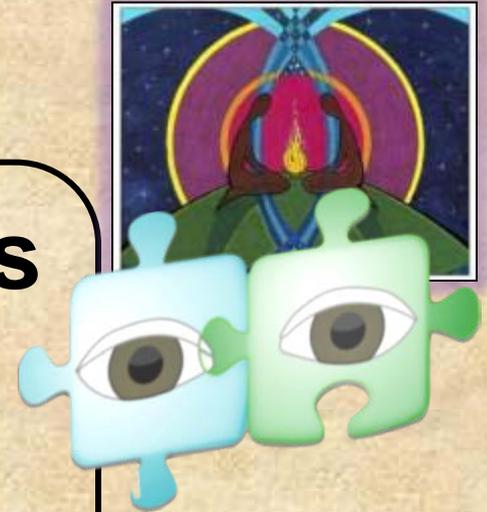


GOVERNMENT OF NOVA SCOTIA – OFFICE OF ABORIGINAL AFFAIRS
LEARNING SEMINAR: *Mi'kmaq Ecological Knowledge:
How to Include this Valuable Resource in Your Work*
4 February 2010; Westin Hotel, Halifax, NS

Traditional Knowledge meets Western Knowledge

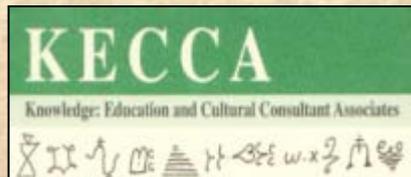
*Two-Eyed Seeing: an old-new way of
bringing together different perspectives*



Albert Marshall¹ and **Cheryl Bartlett²**

¹ Elder and HonDLitt, Eskasoni community, Mi'kmaq Nation

² Canada Research Chair in Integrative Science & Professor of Biology



albertdmarshall@ns.sympatico.ca cheryl_bartlett@cbu.ca www.integrativescience.ca

OUTLINE of PRESENTATION

1. **Co-Learning:**
our way of working collaboratively
2. **Two-Eyed Seeing:**
our Guiding Principle
3. **Traditional Knowledge in various disciplines ... many areas of relevancy**
4. **Benefits and Challenges**
5. **What the Future Holds**



1.

“Co-Learning” ... our way of working collaboratively

Three Basic Ways*

that transdisciplinary research teams organize their collaboration in order to reach integration:

1. deliberation among experts
2. work by subgroup or individual
3. common group learning

**“Co-Learning”
= OUR WAY**

* Pohl, C., Kerkhoff, L., Hadorn, G.H., Bammer, G. 2008. Integration. In: Hadorn, G.H., Hoffman-Riem, H., Biber-Klemm, S., Grossenbacher-Mansuy, W., Joye, D., Phol, C., Wiesmann, U., and Zemp, E. (eds), Handbook of Transdisciplinary Research. (pp. 411-424). Heidelberg, Germany: Springer.



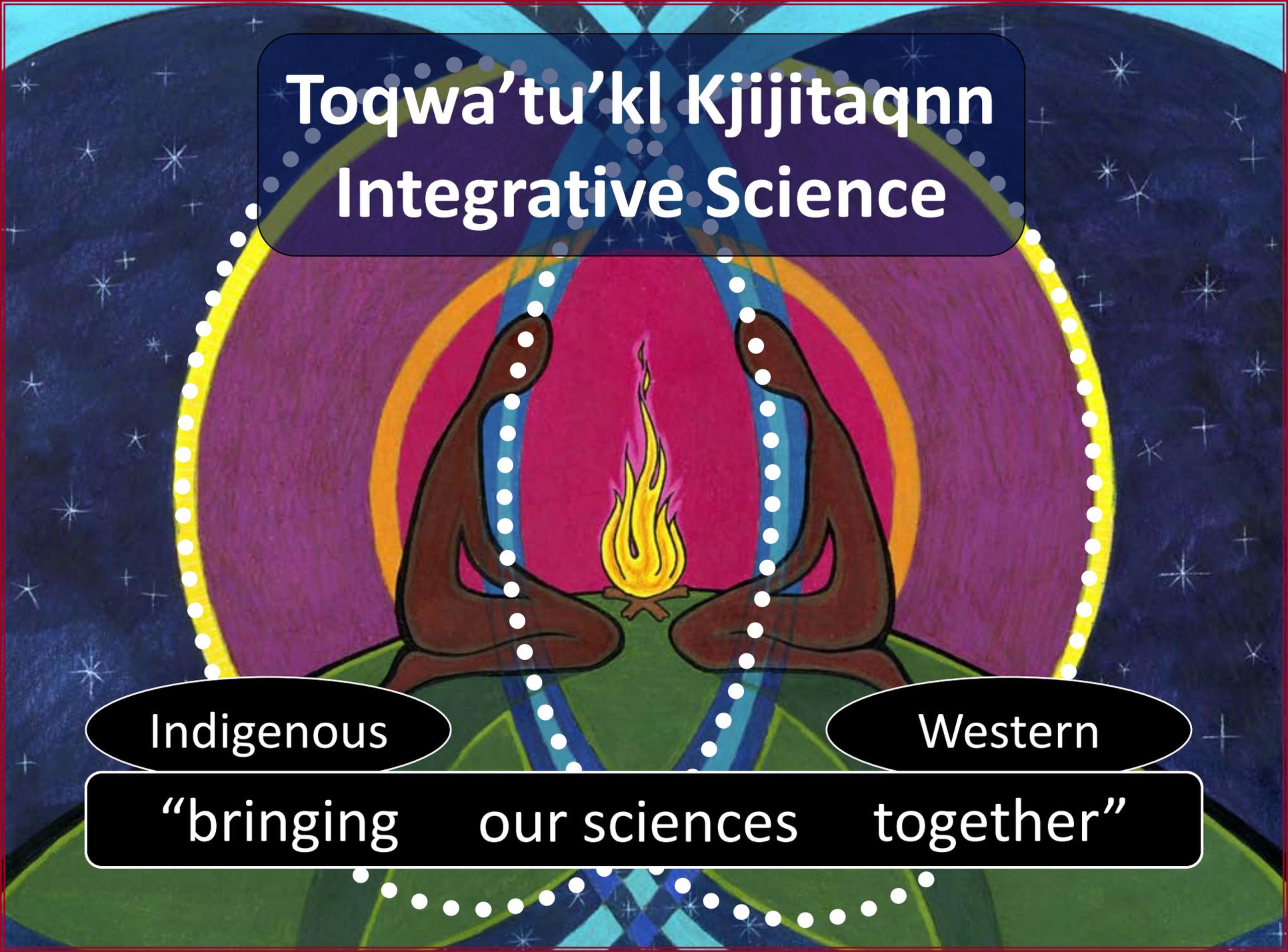
“Co-Learning” pioneered within Integrative Science research program at Cape Breton University in conjunction with Mi’kmaq Elders and educators ... our approach continues to evolve.



DEFINITION: “Integrative Science”

What: bringing together Indigenous and Western scientific knowledges and ways of knowing

Why: for the purposes of science education, science research, science applications, and science outreach to youth and communities



Toqwa'tu'kl Kijitaqnn Integrative Science

Indigenous

Western

“bringing our sciences together”

“Co-Learning” pioneered within
Integrative Science research program at
Cape Breton University in conjunction with
Mi’kmaq Elders and educators ...



OUR APPROACH:

- **participatory, action, and praxis-based research:**
within projects ... teach ourselves how; meaningful context
- **side by side:**
Traditional Knowledge and mainstream knowledge
- **integrative:** respectful acknowledgement of distinct
nature of each knowledge system (content not “merged”)
- **knowledge systems:** “big picture” understandings for
ontologies, epistemologies, axiologies, and methodologies

“Co-Learning” pioneered within Integrative Science research program at Cape Breton University in conjunction with Mi’kmaq Elders and educators ... our approach continues to evolve.



Why say: “continues to evolve”?

ONE REASON: Newhouse (2004) indicates the work of grappling with each other’s cognitive universes and learning to see through the minds of others is the work of generations to come.

Newhouse, D. 2004. Indigenous knowledge in a multicultural world. *Native Studies Review* 15(2): 139-154.

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



Science?



view "SCIENCE"
inclusively

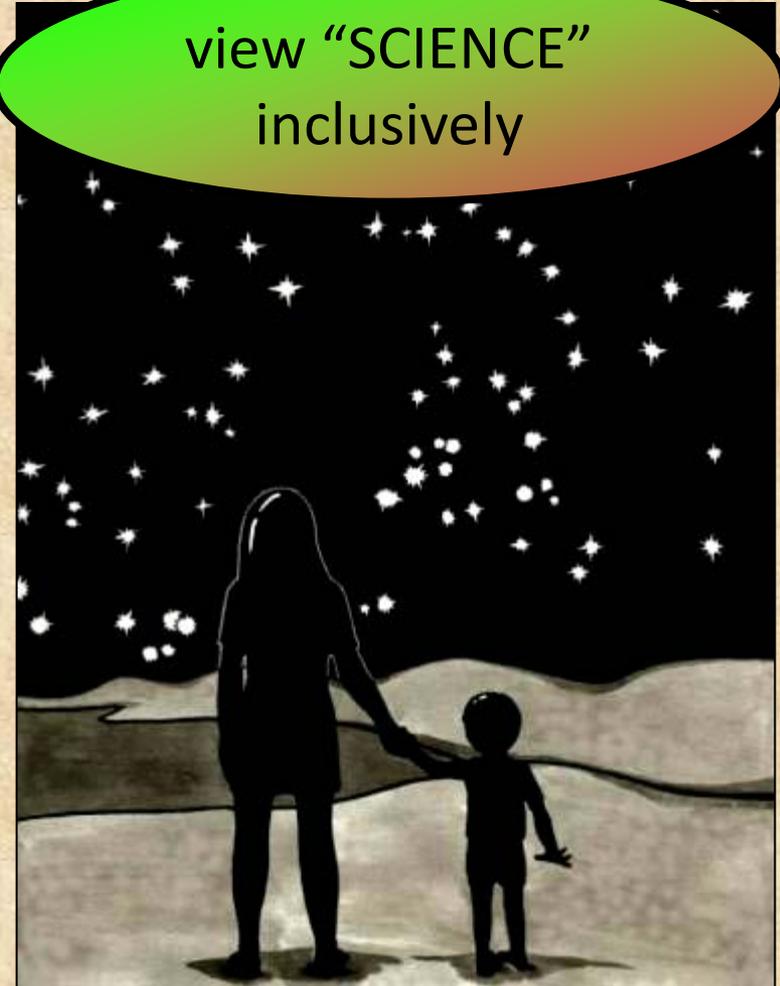
*Indigenous and Western
scientific knowledges are
based in observations
of the natural world.*



stories of our interactions
with and within nature
... stories created and understood
using our diverse
pattern smarts

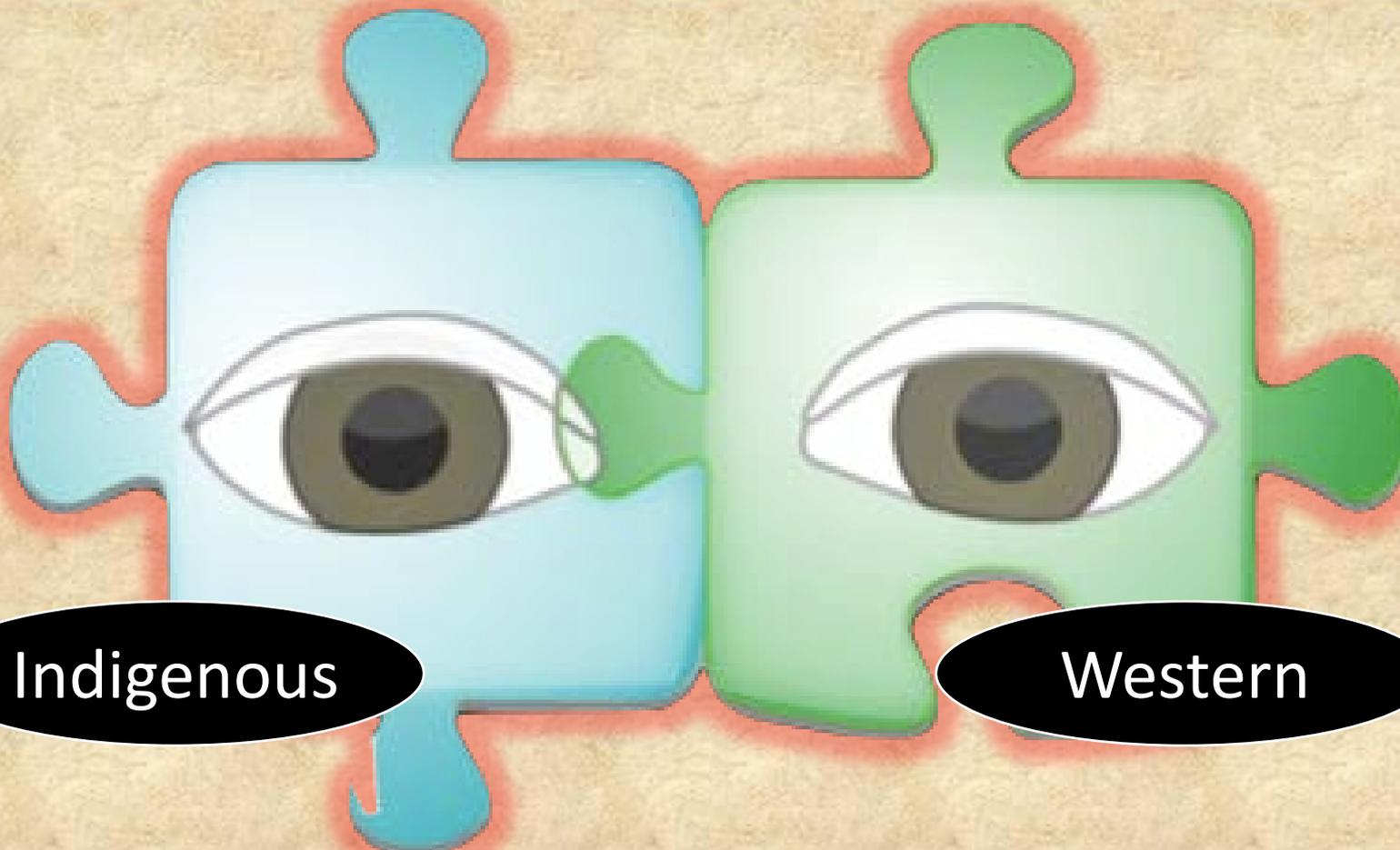
Science is dynamic,
pattern-based knowledge.

view "SCIENCE"
inclusively



2.

Etuaptmumk – Two-Eyed Seeing

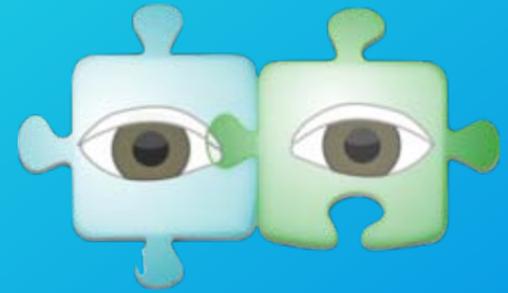


Indigenous

Western

Two-Eyed Seeing

Hard to convey as does not fit into any particular subject area or discipline ... is about life ... what you do, what kind of responsibilities you have ... is a Guiding Principle for how one lives while on Earth that covers all aspects of our lives: social, economic, environmental, etc.



Advantage:

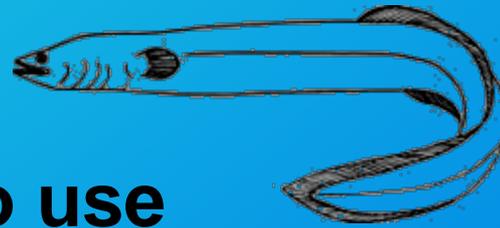
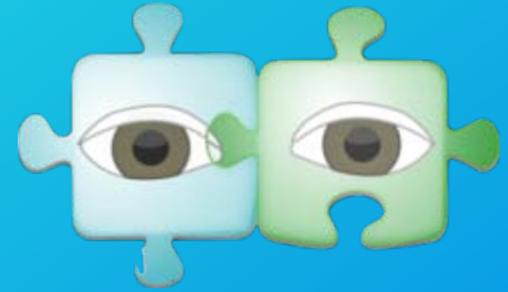
Because you are always fine tuning your mind into different places at once, you are always looking for another perspective and better way of doing things.



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 ...

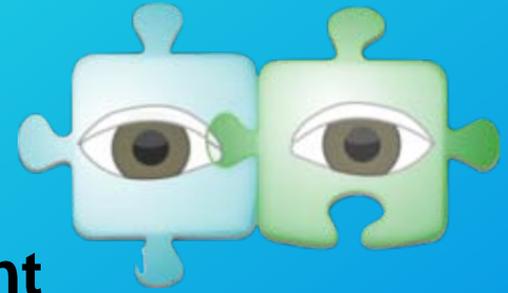
... and learn to use both these eyes together, for the benefit of all.

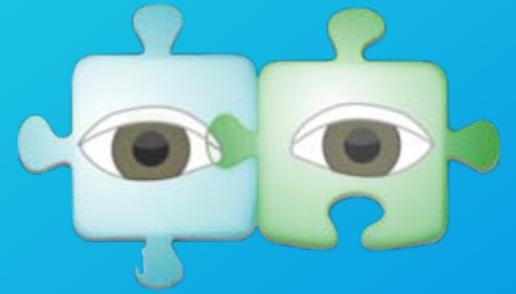


Two-Eyed Seeing

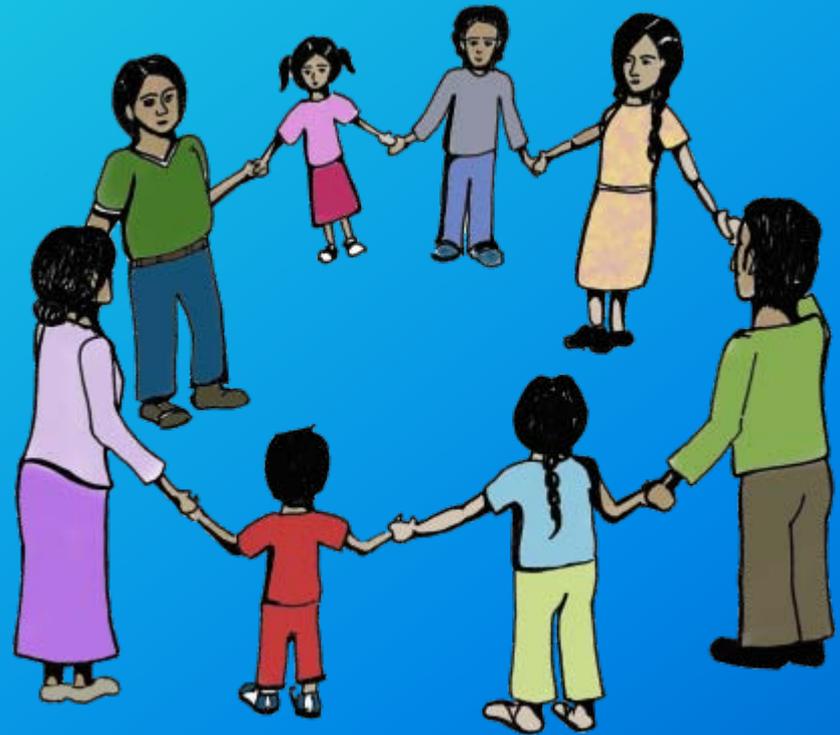
NS Office of Aboriginal Affairs is a good entity to encourage involvement of TES because there is so much more that could be done through collaboration between government and First Nations.

It is through living up to the spirit of collaboration that issues will not bog down or get caught up in past ill feelings. With TES, relationships are now open because of mutual respect and understanding.

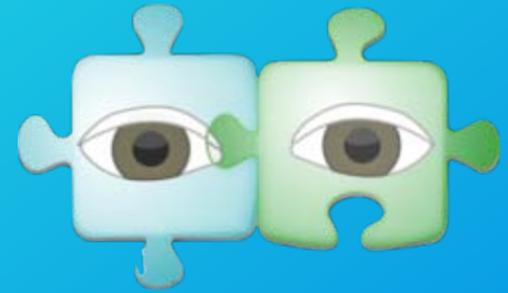




**It is not
enough to go
through life
with one
perspective;
we must
embrace
all the tools
we have ...**



Consciousness of Knowing

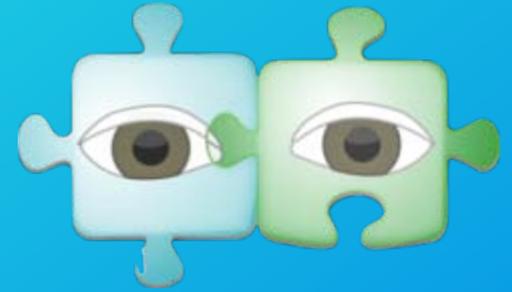


artist Basma Kavanagh

*... 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.

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

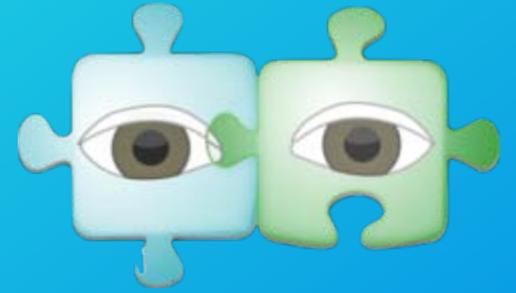


**The onus is on the
person to look at our
natural world with
two perspectives.**

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



artist Basma Kavanagh



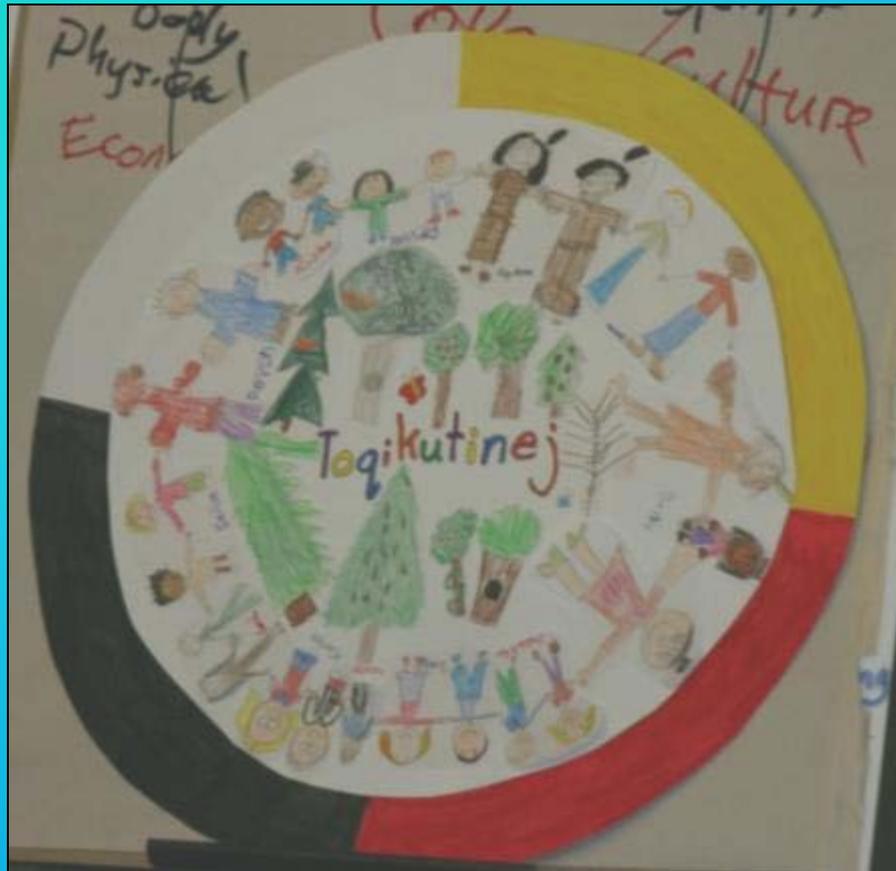
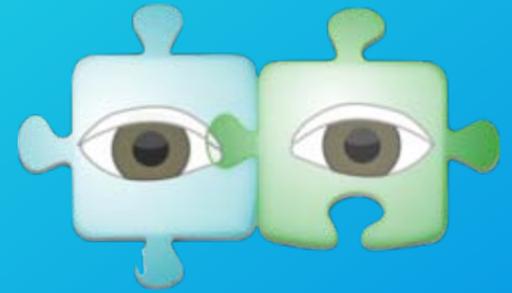
**Humans are a
very small part of
the whole.**

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

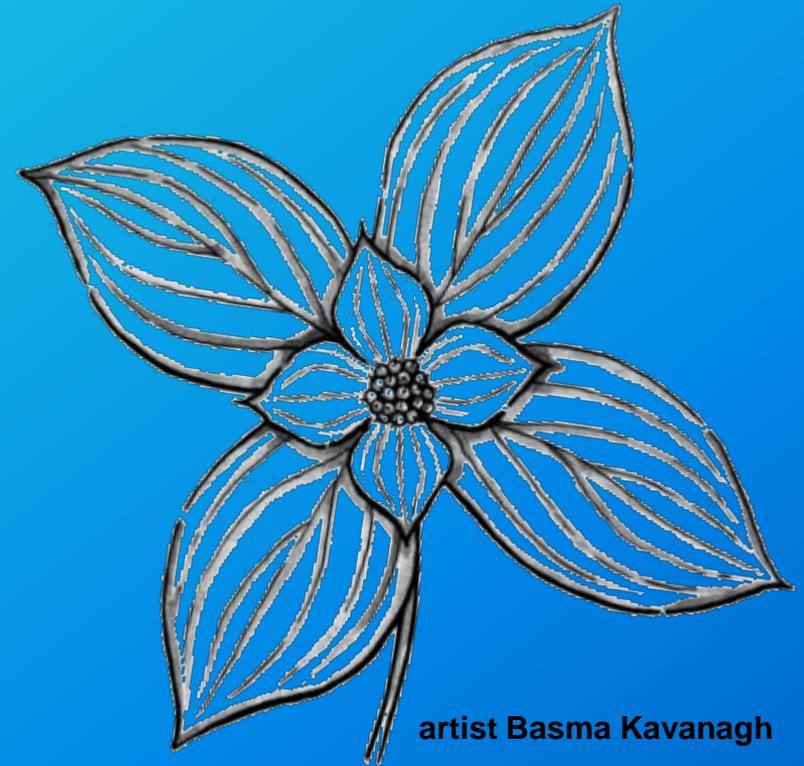


artist Basma Kavanagh

Our language takes us into a Life Long Journey.



artwork: Eskasoni Elementary School Children

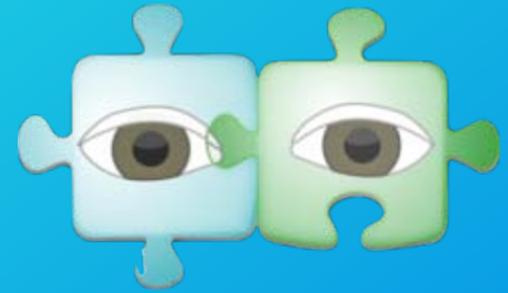


artist Basma Kavanagh

**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.**

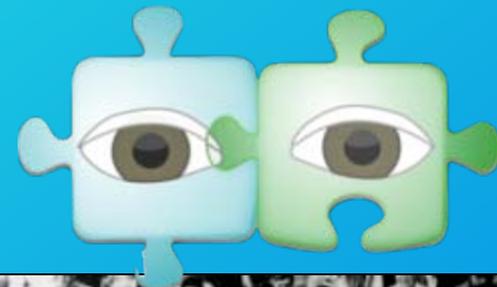
We must pass it on.



artist Basma Kavanagh

As Elders in Our Time

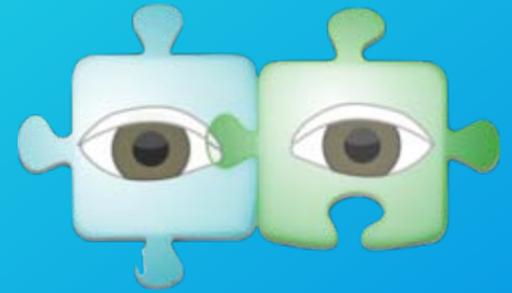
We seek to be a conduit for wisdom of our Ancestors. We seek to see with “Two-Eyes” ... to take the accomplishments of the white man’s ways further by blending it with the wisdom of our Ancestors.



Netukulimk

“sustaining ourselves”

yes ... but really is a
much richer concept;
it is holistic.



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



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



http://images.enature.com/fishes/fishes_1/fi0016_11.jpg



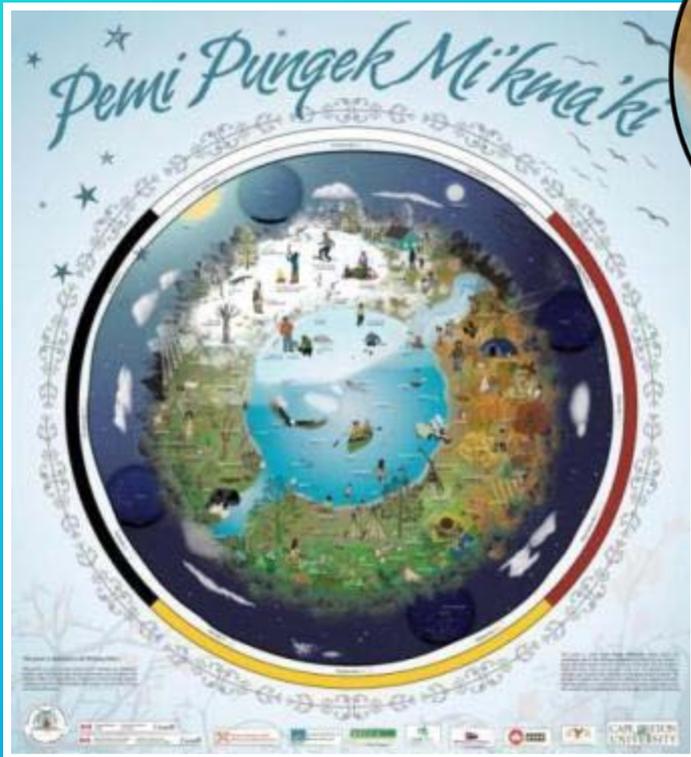
http://www.krisweb.com/krisshoopscot/krisdb/html/krisweb/aqualife/atlantic_salmon_asc_beland.jpg



Netukulimk

“sustaining ourselves”

yes ... but really is a
much richer concept;
it is holistic.



... takes you into a place where you are very
conscious of how the human two-leggeds
are interdependent and interconnective with
the natural world ... this philosophy /
ideology is so ingrained in your
subconscious that you are constantly aware
of not creating an imbalance ...

Netukulimk



Your consciousness is constantly being challenged with the physical part of you and the Guiding Principle is the spirit which creates in you this sense of balance which stops you from overharvesting or exploitation.



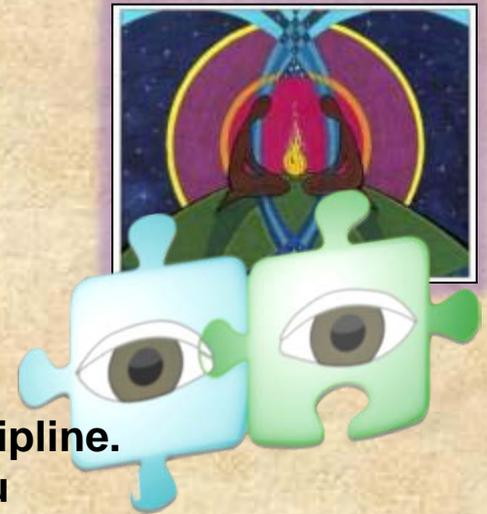
You are very cognizant of the fact that you have to make sure that your actions today do not compromise the next Seven Generations ... their opportunities and abilities to live in harmony with the natural world. There is this idea that you must always leave something after you, for someone else coming along.

3.

Traditional Knowledge in various disciplines

many, many areas of relevancy

REPEAT: Two-Eyed Seeing does not fit into any particular discipline. It is about life ... what you do, what kind of responsibilities you have. It is a Guiding Principle for how one lives while on Earth that covers all aspects of our lives: social, economic, environmental, etc.



**ALL with the same thematic hope:
an opportunity to put forth Mi'kmaq Stories
as to how people should live
harmoniously with the natural world.**

Traditional Knowledge in various disciplines

many, many areas of relevancy

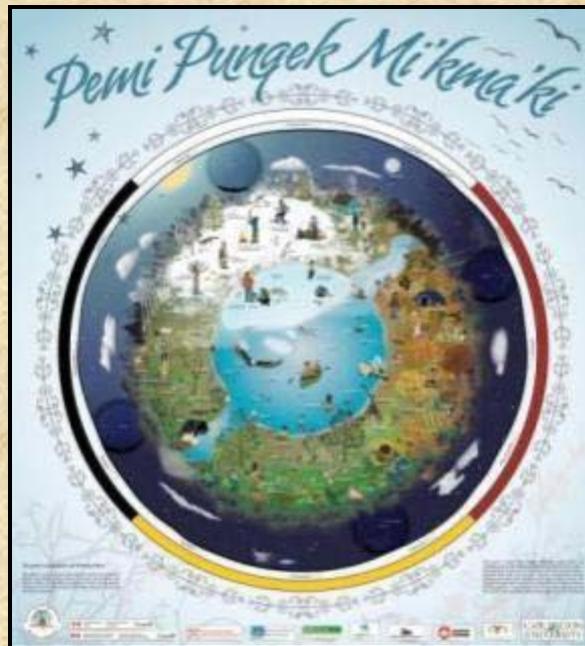
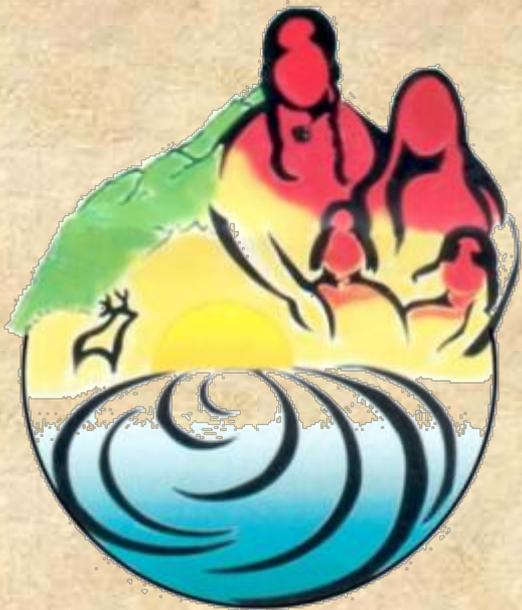


image: Mi'kmaq Family and Children's Services

Traditional Knowledge in various disciplines

many, many areas of relevancy

- SARA: Species at Risk Act
- Sustainable energy
- Fisheries: research, policy, practices
- Forestry: research, policy, practices
- Sustainable ecosystems: research, policy
- Elders' aging: research, policy
- Cultural knowledge – healthy society: research, promotion
- Aboriginal health: research, policy, promotion
- Aboriginal education: research, development, policy



4a.

Benefits

**Integrative Science and Two-Eyed Seeing:
transcultural (i.e., more than one worldview)**

- Aboriginal community capacity growing
- Aboriginal knowledge inclusivity
- Aboriginal empowerment

Elder Albert Marshall:

Two-Eyed Seeing creates the opportunity for Elders and other Knowledge Holders of the Mi'kmaq Nation to put forth our own stories as to how people should live harmoniously with the natural world.



Benefits

Elders elsewhere ...
coast to coast to coast



Camp programs help students use “Two-Eyed Seeing” on the Land

This summer, students from across Nunavut participated in pilot “integrative science” land camps run in partnership with the Department of Environment, Department of Education and several local organizations and individuals. The pilot camp curriculum development project involved a multi-stakeholder working group including individuals from Qikiqani Inuit Association, Department of Culture, Language, Elders and Youth, the Nunavut Arctic College, and elders from the Department of Education, all with the common vision of engaging Nunavut youth in outdoor, traditional and scientific learning activities. Dr. Cheryl Bartlett, Canada Research Chair in Integrative Science and elder Albert Marshall, of Eskasoni First Nation were also part of the working group. Albert Marshall uses the term “Two-Eyed Seeing” to describe the process of bringing science and Indigenous knowledge into dialogue to create greater understanding. To him, Two-Eyed Seeing is “Learning to see with one eye open to the strengths of Indigenous ways of knowing, and from the other eye with the strengths of Western ways of knowing, and using both these eyes together for the benefit of all”.

News from
across **NUNAVUT**



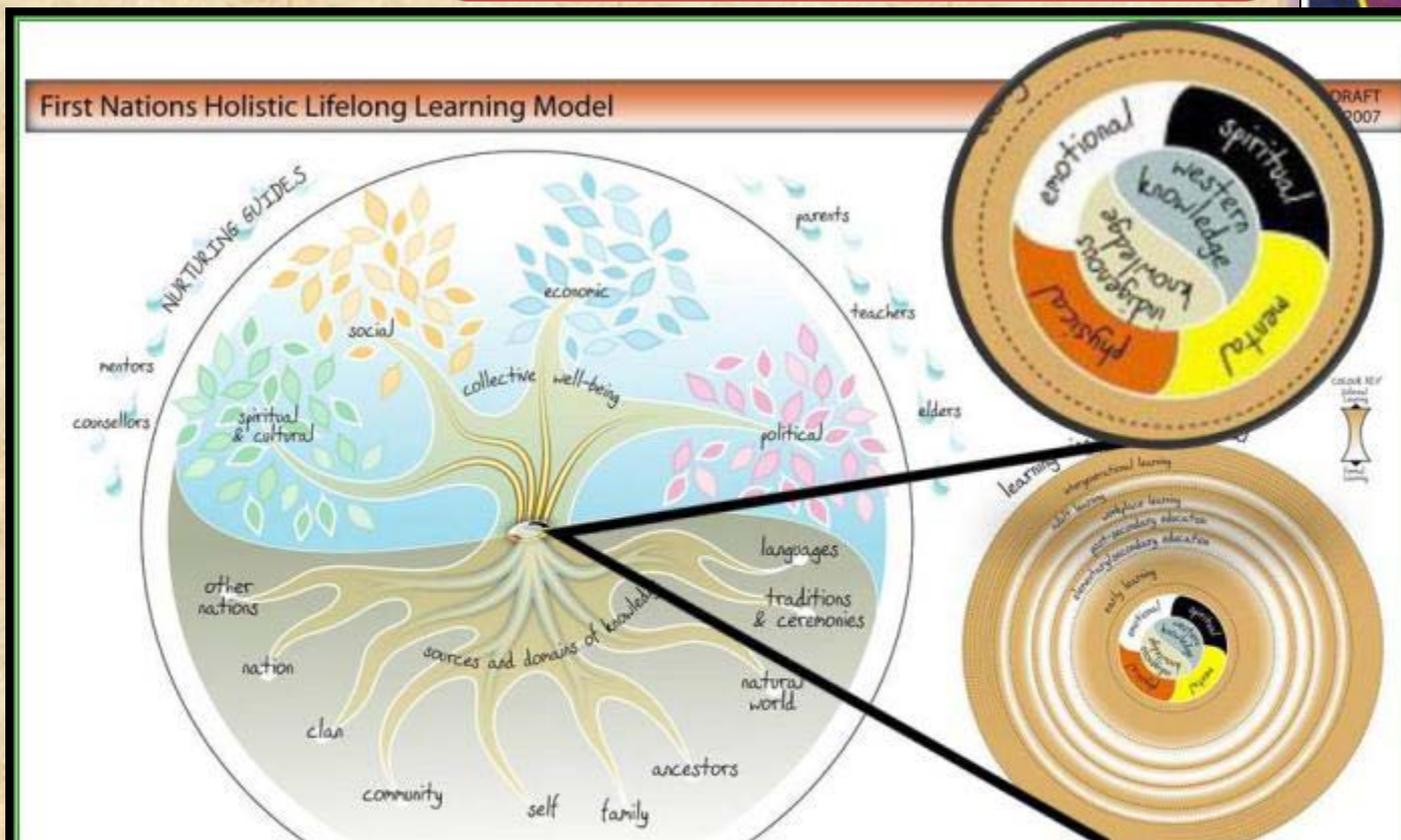
Wildlife Tracks

9

Fall/UKi aksaaq 20

Benefits

CCL's Aboriginal Learning Knowledge Centre



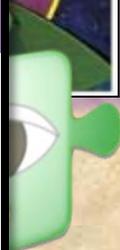
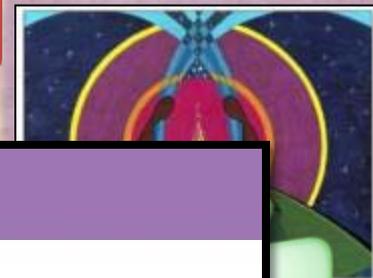
First Nations Holistic Lifelong Learning Model

from: Canadian Council on Learning: Aboriginal Learning Knowledge Centre

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

Benefits

educators across Canada



Green Teacher

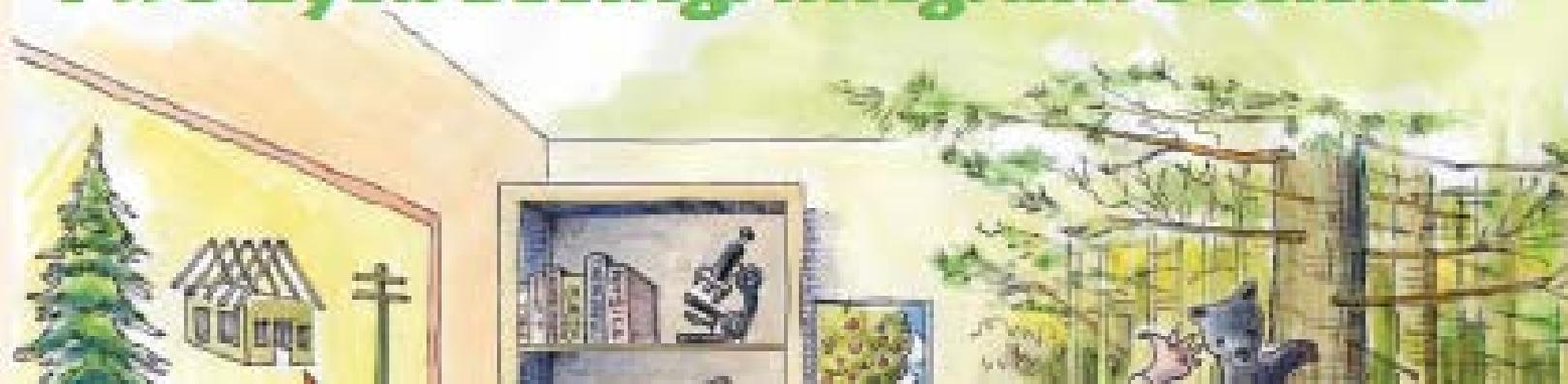
EDUCATION FOR PLANET EARTH

\$7.95

Fall 2009

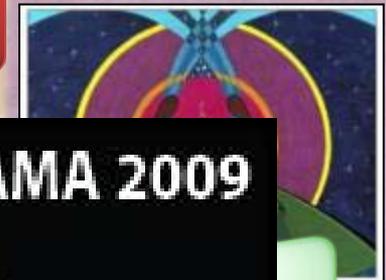
Issue 86

Two-Eyed Seeing: Integrative Science



Benefits

global science outreach



Canada and IYA 2009 | Canada et l'AMA 2009

Solstice - 2009.12.21

Education and Outreach | Éducation et vulgarisation



Returnway Trading Guide | Guide de retour



Magical Program



Planetarium, Observatoire de Québec



Lighthouse Program and Other Programs



Planetarium



Planetarium, Observatoire de Québec



Planetarium, Observatoire de Québec



Planetarium, Observatoire de Québec

THE UNIVERSE
YOURS TO DISCOVER



INTERNATIONAL YEAR OF
ASTRONOMY
2009



Mun and the Seven Bird Hunters



Planetarium, Observatoire de Québec



Planetarium, Observatoire de Québec



Planetarium, Observatoire de Québec



Planetarium, Observatoire de Québec



Benefits

addressing complex
emergent problems

Integrative Science and Two-Eyed Seeing:
transcultural (more than one worldview)
plus transdisciplinary

McGregor (2010): The problems of the world cannot be solved with disciplinary knowledge. **Transdisciplinarity** is a new way of creating knowledge. It is about taking down the walls within the academy while simultaneously taking down the boundaries between the academy and civil society to address the complex, emergent problems of humanity ... rather than just bits and parts of symptoms of the problems.

from: Intellectual space work. *University Affairs* 51 (1): 3.

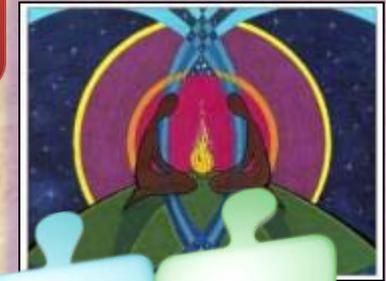


images: <http://profalbrecht.files.wordpress.com/2009/12/worldview1.jpg>

Benefits

Collaborative Environmental Planning Initiative (CEPI)

Integrative Science and Two-Eyed Seeing:
transcultural (more than one worldview)
plus transdisciplinary



<http://profalbrecht.files.wordpress.com/2009/12/worldview1.jpg>



4b.

Challenges

acknowledging the difference between

*“information gathering
to enrich one worldview”*

and

*“knowledges from two
(or more) worldviews
working together”*



images: <http://profalbrecht.files.wordpress.com/2009/12/worldview1.jpg>

Challenges

Ermine (2007): Fundamental question of cultural encounters is “How can we reconcile worldviews?” He suggests the implementation of **ethical space** in which we make “a venue to step out of our allegiances, to detach from the cages of our mental worlds and assume a position where human-to-human dialogue can occur.”

Ermine et al. (2004) say implementation of ethical space first requires an affirmation of its existence. The ethical space cannot exist without this affirmation.

Ermine, W. 2007. The ethical space of engagement. *Indigenous Law Journal* 6(1): 193-203.

Ermine, W., Sinclair, R., and Jeffrey, B. 2004. The ethics of research involving Indigenous peoples. Report of the Indigenous Peoples' Health Research Centre to the Interagency Advisory Panel on Research Ethics.



Challenges

affirming need to enter ethical space
... and learning to take first steps

bewilderment
uncertainty
reluctance
racism
other



ontologies

epistemologies

methodologies

goals

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

Two-Eyed Seeing
learning to see with the strengths of each & together
OUR KEY CONCEPTS and ACTIONS

Two-Eyed Seeing
learning to see with the strengths of each & together
OUR LANGUAGES and METHODOLOGIES

Two-Eyed Seeing
learning to see with the strengths of each & together
OUR OVERALL KNOWLEDGE OBJECTIVES

Challenges

affirming need to enter ethical space
... and learning to take first steps

non-receptivity:
*"just philosophical;
not practical"*



ontologies

epistemologies

methodologies

goals

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

Two-Eyed Seeing
learning to see with the strengths of each & together
OUR KEY CONCEPTS and ACTIONS

Two-Eyed Seeing
learning to see with the strengths of each & together
OUR LANGUAGES and METHODOLOGIES

Two-Eyed Seeing
learning to see with the strengths of each & together
OUR OVERALL KNOWLEDGE OBJECTIVES



Challenges

Co-Learning & Two-Eyed Seeing
community - university - others



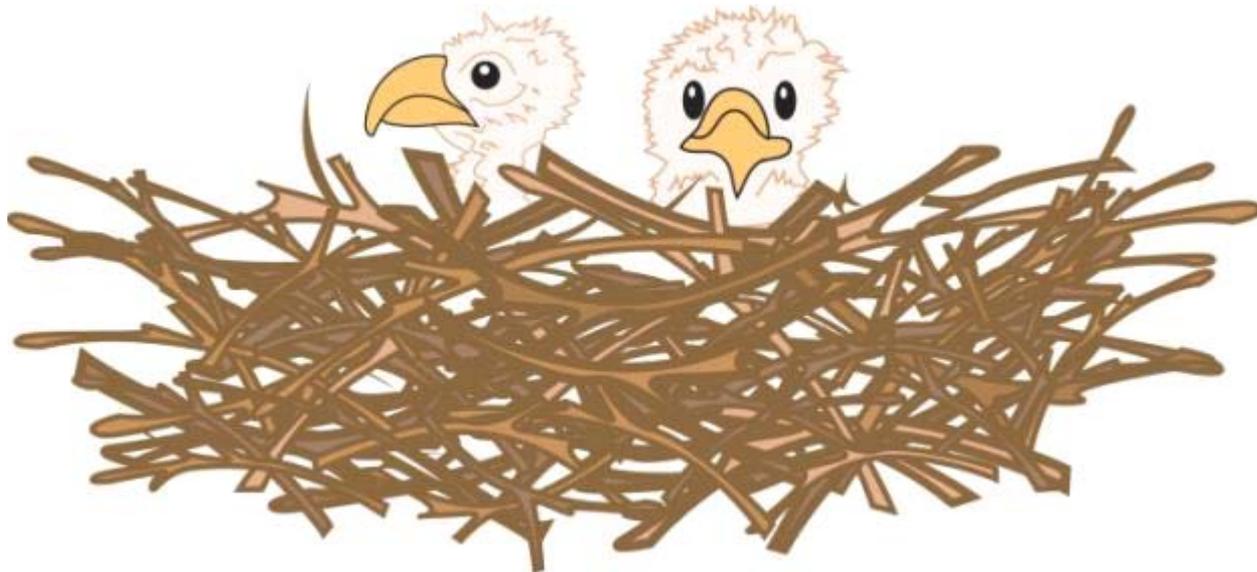
Challenges

Co-Learning & Two-Eyed Seeing
community - university - others

**accepting diverse
styles of evidence**



What is evidence? Whose knowledge and what application contexts?



What is evidence?

Whose knowledge and what application contexts?

Who wants this evidence?

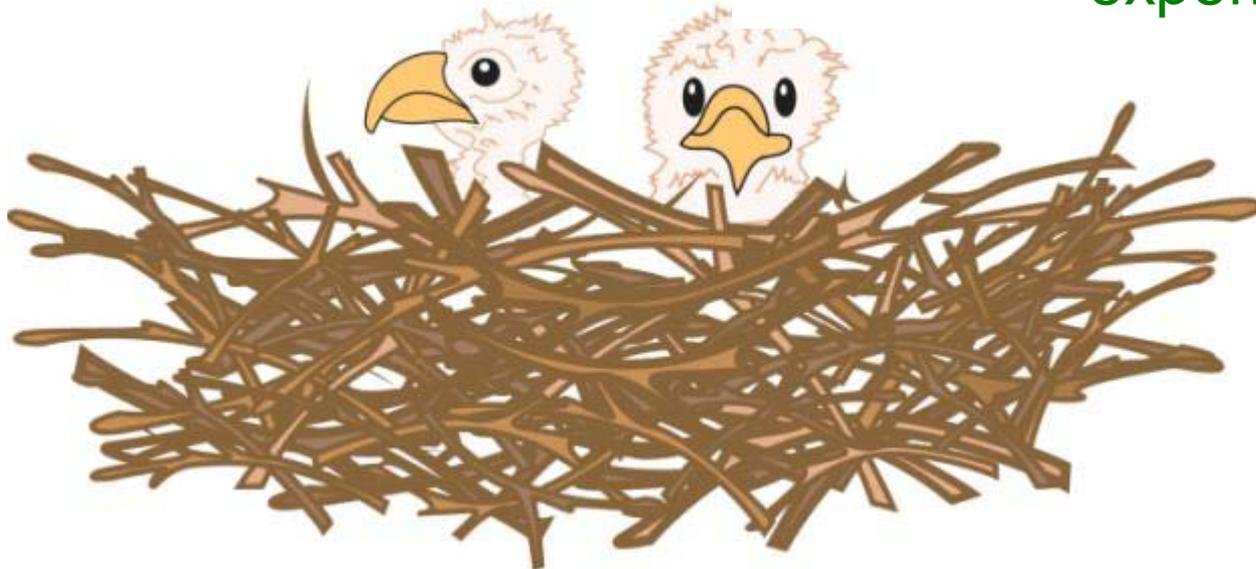
Those who want to:

- develop and implement policy:

objects ... to be measured

-
- heal and be healthy:

subjects ... with living
experience



What is evidence?

Whose knowledge and what application contexts?

Whose values determine this evidence?

- researchers: to “prove” is desirable; skepticism is a virtue
-
- Aboriginal community: to “know” is OK; trust is a gift



What is evidence? Whose knowledge and what application contexts?

Who comes together to create “social”?

- Eurocentric: humans together
-
- Aboriginal: humans together with other sentient beings



What is evidence? Whose knowledge and what application contexts?

What “life purpose” for this evidence?

- mainstream: to participate in an economy-based society
-
- traditional Aboriginal: to seek life ... spirituality central

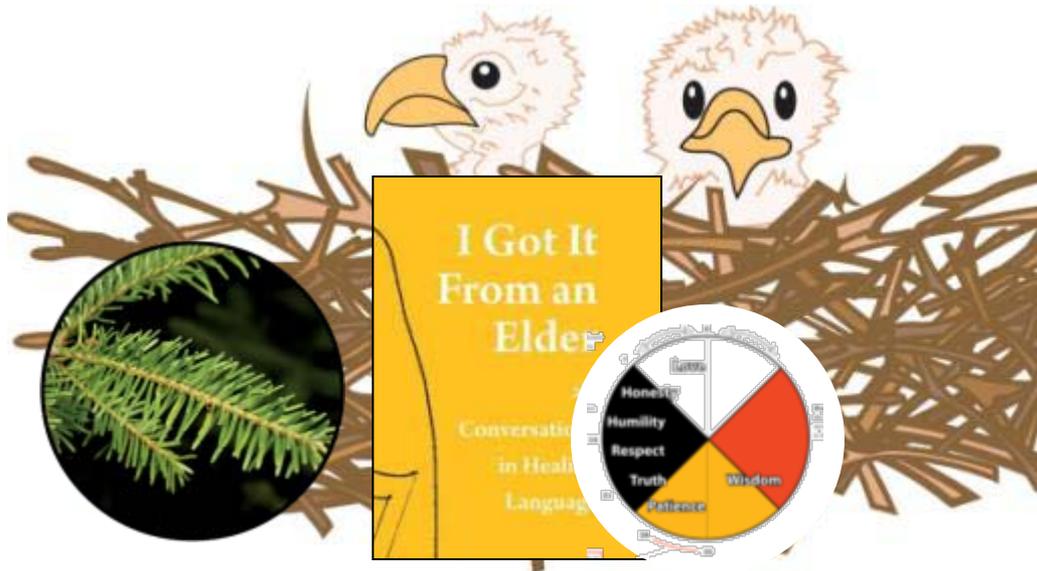


What is evidence?

Whose knowledge and what application contexts?

What language for this evidence?

- economic model: **social capital; analytic philosophy**
- spirit-centric model: **compassion; Indigenous philosophy**



What is evidence?

Whose knowledge and what application contexts?

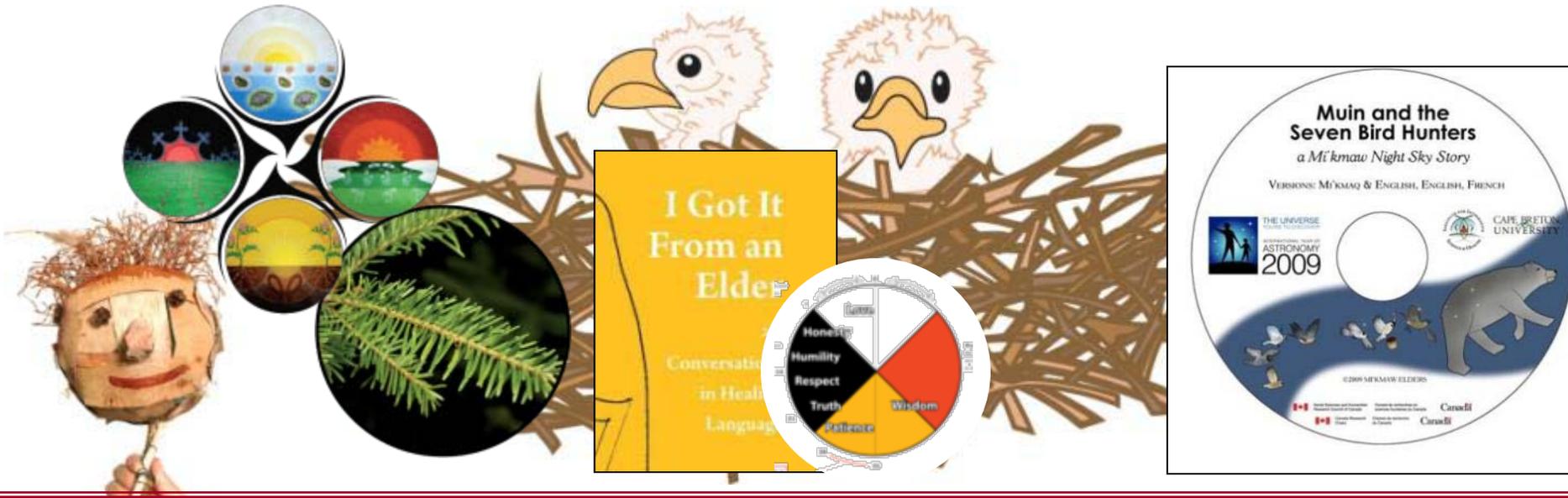
Evidence seen as ...

- abstract, noun-based indicators:

“quality of life”
... marginalize
those of difference

- consciousness-oriented, verb-based indicators:

meaning
making



What is evidence?

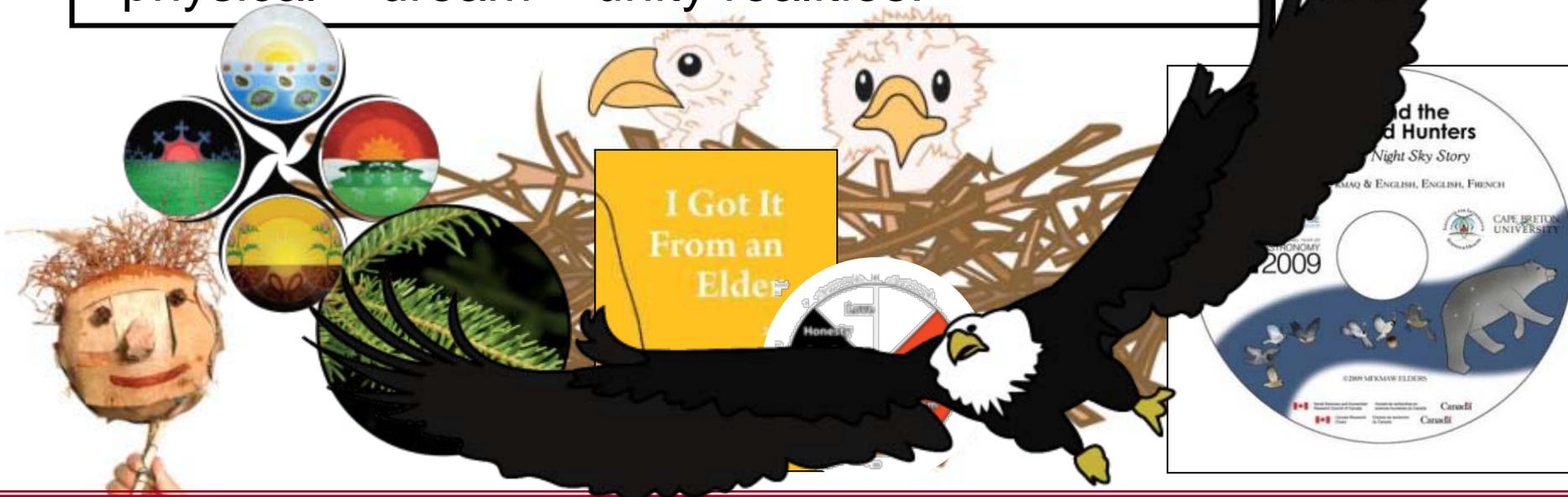
Whose knowledge and what application contexts?

Evidence within what consciousness:

- physical reality: **objects**

- physical + dream realities: **objects & subjects**

- physical + dream + unity realities: **!!!!!!!!!!!!!!**



5.

What the Future Holds



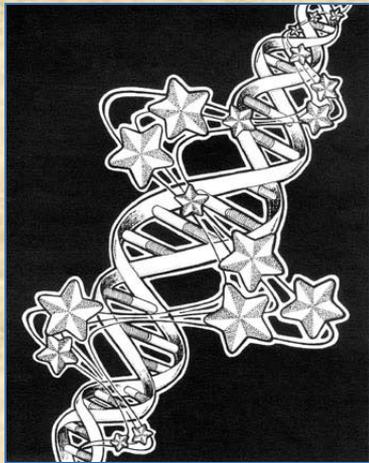
artist Basma Kavanagh

**Elder Albert Marshall
(talking from the
present tense):**

... with Two-Eyed Seeing, we can work together to ensure the future will be one in which our next generations (all cultures) will have opportunities of not just being able to sustain themselves, but also to enjoy the beauty of nature as Creator gave us.



What the Future Holds



artist Basma Kavanagh

Elder Albert Marshall (cont'd):

With the messages that flow from Two-Eyed Seeing, we are hopeful that people (whoever they are in the audience) will be able to take some of the strands from the concept and apply them already to the complex issues with which they deal. We are very confident in saying we have in our favour 1000's of years of legacies from our forefathers. Once we become separated from our natural world, there is profound risk ... but with respect to all the issues being discussed today, there is still time in which to reflect on our actions and inactions of the past ... and try to bring more human consciousness to the tools Western science has brought forth ...





**Wela'liog
Thank you**





Canada Research
Chairs

Chaires de recherche
du Canada

Canada
Canada



Social Sciences and Humanities
Research Council of Canada

Conseil de recherches en
sciences humaines du Canada

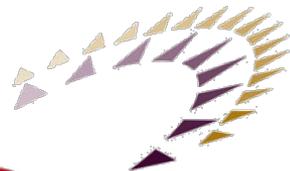
Thank you / Wela'liog

IAPH



CIHR IRSC

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



Canada Foundation
for Innovation

Fondation canadienne
pour l'innovation



NSERC
CRSNG



Mi'kma'wey Debert



Membertou
Elementary



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.

Mi'kmaq Ecological Knowledge: How to Use This Valuable Resource in Your Work

February 4, 2010 - Westin Hotel, Halifax Nova Scotia



This learning seminar is critically important for those who need to gain a better understanding of Indigenous Knowledge and its rich legacy in Nova Scotia; to understand its connection to modern western disciplines; to work with its practical application in today's business climate; to regulate government resource-based initiatives; to consult with Aboriginal groups on a regular basis; and, to foster partnerships between the private sector, government and the Aboriginal community.

Seminar Highlights

- First-hand experiences from Mi'kmaq Elders
- Recent research connecting Indigenous and Western Knowledge
- Case studies illustrating successful practical application
- First Nations, government and industry perspectives
- Mi'kmaq Ecological Knowledge Studies

Registration information and the course brochure are available at:

www.gov.ns.ca/abor/resources/learningseminar

For more information, please contact Beata Dera at (902) 424-2590 or at derab@gov.ns.ca.

Seminar Rate: - \$275

Student Rate: - \$175 (Limited Seating)

All prices include taxes, conference materials, breakfast & lunch.

Registration deadline: January 22, 2010

Keynote Speakers

David Newhouse

Chair, Indigenous Studies, Trent University

David Newhouse is Onondaga from the Six Nations of the Grand River community near Brantford, Ontario. He is the Chair of Indigenous Studies at Trent University, and Associate Professor in the Business Administration Program. His research interests are focused on the way in which Aboriginal traditional thought and western thought are coming together and creating modern Aboriginal societies.

Dr. Cheryl Bartlett

Tier 1 Canada Research Chair in Integrative Science, Cape Breton University

Cheryl Bartlett is a professor of biology at Cape Breton University. Dr. Bartlett's research serves two goals: to help Aboriginal individuals and Indigenous knowledge become increasingly and actively involved in science in the 21st century; and, to help mainstream science better engage with Indigenous knowledge and ways of knowing.

Mi'kmaq Elder Albert Marshall

Eskasoni First Nation, Cape Breton

Elder Albert Marshall is from the Eskasoni First Nation in Cape Breton, and teaches about the concept of "Two-Eyed Seeing". This refers to learning to see from one eye with the strengths of Indigenous knowledge and ways of knowing, and from the other eye with the strengths of Western (or Eurocentric, conventional) knowledge and ways of knowing, and using both eyes together for the benefit of all.

Learning Seminar Draft Agenda

<p>8:00 Registration and Continental Breakfast</p> <p>8:45 Welcome and Opening Remarks <i>Judith Sullivan-Corney, Deputy Minister, Nova Scotia Office of Aboriginal Affairs</i></p> <p>9:00 Keynote: A Global View of Indigenous Knowledge <i>David Newhouse – Chair, Indigenous Studies, Trent University</i></p> <ul style="list-style-type: none"> • What is Indigenous Knowledge • Practical application today and tomorrow • Q and A <p>10:15 Break</p> <p>10:30 “Holders” of Mi’kmaq Ecological Knowledge – 2 person Mi’kmaq Elder panel <i>Nova Scotia Mainland perspective and Cape Breton perspective (To be confirmed).</i></p> <ul style="list-style-type: none"> • Personal perspectives and experiences • Oral traditions - examples • Preserving Mi’kmaq Ecological Knowledge • Views on practical application of Mi’kmaq Ecological Knowledge • Q and A <p>12:00 Buffet Lunch</p> <p>1:00 Traditional Knowledge meets Western Knowledge <i>Cheryl Bartlett – Canada Research Chair in Integrative Science, Cape Breton University AND Mi’kmaq Elder Albert Marshall</i></p> <ul style="list-style-type: none"> • Two-Eyed Seeing • Traditional knowledge in various disciplines • Benefits and challenges • What the future holds • Q and A 	<p>2:00 “Gatherers” of Mi’kmaq Ecological Knowledge – panel <i>(To be confirmed.)</i></p> <ul style="list-style-type: none"> • Understanding the Protocol for conducting Mi’kmaq Ecological Knowledge Studies • Process for compiling Mi’kmaq Ecological Knowledge • Mi’kmaq Ecological Knowledge Studies Explained – the Final Product • Q and A <p>2:45 Break</p> <p>3:00 “Users” of Mi’kmaq Ecological Knowledge</p> <p>Mi’kmaq Perspective <i>Twila Gaudet – Kwilmu’kw Maw-klusuaqn Negotiation Office</i></p> <p>Industry Perspective <i>Peter Oram – Conestoga-Rovers & Associates</i></p> <ul style="list-style-type: none"> • Case study <p>Government of Nova Scotia Perspective <i>Jay Hartling – Office of Aboriginal Affairs</i></p> <p>Government of Canada Perspective <i>Tom Howe – Fisheries and Oceans Canada</i></p> <ul style="list-style-type: none"> • Case study <p>4:00 Interactive Question and Answer Session</p> <p>4:30 Concluding Remarks and Reflection</p> <p>4:45 Seminar Conclusion</p>
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