

Cheryl Bartlett¹ & Albert Marshall²

¹ Cape Breton University, Sydney, NS, Canada

² Eskasoni Mi'kmaq First Nation, NS, Canada

BC Forest Investment Account Forest Science Program

“Indigenous Science Funding Stream”

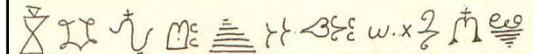
- Workshop #1, 4-5 December 2008
- Workshop #2, 8-9 January 2009

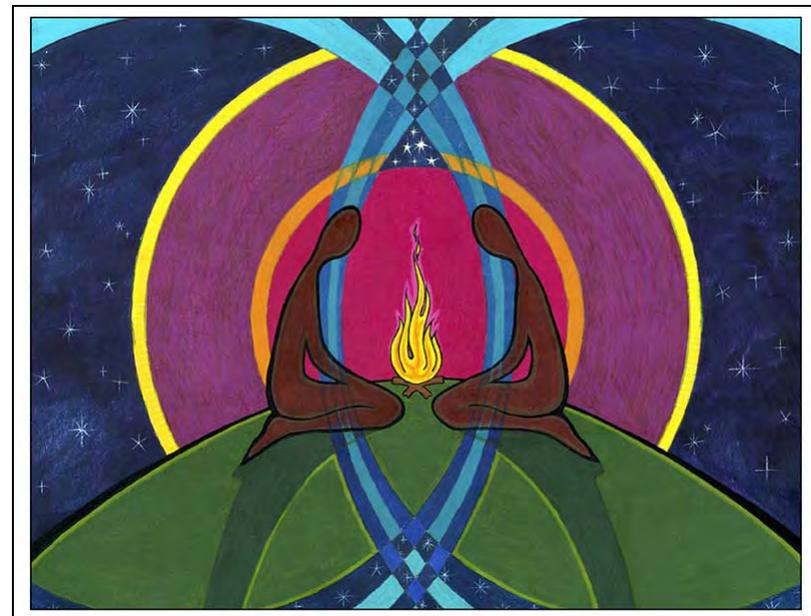
Vancouver, British Columbia

CAPE BRETON
UNIVERSITY

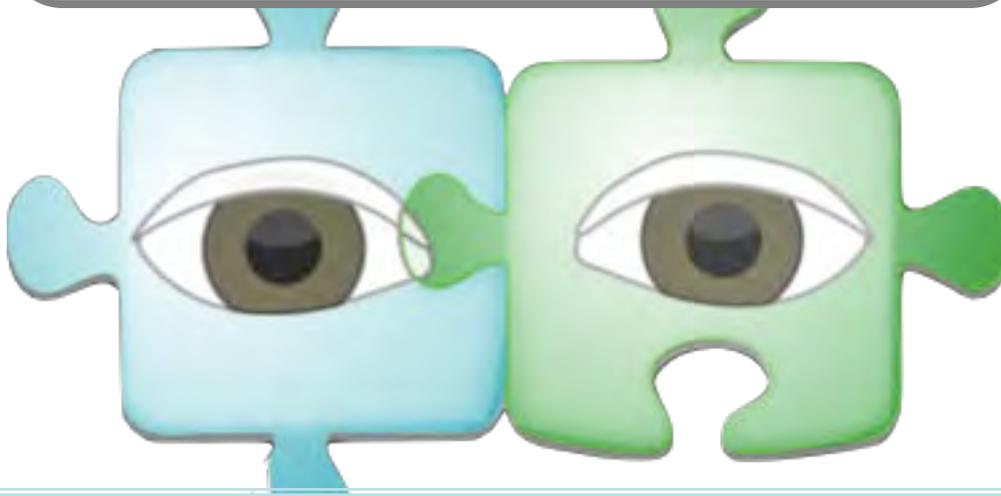
KECCA

Knowledge: Education and Cultural Consultant Associates





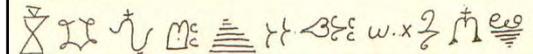
Integrative Science & Two-Eyed Seeing

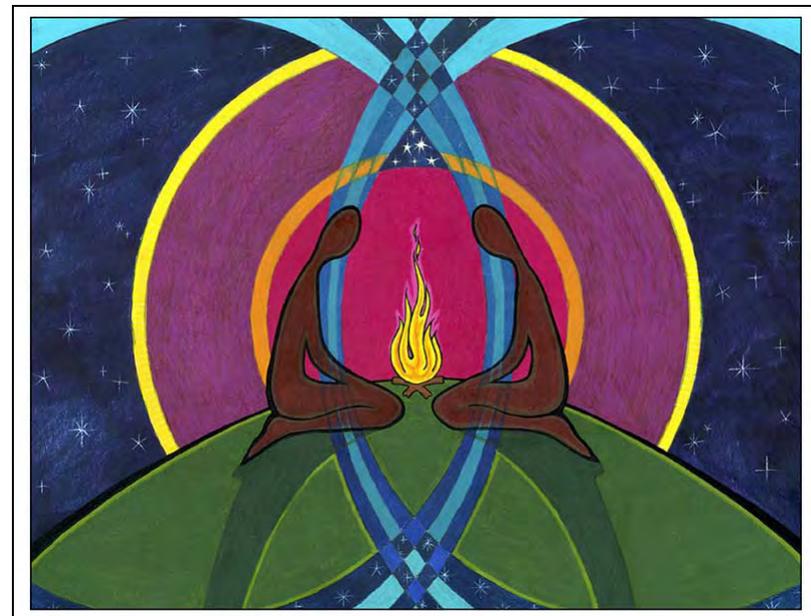


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Integrative Science & Two-Eyed Seeing

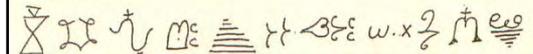
PART 2

Workshop #2, 8-9 January 2009

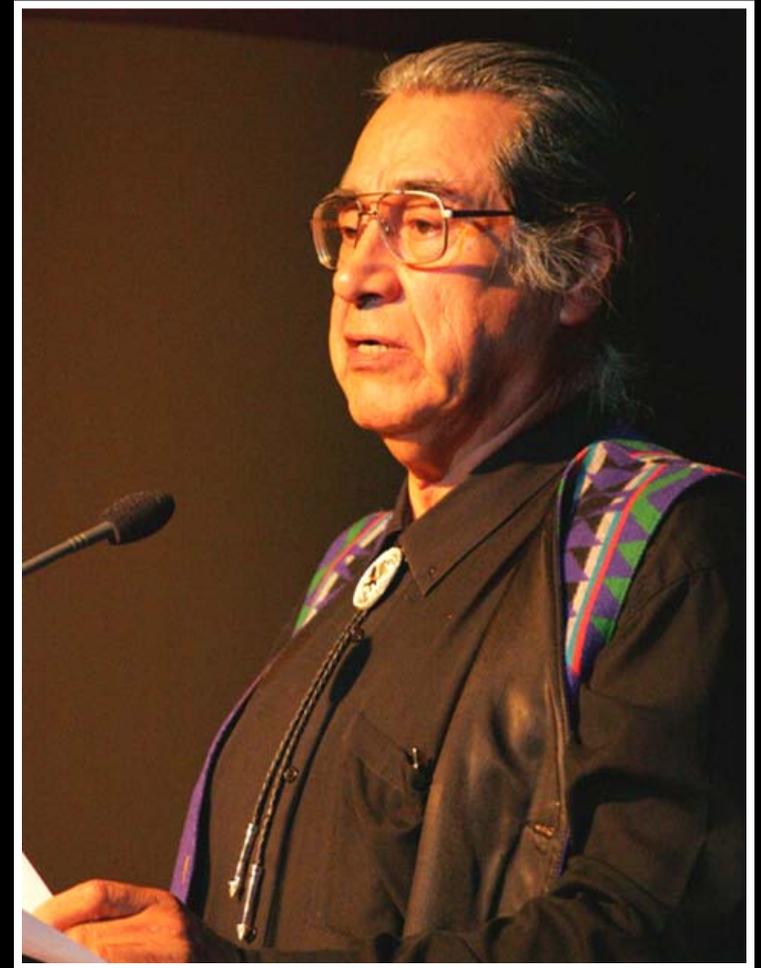
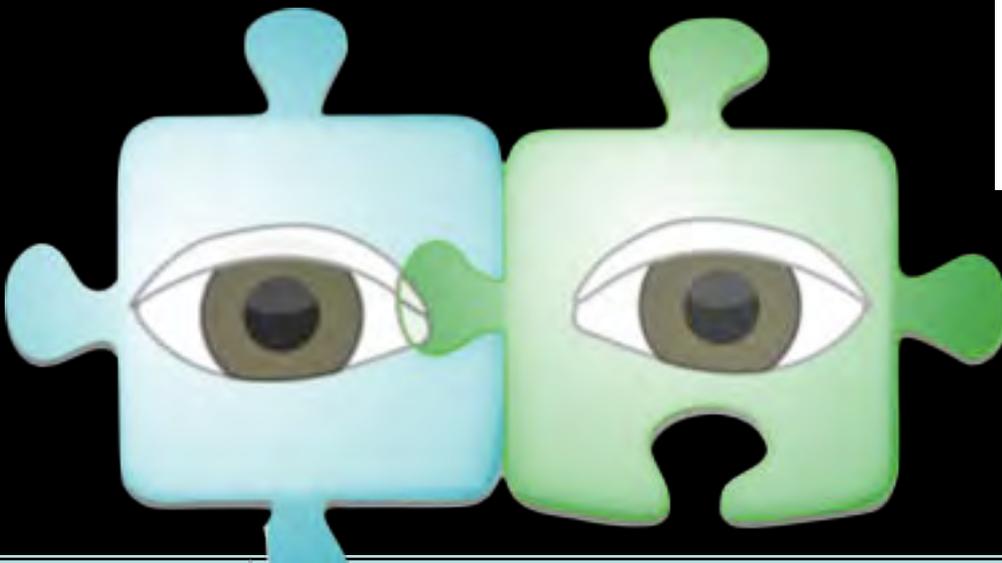
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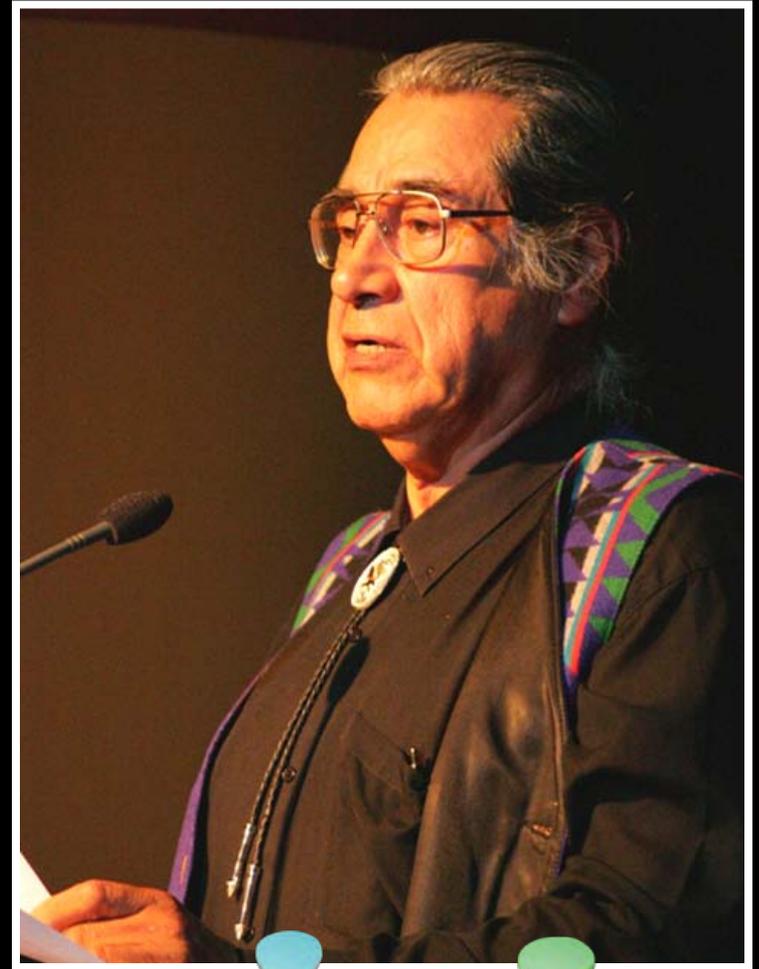


Two-Eyed *Seeing*

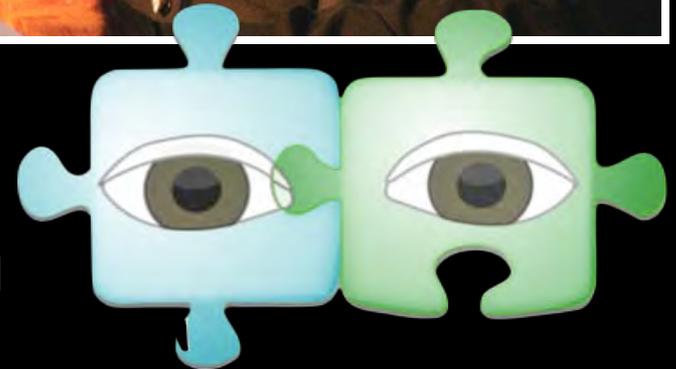


Elder Albert Marshall
Eskasoni community
Mi'kmaq Nation

“LEARN ... to see from one eye with the strengths of Indigenous knowledges and ways of knowing, and from the other eye with the strengths of Western (or Eurocentric or mainstream) knowledges and ways of knowing ... and to use both these eyes together, for the benefit of all.”



TWO-EYED SEEING



Being Nature's Mind: Indigenous Ways of Knowing and Planetary Consciousness

by

Mary Jane Zimmerman, Ph. D.

(ReVision 2004)

Since 1999, I have participated in the Language of Spirituality dialogues between Native Americans, scientists, and linguists, which are held in Albuquerque, NM, every summer. During one such dialogue, a number of the Native American participants told long, winding stories, seemingly unconnected to the topic at hand. Finally, one of the Anglo physicists lost his composure and began criticizing the proceedings: "Let's get beyond just telling stories," he said, "and get down to a real discussion. Let's really get into it and sort out what is good and what is bad about Western science and Native science." What he had heard so far had not qualified for him as a "real discussion." The response, from the Native Americans present, was not the direct, confrontive type of argument that he was seeking, but instead, more stories, even more long and winding, which then elicited another outburst from the impatient physicist, who felt that his earlier plea had been ignored.

What was happening here? It was a failure of communication at the meta-level between people with different models of what constitutes proper social behavior and the correct way to get one's opinion across. The physicist, in being direct, critical, and confrontive, was breaking every rule of Native American social interaction. The Native Americans could not directly tell him that without also breaking their rules. Their way to show him that he was in the wrong and had something to learn was through indirect stories which he was expected to be able to "hear" and apply to himself. Their response of more stories, which to them was a highly refined, polite, and indeed, ethical response to his social insult, seemed to him to be insulting.

At the beginning of every Language of Spirituality dialogue, the moderator, Leroy Littlebear, tells us that in dialogue, we should set aside our tacit infrastructures, our currently held beliefs about reality, in order to listen deeply for whatever words, ideas, feelings, or perceptions surface in us during the experience. However, as the above story illustrates, becoming aware of and setting aside one's own tacit infrastructure is easier said than done.

The breath of life versus the embodiment of life: indigenous knowledge and western research

WIN-HEC Journal 2007 (World Indigenous Nations – Higher Education Consortium)

Cindy Blackstock

Executive Director of the First Nations Child and Family Caring Society of Canada

too often social workers negate the importance of ontology and epistemology in shaping our understanding of theoretical approaches (Kovach, 2006). A recent teleconference I participated in provides a good example of how differences in epistemology play out in real world child welfare research situations. There were about six non-Aboriginal experts on the call and two Aboriginal experts, including me. We were grouping child welfare research questions under themes to inform a redevelopment of child welfare services in a region where Aboriginal children represented the largest portion of children in care. The non-Aboriginal people had 23 themes grouped under four broad headings based loosely on an ecological model— child, family, process and child rights. Several of the non-Aboriginal people made the comment that they really liked this approach because it was “child centered.” The Aboriginal people had five interconnected themes – self-determination, holism, structural interventions, culture and language and non-discrimination drawn in a circle enveloping the child, family, community and world. Interestingly, a couple of the non-Aboriginal participants said the Aboriginal themes, although simpler, were “too Aboriginal” but there was not a similar reflection that their 23 themes might be “too western.”

The non-Aboriginal people said well everything the Aboriginal people had come up with fits under the 23 themes they identified so we should all agree to use their themes and move on. We, the Aboriginal people on the call, didn't and instead used this as an opportunity to show how the epistemological differences in world view led us to organize these themes very differently.

I use this example because it shows how nuanced differences in epistemological differences might first appear (in this case in different ways of organizing research questions) but how critical it is to take the time needed to understand what drives these differences and how one way of doing things can often roll over alternative, and perhaps even more appropriate, ways of understanding.

I agree and argue that re-centering child welfare on Aboriginal epistemologies is the first step in establishing any meaningful Aboriginal research practices. Despite the diversity of Aboriginal cultures, there are several common fundamental differences between Aboriginal and western epistemologies: 1) Aboriginal peoples believe their ancestors were right on most things and western peoples believe their ancestors were either mostly wrong or their ideas could be improved upon (Assembly of First Nations 1993; Auger 2001) 2) Aboriginal peoples believe they hold the land and life knowledge in a sacred trust for the generations to follow whereas many western peoples believe they can own land and knowledge and use it for individual benefit with little concern for future generations (RCAP, 1996; Pinto, in press) and 3) Aboriginal knowledge is situated within more expansive concepts of space and time (Auger, 2001). From these differences, flow very different concepts

As knowledge trustees, whose job it is to understand and relay knowledge which has been passed down by generations before us, we pay great attention to the detail of the knowledge and the values and spirit embedded in it so that we can pass it on (Auger, 2001; Bennett & Blackstock, 2006). Because knowledge needs to echo across lifetimes and generations, multidimensional standards of rigor are needed to ensure knowledge is understood within the four dimensions of learning: spiritual, emotional, physical and cognitive and that each teaching is situated within an interconnected knowledge web (RCAP, 1996; Auger, 2001).

LESSONS LEARNED

7

over 15 years



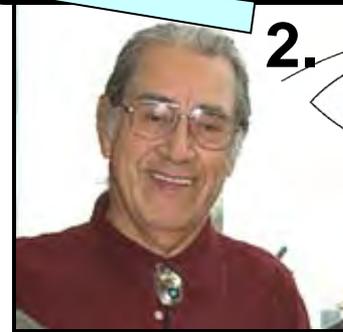
LESSONS LEARNED

1. **ACKNOWLEDGE
WE NEED
EACH OTHER ...**
co-learning journey

LESSONS LEARNED

Two-Eyed Seeing learning to see with the strengths of each & together

1.
**ACKNOWLEDGE
WE NEED
EACH OTHER ...**
co-learning journey



Albert Marshall, Elder, Mi'kmaq Nation

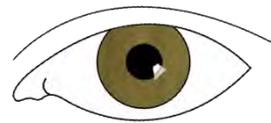
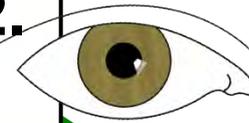
LESSONS LEARNED

Two-Eyed Seeing learning to see with the strengths of each & together

1. **ACKNOWLEDGE
WE NEED
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co-learning journey



2.



Albert Marshall, Elder, Mi'kmaq Nation

3. view "SCIENCE"
inclusively

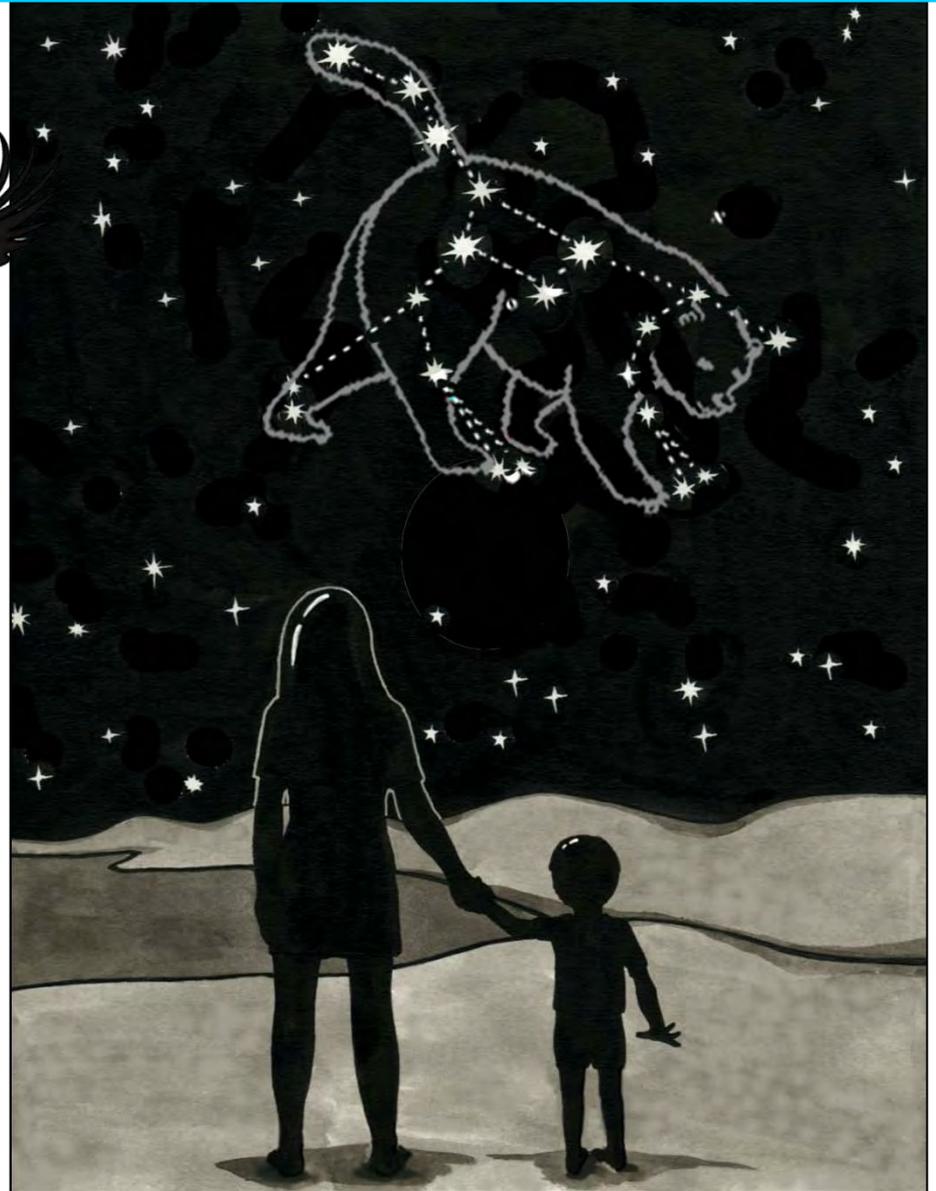
Science?



stories of our interactions with and within nature



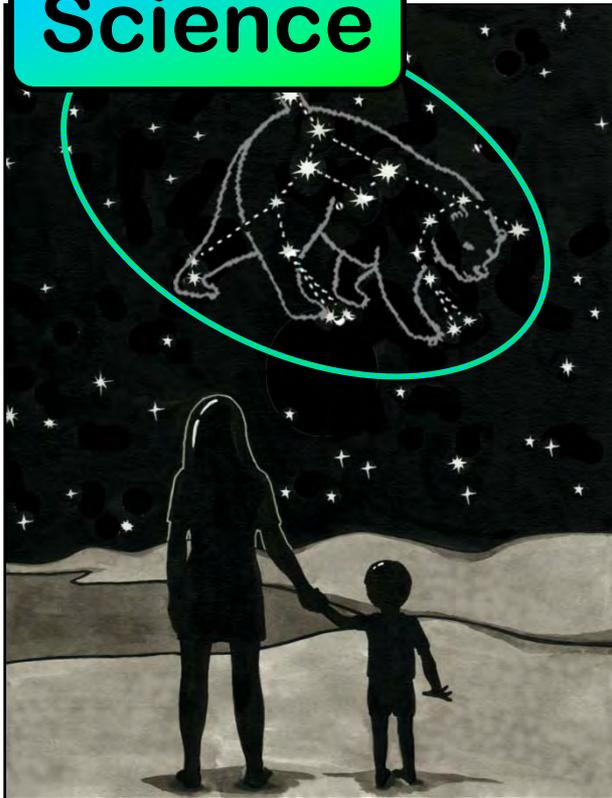
Science is
dynamic,
pattern-based
knowledge.



Artist: Basma Kavanagh

stories of our interactions with and within nature

Science



pattern

- recognition
- transformation
- expression

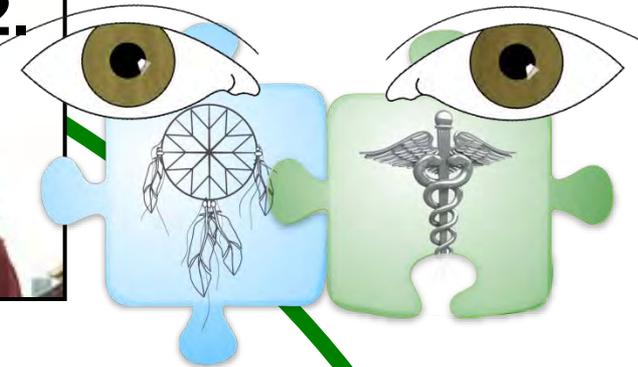
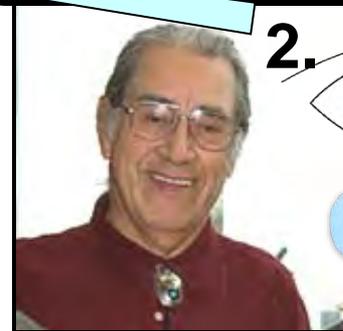
Artist: Basma Kavanagh

- various **pattern smarts**
- various ways to connect the dots
- variety in our stories

LESSONS LEARNED

Two-Eyed Seeing
learning to see with the
strengths of each & together

1. **ACKNOWLEDGE
WE NEED
EACH OTHER ...**
co-learning journey



4. **DO ... in a
CREATIVE, GROW
FORWARD WAY**

3. view "SCIENCE"
inclusively



Murdena Marshall, Elder, Mi'kmaq Nation

Together We Heal & Grow
seeing & acknowledging my deeds

“See, in the Mi’kmaq world, in all Native worlds, you have to give recognition to everything: misdeeds, good deeds, past deeds, you know? Anything. You have to give that acknowledgement. Everything that you do, you have to acknowledge it.”

5. put our *values + actions*
+ *knowledges* in front of
us ... like an object

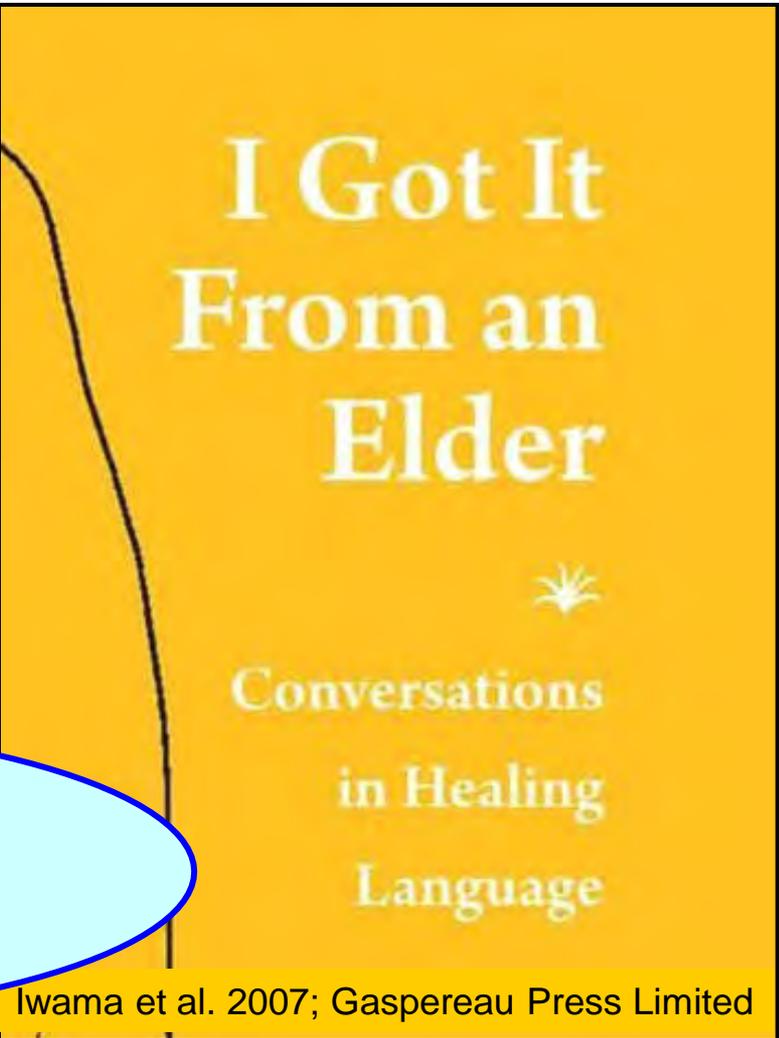


Murdena Marshall, Elder, Mi’kmaq Nation

Together We Heal & Grow
seeing & acknowledging my deeds

“See, in the Mi’kmaq world, you have to give everything: misdeeds, good deeds, you know? Anything you give that acknowledgement that you do, you have to

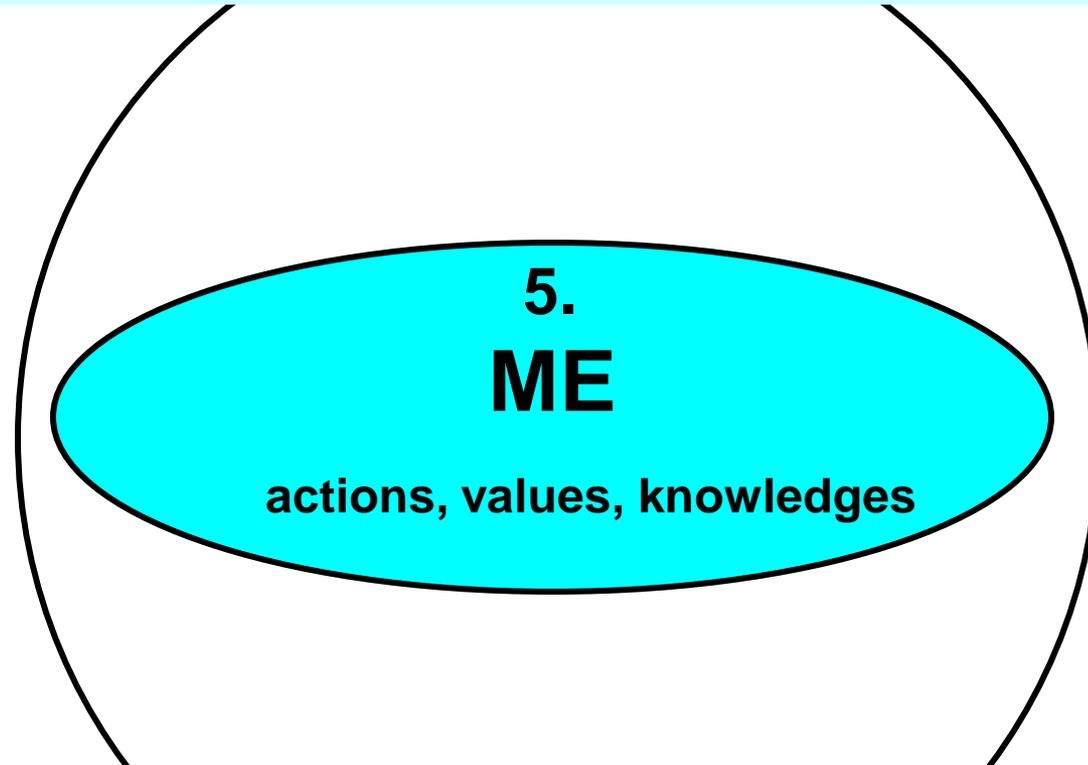
5. put our *values + actions + knowledges* in front of us ... like an object



Murdena Marshall, Elder, Mi’kmaq Nation

Together We Heal & Grow
seeing & acknowledging my deeds

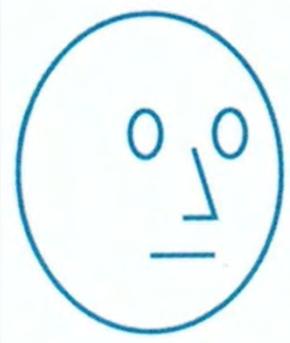
the “HEALING TENSE”



Murdena Marshall, Elder, Mi'kmaq Nation

Together We Heal & Grow
seeing & acknowledging my deeds

the “HEALING TENSE”

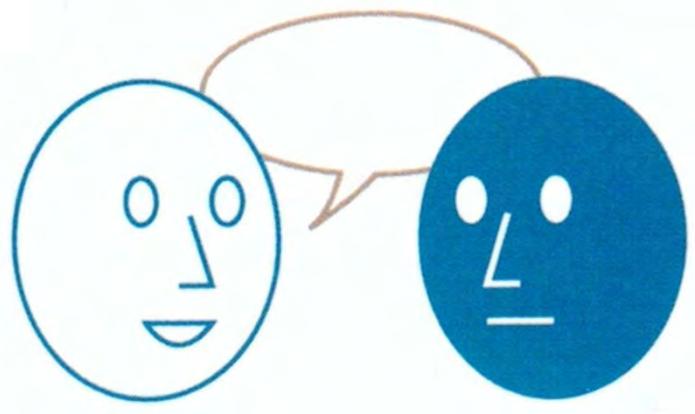


**5.
ME**
actions, values, knowledges



look at it, own it

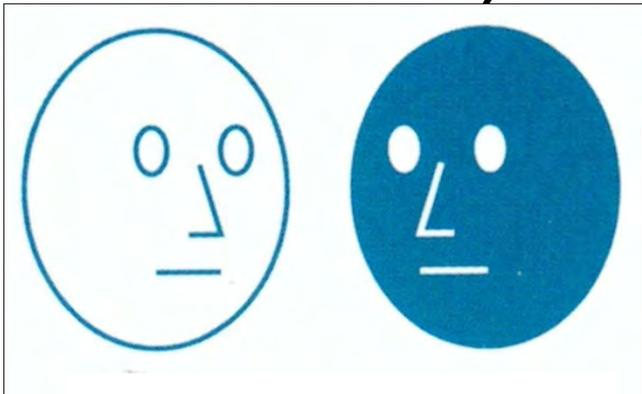
**acknowledge
being it**



talk to it, understand it



“together we heal & grow”

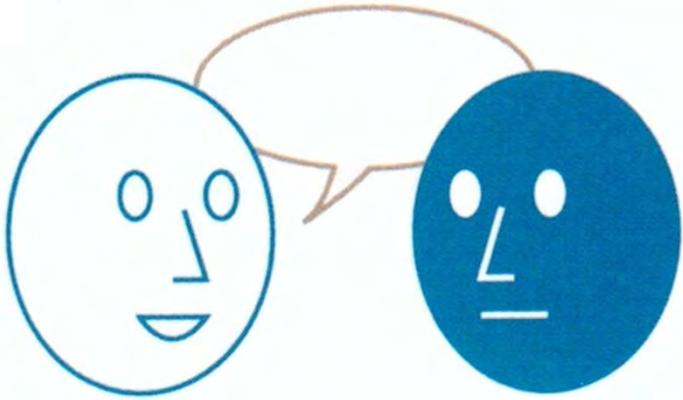


look at it, own it

**5.
ME**
actions, values, knowledges

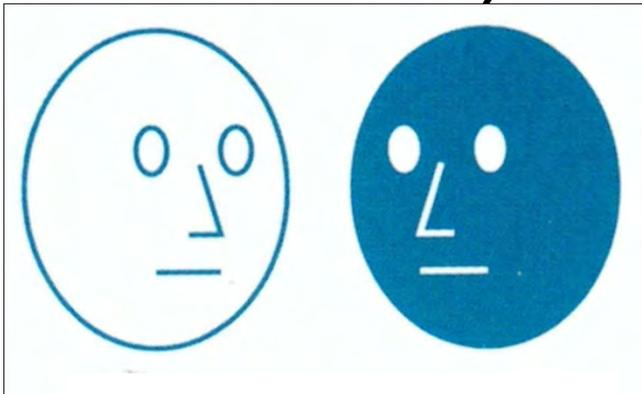


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talk to it, understand it

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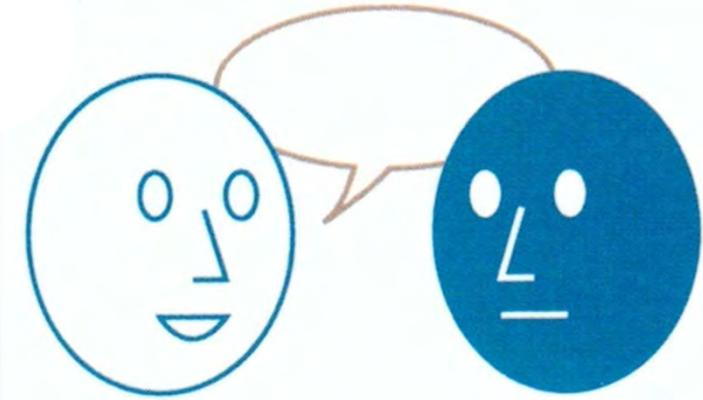


look at it, own it

5. **ME & YOU** actions, values, knowledges



**acknowledge
being it**



talk to it, understand it



LESSONS LEARNED

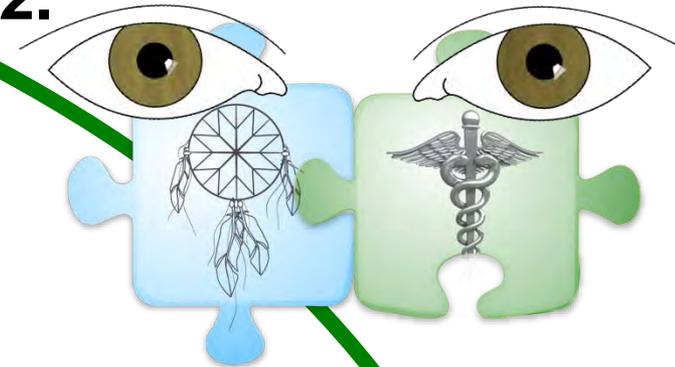
1. **ACKNOWLEDGE
WE NEED
EACH OTHER ...**
co-learning journey

4. **DO ... in a
CREATIVE, GROW
FORWARD WAY**

3. view "SCIENCE"
inclusively

5. put our *values + actions*
+ knowledges in front of
us ... like an object

2.



LESSONS LEARNED

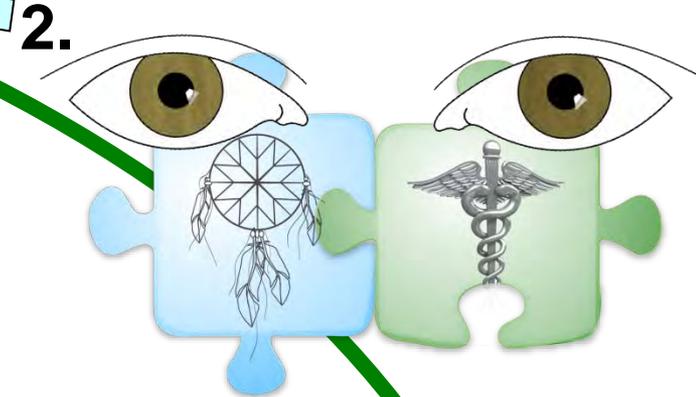
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co-learning journey

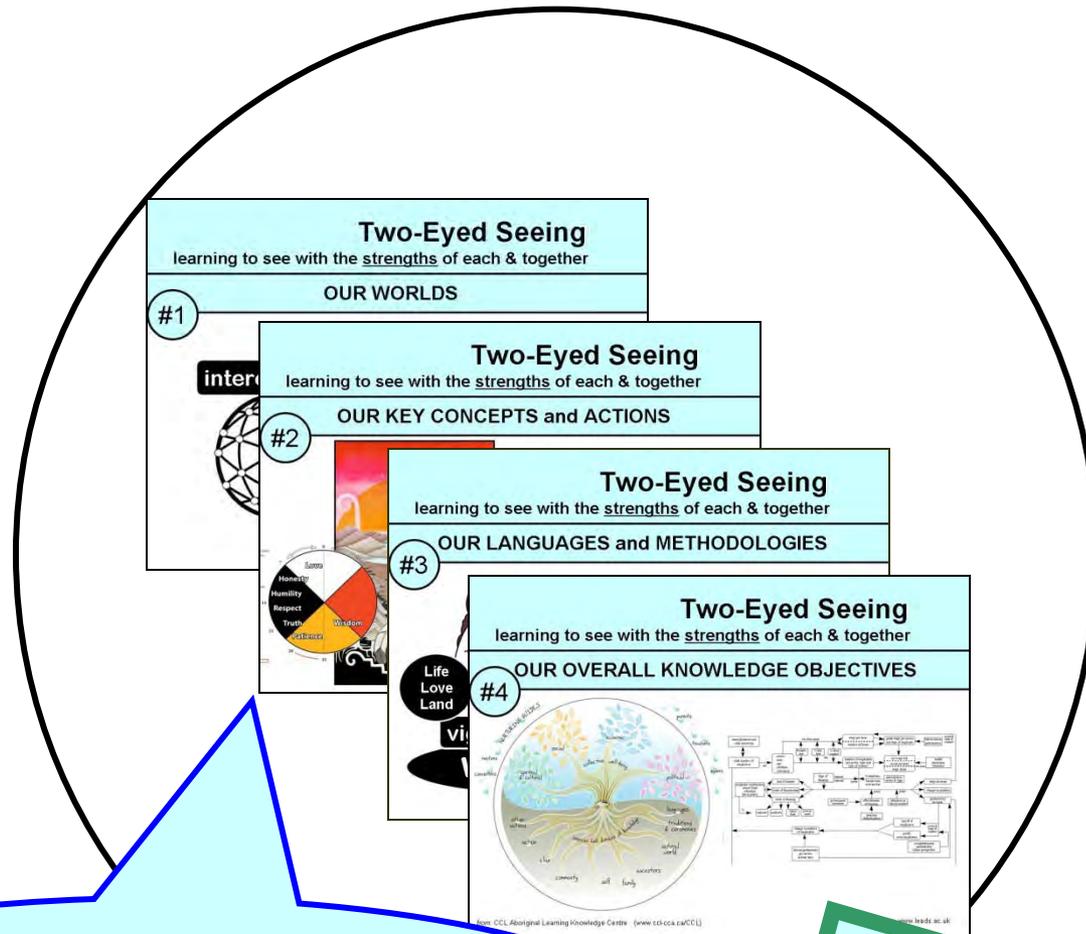
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3. view "SCIENCE"
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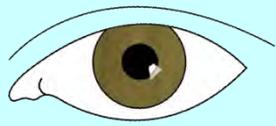
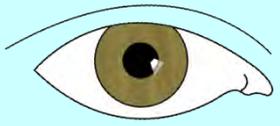
6. use **VISUALS**





5. put our *values + actions + knowledges* in front of us ... like an object

6. use **VISUALS**

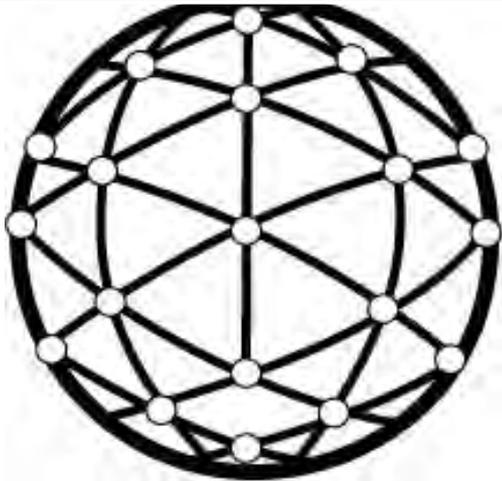


Two-Eyed Seeing

learning to see with the strengths of each & together

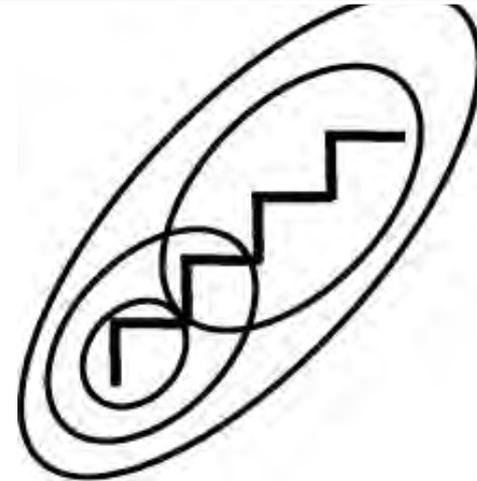
OUR NATURAL WORLD

interconnective

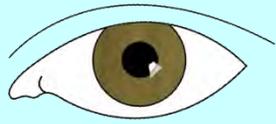
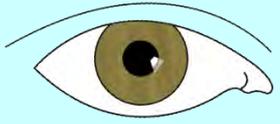


constant change

parts & wholes



ongoing evolution

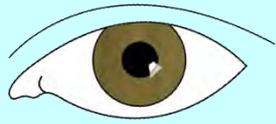
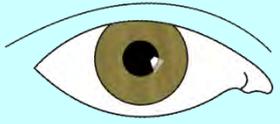


Two-Eyed Seeing

learning to see with the strengths of each & together

OUR NATURAL WORLD

Question:
What do we believe
the world or cosmos to be?
(ontology)



Two-Eyed Seeing

learning to see with the strengths of each & together

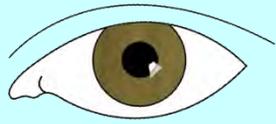
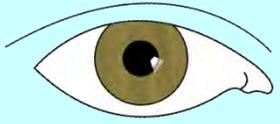
OUR NATURAL WORLD

interconnective

subject ...
interconnective
and animate:
spirit +
energy + matter
constant change

parts & wholes

object ...
comprised of parts and
wholes characterized by
systems and emergences:
energy + matter
ongoing evolution



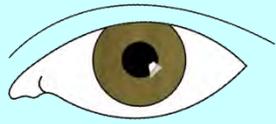
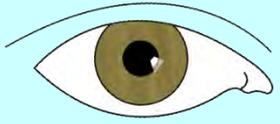
Two-Eyed Seeing

learning to see with the strengths of each & together

OUR KEY CONCEPTS and ACTIONS

Question:

**What do we value as
“ways of coming to know”
the cosmos?
(epistemology)**



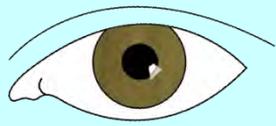
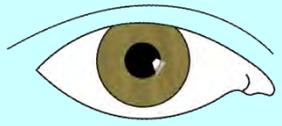
Two-Eyed Seeing

learning to see with the strengths of each & together

OUR KEY CONCEPTS and ACTIONS

- respect
- relationship
- reverence
- reciprocity
- ritual (ceremony)
- repetition
- responsibility

- hypothesis
(making & testing)
- data collection
- data analysis
- model & theory
construction



Two-Eyed Seeing

learning to see with the strengths of each & together

OUR KEY CONCEPTS and ACTIONS

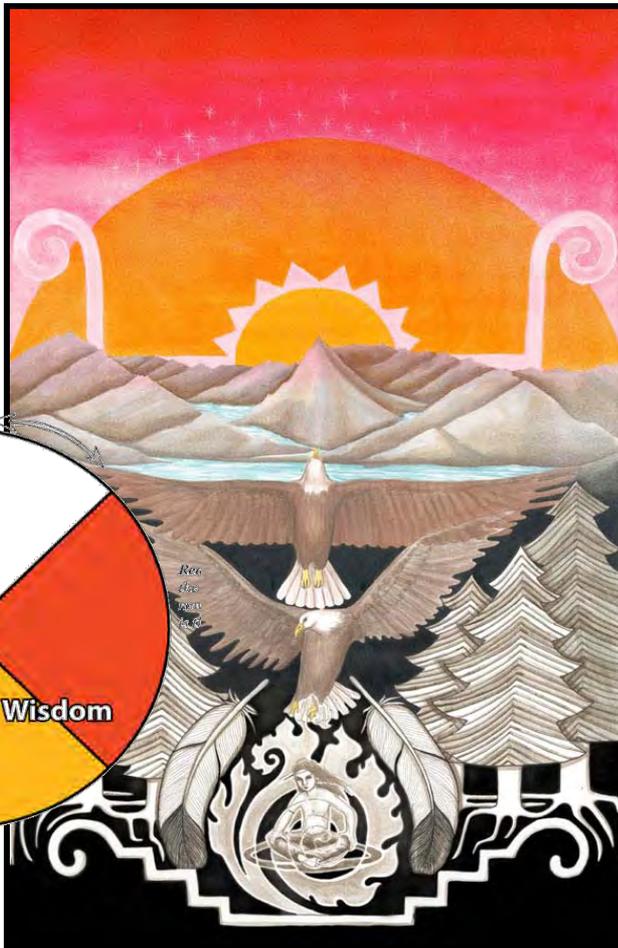
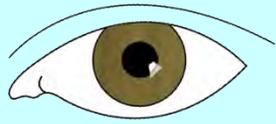
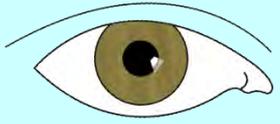


photo credit: NRC



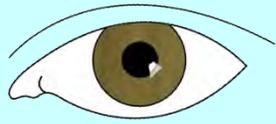
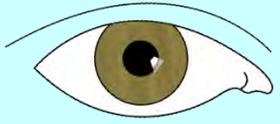
Two-Eyed Seeing

learning to see with the strengths of each & together

OUR LANGUAGES and METHODOLOGIES

Question:

**What can remind us
of the complexity within
our ways of knowing?**



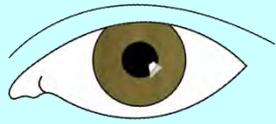
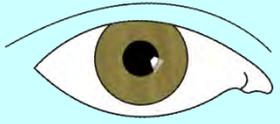
Two-Eyed Seeing

learning to see with the strengths of each & together

OUR LANGUAGES and METHODOLOGIES

weaving of patterns within nature's patterns via creative relationships and reciprocities among ***love, land, and life (vigour)*** that are constantly reinforced and nourished by Aboriginal languages

un-weaving of nature's patterns (especially via analytic logic and the use of instruments) to cognitively reconstruct them, especially using ***mathematical language (rigour)*** and computer models



Two-Eyed Seeing

learning to see with the strengths of each & together

OUR LANGUAGES and METHODOLOGIES

Life
Love
Land

vigour

WEAVING

Math
&
Instruments

rigour

UN-WEAVING



Two-Eyed Seeing

learning to see with the strengths of each & together

OUR LANGUAGES and METHODOLOGIES



Life
Love
Land

vigour

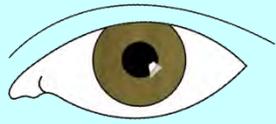
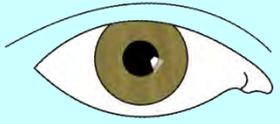
WEAVING



Math
&
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rigour

UN-WEAVING

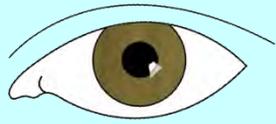
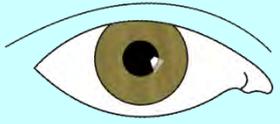


Two-Eyed Seeing

learning to see with the strengths of each & together

OUR OVERALL KNOWLEDGE OBJECTIVES

Question:
What overall goals
do we have for
our ways of knowing?



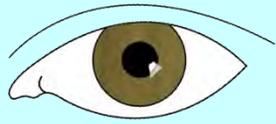
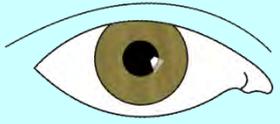
Two-Eyed Seeing

learning to see with the strengths of each & together

OUR OVERALL KNOWLEDGE OBJECTIVES

collective, living
knowledge to enable
nourishment of one's
journey within expanding
sense of "place, emergence
and participation" for
wholeness and
interconnectiveness

dynamic, testable,
published knowledge
independent of
personal experience
that can enable
prediction and control



Two-Eyed Seeing

learning to see with the strengths of each & together

OUR OVERALL KNOWLEDGE OBJECTIVES

collective, living
knowledge to enable
nourishment of one's
journey within expanding
sense of "place, emergence
and participation" for
wholeness and
interconnectiveness

**towards resonance
of understanding
within environment**

dynamic, testable,
published knowledge
independent of
personal experience
that can enable
prediction and control

**towards construction
of understanding
of environment**



Two-Eyed Seeing

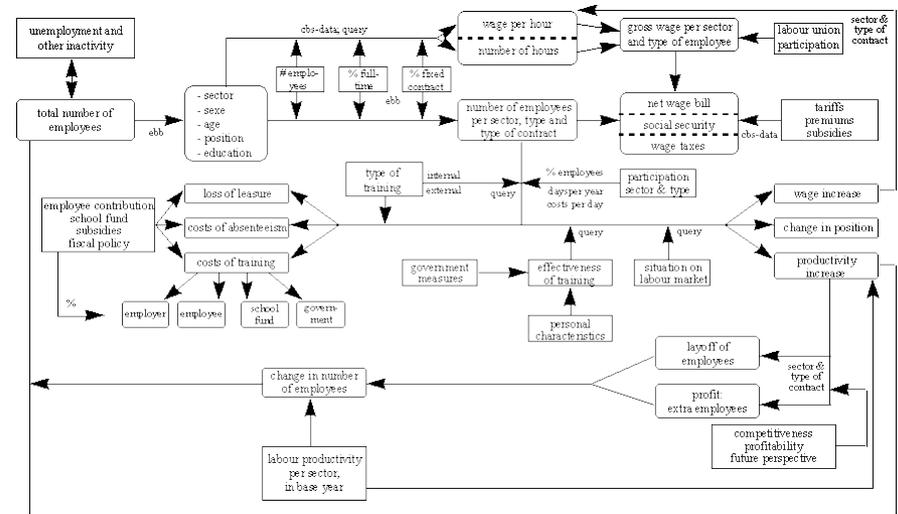
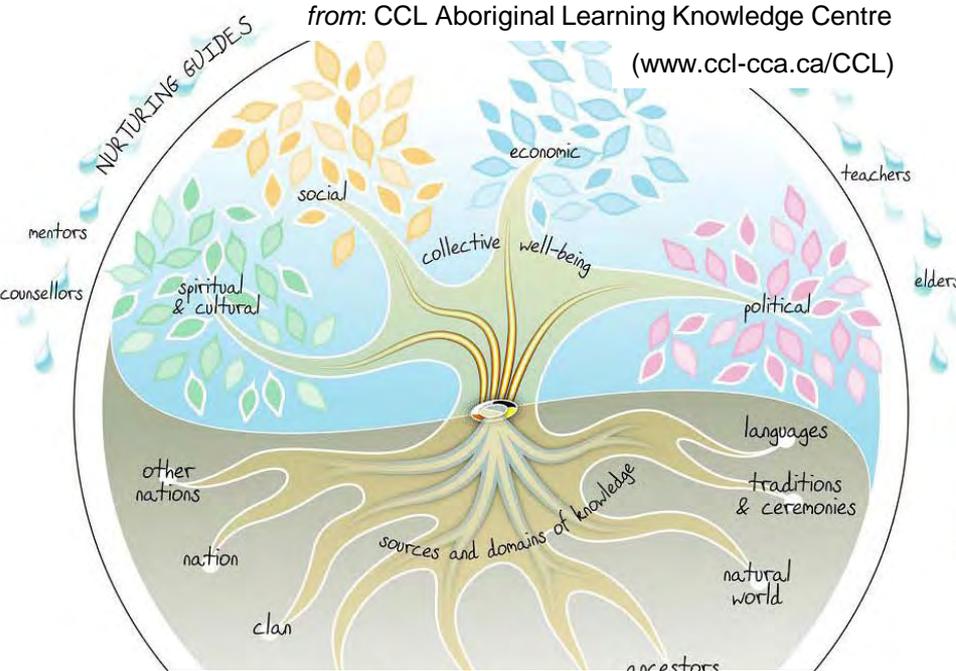
learning to see with the strengths of each & together

OUR OVERALL KNOWLEDGE OBJECTIVES

from: CCL Aboriginal Learning Knowledge Centre

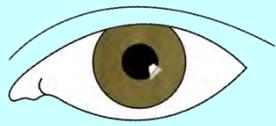
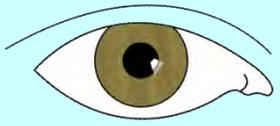
(www.ccl-cca.ca/CCL)

from: www.leads.ac.uk



**towards resonance
of understanding
within environment**

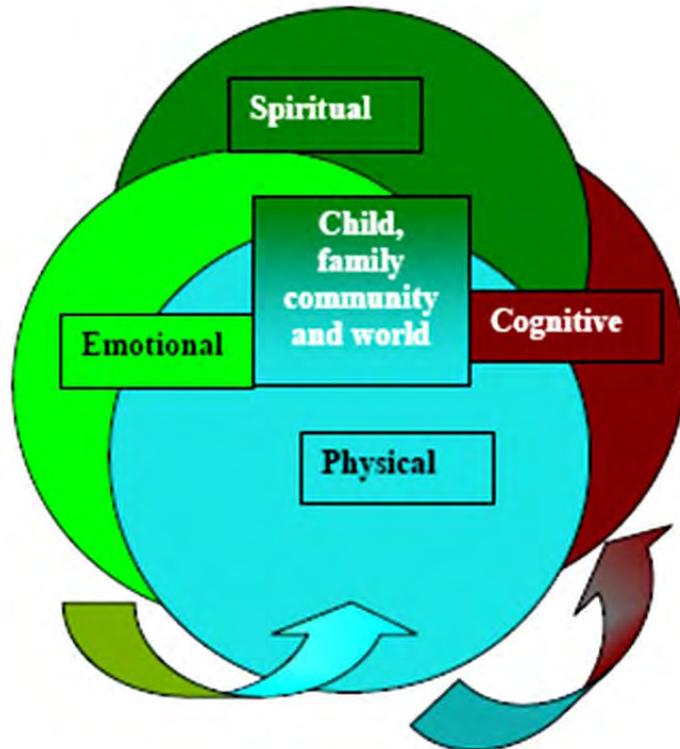
**towards construction
of understanding
of environment**



Two-Eyed Seeing

learning to see with the strengths of each & together

OUR OVERALL KNOWLEDGE OBJECTIVES



Ancestral Knowledge

Passing on Ancestral Knowledge

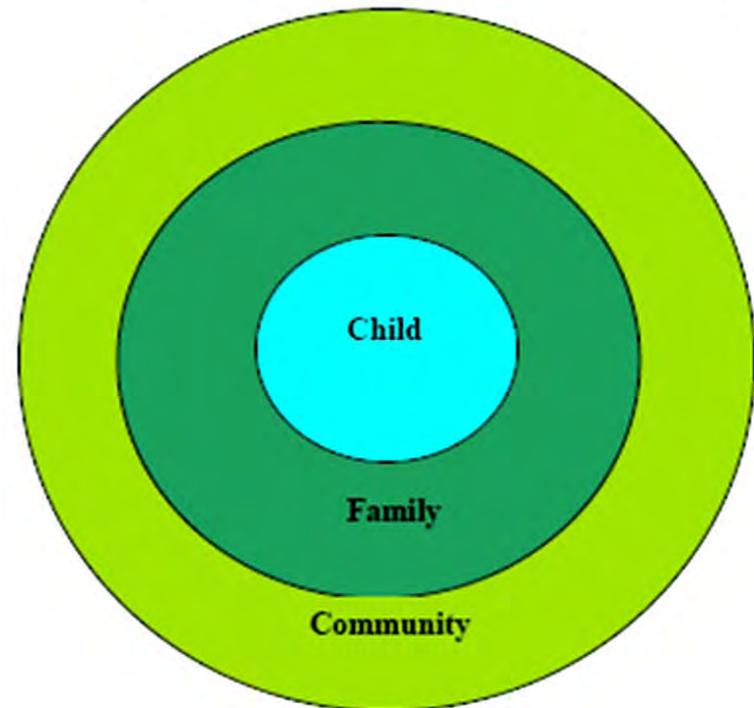
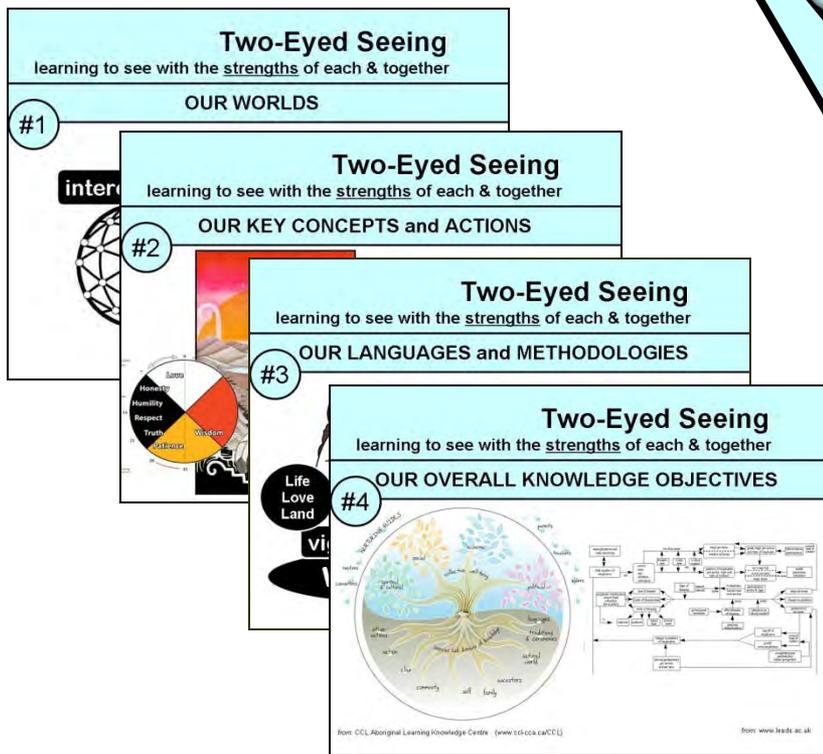
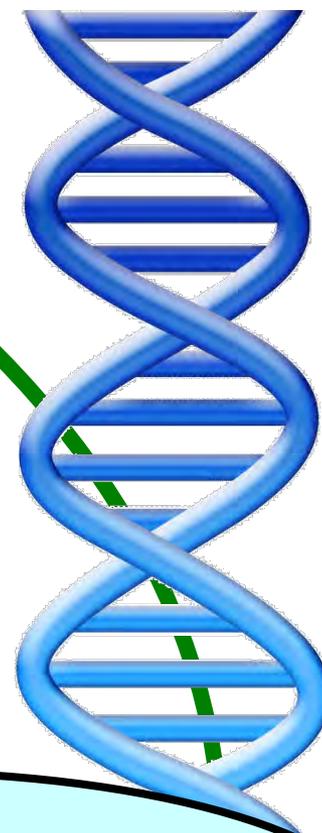
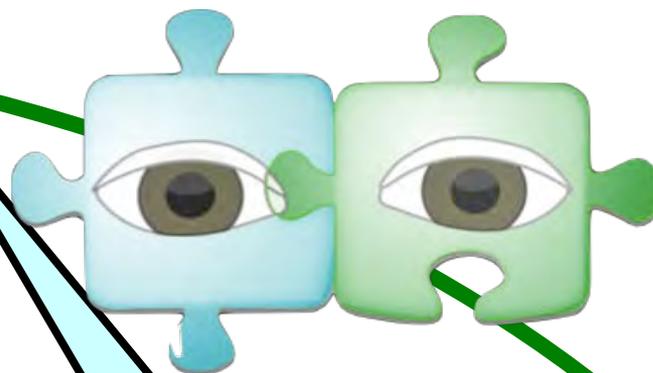


Figure 1: Contrasting epistemological approaches in Ecological Theory

LESSONS LEARNED



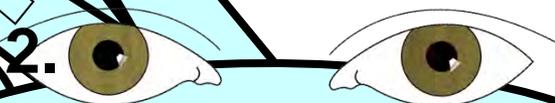
7. WEAVE
back and forth
between our

7 basic or fundamental LESSONS LEARNED



1. **ACKNOWLEDGE
WE NEED
EACH OTHER ...**
co-learning journey

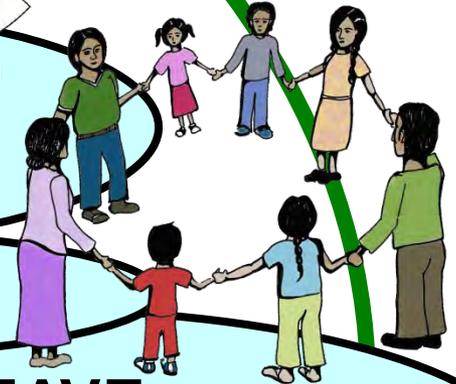
4. **DO ... in a
CREATIVE, GROW
FORWARD WAY**

2.  3. view "SCIENCE"
inclusively

5. put our *values + actions*
+ knowledges in front of
us ... like an object

6. use **VISUALS**

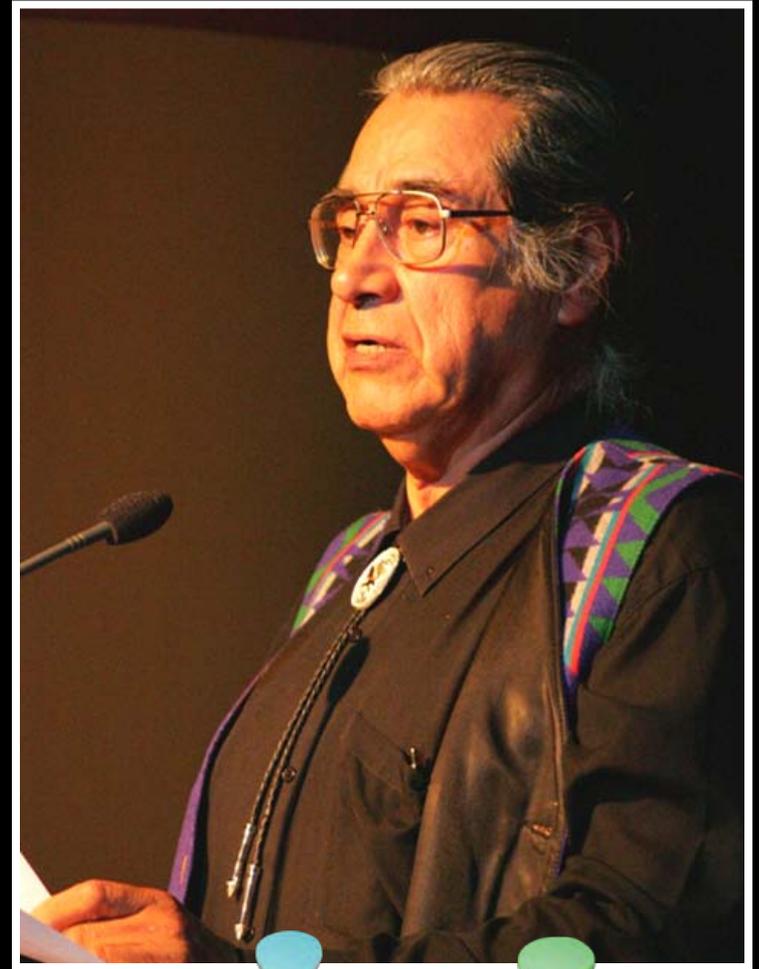
7. **WEAVE**
back and forth
between our



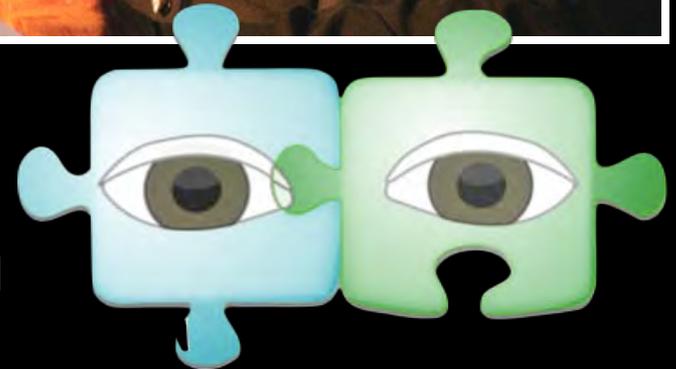


Eskasoni,
Unama'ki,
Mi'kmaq Nation

“LEARN ... to see from one eye with the strengths of Indigenous knowledges and ways of knowing, and from the other eye with the strengths of Western (or Eurocentric or mainstream) knowledges and ways of knowing ... and to use both these eyes together, for the benefit of all.”



TWO-EYED SEEING





Aboriginal perspectives must be put forward.

Knowledge
is spirit.

It is a gift,
passed on
through
many people.

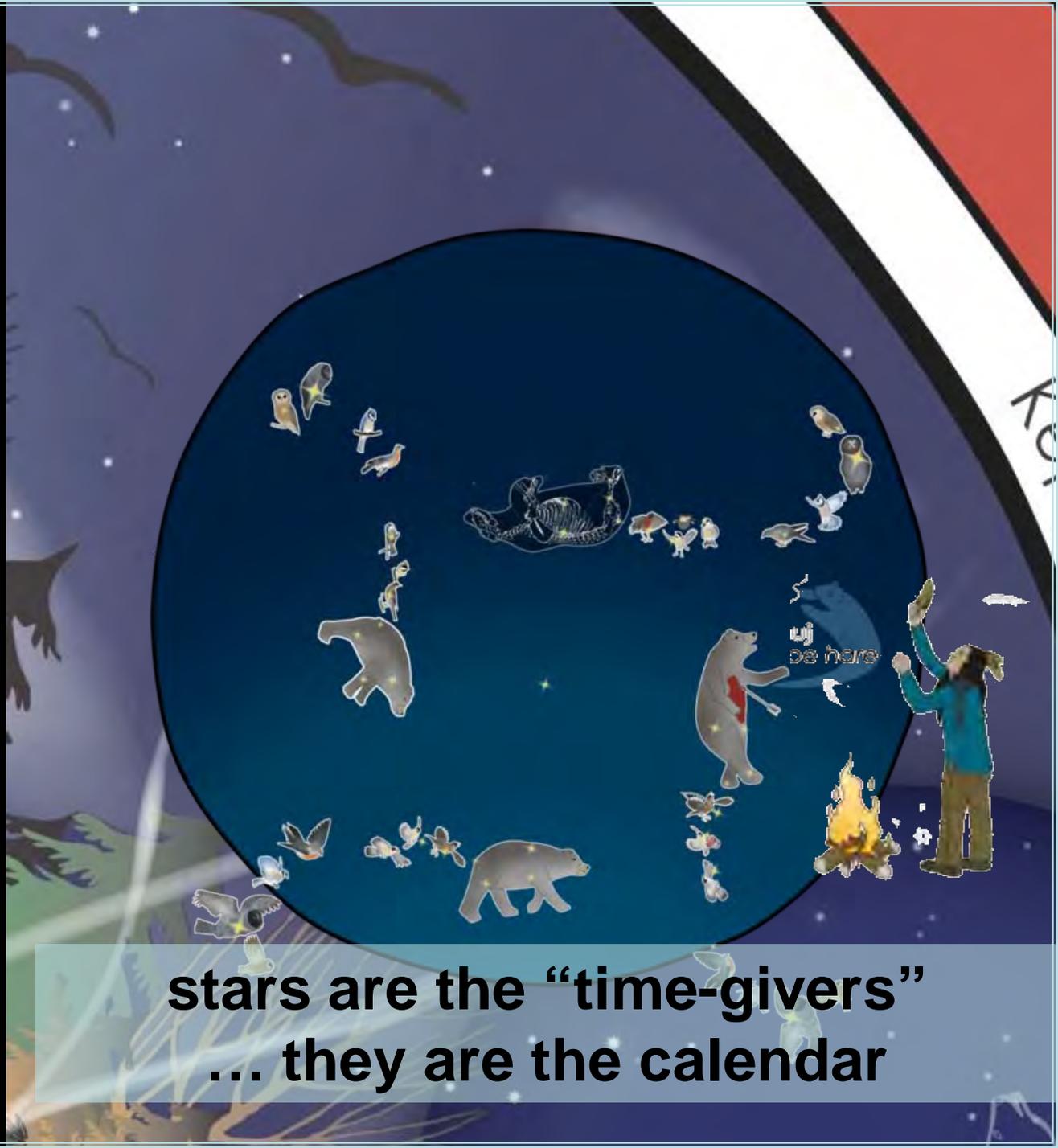
We must
pass it on.



Knowledge
is spirit.

It is a gift,
passed on
through
many people.

We must
pass it on.



stars are the "time-givers"
... they are the calendar

Knowledge
is spirit.

It is a gift,
passed on
through
many people.

We must
pass it on.



Pemi Pungek Mi'kma'ki

**stars are the "time-givers"
... they are the calendar**

This poster is dedicated to all Mi'kmaq. The poster is part of a series made by the Centre for Cultural and Heritage Studies, Cape Breton University, Mi'kma'ki House of Cape Breton, Indigenous Studies, and the Mi'kmaq Cultural Centre. The poster is available in English and French. The poster is available in English and French. The poster is available in English and French.

CAPE BRETON UNIVERSITY

We are equal to, and also part and parcel of, the whole.



Education ... towards rivers of knowledge



End Part 2



Wela'liog

Thank you



Canada Research
Chairs

Chaires de recherche
du Canada



Social Sciences and Humanities
Research Council of Canada

Conseil de recherches en
sciences humaines du Canada

Canada
Canada

Thank you / Wela'liog

Mi'kmaq Elders



CIHR IRSC

Canadian Institutes of
Health Research Instituts de recherche
en santé du Canada



**NSERC
CRSNG**

Canada Foundation
for Innovation

Fondation canadienne
pour l'innovation



Membertou
Elementary



Mi'kmawey Debert



**IWK Health Centre
Foundation**



Eskasoni First Nation Detachment
Royal Canadian Mounted Police Gendarmerie royale
du Canada



Mi'kmaq College Institute
Mi'kmaq Espi Kina'matno'kuom

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and funding agencies is
gratefully acknowledged.