Mi’kmaw Kina’matnewey: “Language and Culture”
Community Education Strategic / Operational Planning Symposium
Park Place Ramada – Dartmouth; 11 March 2010

Albert Marshall
Elder and HonDLitt
Eskasoni community
Mi’kmaq Nation

Cheryl Bartlett
Canada Research Chair in Integrative Science
Professor of Biology
Cape Breton University

TWO-EYED SEEING
SCIENCE CURRICULA
Outline of Presentation

- introduction
- resources
- theory
- examples

TWO-EYED SEEING
SCIENCE CURRICULA
Mi’kmaq Elders & Students & Research Team
Thank you / Wela’lioq

The support of various partners and funding agencies is gratefully acknowledged.
Etuaptmumk – Two-Eyed Seeing
Education to our young has to be reflective of how to maintain balance and harmony with our natural world.

artwork: Eskasoni Elementary School Children

artist Basma Kavanagh
We must, through example, inspire our students to be critical in their thinking.
What is "SUCCESS"?

Seeds germinate when the environment is appropriate.

The Greatest Challenge
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.
This is living knowledge.

“Principle for Humility” is based on Lnu’k knowledge that has been evolving for the past 10,000 years.
It is not enough to go through life with one perspective; we must embrace all the tools we have ...
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.
Consciousness of Knowing

... especially our inter-dependence 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.

artist Basma Kavanagh
Through utilization of the Gifts from Creator we can become whole. We can take care of our needs: living, dwelling, physical, and spiritual.

Education is critical because we have been disconnected from the natural world so the lessons need to be transferred to the young so they too can address conservation and culture.
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.
Toqwa’tu’kl Kjijitaqnn
Integrative Science

“bringing our stories together”

Indigenous

Western
SEEING COMMON GROUND
Indigenous Knowledge & Western Science

Traditional Native Knowledge
- holistic
- includes physical & metaphysical world linked to moral code
- emphasis on practical application of skills and knowledge
- trust for inherited wisdom
- respect for all things
- practical experimentation
- qualitative oral record
- local verification
- communication of metaphor & story connected to life, values, and proper behavior
- integrated and applied to daily living and traditional subsistence practices

Common Ground
- part to whole
- limited to evidence & verifiable explanation within known world
- emphasis on understanding "why" and "how"

Organizing Principles
- universe is unified
- body of knowledge stable but subject to modification

Habits of Mind
- honesty, inquisitiveness
- perseverance
- open-mindedness

Skills and Procedures
- empirical observation in natural settings
- pattern recognition
- verification through repetition
- inference and prediction

Knowledge
- plant and animal behavior, cycles, habitat needs, interdependence;
- properties of objects and materials;
- position and motion of objects;
- cycles and changes in earth and sky
- discipline-based
- micro and macro (e.g. cell biology & genetics, atomic theory, plate tectonics, etc.)
- mathematical models

Western Science

Handbook for Culturally Responsive Science Curriculum

Published by the Alaska Science Consortium and the Alaska Rural Systemic Initiative

Alaska Native Knowledge Network

from: Handbook For Culturally Responsive Science Curriculum, by Sidney Stephens (www.ankn.uaf.edu/UNITS/index.html); Alaska Rural Systemic Initiative & Alaska Native Knowledge Network
Author: Dr. Gregory Cajete

- Look to the Mountain
  An Ecology of Indigenous Education
  by Gregory Cajete, Ph.D.

- Igniting the Sparkle
  An Indigenous Science Education Model
  by Gregory A. Cajete, Ph.D.

- Native Science
  Natural Laws of Interdependence
  by Gregory Cajete
  Foreword by Leroy Little Bear, J.D.
Science
human pattern smarts
Science

- numbers (logical-mathematical)
- language (linguistic)
- music (musical)
- body (body-kinesthetic)
- spatial (spatial)
- other people (interpersonal)
- self (intrapersonal)
- naturalist (naturalist)
- spiritual / existential *

human pattern smarts
Science

human pattern smarts
Science

dynamic pattern-based stories of our interactions with and within nature

human pattern smarts
Science

dynamic pattern-based stories of our interactions with and within nature

human pattern smarts
human pattern smarts

• various ways to connect the dots
• variety in our stories

dynamic pattern-based stories of our interactions with and within nature
Science

dynamic pattern-based stories of our interactions with and within nature

human pattern smarts

• various ways to connect the dots
• variety in our stories
The foundational basis for any relationship is an exchange of stories.

(Mi’kmaq Elder Albert Marshall)
The foundational basis for any relationship is an exchange of stories.

(Mi’kmaq Elder Albert Marshall)
our stories
stories of our interactions with and within nature

Science

Life Love Land

Periodic Table of the Elements

our stories
my world is “all my relations” (subjects)
Indigenous Science

Life
Love
Land

Language

images from: Aboriginal organizations/artists, various sources
Indigenous Science

Life
Love
Land
Language

images from: Aboriginal organizations/artists, various sources
Indigenous Science

Life
Love
Land
Language

images from: Aboriginal organizations/artists, various sources
Western Science
Western Science
Western Science
Universe: Visible Matter (levels of organization - biology)

- Universe
- super clusters (Local)
- clusters (Local Group)
- galaxies (Milky Way)
- star systems (Sun)
- planet Earth
- ecosystems
- communities
- populations
- organisms
- organ systems
- organs
- tissues
- cells
- organelles
- molecules & minerals
- atoms (natural elements #1-92; artificial elements #93 & higher)
- baryons (neutrons & protons)
- fundamental particles (quarks & leptons)
Universe: Visible Matter (levels of organization - biology)

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my world is many “its” (objects)
our stories
our stories
Indigenous Science

Sacred Circle Teaching

Muin and the Seven Bird Hunters

*a Mi’kmaw Night Sky Story*

Versions: Mi’kmaw & English, English, French
Muin and the Seven Bird Hunters: a Mi’kmaq Night Sky Story

... interconnectiveness of space-time-life-knowledge-spirit

Lillian Marshall
Elder, Potlotek
Jiji’kes

Wow
In ancient times, people with exceptional vision discovered that one of the brightest stars in the Big Dipper was, in fact, two stars so close together that most people cannot distinguish them. The two stars, Alcor and Mizar, were the first binary stars -- a pair of stars that orbit each other -- ever known.
Northern Horizon
Spring
Summer
Autumn
Winter
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.

artist Basma Kavanagh
MSIT university science courses

4th year within degree program

401 & 403

301 & 303

101 & 103

201 & 203

1st

3rd
2009 National Recognition for Integrative Science program
What is “SUCCESS”? 

A Holistic Approach to Measuring Success

2009 report by: Canadian Council on Learning

http://www.ccl-cca.ca/pdfs/StateAboriginalLearning/SAL-FINALReport_EN.PDF
POST-SECONDARY INSTITUTIONS
... uptake of Two-Eyed Seeing?
Fall 2009:
Five Articles
TWO-EYED SEEING SCIENCE CURRICULA
Two-Eyed Seeing: A cross-cultural science journey

By Annamarie Hatcher, Cheryl Bartlett, Murdena Marshall and Albert Marshall

This bridge building began as a way to address the serious under-
Traditional Legends: Meanings on many levels

A lesson in astronomy and storytelling for high school students

By Annamarie Hatcher, Sana Kavanagh, Cheryl Bartlett, and Murdena Marshall

or Kukukwes; and little Saw-whet Owl, or Kapkwéj). Muxín's den is what others know as Corona Borealis.
Two-Eyed Seeing: Integrative Science

MSfT: Transdisciplinary, cross-cultural science

An Integrative Science unit on birds for high school students

By Annamarie Hatcher and Cheryl Bartlett

Seeing” approach of integrating Western and Aboriginal world views. The classroom mirrors the world outside the
Traditional Medicines: How much is enough?

An integrative science activity for senior elementary and junior high students

By Annamarie Hatcher and Cheryl Bartlett

resins and essential oils. However, conifer needles contain other compounds that are toxic if consumed in large quantities.
Mother Earth, Grandfather Sun

A "two-eyed seeing" activity that integrates Western and Aboriginal world views in teaching about solstices and equinoxes

By Cheryl M. Bartlett

Sun — and thereby enable him to see the Earth (Mother Earth). The exercise also provides an experiential founda-
EPISTEMOLOGIES

OUR KEY CONCEPTS and ACTIONS

- respect
- relationship
- reverence
- reciprocity
- ritual (ceremony)
- repetition
- responsibility
- hypothesis (making & testing)
- data collection
- data analysis
- model & theory construction

Our seasons can be modeled...
Equinox
Spring / Fall

Winter
Solstice

Summer
Solstice
Equinox, Spring / Fall, Winter Solstice, Summer Solstice
Equinox
Spring / Fall

Winter
Solstice

Summer
Solstice
EPISTEMOLOGIES

OUR KEY CONCEPTS and ACTIONS

- respect
- relationship
- reverence
- reciprocity
- ritual (ceremony)
- cycle
- repetition
- responsibility
- hypothesis
  (making & testing)
- data collection
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- Winter Solstice
  (December 21st/22nd)
- Closest to the Sun
  (Perihelion, January 3rd)
- Spring Equinox
  (March 20th/21st)
- Summer Solstice
  (June 21st/22nd)
- Autumn Equinox
  (September 22nd/23rd)
- Furthest from the Sun
  (Aphelion, June 4th)

www.eumetsat.int/groups/ops/documents/image/img_news_solstice_scheme.gif
Wela’lioq
Thank you
Thank you / Wela’lioq

The support of various partners and funding agencies is gratefully acknowledged.
TENTATIVE
Community Education Strategic/Operational Planning Symposium
Mi’kmaw Kina’matnewey
Theme: “Language and Culture”
Park Place Ramada, Dartmouth
March 10, 11, & 12, 2010

Wednesday, March 10, 2010 (DAY 1)

12:00-1:00  Lunch

1:00-1:45 p.m  Opening prayer and remarks by Eleanor Bernard, Executive Director, Mi’kmaw Kina’matnewey (MK)

Guest Speaker –Sr. Dorothy Moore, Education Consultant, Membertou

Review Agenda - Outline goals and objectives for Symposium- John J. Paul

1:45-2:15  Session Number One

Highlights of MK’s 2009-2010 Strategic/Operational Plan

2:15–4:00  Session Number Two

Highlights of Individual Community Operations 2009-2010 (10 minutes- see template)

4:00-4:30  Discussions on Presentations (questions, comments, suggestions etc.)

5:30   Buffet Dinner

Thursday, March 11, 2011 (DAY 2)

7:00-9:00 a.m.  Full Breakfast

9:00-9:15  Welcome to Day 2  John Jerome Paul

9:15-10:00  Session Number 3  Two-Eyed Seeing
Albert Marshall/Cheryl Bartlett

10:15-11:00  Session Number 4  Mi’kmaw Language and Technology
George Marshall/Chris Andrews
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<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Description</th>
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<tbody>
<tr>
<td>11:15-11:30</td>
<td>Tea/Coffee Break</td>
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<tr>
<td>11:30-12:15</td>
<td>Session Number 5</td>
<td>Bluenose Marathon</td>
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<td>Tex Marshall/Kerrie Copeland</td>
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<td>12:15-1:00</td>
<td>Lunch</td>
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<tr>
<td>1:00-1:45</td>
<td>Session Number 6</td>
<td>Mi’kmaw Immersion</td>
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<td>Jane Meader</td>
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<td>1:45-2:45</td>
<td>Community Breakout Sessions</td>
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<td>2:45-3:00</td>
<td>Break</td>
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<td>3:00-3:30</td>
<td>Continuation of Breakout Sessions/Wrap up for the day</td>
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<td>5:00</td>
<td>Dinner/Waltz/Games</td>
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<td>8:00</td>
<td>Social/Entertainment- Music by Darren Stevens</td>
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Friday, March 12, 2010 (DAY 3)

7:00-9:00 a.m. Buffet Breakfast

9:00-10:30 Community Breakout Sessions
   Community Operational Plan 2010-2011

10:30-11:45 MK Operation Planning Session 2010-2011

11:45 Closing remarks and prayer
   Eleanor Bernard

Strategic Planning

Strategic Planning has been a major focus of attention. A blueprint of goals and objectives is critical to effective operation. There are many critical junctures expected to be faced in First Nation educational initiatives...

The process of planning must also involve each community looking at its goals, objectives, governance, and resources. Mi’kmaw Kina’matnewey is available to assist communities by holding information sessions or facilitating planning sessions. This year Molly Den Heyer and a group of MBA students have been retained to be facilitators for the communities.

This process will provide facilitation and feedback mechanisms to help the communities and MK to develop/update their five year strategic plans and develop new updated operational plans. These mechanisms include: planning and facilitation of meetings; advisement with regard to program management; and involvement with the written reports.

The project is designed so that the content is driven by MK and member communities. Second, the process helps to build long-term capacity within MK and its member communities. Lastly this joint planning session develops a communal relationship among MK member communities in addressing issues in Mi’kmaw Education.