? What stories might they reveal to us?



(USAY, 2023)

10/21/23

Head-Smashed-In Buffalo Jump
UNESCO World Heritage Site

PIS'KUN (IINI/BUFFALO JUMP)

Experiential Inquiry Questions:

- How did the Blackfoot work *within* the four elements to support plains buffalo culture?
  - **Fire:** prairie fires taught the Blackfoot to facilitate controlled burns for more nutritious grasses
  - **Earth:** cliffs and valleys of the Porcupine Hills were ideal for jumps; cairns built (rocks, dung, brush) for drive lanes; overwintering in Oldman River valley sustained by wood for heat & shelter from storms
  - **Water:** Old Man River & the spring channel provided year-round water supply for cooking/thirst quenching
  - **Wind:** observed to determine when the wind blew in the right direction (or the buffalo would smell the hunters)
- How did settler colonialism drive the near extinction from the buffalo from the plains? Pressures on Treaty signing?
- How might Blackfoot knowledge systems (i.e., working *within* the natural world, gift=responsibility) from this centuries old way of life, pave a path forward?

(Head-Smashed-In Buffalo Jump, 2023)

Okotoks, AB
Sacred Site - Napi & the Rock

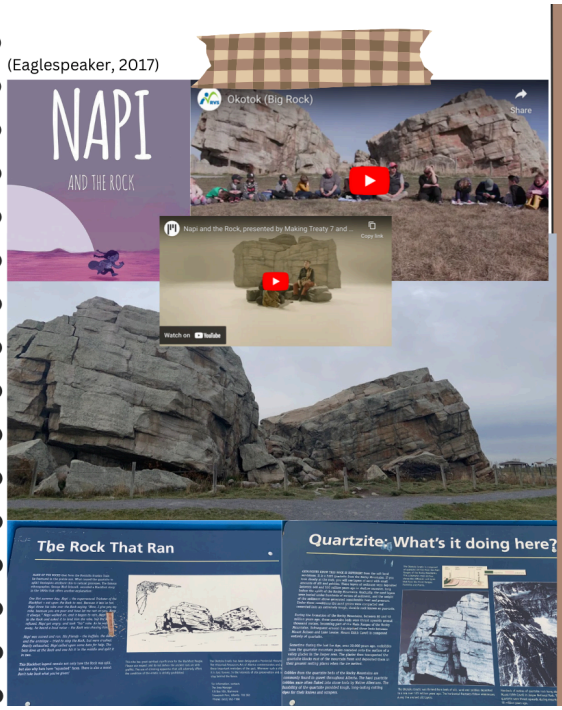
10/21/23

OHKOTOK (BIG ROCK)

Experiential Inquiry Questions:

- Is science universal? Cultural?
- Is truth always objective? Can knowledge be subjective to cultural/spiritual ways of knowing?
- What is acknowledged as "science" here?
- What is deemed as "legend?"
- How does categorizations of knowledge in plain text vs. italics represent a "Jagged Worldview Colliding" (Leroy Little Bear, 2000, p.77)?
- How can we put these two knowledge systems, Western science and Blackfoot ways of knowing, in relation to one another?

(Eaglespeaker, 2017)



Fort Calgary
Fireside Storytelling with Piikani Elder

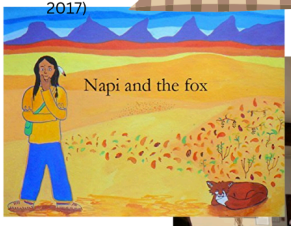
11/04/23

STORIES OF THIS LAND: NAPI & THE FOX / LODGE TEACHINGS

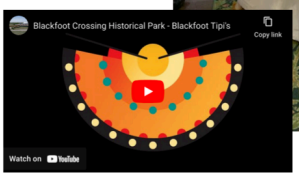
Experiential Inquiry Questions:

- How can storytelling be a window into ancestral ties, connections to Land, and cultural teachings?
- What can we learn from the teachings of the fox?
- What are the dangers of being wasteful and not honouring the buffalo as a gift *and* responsibility?
- What does this story teach us about the balance between humans and Creation (buffalo)?
- How is knowledge of the Land represented in the Lodge structure? (**Wind**: door faces E to face the day Creator made & blocks the Chinook winds; **Earth/Fire**: lodgepole pine arms, legs, and ribs form nostrils releasing the smoke at the center)
- How has settler colonialism impacted the traditions of Lodge building? (shift from buffalo hide to canvas; material used for the NWMP's tents)

(Ninaimsskaikkimaani, 2017)



(Global News, 2023)



"WE NEED TO UNEARTH THE OLD STORIES THAT LIVE IN A PLACE AND BEGIN TO CREATE NEW ONES, FOR WE ARE STORYMAKERS, NOT JUST STORYTELLERS"

-ROBIN WALL KIMMERER

(KIMMERER, 2013, P. 341)

Fort Calgary
Treaty 7 Exhibit

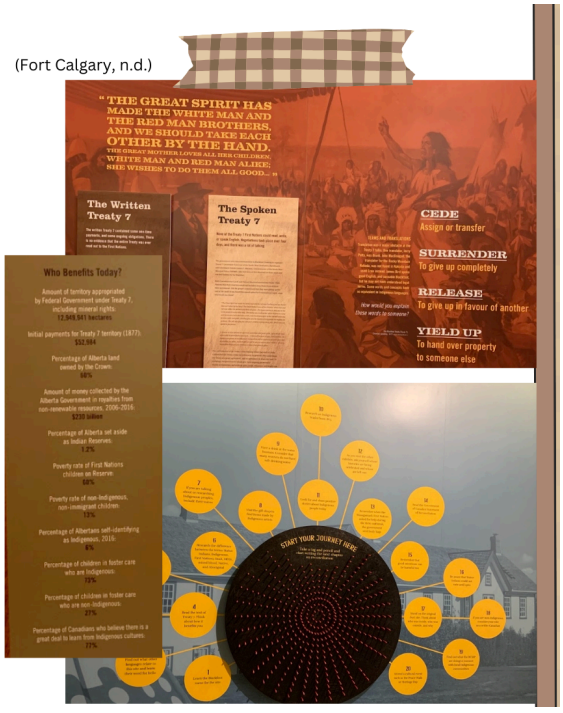
11/04/23

EXPLORING TREATY 7

Experiential Inquiry Questions:

- What does it mean to be a treaty person to the *living* document of Treaty 7?
- Who has/continues to benefit from Treaty? Who has/continues to be harmed, oppressed, and marginalized?
- How does this framing of treaty cause us to reconsider our ongoing responsibilities?
- What acts of reconciliation can we take today?
- Consider this statement: "We inherit the legacy of our ancestors, good and bad." How have these decisions shaped the world we live in today?

(Fort Calgary, n.d.)



Calgary Central Library
Art Installations

12/01/23

INDIGENOUS SURVIVANCE: PAST, PRESENT, & FUTURE

Experiential Inquiry Questions:

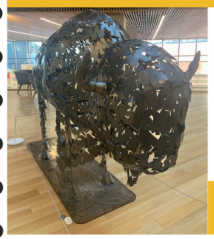
- How is ancestral knowledge depicted here?
- How is knowledge intimately tied to the Land?
- What knowledge do we value?
- What does the buffalo symbolize to the Blackfoot? What might the letters symbolize in the steel structure of the buffalo?
- How can education honour Indigenous knowledges and ways of teaching/learning?
- How can we all benefit from Indigenous teachings and ways of knowing?

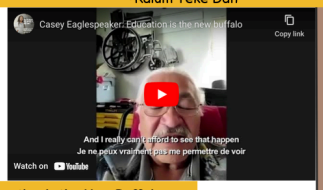
(Rollinmund, Starlight, Teke Dan, 2018)

Survival Harvesting (Past) -Roland Rolinmund

Sharing the Knowledge (Present) -Keegan Starlight

Spiritual Changes through Indigenous Teachings (Future) -Kalum Teke Dan





Education is the New Buffalo
-Lionel Peyachew

Bridgeland, Calgary
Urban Mural by Nicole Wolfe @ Intersection of 4th Ave., Edmonton Trail, Reconciliation Bridge, & Memorial Drive

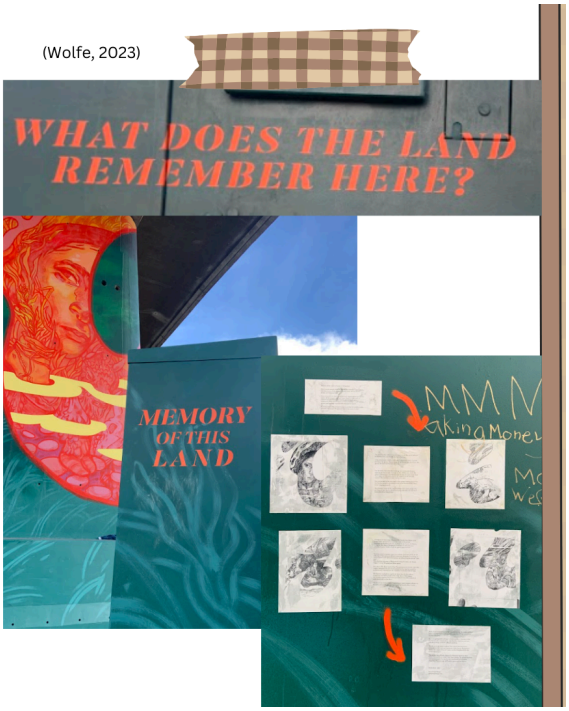
02/01/24

"MEMORY OF THIS LAND: A PORTRAIT OF BRIDGELAND" - WOLFE

Experiential Inquiry Questions:

- What does the Land remember here?
- How does Land hold memory? Story? Knowledge?
- Who can we ask to hear these memories? Elders? Waters? Animals? Plaques? Residents? Knowledge Keepers? Business owners?
- How has the Land influenced what has/continues to happen here?
- How has the arrival of human/more-than-human (plant/animal) settler beings impacted the Land?
- What memories will we give this Land in the years to come?
- What do we hope to add to this mural?

(Wolfe, 2023)



02/01/24

Bridgeland, Calgary
Urban Mural by Nicole Wolfe @
Intersection of 4th Ave., Edmonton Trail,
Reconciliation Bridge, & Memorial Drive

These memories are drawn as bright warm shapes that hover over the prairie. All the imagery used was drawn from over 200 hours of research and interviews with residents, knowledge keepers, Indigenous elders, archeologists, geologists, historians, local business owners, and randomly encountered unhoused occupants.

The land watches as Bison hooves cross over the Bow river, followed by Blackfoot feet, and then by the feet of settlers.

A Blackfoot hunter wears a wolf's skin to approach bison. A prairie fire burns the grasses. Steam rising off hot stones rises up to meet the glacial lake that used to cover this area.

//

The Blackfoot remember first learning how to cross the Bow by watching the bison make crossings in this shallow area. Later, the settlers followed suit. A wooden bridge became the main route from Fort Calgary to Edmonton, later to be replaced by the (recently renamed) Reconciliation bridge that we see now.

This intersection of the river used to be a prime hunting ground for the Blackfoot people, and thanks to the warm chinook winds, was a winter camping grounds.

The portrait is made of the compiled faces of the many people who are living or have lived in Bridgeland, and symbolizes the land as it remembers these happenings.

(Wolfe, 2023)

A European woman drops wheat into the hands of an Italian pasta dough maker. Behind her, a raven descends to the prairie. Structures are lowered onto the riverbank by the hands of a laborer during the first days of Bridgland's formation. A rider sits atop unbroken horses. Children hold the prairie grass and rest.

//

With the arrival of settlers came new animals, birds and plants. In the early days of becoming an official community, Bridgeland was home to many northern and eastern Europeans, as well as being known as "Little Italy".
The structures are some of Bridgeland's many churches, the former Calgary General Hospital and Metis cabins.

The rider is Blackfoot rancher Tom Threepersons, the winner of the first Calgary Stampede. He was not recognized at the time but would be posthumously inducted into the Canadian Pro Rodeo Hall of Fame.

The hands in work gloves signify the labor done by the settlers, Indigenous and Métis people in the early days of Fort Calgary. The children represent the future generations who will continue to make their home on this land.

The raven is an ancient symbol appearing in many original cultures on the earth, and usually acts as a messenger on behalf of the Creator.

Much of the historical knowledge was provided by Bridgland resident and knowledge keeper Deb Lee, who supplied writings and photos for my references.

My anthropological knowledge is thanks mostly to Blackfoot elder Rod Scout, who connected me with Blackfoot histories, and also edited my design work for cultural sensitivity.

Thank you to the many residents who shared their historical connection to the area, and businesses Villa Firenze, Bridgeland Market the Calgary Drop In Center and the Bridgland BIA who funded this project.

This project was officially blessed by Blackfoot Spiritual elder Ka'tay'i'ta'toosi Bryan Little Chief from Siksika. The plants depicted were recommended by him for their medicinal and symbolic properties. They are sage, wild prairie grass, and sweetgrass.

Nicole Wolf 2023

@nicolewolf.design
nicolewolfdesign.com

02/15/24

Chinook Blast @
Downtown Mohkinstsis
Outdoor Sculpture

"ROOTS/ROUTES" -BE.TRIT

Experiential Inquiry Questions:

- What communities are you rooted to?
- What routes (paths) have led you & your family to Mohkinstsis?
- How does the trailer represnt transience and possible dis/connection?
- What does it mean to feel rooted in Land?
- What deep connections do you have with the Land?
- How has the Land supported your ancestors?
- How does the Land continue to feed your body/spirit?
- What draws you to the Bow/Elbow rivers that run throughout the city?

(Faubert & Korenda-Tritter, 2023)

To be rooted is perhaps the most important and least recognized need of the human soul.

- SIMONE WEIL

Stride Gallery
Art Gallery

02/15/24

"PASSAGE" -THE LAND HOLDS US COLLECTIVE

Experiential Inquiry Questions:

- What emotions are evoked by these works?
- How does the Land hold us? Our ancestors?
- How do we pay homage to departed relatives and unknown ancestors?
- What can death teach us about renewal? Metamorphosis?
- How can we transform, accept, unlearn, rebuild?
- How can we remind ourselves/others that the love & connection with our ancestors transcend time/space?
- How does memory, story, and energy live on?

(The Land Holds Us Collective, 2024)

WHERE DO I GO FROM HERE?

UNSETTLING LAND & INDIGENOUS RELATIONS TO MOVE FORWARD IN A GOOD WAY

How will I carry this learning forward and reflect my unsettling into my teaching practice?

- Shift from a storied narration ***about*** to an experiential relation ***with*** Indigenous Land and peoples by necessitating reciprocal and respectful relationship-building within/beyond the school community
- Centering the experiences, perspectives, identities, stories, needs, interests, and passions of students and local community members; reflecting this in the experiential learning opportunities we engage in
- Practice conscious reflexivity and humility by actively responding to moments where one must step back or speak up; attentively shifting between facilitator and co-learner
- Staying accountable to this journey with intention while also being mindful of realistic expectations for what can be done in one day, one month, and one year

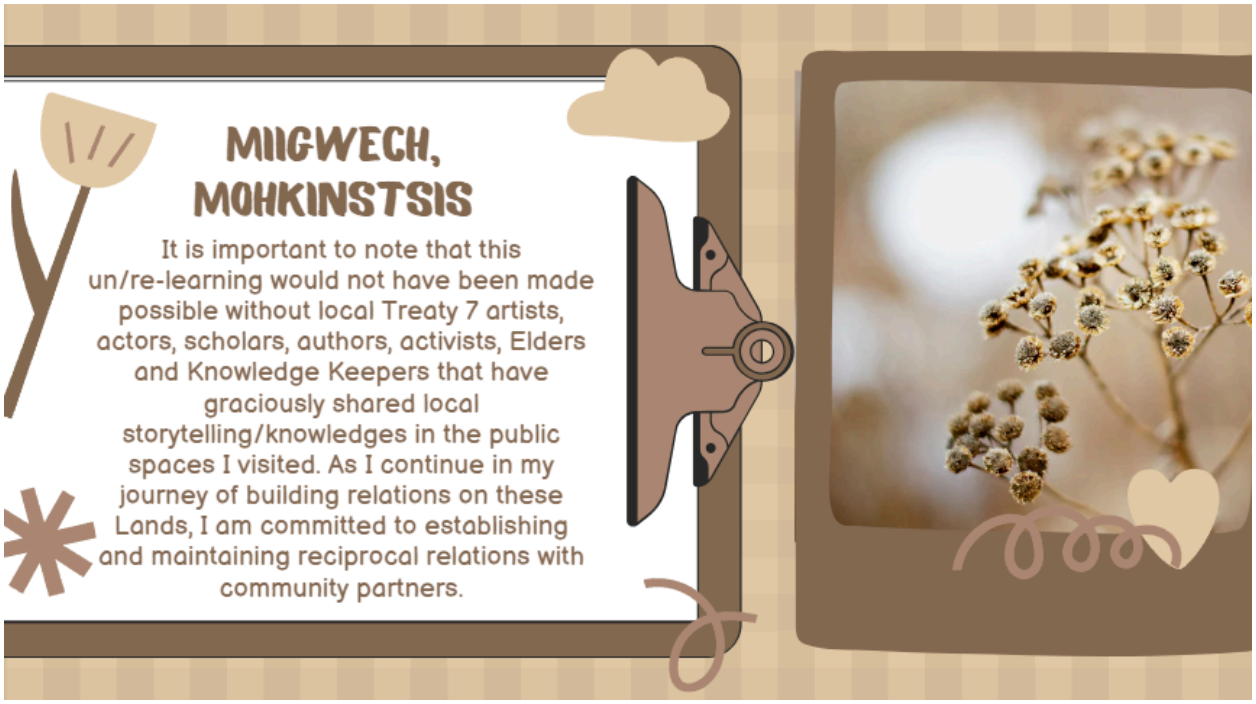


Figure D4. (Re)storying to Repair the Treaty Relationship: Learning from Treaty 7 Lands and Peoples. Full Presentation Slide Deck.

Appendix E: Decolonizing Knowledge & Relational Pedagogies

Indigenous Science Lifelong Learning Model

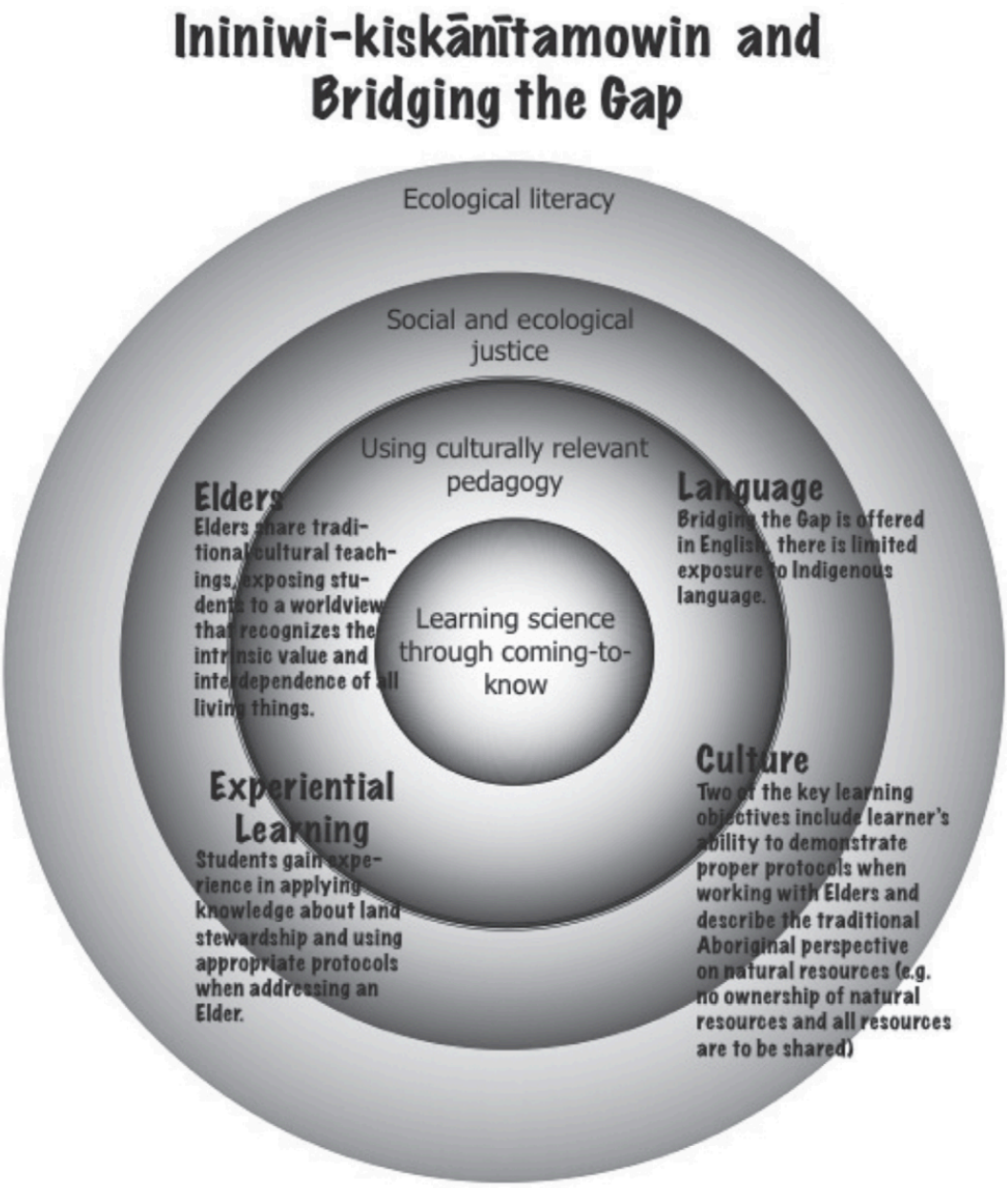


Figure E1. "Figure 1. The Ininiwi-kisk n tamowin Framework and Bridging the Gap" (Sutherland & Swayze, 2012, p.89). Sutherland and Swayze classify the four developmental levels for science learning as: 1) "Learning Science Wholistically by 'Coming-to-Know'" (p.86) and engaging within/between Western science and IK through TES; 2) "Culturally Relevant

Approaches to Teaching Science" (p.86) by incorporating community and culturally relevant science learning; 3) "Social and Ecological Justice" (p.87) by addressing power relations and equitable solutions; and 4) "Ecological Literacy" (p.88) by balancing the scale of teaching theory and value systems to ethically relational ways of knowing, being, doing, and belonging. Rather than seeking mastery of content, educators must emphasize the "mastery of one's person" (p. 88). This is the final level and ultimate goal of the science lifelong learning model.

Six Stages of a Science Lifelong Learning Cycle

Stage of Science Learning Cycle	Purpose	Planning Considerations
Introduction	To motivate student interest in a topic.	● Reading a short excerpt from the lesson without mention of the topic ● Incorporating students' first/second languages and local Indigenous language(s) for new science concepts ● Make a relevant connection to local Land and Indigenous environment where the learning will be taking place
Gathering Data (Exploration)	To provide students with meaningful learning experiences to build upon prior knowledge and integrate new learning to the topic of study.	● Lesson planning, materials, consultants, and resources are gathered ● Provide specific directions for activities without telling/explaining the concept to be taught ● Students will use prior knowledge, gain insight from others, and learn in a relaxed atmosphere ● This part of the learning cycle requires time
The Idea (Conceptual Intervention)	To explicitly discuss the concept being learned	● Centering discussion around the concept and work towards comprehensive understanding (and relating back to exploration) ● Defining key terms/definitions in students' first/second languages and/or local Indigenous language(s) ● Exploring the concept from both a Western and Indigenous worldview through a TES model ● Four key elements to this stage: ○ Findings from exploration are debriefed and reviewed ○ All of the students' findings must be used in the process ○ The students' language in achieving knowledge must be proper and relevant ○ A rationale for the importance of the concept is explained
Expanding the Idea	To integrate the new concept learned with	● Expand lessons with activities and learning opportunities that relate to and build upon the new concept

	others that relate to it.	● Consider relevant, local stories, community needs/challenges, etc.
Evaluation (Checking Up)	To evaluate student success through the learning cycle.	● Assessment *of* learning – how will meaningful learning be evaluated? ● Consider providing students with voice and choice for how they wish to demonstrate new learning (i.e., review portfolios, observations of student actions, final project/task)
Teaching Suggestions (Additional Topics)	To maximize student engagement and interaction with the presented materials; to ensure active (as opposed to passive) learning.	● Reflect the languages of your students in the learning space; if you have Indigenous students from other territories, consider how you can incorporate these languages in the learning environment ● Collaborative activities that allow students to work in groups to co-construct knowledge is vital for students to shift between teacher and student roles in the classroom ● Explicitly model when you, as the educator, are shifting to a co-learner, when students are teaching you and when visitors, Elders, Knowledge Keepers, community members are welcomed

Table E1. Six Stages of Gilbert's (2015) Science Lifelong Learning Cycle. This table summarizes six stages of a Science Lifelong Learning Model, and includes the purpose for each stage in the cycle and planning considerations (p.101-102). Gilbert emphasizes how educators can work to develop a culturally relevant/responsive science curriculum in the design of lesson plans and learning cycles. In addition to becoming familiar with local Indigenous science knowledge, educators must reflect on the appropriateness of the subject matter being taught; as Indigenous science is intimately interconnected to a spirituality that cannot be appropriated, diminished, oppressed, or excluded from the knowledge system by white settler educators. The importance of building community and seeking out local Indigenous Elders/Knowledge Keepers to advise on ethical knowledge sharing must be attended to in the planning process.

Reflecting Indigenous Ways of Learning in Treaty 7 Science Education

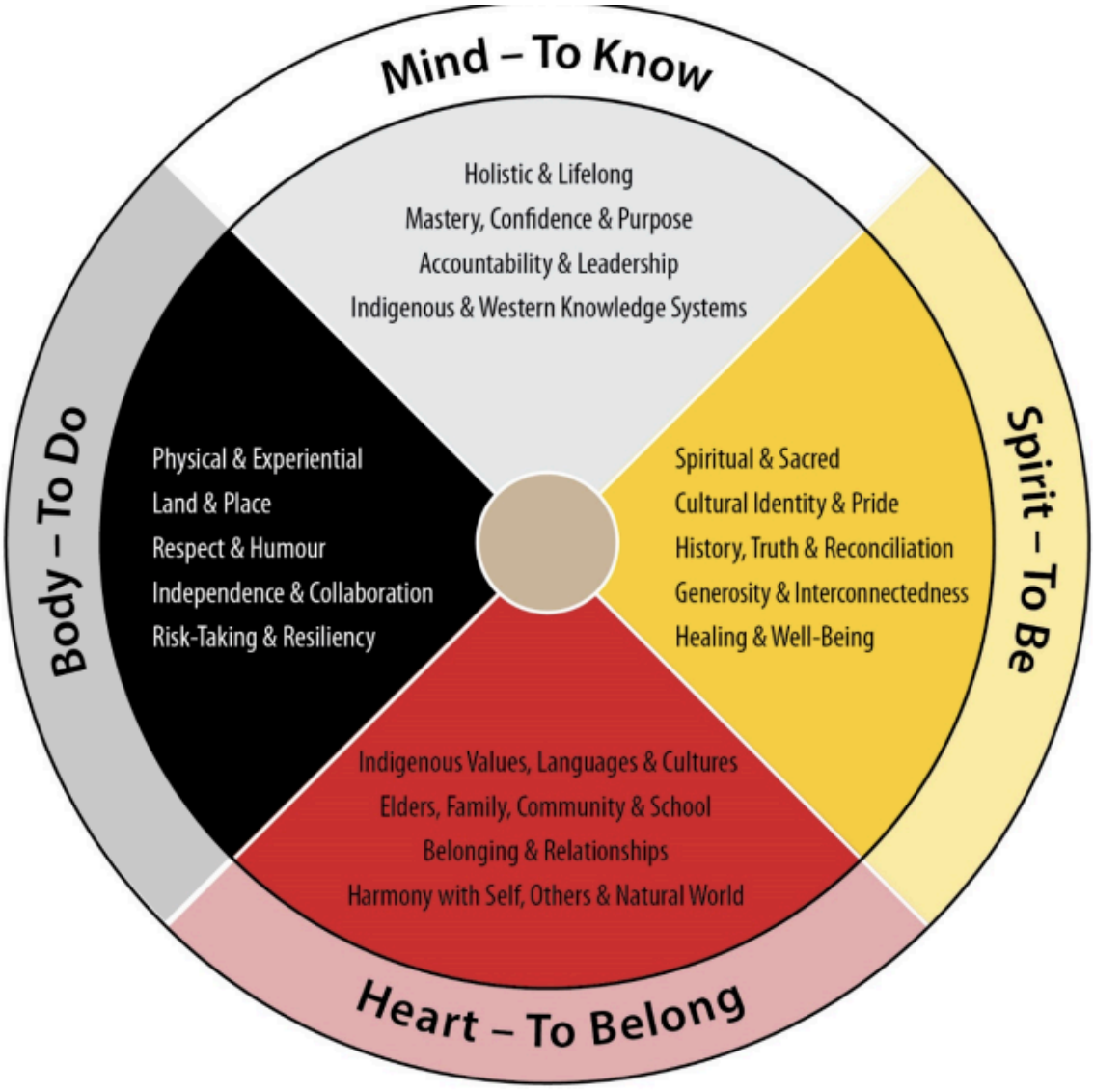


Figure E2 "Indigenous Education Holistic Lifelong Learning Framework" (CBE, 2022, p.5). Created in partnership between Calgary Board of Education and Treaty 7 nations (Blackfoot, Stoney Nakoda, and Tsuut'ina First Nations) Elders and Knowledge Keepers.

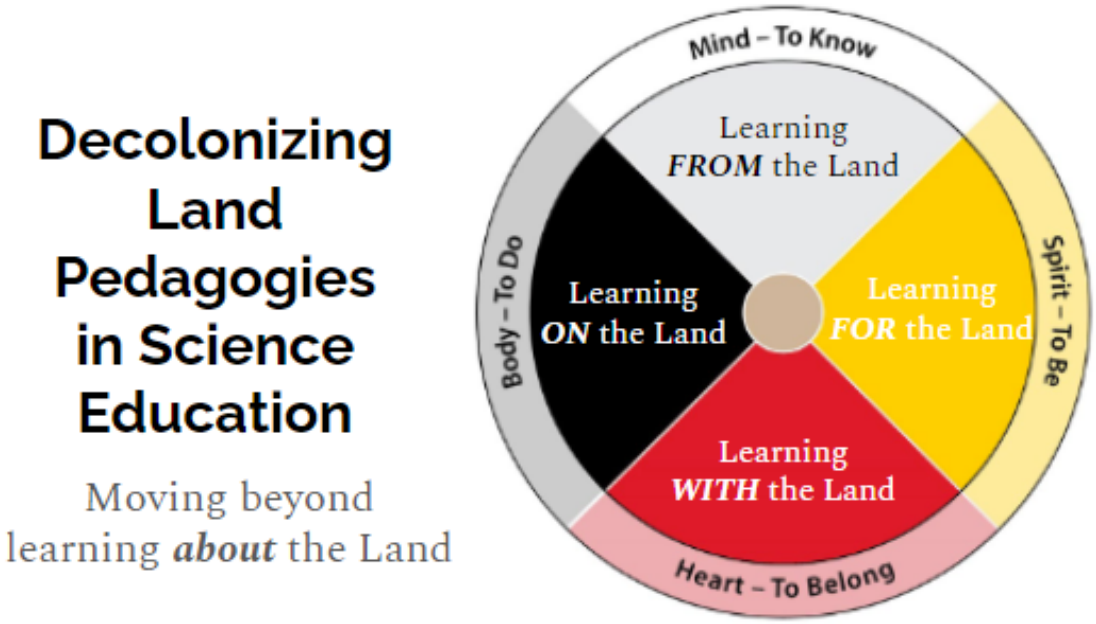


Figure E3. Decolonizing Land Pedagogies in Science Education: Moving beyond learning *about* the Land. Decolonizing Land pedagogy requires settler educators to center IK of the Land, moving beyond a Western way of knowing (learning *about* the Land). Inspired by the Calgary Board of Education's (2022) "Indigenous Education Holistic Lifelong Learning Framework" (p.5), I have reflected my new understandings of spiritual, emotional, physical, and mental learning in relation to the Land. Recognizing learning *for* the Land ignites the fire in my spirit to actively advocate for Land restoration and reparations. Learning *with* the Land requires opening my heart and recognizing the Land as a sentient, living being who belongs to herself and requires interactions that uphold reciprocity and "consensual engagement" (Simpson, 2017, p.160). Learning *on* the Land demonstrates the physical aspect of getting outside of our four-walled classrooms and immersing ourselves directly within the context of the natural world. Learning *from* the Land recognizes IK systems that honour Land as a teacher and holder of knowledge, memory, and story if we learn to listen differently.

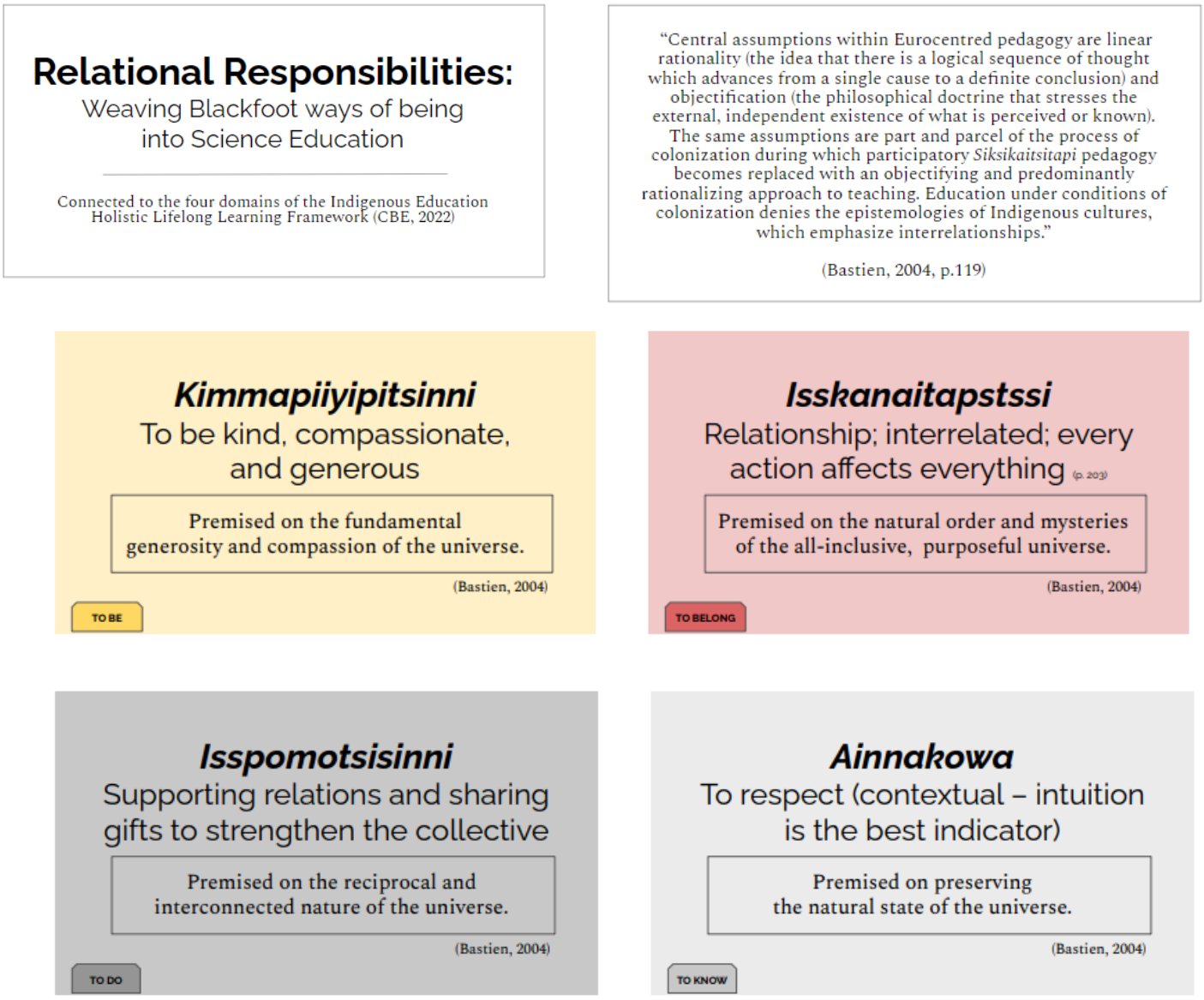


Figure E4. Relational Responsibilities: Weaving Blackfoot ways of being into Science Education; as defined by Betty Bastien (2004, p.135-137). These four values (compassion, sharing/support, respect, and relationship) govern all Blackfoot relations/social structures with humans and more-than-human beings. Upholding these ontological (way of being), or relational

responsibilities, through teaching, learning, and knowing in science education can help inform a decolonized lens as you move through the program.

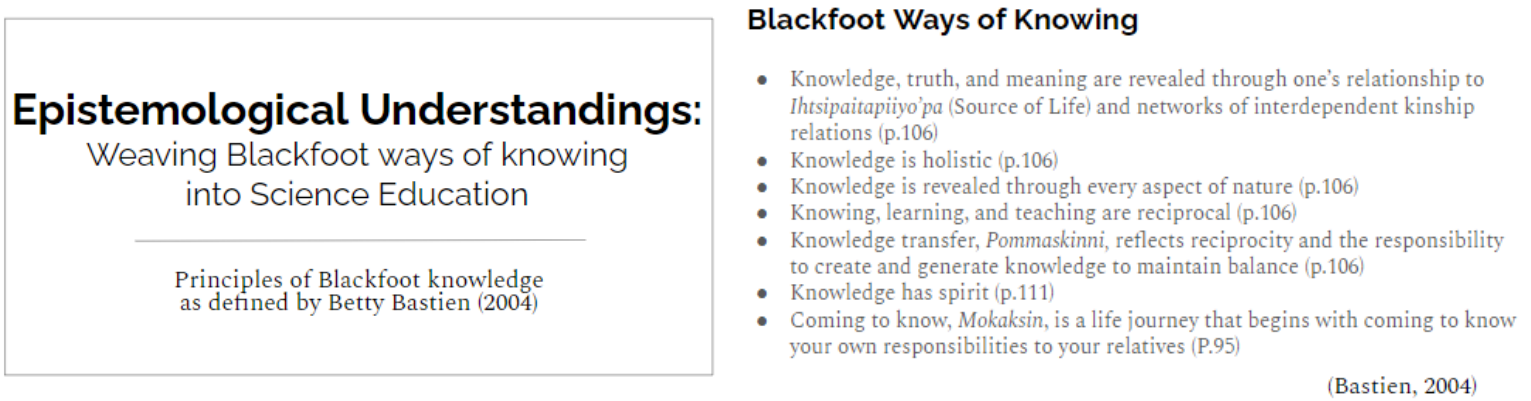


Figure E5. Epistemological Understandings: Weaving Blackfoot Ways of Knowing into Science Education. Understanding the oral traditions and intimate interconnections of how Blackfoot knowledge is generated, understood, and passed on (Bastien, 2004) can offer guidance for teachers, learners, and Land to co-construct knowledge in the learning environment; and be better equipped to honour, respect, and more deeply understand the intricacies of IK systems when reciprocally welcomed into the learning space.

Appendix F: Definition of Terms

"*Language is never neutral—it can teach us, inform us, entertain us, persuade us, and manipulate us—it can misguide and misdirect truths, thereby perpetuating colonial myths and stereotypical representations, or it can disrupt normalizing and hegemonic dominant discourses and liberate critical thought" (Styres, 2018, p. 25).*

When discussing issues of Indigenous oppression as a settler scholar, critical literacy is necessary to reduce misinterpretations and disrupt colonial hegemony. By employing Indigenous scholarship, I aim to lessen the impacts of colonial discourses while citing and underlining Indigenous knowledge and ways of knowing. Hence, it is imperative for me to include a definition of terms to dissuade settler-colonial misunderstandings, as "the English language (the colonizer's tongue)" (Korteweg & Russell, 2012, p. 9) can (un)consciously assimilate, misinform, belittle, or racialize a culture/knowledge system. By providing this section of terms and definitions, I seek to prevent further misinformation, assimilation, and/or racialization of Indigenous and decolonial scholars' theories/knowledges. These definitions have been directly quoted and synthesized in order to reflect the language preferences, cultural contexts, and the true spirit and intent of Indigenous knowledge across Turtle Island.

Colonialism: Synonymous for exogenous domination, exploitation colonialism, or external colonialism, colonialism is the practice of gaining political and economic control over Indigenous peoples, where "small numbers of colonizers go to a new place in order to dominate a local labor force to harvest resources to send back to the metropole" (Tuck, McKenzie & McCoy 2014, p. 6). Differs from 'settler colonialism' as "the exploitation colonizer says to the Indigenous person, 'you, work for me' (Tuck, McKenzie & McCoy 2014, p. 7).

Colonization: Whereas colonialism focuses on the practice of obtaining control, colonization refers to settlers' specific actions/processes in gaining control (i.e., political, economic, social, and/or cultural; Scully, 2012) over Indigenous peoples and Land. Tuck, McKenzie & McCoy (2014) discuss how this "ongoing colonization of land and peoples" (p. 1) is implicit and (un)consciously remains invisible to settlers as "settler colonial societies 'cover' the 'tracks' of settler colonialism by narrating colonization as temporally located elsewhere, not here and now" (p. 7).

Decolonization: Tuck & Yang (2012) state how decolonization "brings about the repatriation of Indigenous land and life" (p. 1) as it is "not accountable to settlers, or settler futurity… [rather it is] accountable to Indigenous sovereignty and futurity" (p. 35). Decolonization is not a metaphor for "settler moves to innocence" (Tuck & Yang, 2012, p.1), rather it involves "the repatriation of land simultaneous to the recognition of how land and relations to land have always already been differently understood and enacted" (Tuck & Yang, 2012, p. 7).

Ecology: Donald (2012) states how "humans are seen as intimately enmeshed in webs of relationships with each other and with the other entities that inhabit the world. We depend on these relationships for our survival… and repeatedly renew our relations with those entities that give and sustain life" (p. 103). Therefore, ecology cannot separate human life from nature.

Ethical Relationality: An ethical stance where one must consider their responsibilities that come with being in relation (Donald, 2012). As defined by Donald (2012), "Ethical relationality is an ecological understanding of human relationality that does not deny difference, but rather seeks to understand more deeply how our different histories and experiences position us in relation to each other" (p. 103). See Donald's (2012) definition for 'ecological' above.

Extractivism: Differs from the term 'extraction' which denotes the physical taking/removing of

something (i.e., ‘natural resources’ taken from the Land). Extractivism goes deeper to encompass the colonial mindset causing these ways of thinking, living, and being; a mindset that lacks reciprocity, respect, relationship, and responsibility (Klein, 2013). For Indigenous peoples, settler extractivism has and continues to hold many implications for communities, which include the dispossession, disruption, and degradation of Indigenous Land and intellectual/cognitive property theft (Klein, 2013). Klein (2014) defines extractivist ways of thinking/being/living as:

> “[A] nonreciprocal, dominance-based relationship with the earth, one purely of taking. It is the opposite of stewardship, which involves taking but also taking care so that regeneration and future life continue. Extractivism … is the reduction of life into objects for the use of others, giving them no integrity or value of their own …. It is also the reduction of human beings either into labor to be brutally extracted, pushed beyond limits, or, alternatively, into social burden, problems to be locked out at borders and locked away in prisons or reservations. In an extractivist economy, the interconnections among these various objectified components of life are ignored; the consequences of severing them are of no concern” (p. 169).

Indigenous: Defined as “native to the area” (NAHO, 2012), ‘Indigenous’ is an umbrella term that has become widely accepted by First Nations, Metis, and Inuit peoples. It is always capitalized when it is used as a proper name for a people or aspect related to Indigenous culture (NAHO, 2012). I will be using the term ‘Indigenous’ when referring to all First Peoples across Turtle Island; however, when I am referring to a specific nation, tribe, or band, I will specify which nation, tribe, or band I am discussing.

Indigenous Knowledge (IK): Synonymous to ‘Traditional Ecological Knowledge’ (McGregor, 2004; Reid, Teamey & Dillon, 2004), ‘Indigenous Science’ (Bang & Medin, 2010; Hatcher et al.,

2009) and 'Traditional Indigenous Knowledge' (Simpson, 2004), Indigenous Knowledge or IK (McGinty & Bang, 2016; Simpson, 2002) is passed on through oral tradition, and respect and relationality for all living beings is upheld and centered in a holistic framework; where physical and spiritual knowledges are unified (Hatcher et al., 2009). Most importantly, the "basic premise of Indigenous Sciences is participating within nature's relationships, not necessarily deciphering how they work" (Hatcher et al., 2009, p. 141). I acknowledge how IK has many implications for law, governance, philosophy, and health (McGregor, 2004), however I will be focusing primarily on its implications in education and environmental science.

Land: Styres (2018) delineates a difference between *land* (lower case "l") and *Land* (uppercase "L"), where lowercase *land* denotes a place or geographic landscape "defined by everything that is included in that space- also referred to as landscape, ecology, and/or environment" (p. 27). In contrast, Styres (2018) emphasizes that uppercase *Land* is…

> "[M]ore than physical geographic space. Land expresses a duality that refers not only to place as a physical geographic space but also to the underlying conceptual principles, philosophies, and ontologies of that space. This duality is not to be construed as dichotomous, oppositional, or binarial but rather expresses the ways Land embodies two simultaneously interconnected and interdependent conceptualizations. Land as an Indigenous philosophical construct is both space (abstract) and place/land (concrete)… Land is spiritual, emotional, and relational; Land is experiential, (re)membered, and storied; Land is consciousness—Land is sentient… Land refers to the ways we honor and respect her as a sentient and conscious being" (p. 27).

I too wish to acknowledge Land as a sentient being, as Indigenous Knowledges have acknowledged since time immemorial. In order to communicate the experienced, storied, and

(re)membered Land (Styres, 2018) that I have come to learn through my personal decolonizing journey, I too will ensure that my language is not neutral and disrupt colonial hegemony by denoting Land with an uppercase "L".

Land Pedagogies: Synonymous with 'Land education' (Tuck, McKenzie & McCoy, 2014, p. 1), 'Pedagogy of the Land' (Zinga & Styres, 2011, p. 59), 'Land-based pedagogies' (Bartmes & Shukla, 2020, p. 146; Wildcat et al., 2014, p. 1) and/or 'Land-based learning' (Bowra, Mashford-Pringle & Poland, 2021, p. 132; Wallin & Peden, 2020, p. 245), these terms are all rooted in the notion of "Land as first teacher… an Indigenous philosophy derived out of a land-centered culture… based on very old pedagogies" (Styres, 2011, p. 717); where the knowledges, worldviews, stories, and experiences of Indigenous peoples are at the forefront (Wildcat et al., 2014). Although Land education has been used "broadly by both Indigenous and settler scholars to refer to any education or learning that takes place on the land" (Twance, 2019, p. 1321), I wish to acknowledge how my definition contradicts this. Land education has also exponentially grown to "specifically prioritize Indigenous theorizing, Indigenous Land rights, and Indigenous sovereignty through critical place inquiry" (Twance, 2019, p. 1321). As such, Land education is inherently tied to Indigenous futurity (Tuck & Yang, 2014; Wildcat et al., 2014) as it honours how Land is considered both the process and context of IK (Scully, 2020; Simpson, 2014; Twance, 2019) and is decolonizing in nature; repatriating Indigenous Land/life.

Onto-epistemologies: Combines 'ontology' (ways of being) and 'epistemology' (ways of knowing; Nxumalo, 2017, p. 99). Williams (2013) defines an 'onto-epistemological inquiry' as the "critical study of one's own reality and implications for ecological relationship" (p. 95).

Settler colonialism: Differs from 'colonialism' because "the settler colonizer – since land is the primary pursuit – says to the Indigenous person, 'you, go away'" (Tuck, McKenzie & McCoy,

2014, p. 7). Settler colonialism is a structure, not an event (Tuck & Yang, 2012); and is defined by Tuck, McKenzie & McCoy (2014) as:

> "a form of colonization in which outsiders come to land inhabited by Indigenous peoples and claim it as their own new home… [where] subsequent generations of settlers come to the settler nation-state for many reasons, under many circumstances – but at the heart of all of those rationales is the need for space and land" (p. 6).

Settler colonialism is established and maintained through "force, policy, law, and ideology" (Tuck, McKenzie & McCoy, 2014, p. 7) and settler-dominating hierarchies are so deeply embedded that they become naturalized (Bang et al., 2014).