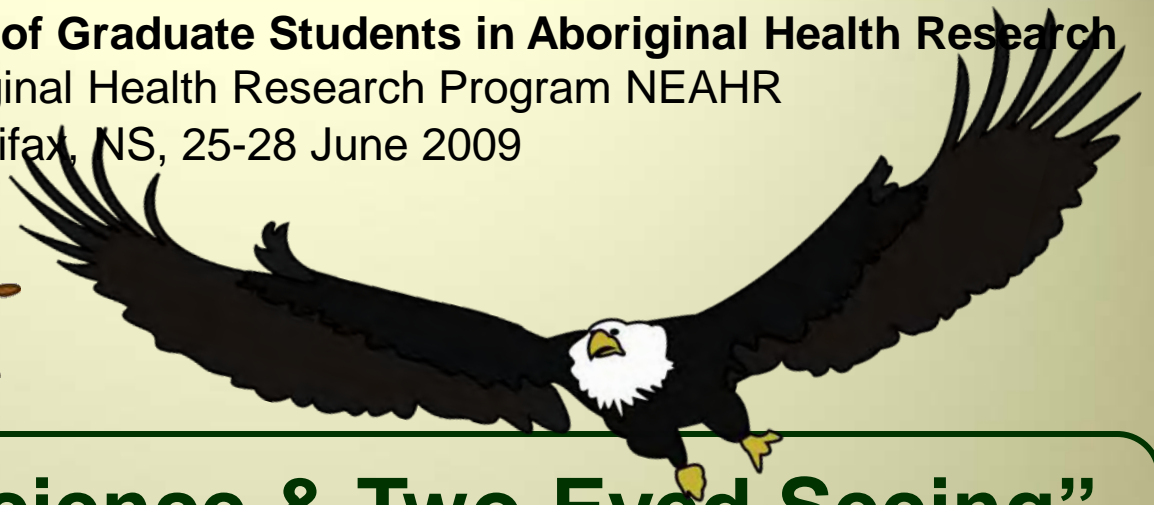


# 9<sup>th</sup> Annual National Gathering of Graduate Students in Aboriginal Health Research

- organized by: Atlantic Aboriginal Health Research Program NEAHR
- at: Dalhousie University, Halifax, NS, 25-28 June 2009



## “Integrative Science & Two-Eyed Seeing”

- in the spirit of growing knowledge •

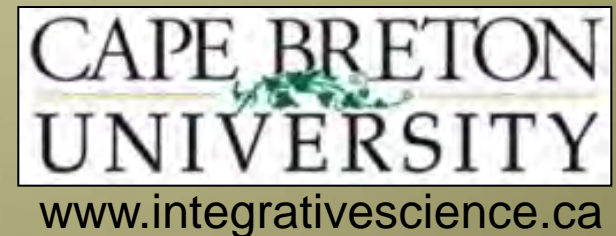
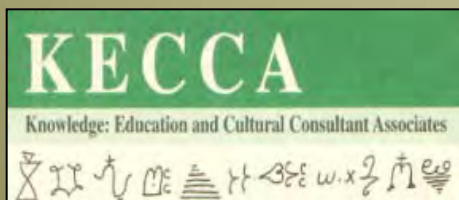
**Albert Marshall<sup>1</sup> & Cheryl Bartlett<sup>2</sup>**

[albertdmarshall@ns.sympatico.ca](mailto:albertdmarshall@ns.sympatico.ca)

[cheryl\\_bartlett@cbu.ca](mailto:cheryl_bartlett@cbu.ca)

<sup>1</sup> Elder, Eskasoni community, Mi'kmaq Nation

<sup>2</sup> Canada Research Chair in Integrative Science, CBU

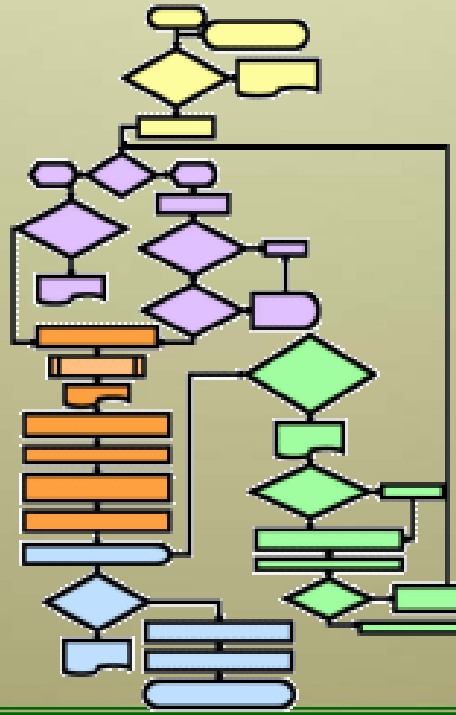


# outline of presentation



## “Integrative Science & Two-Eyed Seeing”

- in the spirit of growing knowledge •



# outline of presentation



## “Integrative Science & Two-Eyed Seeing”

- in the spirit of growing knowledge •

*inlaid image from:*  
Bopp et al. 1984,  
The Sacred Tree;  
*illustration by:*  
Patricia Morris



*image from:*  
Bopp et al. 1984,  
The Sacred Tree;  
*illustration by:*  
Patricia Morris

outline of presentation



**“Integrative Science & Two-Eyed Seeing”**  
• in the spirit of growing knowledge •

**Life  
Love  
Land**

**Language  
Vigour**





**Murdena and  
Albert Marshall,  
Elders, Eskasoni**

**Cheryl Bartlett,  
Professor, CBU**



# our THANKS to many Elders & many others



<http://www.science.ualberta.ca/>  
Murdena Marshall

Chief Charlie  
Dennis



Jane Meader



Lillian  
Marshall

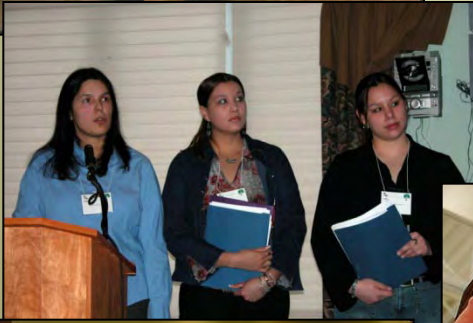


Lawrence  
Wells



Sister  
Dorothy  
Moore

# our THANKS to CBU's Mi'kmaq Science Students



# our THANKS to CBU's Integrative Science Team







Canada Research  
Chairs

Chaires de recherche  
du Canada



Social Sciences and Humanities  
Research Council of Canada

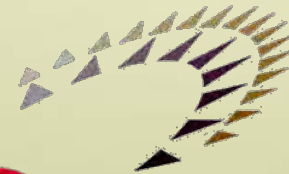
Conseil de recherches en  
sciences humaines du Canada

Canada  
Canada

# Thank you / Wela'liog

# Mi'kmaq Elders

IAPH



Canada Foundation  
for Innovation

Fondation canadienne  
pour l'innovation



Membertou  
Elementary

CIHR IRSC

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



NSERC  
CRSNG



Mi'kmawey Debert



IWK Health Centre  
Foundation



Mermaid Theatre  
of Nova Scotia



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



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

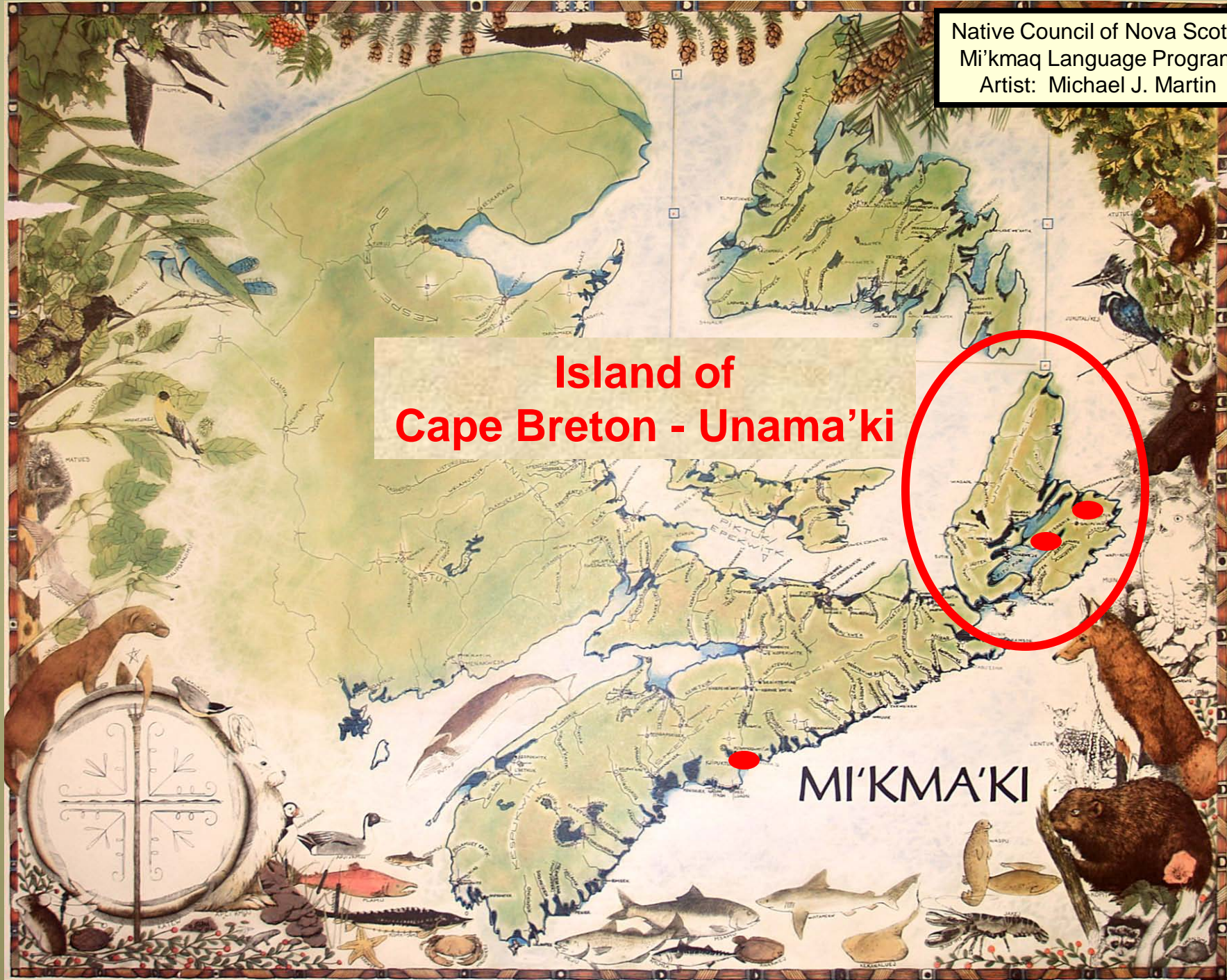
The support of various partners  
and funding agencies is  
gratefully acknowledged.

Native Council of Nova Scotia  
Mi'kmaq Language Program  
Artist: Michael J. Martin

**Island of  
Cape Breton - Unama'ki**



MI'KMA'KI



Native Council of Nova Scotia  
Mi'kmaq Language Program  
Artist: Michael J. Martin



**Island of  
Cape Breton - Unama'ki**




Native Council of Nova Scotia  
Mi'kmaq Language Program  
Artist: Michael J. Martin



*inlaid image from:*  
Bopp et al. 1984,  
The Sacred Tree;  
*illustration by:*  
Patricia Morris

MI'KMA'KI

A composite image featuring a silhouette of a person with arms outstretched, a pine branch, a mountain range, and a rising sun over water. The person is in the foreground, facing away from the viewer. The pine branch is in the upper right. The mountain range is in the middle ground. The sun is rising over the water, creating a reflection. The sky is dark with a hint of orange from the sun.


*inlaid image from:*  
Bopp et al. 1984,  
The Sacred Tree;  
*illustration by:*  
Patricia Morris

EAST ... the rising sun (our closest star)

# “Spirit of the East”

(in Mi'kmaq: Wjipenuk Etek Lnuimlkikno'ti)

The East is seen, through its association with the sunrise, as a place of beginnings and enlightenment, and a place where new knowledge can be created or received to bring about harmony or right relations (Calliou, 1995).



*inlaid image from:*  
Bopp et al. 1984,  
The Sacred Tree;  
*illustration by:*  
Patricia Morris

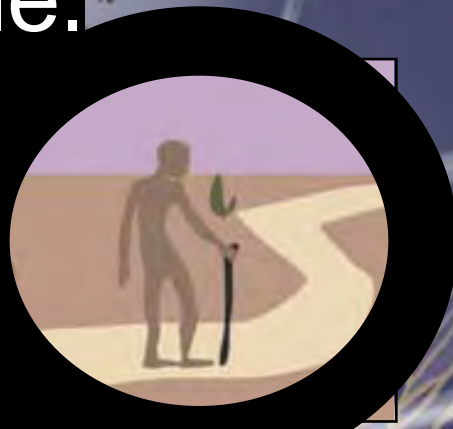
EAST ... the rising sun (our closest star)

- in the spirit of growing knowledge •

Knowledge  
is spirit.

It is a gift,  
passed on  
through  
many people.

We must  
pass it on.



• in the spirit of growing knowledge •



ARTIST Basma Kavanagh



# Integrative Science

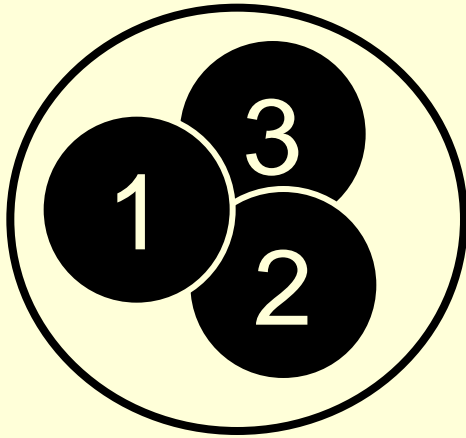
The illustration depicts two stylized, dark brown figures sitting in a circle on a green ground, facing each other around a central campfire with yellow and orange flames. The background is a dark blue night sky filled with white stars. A large, circular, purple and yellow patterned structure, resembling a tent or a celestial body, frames the scene. The overall style is vibrant and symbolic.

Indigenous

Western

“bringing our sciences together”

# 15+ years ago we started a Co-Learning Journey. WHY?



**reasons**

**ARTIST Basma Kavanagh**



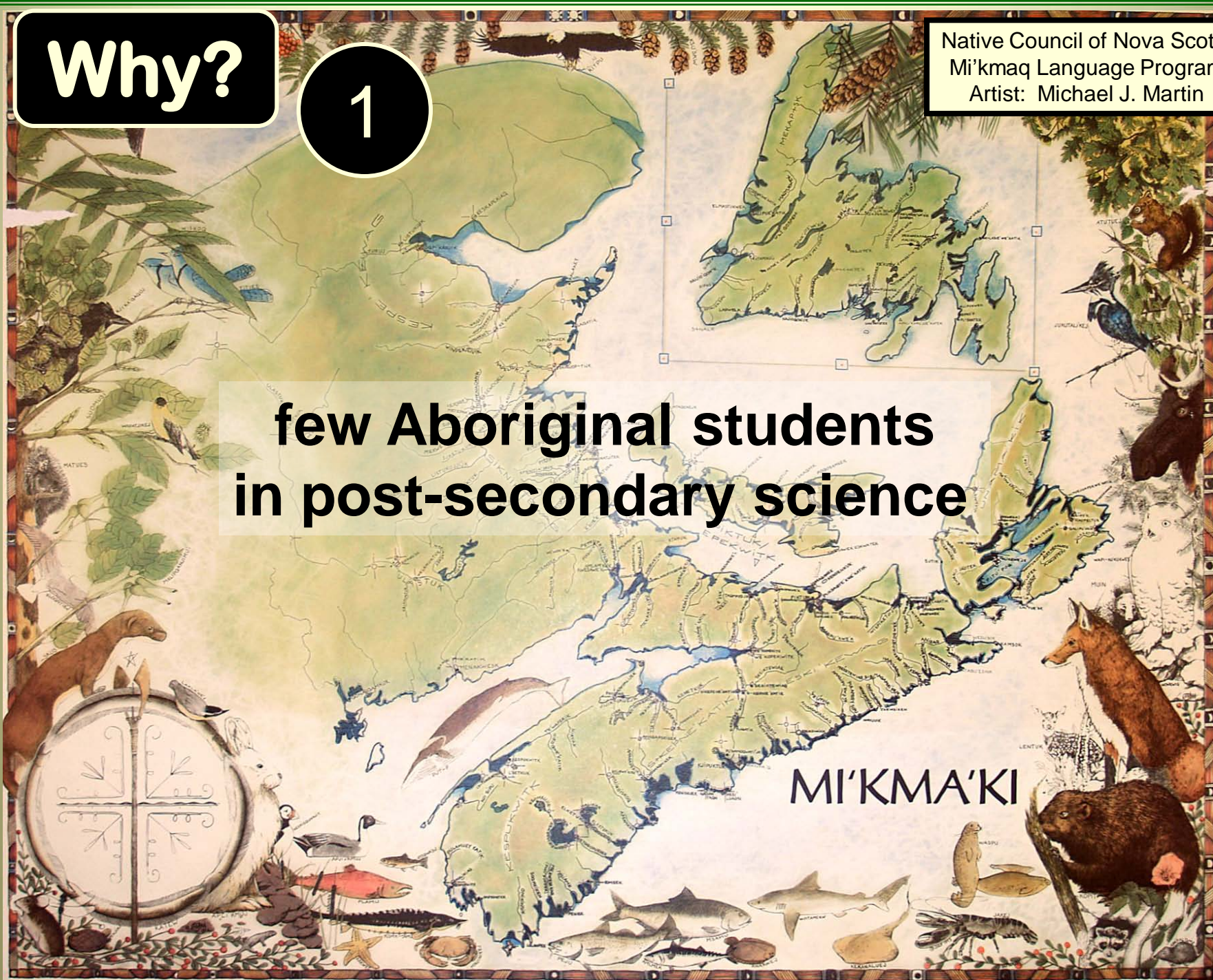
**Why?**

**1**

Native Council of Nova Scotia  
Mi'kmaq Language Program  
Artist: Michael J. Martin

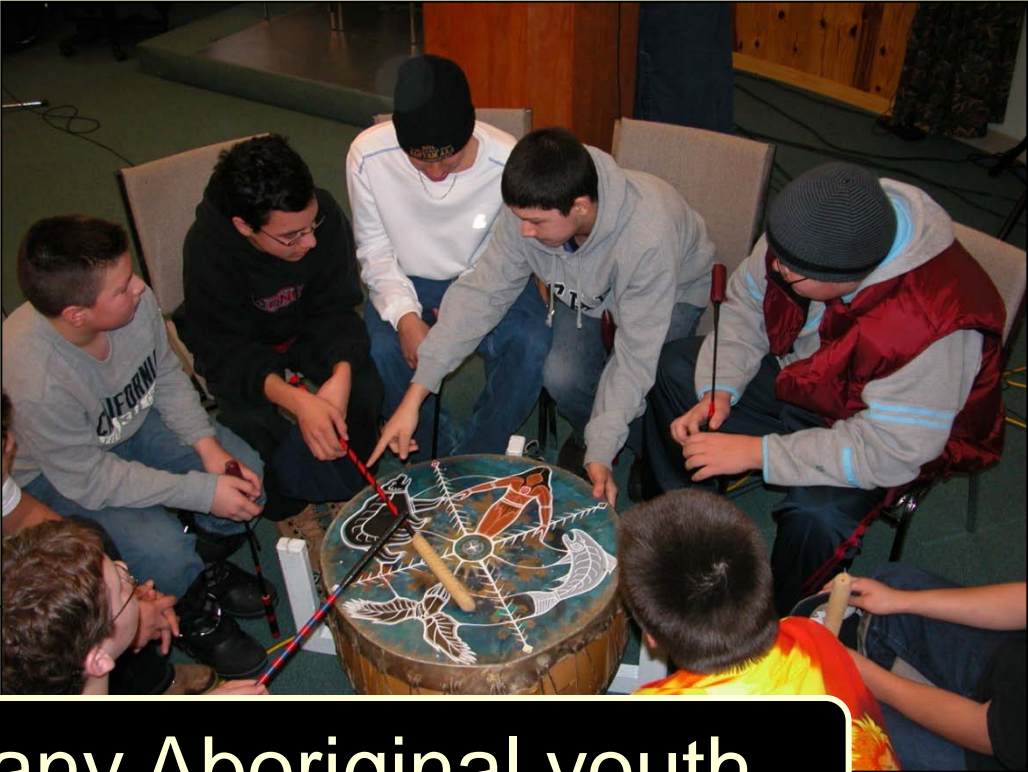
**few Aboriginal students  
in post-secondary science**

**MI'KMA'KI**



# Why?

# 2



## many Aboriginal youth



**Why?**

**2**

**Because today ...**

**Mi'kmaq and other Aboriginal youth  
are poised on the edge of two worlds.**

**Indigenous**



**Western**

Why?

2

Because today ...

Mi'kmaq and other Aboriginal youth are losing their cultural connections.

Indigenous

**Cognitive imperialism.  
Colonization of  
the consciousness.  
Genocide.**

Western



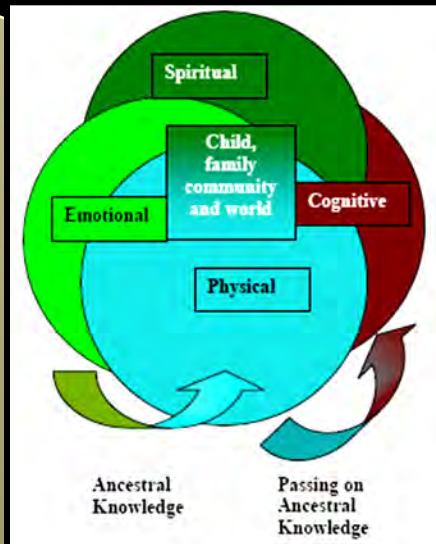
# Why?

## 2

### Because ...

health (individuals & communities) and transmission of  
**Traditional Knowledge** are strongly related  
(source: Elders & others)

### Indigenous



### Western



model & visual from: CINDY BLACKSTOCK

<http://www.win-hec.org/docs/pdfs/cindy.pdf> (WIN-HEC Journal 2007)

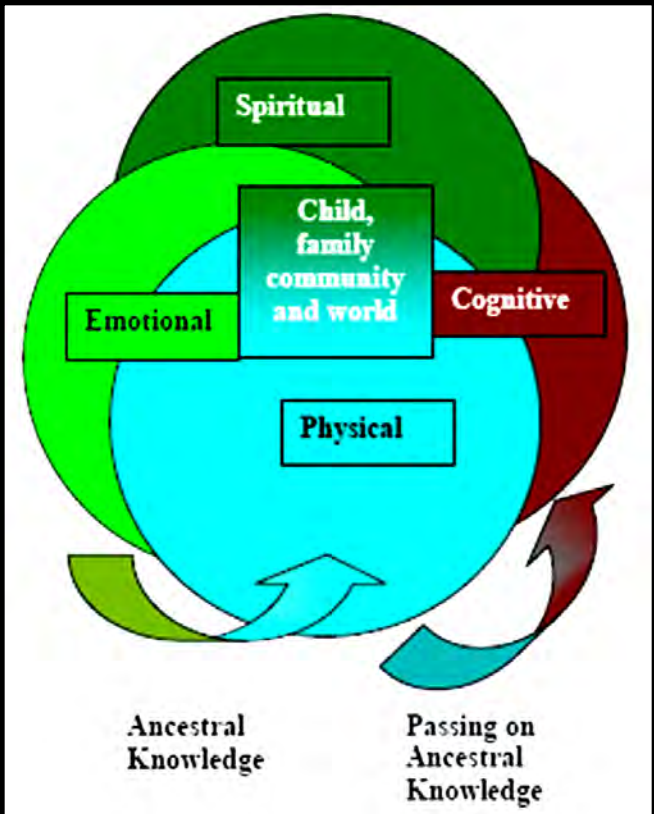
# Why?

# 2

# Because ...

## health (individuals & communities) and transmission of Traditional Knowledge are strongly related

(source: Elders & others)



# Western





**Why?**

**3**

**Indigenous**

**Western**

**“The teaching of science from only one cultural perspective and in the partialistic manner that dominates science education continues to be the central dilemma of science education today.”**

**Gregory Cajete, PhD**

*1986, Science: a Native American Perspective;*

*A Culturally Based Science Education Curriculum (unpublished Doctoral Dissertation)*

**Native American Scientist & Educator, Univ. of New Mexico**

starting mid 1990's

**15+ years:  
Co-Learning  
Journey**

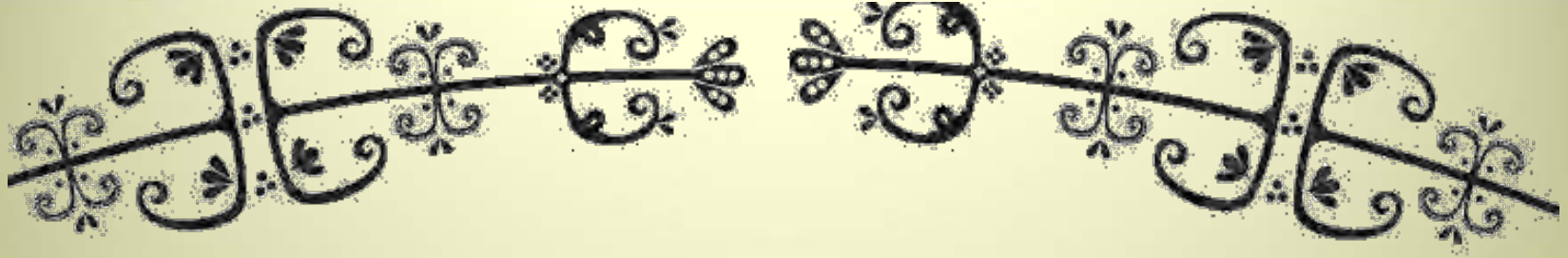


## **Integrative Science**

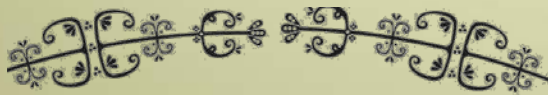
bringing together Indigenous and Western scientific knowledges and ways of knowing

**Indigenous**

**Western**



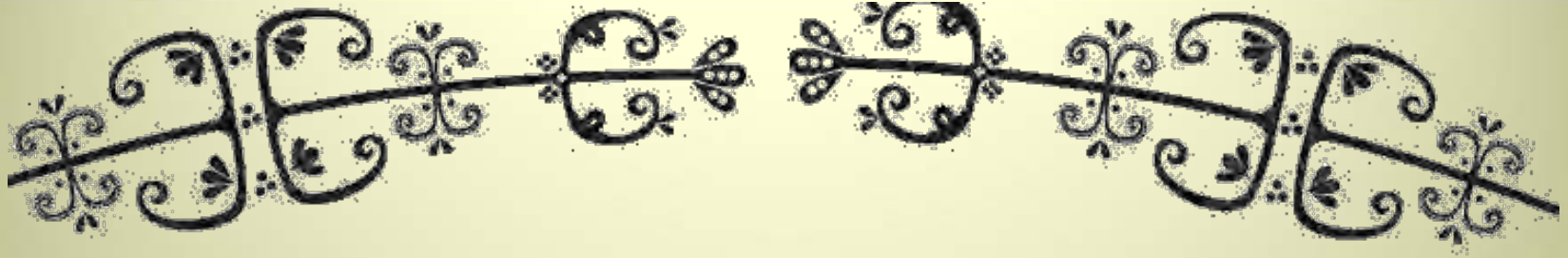
***Indigenous and Western  
scientific knowledges are  
based in observations  
of the natural world.***



**Science?**



ARTIST Basma Kavanagh



*Indigenous and Western scientific knowledges are based in observations of the natural world.*



“stories of our interactions with and within nature”

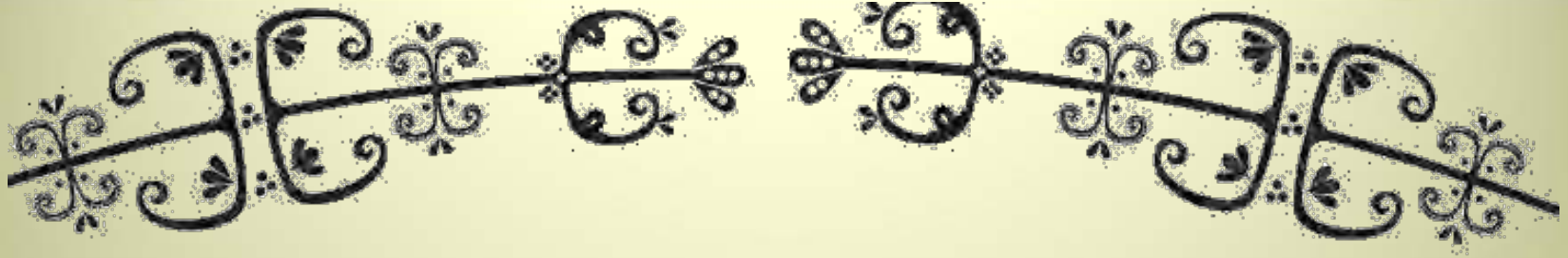
**pattern smarts**

Science is dynamic,  
**pattern-based** knowledge.



view “SCIENCE”  
inclusively

ARTIST Basma Kavanagh



*Indigenous and Western scientific knowledges are based in observations of the natural world.*



“stories of our interactions with and within nature”

**pattern smarts**

Science is dynamic,  
**pattern-based** knowledge.





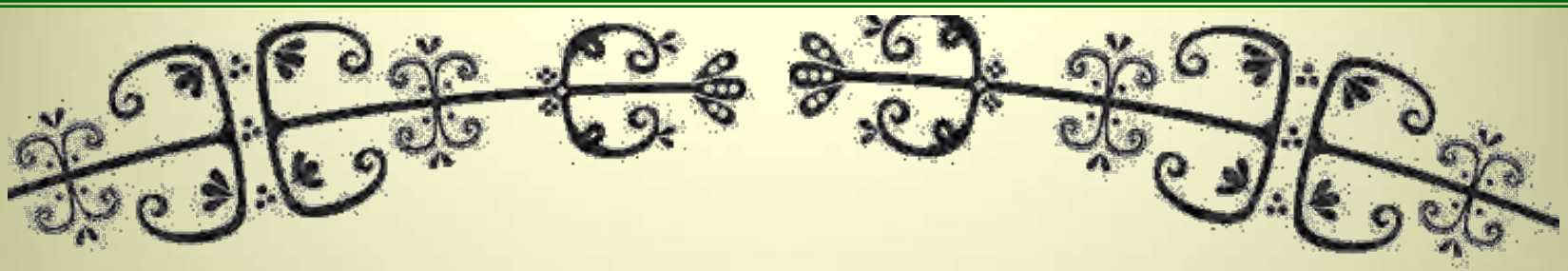
# Guiding Principle

## TWO-EYED SEEING

**LEARN ... to see from one eye with the best in our Indigenous ways of knowing, and from the other eye with the best in the Western (or mainstream) ways of knowing ... and to use both these eyes together, for the benefit of all.**



ARTIST Basma Kavanagh



artist Basma Kavanagh

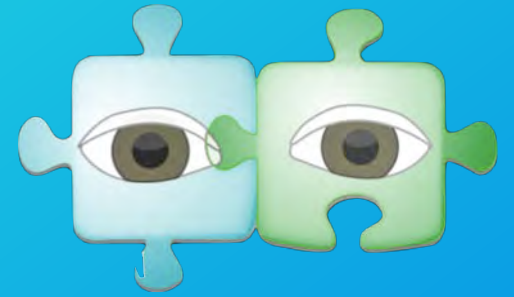
## **Consciousness of Knowing**

*our interdependence on each other  
and on Mother Earth*

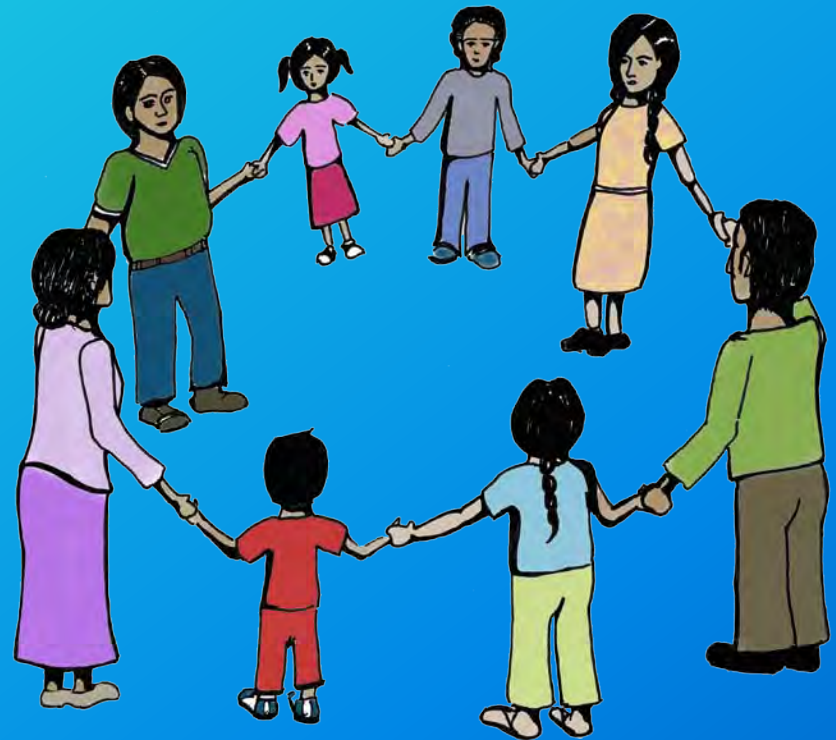
**All people must learn**

**“Two-Eyed Seeing”**

**so that knowledge of the  
physical is not separated  
from wisdom of the  
spiritual.**

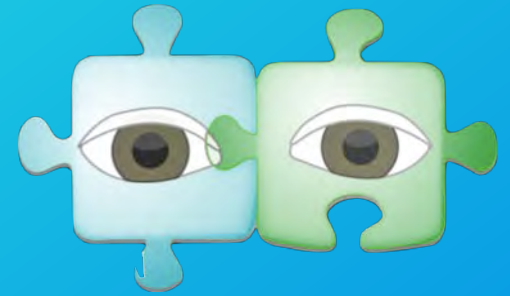


**It is not  
enough to go  
through life  
with one  
perspective;  
we must  
embrace  
all the tools  
we have ...**





**Two-Eyed Seeing  
teaches you awaken  
the spirit within you.**



**You become  
a student of life ...  
and you become  
observant of the  
natural world ...  
and realize we  
humans are part  
and parcel of the  
whole.**



**Everything  
that we do  
to our natural  
world ...**

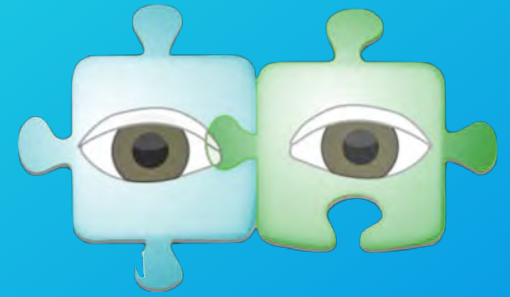
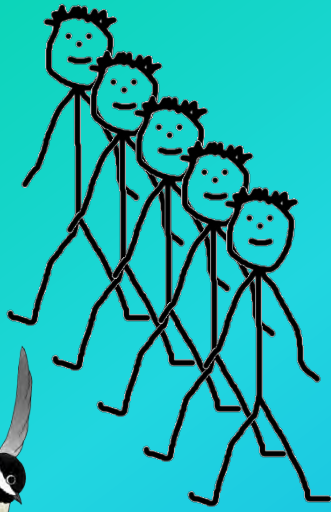
**... we also do  
to ourselves**



*image from:*  
Bopp et al. 1984,  
The Sacred Tree;  
*illustration by:*  
Patricia Morris



artist Basma Kavanagh



**Two-Eyed Seeing teaches that everything is physical and spiritual.**

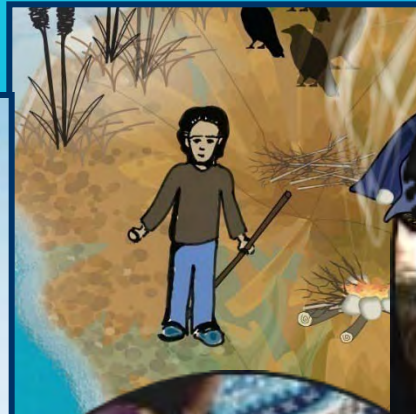
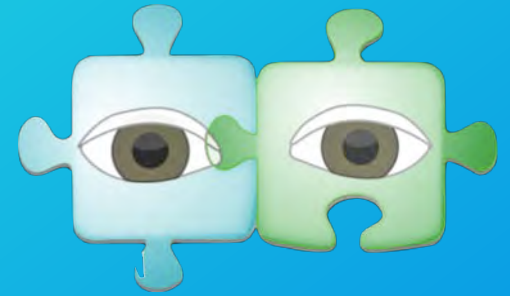
**It teaches about our interconnectiveness with the natural world ... and about our responsibilities for the next Seven Generations.**



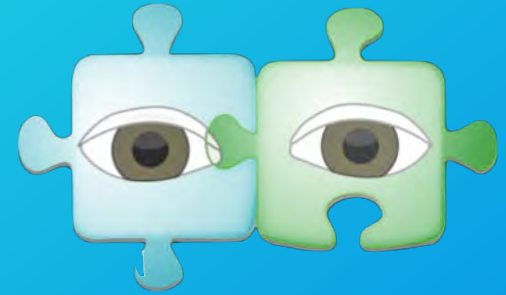
**Our language teaches us  
about interdependence.**

**Nature has rights.**

**Humans have responsibilities.**



**Our language teaches us  
that everything alive is  
both physical and spiritual.**



**The onus is on the  
person to look at our  
natural world with  
two perspectives.**

**Modern science  
sees objects,  
but our language  
teaches us to see  
subjects.**

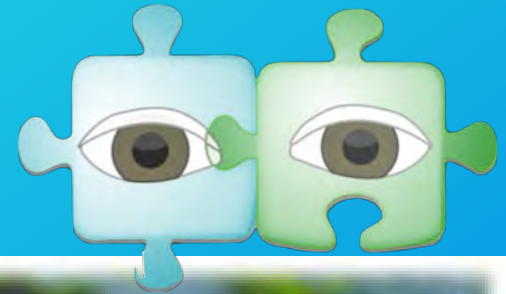


artist Basma Kavanagh

**Humans are a very small part of the whole.**

**Our biggest responsibility has to be to speak for those species that cannot speak for themselves.**

**Our natural world provides for us, shelters us, nourishes us.**

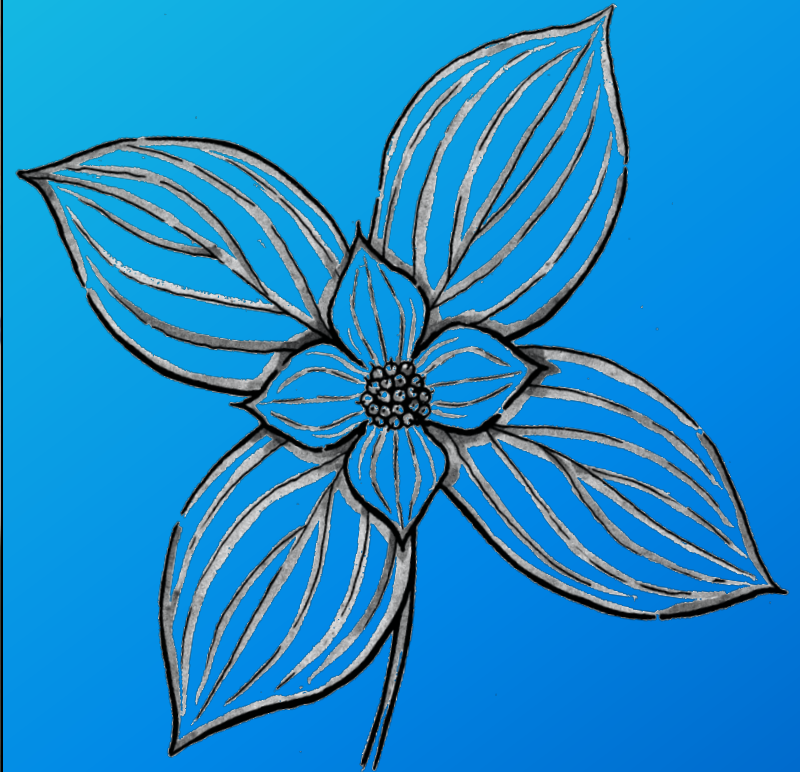
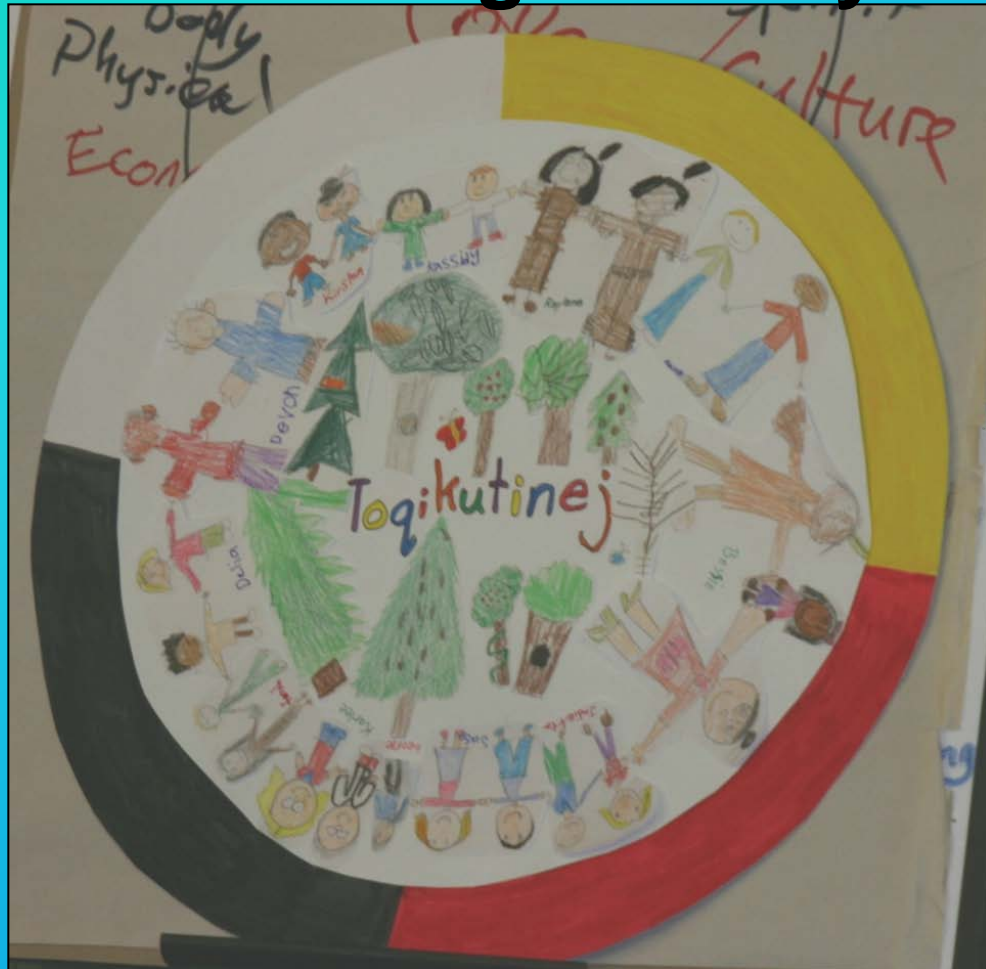
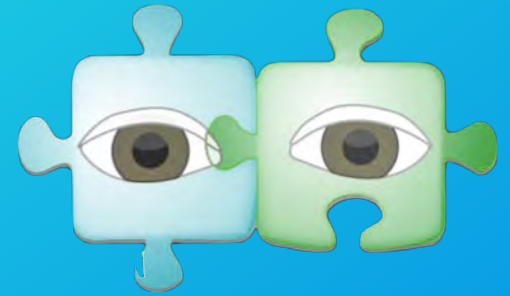


artist Basma Kavanagh

**Water ... Air ... Earth**



# Our language takes us into a Life Long Journey.



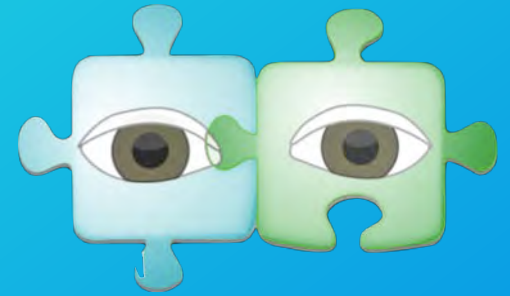
ARTWORK by children at Eskasoni Elementary School



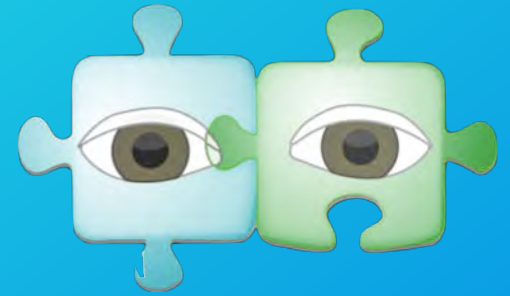
**Knowledge is not a tool  
but rather it is a spirit.**

**It transforms the  
holder. It also  
reminds us that we  
have responsibilities  
to the spirit of that  
knowledge.**

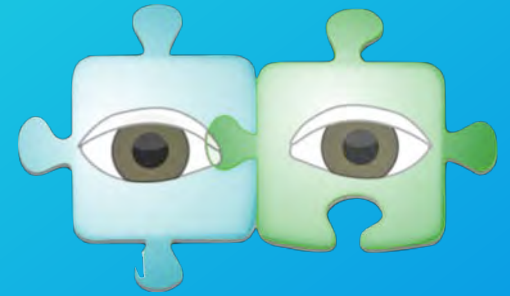
**We must pass it on.**



# Seven Generations

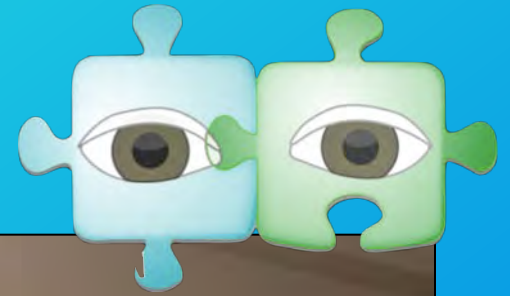


# Our seasons follow the cycles of **Mother Earth** ...

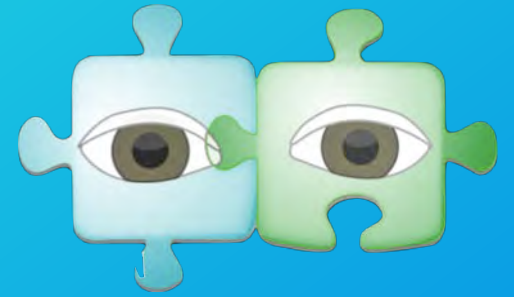


... so that our children will always be reminded of the beauty of creation, and of our dependence on her.

Like nature, we must always have a nurturing component.



# Life, Land, Language, Love

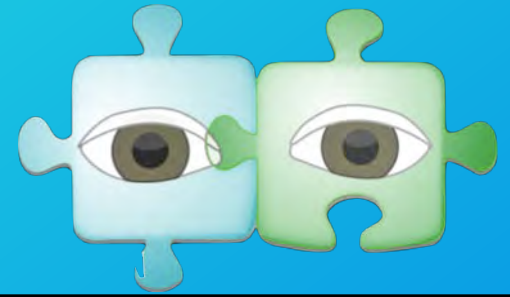


artist Basma Kavanagh



# Netukulimk

developing the skills and sense of responsibility required to become a protector of other species



<http://blog.silive.com/weather/2007/09/red-maple-tree.jpg>



<http://myanimalblog.files.wordpress.com/2008/03/g-bull-moose.jpg>

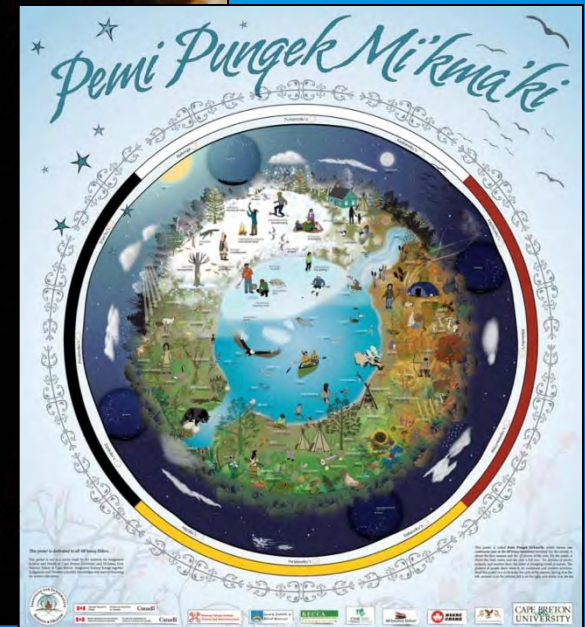
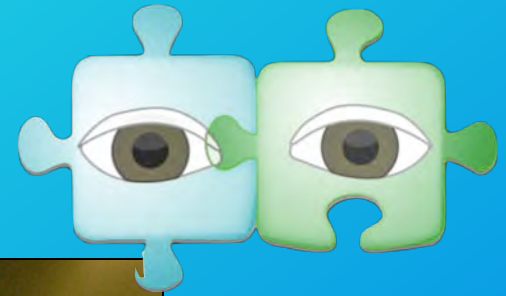


<http://www.greenexpander.com/wp-content/uploads/2007/09/gex-bald-eagle.jpg>



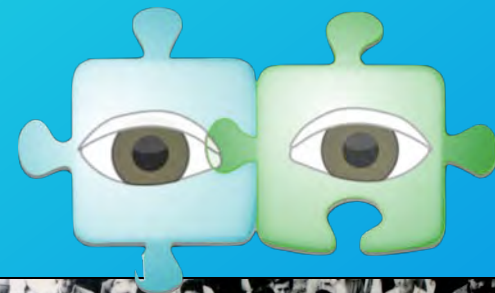
[http://www.krisweb.com/krisshoopscot/krisdb/html/krisweb/aqualife/atlantic\\_salmon\\_asc\\_beland.jpg](http://www.krisweb.com/krisshoopscot/krisdb/html/krisweb/aqualife/atlantic_salmon_asc_beland.jpg)

# eco-literacy



# As Elders in Our Time

We seek to be a conduit for wisdom of our Ancestors. We seek to see with “Two-Eyes” ... to take the accomplishments of Western Science further by blending it with the wisdom of our Ancestors.





Tatapn  
(North Star)



**Muin and the Seven Bird Hunters:  
a Mi'kmaq Night Sky Story  
... interconnectiveness of  
space-time-life-knowledge-spirit**



# Muin and the Seven Bird Hunters

*a Mi'kmaq Night Sky Story*

VERSIONS: MI'KMAQ & ENGLISH, ENGLISH, FRENCH



THE UNIVERSE  
YOURS TO DISCOVER

INTERNATIONAL YEAR OF  
ASTRONOMY  
2009



CAPE BRETON  
UNIVERSITY



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Chairs

Chaires de recherche  
du Canada

Canada

DVD



# “Reflections”

artist Gerald Gloade  
Millbrook First Nation



THE UNIVERSE  
YOURS TO DISCOVER



INTERNATIONAL YEAR OF  
ASTRONOMY  
2009

GERALD GLOADE

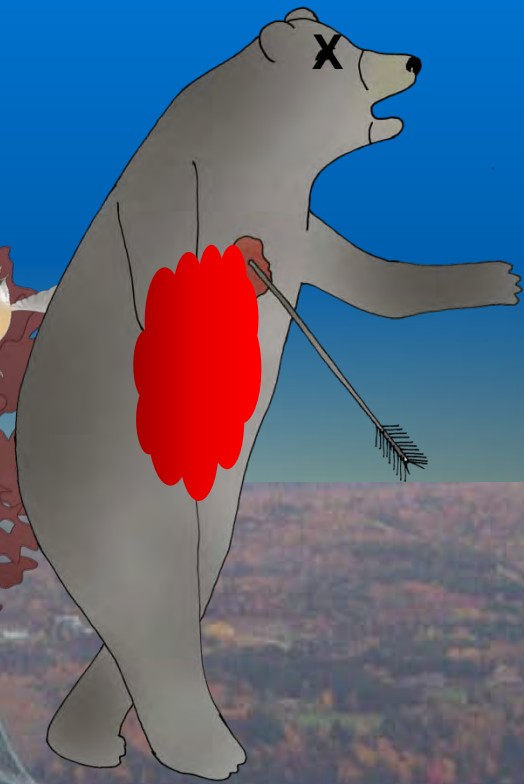
# Patterns in Stars

## “Reflections”

artist Gerald Gloade  
Millbrook First Nation

# Patterns on Earth

The Story of Muin and the Seven Bird Hunters  
resonates with patterns in the ecosystems  
of Mi'kma'ki.



Life  
Love  
Land

language

vigour

**SENSE of PLACE, EMERGENCE, and PARTICIPATION**

The Story of Muin and the Seven Bird Hunters  
does not resonate with patterns in the ecosystems  
of Blackfoot Territory.



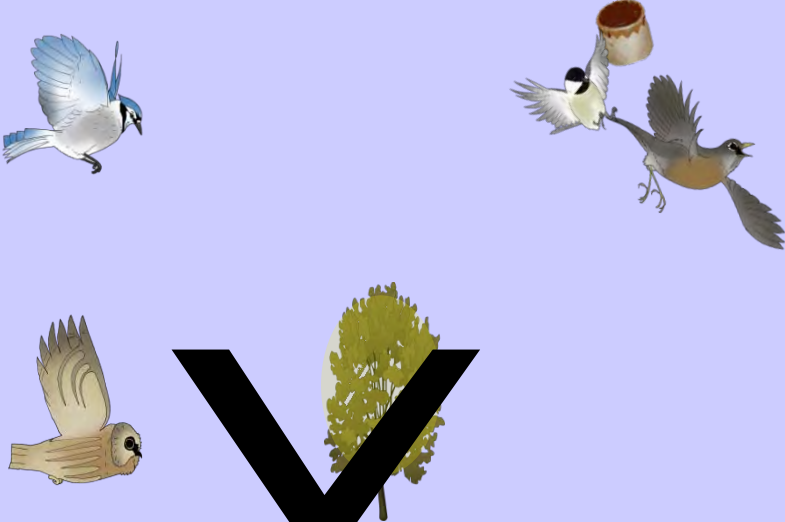
Life  
Love  
Land

language

vigour

**SENSE of PLACE, EMERGENCE, and PARTICIPATION**

# southern Alberta / Blackfoot



# Nova Scotia / Mi'kmaq





**Murdena and  
Albert Marshall,  
Elders, Eskasoni**

**Cheryl Bartlett,  
Professor, CBU**



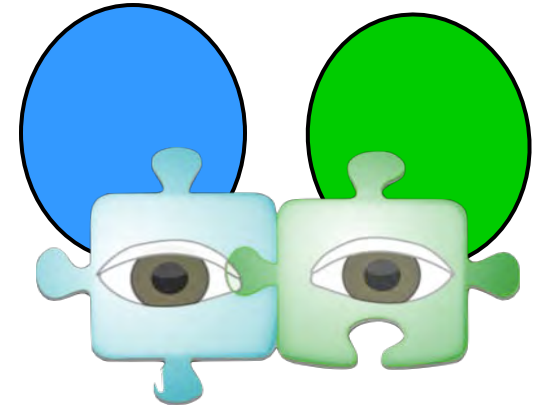


stories of our interactions with and within nature

**Science** ... dynamic, pattern-based knowledge

**PATTERNS ...**

- spirits within **ecosystem-wide** minds
- ideas in **brain-based** minds



**cognitive neuroscience**

**sense of place, emergence, and participation**  
**“know, do, value”**



**Murdena Marshall, Elder, Mi'kmaq Nation**

**Sheridan, J. & Longboat, D. 2006.**

The Haudenosaunee imagination and the ecology of the sacred. *Space and Culture* 9(4): 365-81.



# Spiritual Guidance and Parenting

**Merging spiritual  
guidance with  
knowledge = parenting**



Parenting is considered  
preparation of character.



# Spiritual Guidance and Parenting

**Elders from the community monitor behaviour of a pregnant mother.**

Mother must make sure baby's spirit is safe, thus she must not exhibit bad habits or lack of control.

Our responsibilities to each other, i.e. our interconnectiveness, is thereby reinforced as a new being prepares to come into the community.



# Spiritual Guidance and Knowledge

There are many beliefs which are enacted during pregnancy that serve to remind us of our spiritual ties to one another.

When the baby is born, these beliefs continue to remind us of the fact and mystery of interconnectiveness.



# Social Policies

**constructed around  
same concepts**



- e.g. if a man committed violence against another man, killing him, he was responsible for that man's family

- e.g. when two youths fell in love, the boy lived with the family of the girl, so they could observe his character, and see his ability to provide and care for their daughter

**families were supported to overcome problems;  
interconnectiveness was upheld**

# Celebrations

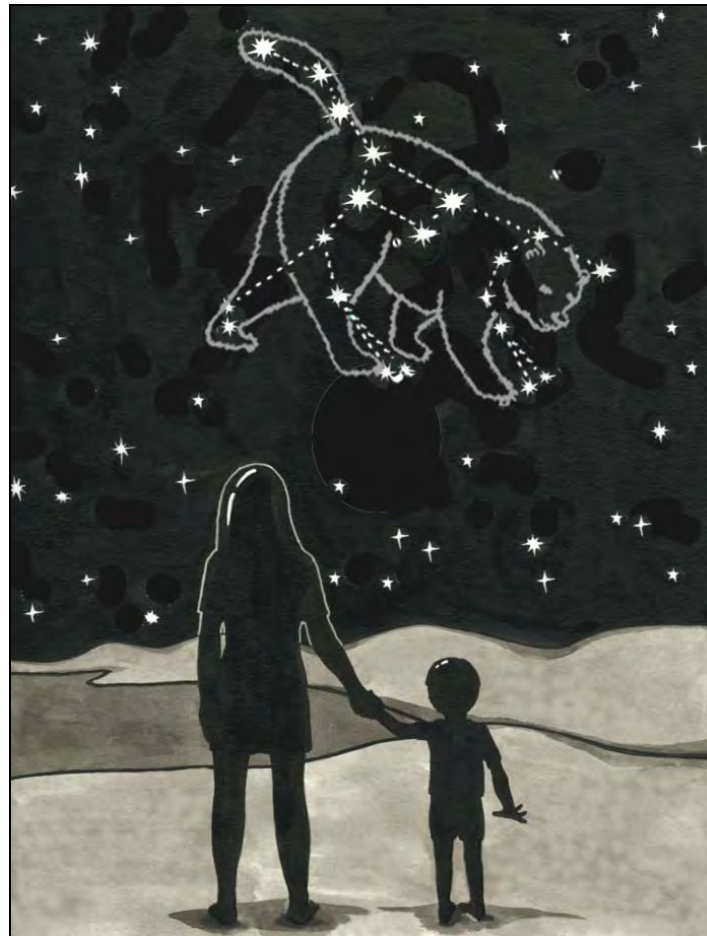


- based around Mother Earth's provisions
  - reinforcement of our beliefs
    - songs, prayer, celebrations, feasts
  - honour animals, encourage them to continue to provide
- honour Ancestors, as they guide us to help us keep our beliefs and traditions alive



# Language has Spirit

**Language allows us to teach respect.**



Artist Basma Kavanagh



# Language



**contains the wisdom and perspective  
of our ancestors**

**how we express ourselves in language reminds us  
of our interrelatedness and inter-connectiveness**

- e.g. our word for the Bras d'Or Lakes does not mean "Arm of Gold" as it is usually interpreted into English, but rather "that to which all things flow"

... explains the relationship of waters of the lake in its creation  
(i.e. not an exploitative value)



*inlaid image from:*  
Bopp et al. 1984,  
The Sacred Tree;  
*illustration by:*  
Patricia Morris

*image from:*  
Bopp et al.  
The Sacred Tree



**Love is the main ingredient  
of wellness.** *Murdena Marshall*

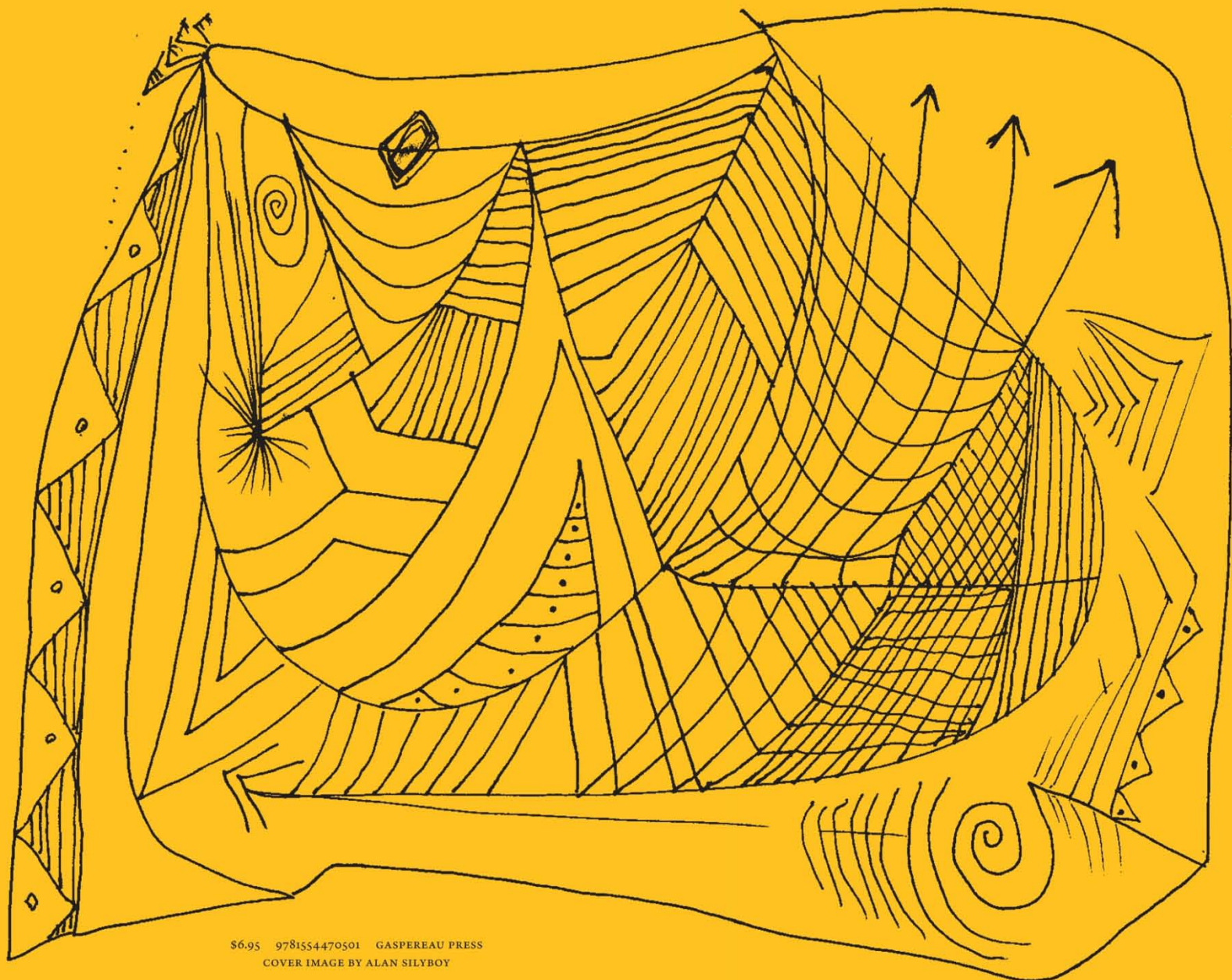
**The voice of wellness is in  
the land.** *Albert Marshall*





There's something  
called the  
*healing tense.*

Murdena Marshall, Elder, Mi'kmaq Nation



# I Got It From an Elder



Conversations  
in Healing  
Language

MARILYN IWAMA

MURDNA MARSHALL

ALBERT MARSHALL

IVAR MENDEZ

CHERYL BARTLETT

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COVER IMAGE BY ALAN SILYBOY



**Murdena Marshall, Elder, Mi'kmaq Nation**



**Marilyn Iwama, PhD**

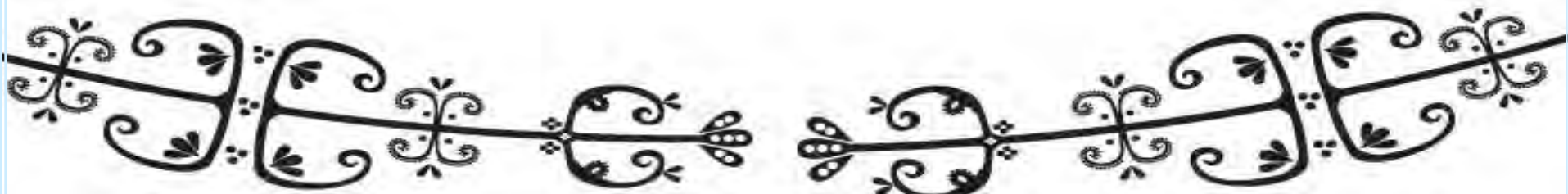
**I Got It  
From an  
Elder**



Conversations  
in Healing  
Language



**Dr. Ivar Mendez, Director,  
Brain Repair Centre, Dalhousie University**



I Got It  
From an  
Elder



Conversations  
in Healing  
Language

“Murdena’s been trying to talk about healing language for a long time. You’d think a fluent Mi’kmaq with graduate training in linguistics from Harvard shouldn’t have much trouble finding an audience.”



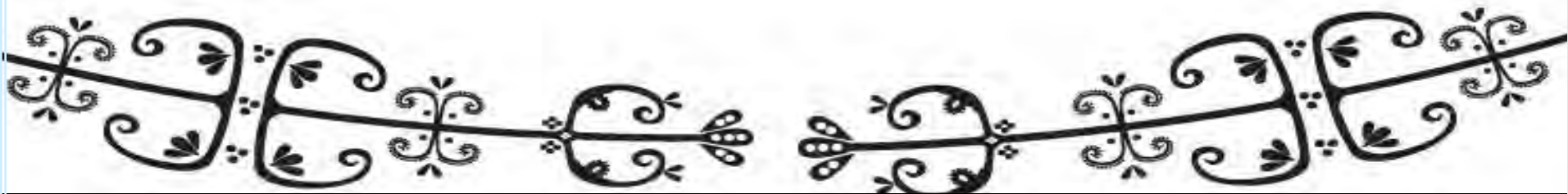
# I Got It From an Elder



Conversations  
in Healing  
Language

“She remembers the naysayers that would ‘jump down my throat, especially the linguists.’ Like the time she said to her Linguist friend, ‘This is the tense that helps you heal, or the signal that you’re on the mend.’ ”





I Got It  
From an  
Elder



Conversations  
in Healing  
Language

“And the Linguist said oh  
Murdena that’s not *healing*  
that’s the *long past*.”

---

“... *talking about  
healing language  
mad as hell ...*”

# the **HEALING TENSE** ... an example “*to be drunk*”

“And so I used the worst word with that Linguist that I could possibly use. And the worst verb in the non-native world, when you talk about Indians, is being drunk. This is how they see us all the time, being drunk. So I took that being drunk and called it *ketkiya*, which means *I am drunk*.”

And I used this verb also because I deal a lot with recovering alcoholics and recovering addicts. And you can use this same verb for sniffing, any mind-altering substance that made you do crazy things and say crazy things.”

# the **HEALING TENSE** ... an example

## Mi'kmaq verb conjugation

“to be drunk”

- ketkiya (present)
- ketkiyayop (simple past)
- ketkiyayasnek (healing)

# the **HEALING TENSE** ... an example

Mi'kmaq

English

ketkiyayop

I was drunk

ketkiyayas ***nek***

I was drunk

the **HEALING TENSE** ... generalize

kesnukwiap – I was sick

kesnukwias ***nek*** – I was sick

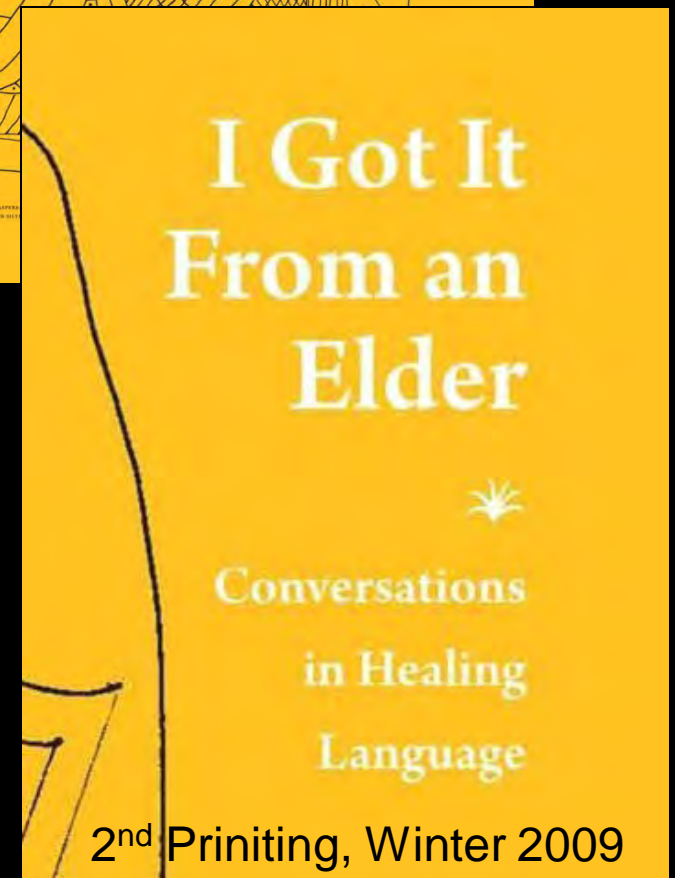
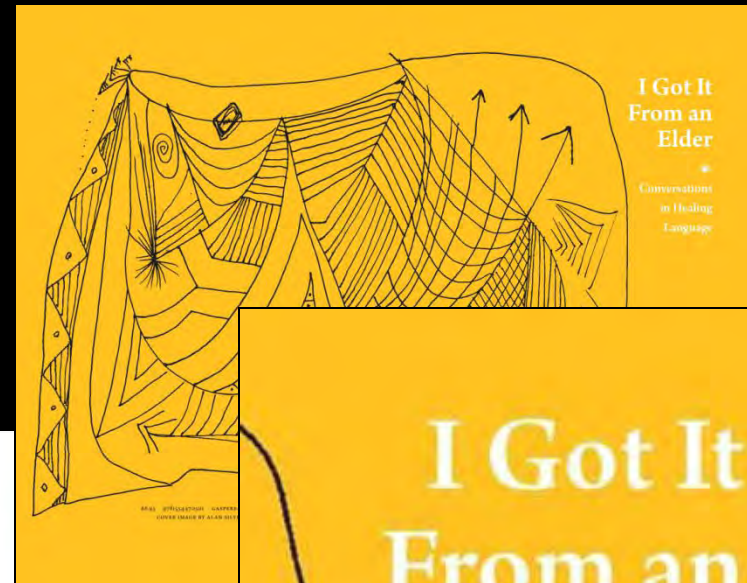
the **HEALING TENSE** ... an example

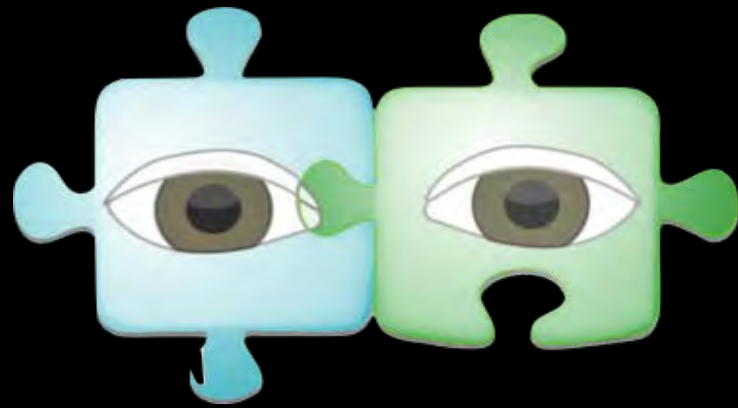
## **WE HEAL TOGETHER**

*" ... when he goes into this healing tense,  
then my attitude has to change ...  
everybody in the household ...  
everybody ... has to abide with him."*

Murdena Marshall

***launched: 28 February 2008***  
**Membertou Trade & Convention Centre**





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

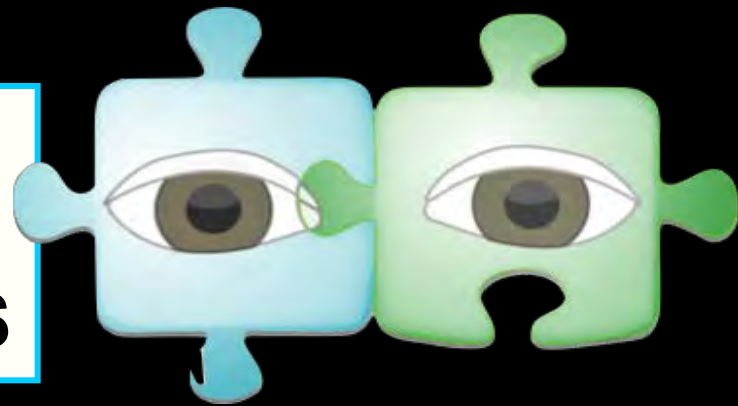
# I Got It From an Elder



Conversations  
in Healing  
Language



**4 “BIG PATTERN”  
KNOWLEDGE  
UNDERSTANDINGS**



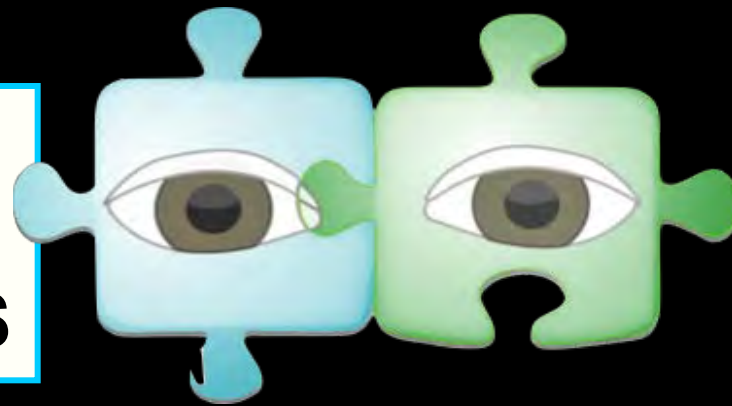
put our *values + actions*  
+ *knowledges* in front of  
us ... like an object

**I Got It  
From an  
Elder**



Conversations  
in Healing  
Language

# 4 “BIG PATTERN” KNOWLEDGE UNDERSTANDINGS



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

OUR WORLDS

ontologies

#1

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

OUR KEY CONCEPTS and ACTIONS

epistemologies

inter

#2

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

OUR LANGUAGES and METHODOLOGIES

methodologies

#3

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

OUR OVERALL KNOWLEDGE OBJECTIVES

goals

#4

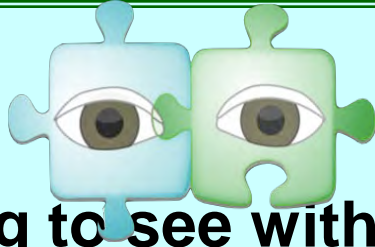
**Two-Eyed Seeing**  
learning to see with the strengths of each & together

OUR OVERALL KNOWLEDGE OBJECTIVES

A complex diagram showing a tree-like structure of knowledge objectives with various branches and nodes.

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

use **VISUALS**



# Two-Eyed Seeing

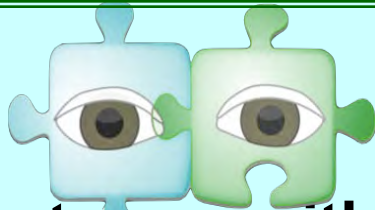
learning to see with the strengths of each & together

## OUR WORLDS

#1

BIG 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 WORLDS

#1

BIG UNDERSTANDING ... IN WORDS

**interconnective**

beings ...  
interconnective  
and animate:

*spirit +  
energy + matter*

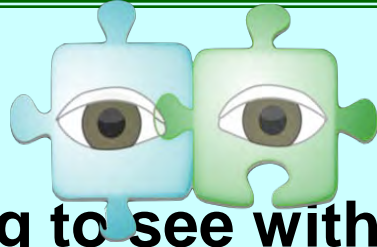
with  
**CONSTANT CHANGE**  
within balance and wholeness

**parts & wholes**

objects ...  
comprised of parts and  
wholes characterized by  
systems and emergences:

*energy + matter*

with  
**EVOLUTION**



# Two-Eyed Seeing

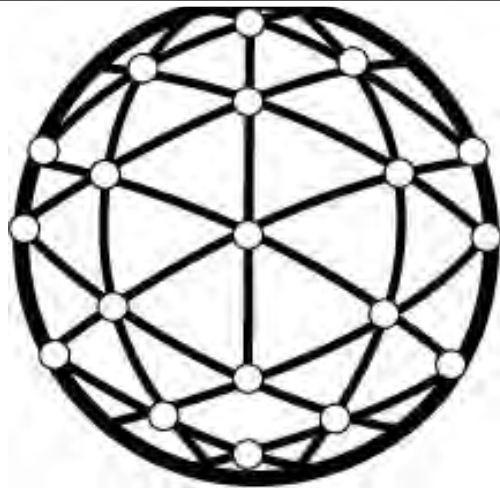
learning to see with the strengths of each & together

## OUR WORLDS

#1

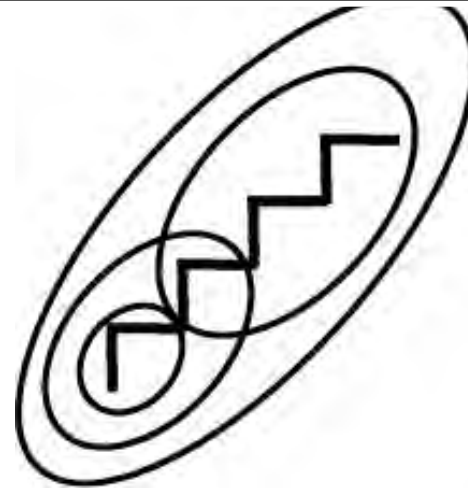
BIG UNDERSTANDING ... IN VISUALS

**interconnective**

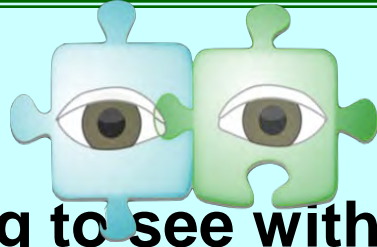


**CONSTANT CHANGE**  
within balance and wholeness

**parts & wholes**



**EVOLUTION**



# Two-Eyed Seeing

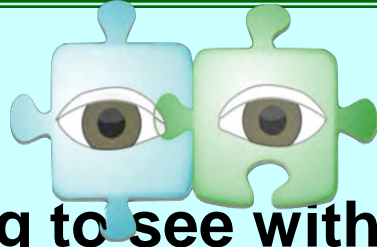
learning to see with the strengths of each & together

## OUR KEY CONCEPTS and ACTIONS

#2

BIG 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

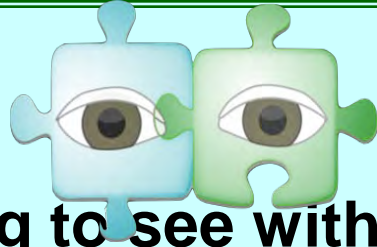
## OUR KEY CONCEPTS and ACTIONS

#2

### BIG UNDERSTANDING ... IN WORDS

- 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

#2

BIG UNDERSTANDING ... IN VISUALS

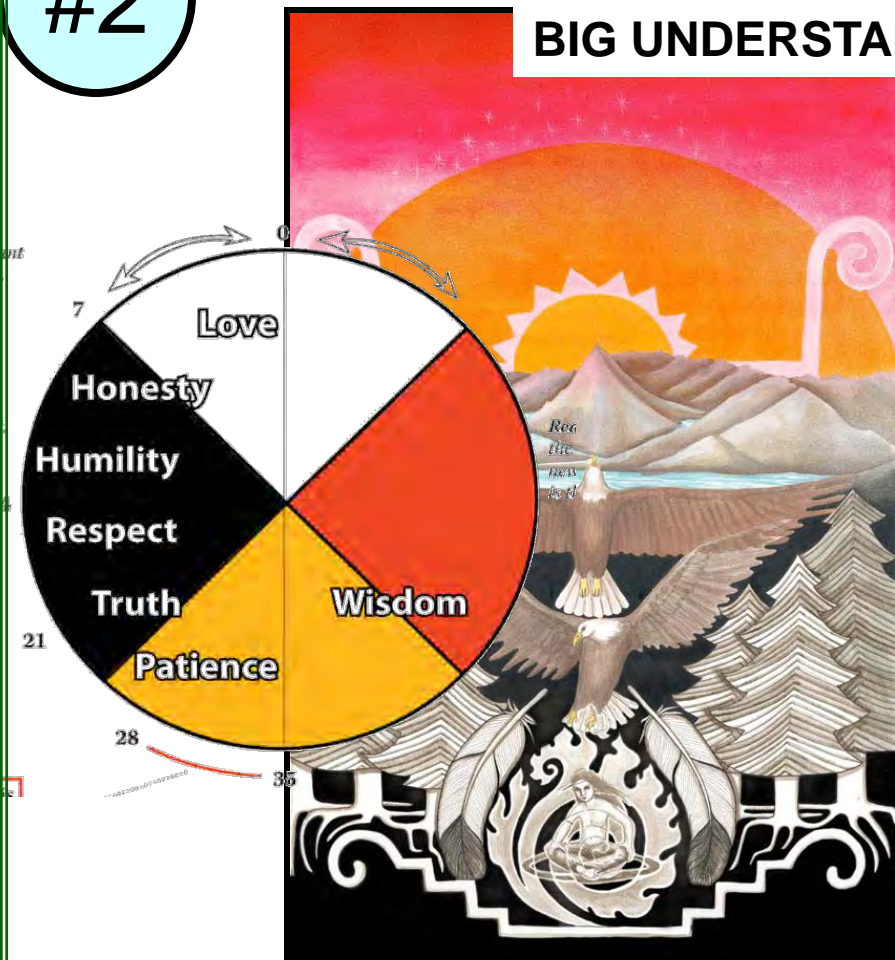
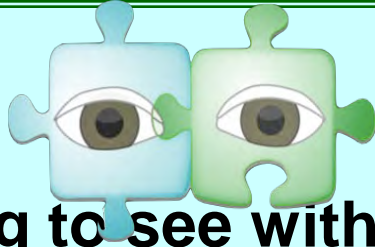


photo credit: NRC





# Two-Eyed Seeing

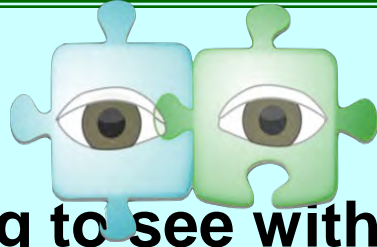
learning to see with the strengths of each & together

## OUR LANGUAGES and METHODOLOGIES

#3

BIG 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

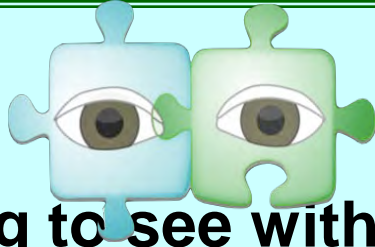
## OUR LANGUAGES and METHODOLOGIES

#3

### BIG UNDERSTANDING ... IN WORDS

*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

#3

BIG UNDERSTANDING ... IN WORDS

Life  
Love  
Land

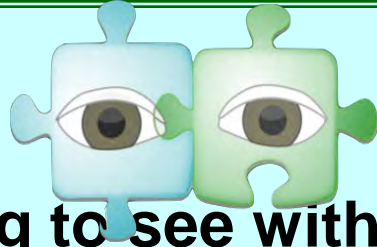
vigour

WEAVING

Math  
&  
Instruments

rigour

UN-WEAVING



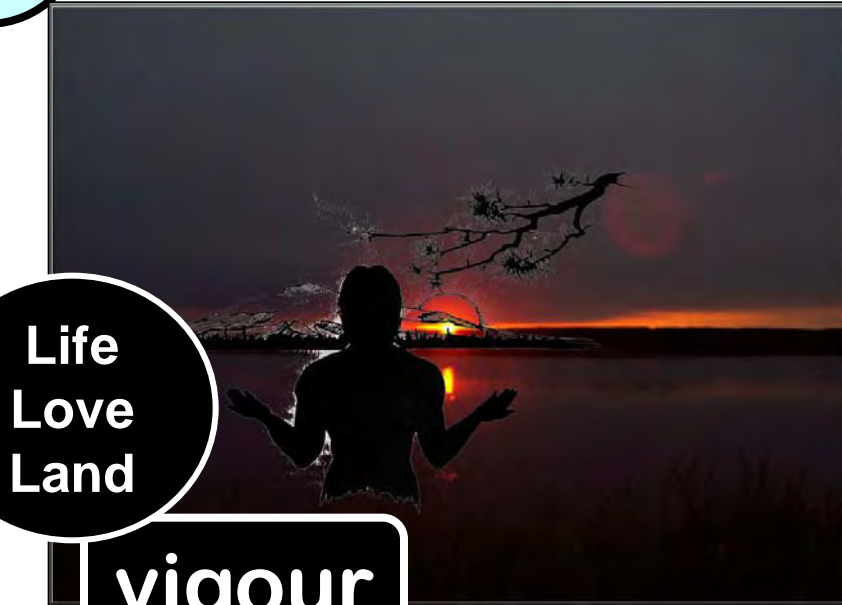
# Two-Eyed Seeing

learning to see with the strengths of each & together

## OUR LANGUAGES and METHODOLOGIES

#3

BIG UNDERSTANDING ... IN VISUALS



Life  
Love  
Land

vigour

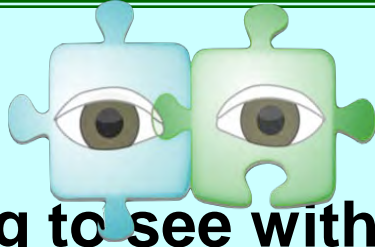
WEAVING



Math  
&  
Instruments

rigour

UN-WEAVING



# Two-Eyed Seeing

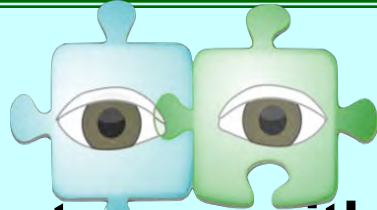
learning to see with the strengths of each & together

## OUR OVERALL KNOWLEDGE OBJECTIVES

#4

BIG QUESTION

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



# Two-Eyed Seeing

learning to see with the strengths of each & together

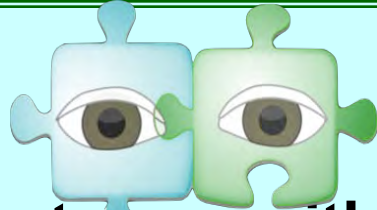
## OUR OVERALL KNOWLEDGE OBJECTIVES

#4

### BIG UNDERSTANDING ... IN WORDS

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

dynamic, testable,  
published knowledge  
independent of  
personal experience  
that can enable  
prediction and control  
(and “progress”)



# Two-Eyed Seeing

learning to see with the strengths of each & together

## OUR OVERALL KNOWLEDGE OBJECTIVES

#4

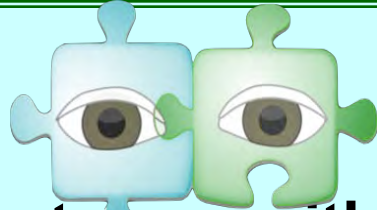
### BIG UNDERSTANDING ... IN WORDS

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

**towards resonance of  
understanding within environment**

dynamic, testable,  
published knowledge  
independent of  
personal experience  
that can enable  
prediction and control  
(and "progress")

**towards construction of  
understanding of environment**



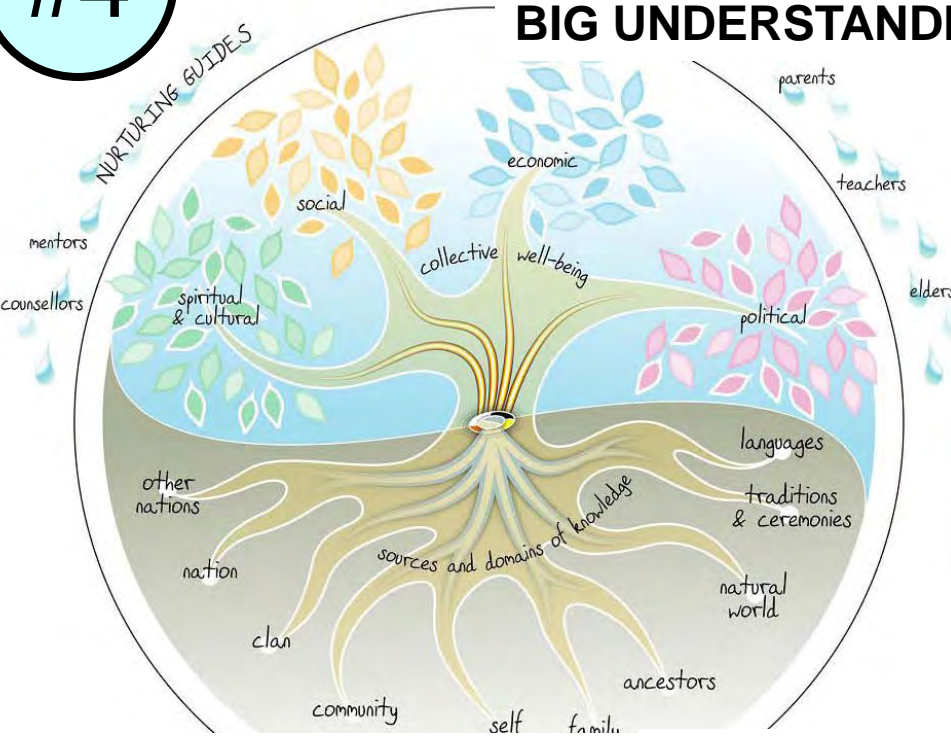
# Two-Eyed Seeing

learning to see with the strengths of each & together

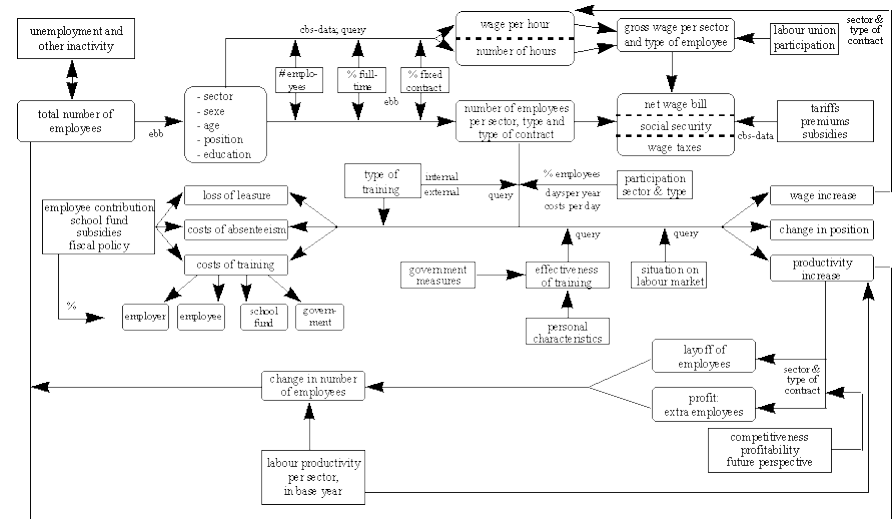
## OUR OVERALL KNOWLEDGE OBJECTIVES

#4

### BIG UNDERSTANDING ... IN VISUALS



from: CCL Aboriginal Learning Knowledge Centre ([www.ccl-cca.ca/CCL](http://www.ccl-cca.ca/CCL))

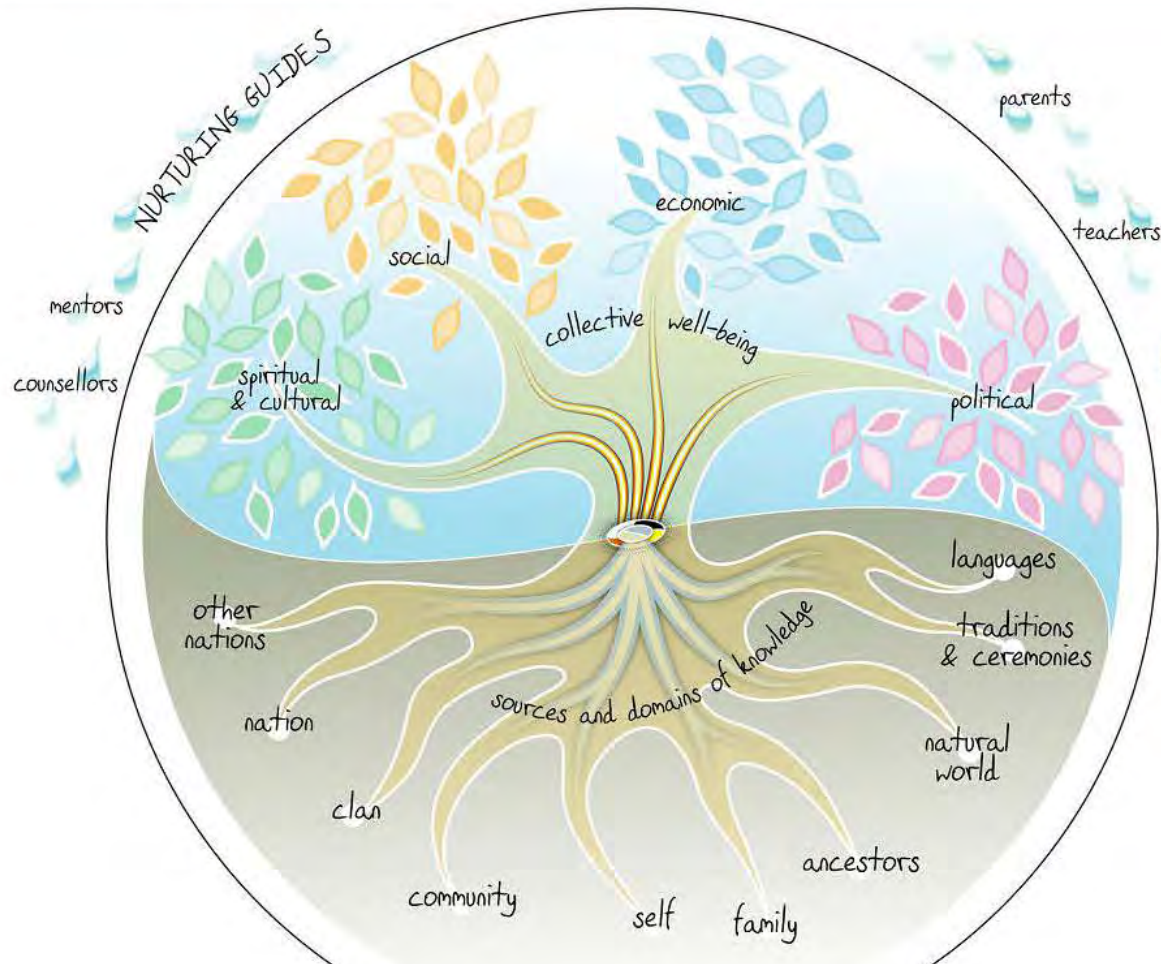


from: [www.leads.ac.uk](http://www.leads.ac.uk)

**towards resonance of understanding within environment**

**towards construction of understanding of environment**

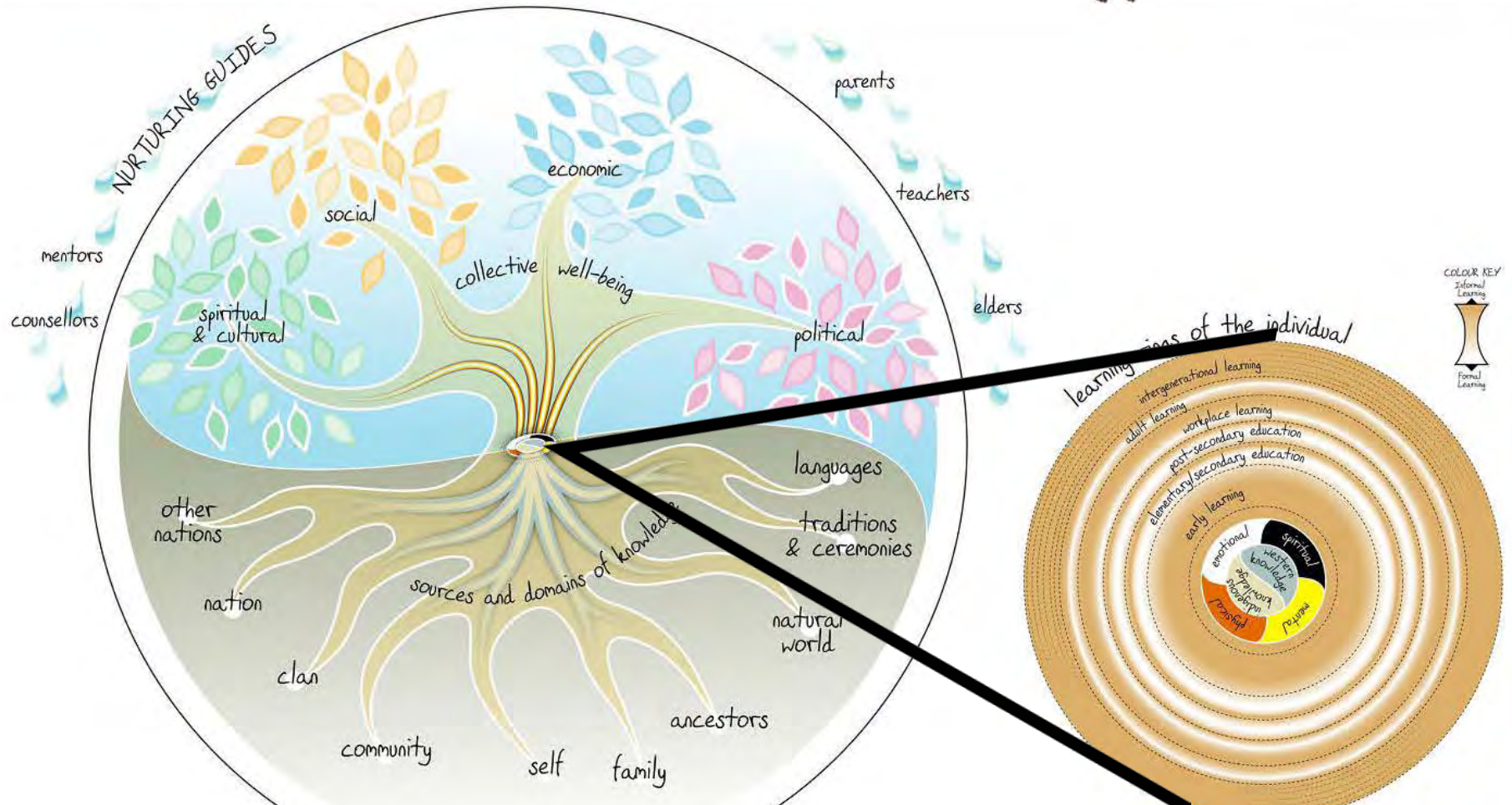




# First Nations Holistic Lifelong Learning Model

from: Canadian Council on Learning: Aboriginal Learning Knowledge Centre

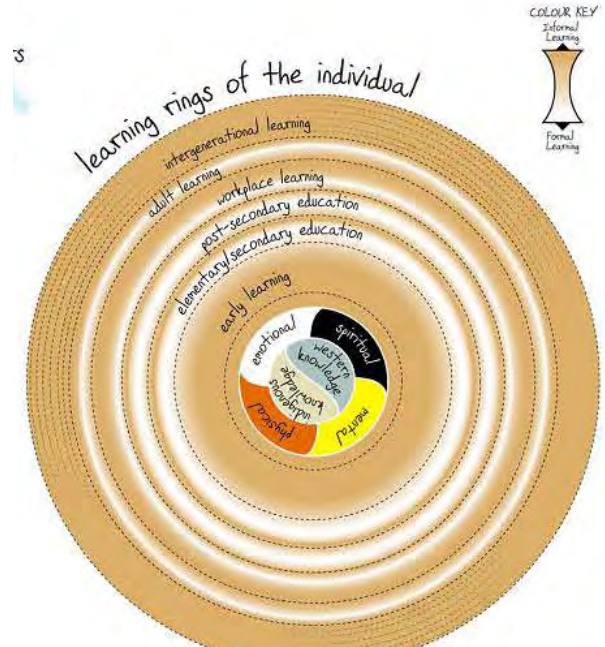
(<http://www.ccl-cca/CCL>)



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from: Canadian Council on Learning: Aboriginal Learning Knowledge Centre

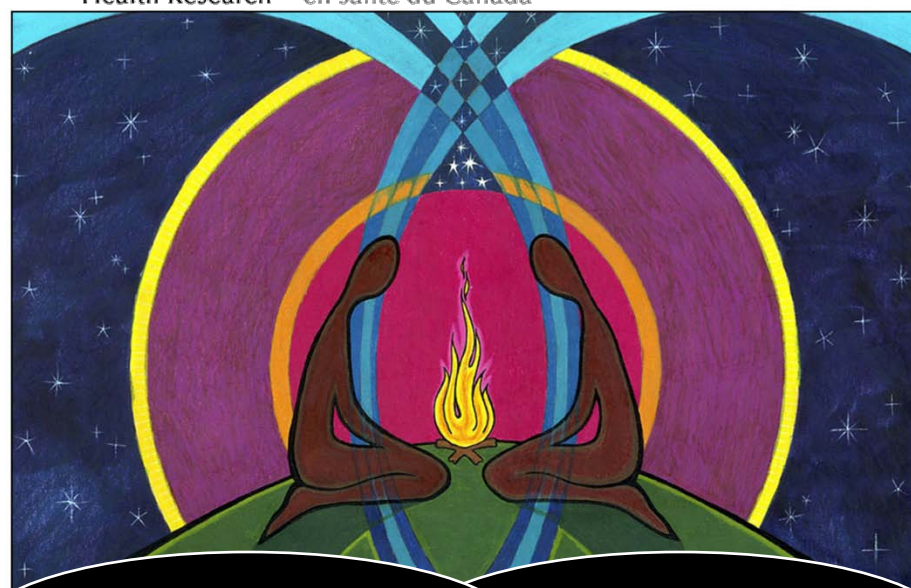
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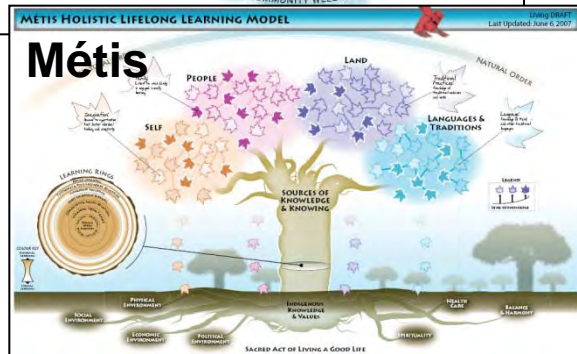
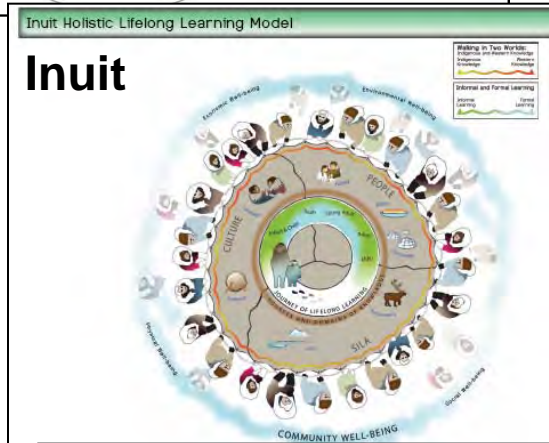
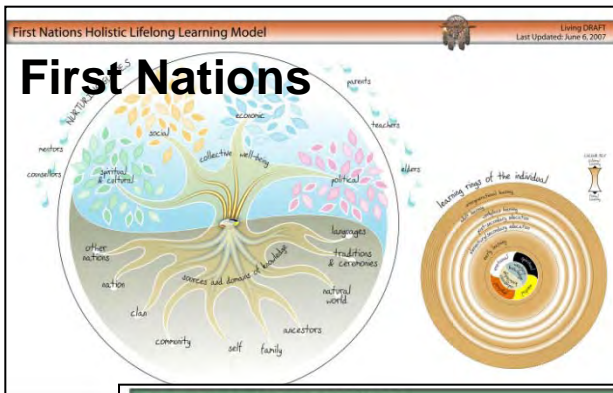


Indigenous Western

## First Nations Holistic Lifelong Learning Model

from: Canadian Council on Learning: Aboriginal Learning Knowledge Centre

(<http://www.ccl-cca/CCL>)



Indigenous Western

from: Canadian Council on Learning: Aboriginal Learning Knowledge Centre (<http://www.ccl-cca/CCL>)

**... not a sheep  
in wolf's clothing**



# CBU's Integrative Science Program



# Challenges (reflections on 15+ years)

- conceptual (science?)
- political (systemic racism? +?)
- jurisdictional (whose program?)
- structural (what kind of program?)
- financial (resources?)
- instructional (who can / should?)
- physical (where?)
- pedagogical (how?)
- recruitment (who and how?)
- audience (why and whose needs?)
- pragmatic (students' lives?)
- **definitional (what is “success”?)**
- pragmatic (graduates do what?)
- capacity development (how nurture & make sustainable?)





# Challenges (reflections on 15+ years)

- conceptual (science?)
- political (systemic racism? +?)
- jurisdictional (whose program?)
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- audience (why and whose needs?)
- pragmatic (students' lives?)
- **definitional (what is “success”?)**
- pragmatic (graduates do what?)
- capacity development (how nurture & make sustainable?)





## **The Greatest Challenge**

# **“SUCCESS”**

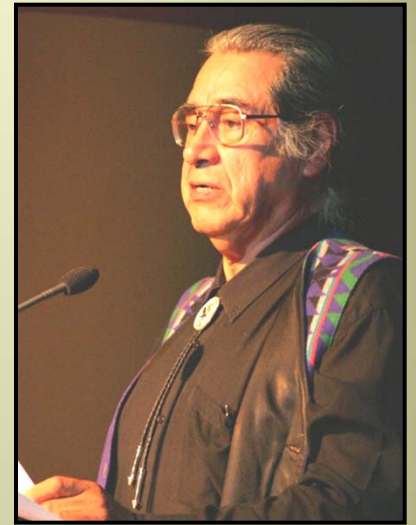
**What is it?**

**How measure it?**

**How nurture it?**

**need for new understandings and  
policies to support life long learning**

**The measurements cannot be those of the mainstream. Standards will be much higher and assessment will be by the Elders. They will ensure that authenticity is there.**



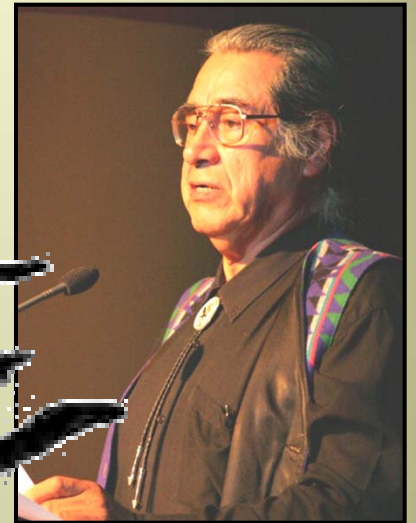
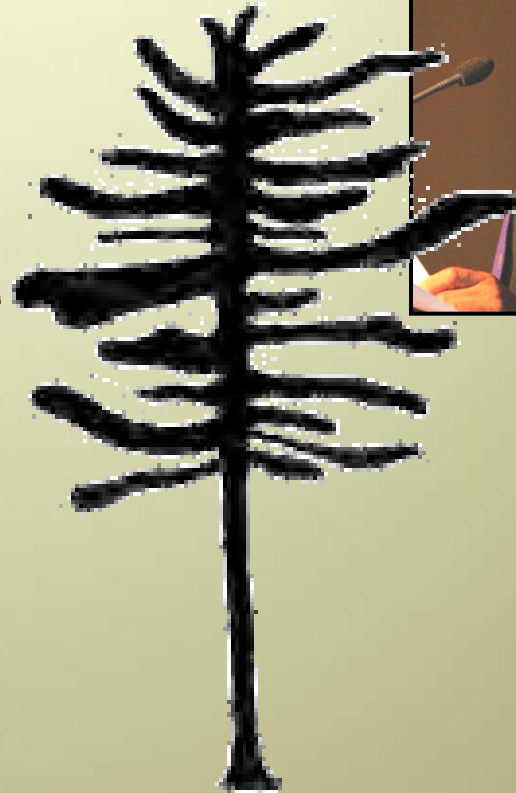
## **“SUCCESS”**

**We must look to the Elders to guide the measuring methodologies.**

**Elders know it is their culture, their children’s lives, and their communities’ long term health that are on the line. And, they know language is very important.**

**Nature clearly teaches  
us this lesson:**

**Seeds germinate  
when the environment  
is appropriate.**



**Elders know that Traditional Knowledge will  
transform the learner, even though many  
years may be required to see this.**

**health (individuals & communities) and  
transmission of Traditional Knowledge  
are strongly related**

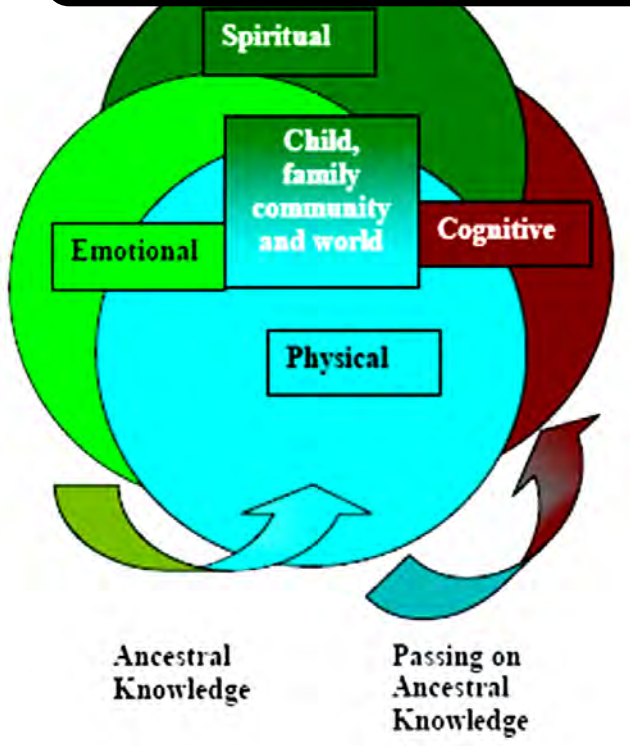
**(source: Elders & others)**

**• in the spirit of growing knowledge •**

# health (individuals & communities) and transmission of Traditional Knowledge are strongly related

(source: Elders & others)

- in the spirit of growing knowledge •



model & visual from: CINDY BLACKSTOCK  
<http://www.win-hec.org/docs/pdfs/cindy.pdf>

(WIN-HEC Journal 2007)

**Wela'lioq**

**Thank you**





Canada Research  
Chairs

Chaires de recherche  
du Canada



Social Sciences and Humanities  
Research Council of Canada

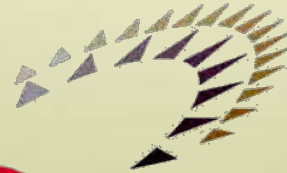
Conseil de recherches en  
sciences humaines du Canada

Canada  
Canada

# Thank you / Wela'liog

# Mi'kmaq Elders

IAPH



Canada Foundation  
for Innovation

Fondation canadienne  
pour l'innovation



Membertou  
Elementary

CIHR IRSC

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



NSERC  
CRSNG



Mi'kmawey Debert



IWK Health Centre  
Foundation



Mermaid Theatre  
of Nova Scotia



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



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

The support of various  
partners and funding agencies is  
gratefully acknowledged.