



METHODS OF ADAPTING TO CHANGES IN THE ARCTIC

Standard addressed: Culturally Responsive Curriculum Standard B: A culturally-responsive curriculum recognizes cultural knowledge as part of a living and constantly adapting system that is grounded in the past, but continues to grow through the present and into the future.

Essential Question: How do you people find answers to questions? How do people figure stuff out? **What methods do people use to find solutions to problems?**

Purpose/Objective/Outcome: To compare and contrast between indigenous and western science methods. Gain a deep understanding of the scientific method. Gain an understanding how both western and indigenous cultures use observation and experimentation as a basis for their scientific methods.

The Student will be able to(The Big Picture): Understand in that we all use the basis of the scientific method for finding solutions to problems, namely observation and experimentation.

What will engagement look like during this lesson?/ Assessment of student outcomes: (How will you assess student learning?)

Students will ask the speaker questions. The students will write a summary of what the speaker said and a second paragraph on their thoughts regarding the distinct views of our two cultures followed by a quiz on the scientific method.

Class 1:

Start by addressing the class with an excerpt from Angayuqaq Oscar Kawagley, "Indigenous peoples throughout the world have sustained their unique worldviews and associated knowledge systems for millenia, even while undergoing major social upheavals as a result of transformative forces beyond their control. Indigenous knowledge is not static.

"...Their traditional education processes were carefully constructed around observing natural processes, adapting modes of survival, obtaining sustenance from the plant and animal world, and using natural materials to make their tools and implements. All of this was made understandable through thoughtful stories and demonstration."

Like the Guild, which fostered the Renaissance, one of the most intellectual periods of European history, Native people have traditionally acquired their knowledge through direct experience in the natural environment.

Follow this link for more information:

<http://www.ankn.uaf.edu/curriculum/Articles/BarnhardtKawagley/EIP.html>

Bring in Inupiat elder(s) or community member(s) who has knowledge of the culture in the Arctic Alaska region. See if funding is available for them to come and speak. Tell them exactly what to expect and if there is money available. Email them a series of questions before they arrive regarding some of the topics we'd like them to share with us:

1. How they pass down knowledge? How do they make sure it is accurate?
2. For example how did their culture know how to make an Umiak?
3. What environmental changes have they have seen in the arctic. How have they adapted to those changes.

If there is any time left ask them to speak about whaling. Ask them to talk about their culture's dependence on whaling. What species of whale do they hunt and how they do it. How they utilize its resources. What does the whale mean to the people. How to they ensure whales come back. How do they show respect to the whale during and after the hunt? How have they changed their whale hunting technique to adapt with changing the changing conditions in the Arctic?

Have a short question and answer period if the elder is ok with that.

Thank the elder or community member by sending them a signed card by all the students.

Class 2:

For the first 15 minutes of class have the students write a paragraph summarizing the guest speaker from our last class and a second paragraph regarding their thoughts on these distinct world views:

<u>Indigenous Worldviews</u>	<u>Western Worldview</u>	Universe is made up of dynamic, ever-changing natural forces	Universe is made up of an array of static physical objects
Spirituality is imbedded in all elements of the cosmos	Spirituality is centered in a single Supreme Being	Universe is viewed as a holistic, integrative system with a unifying life force	Universe is compartmentalized in dualistic forms and reduced to progressively smaller conceptual parts
Humans have responsibility for maintaining harmonious relationship with the natural world	Humans exercise dominion over nature to use it for personal and economic gain	Time is circular with natural cycles that sustain all life	Time is a linear chronology of "human progress"
Need for reciprocity between human and natural worlds - resources are viewed as gifts	Natural resources are available for unilateral human exploitation	Nature will always possess unfathomable mysteries	Nature is completely decipherable to the rational human mind
Nature is honored routinely through daily spiritual practice	Spiritual practices are intermittent and set apart from daily life	Human thought, feelings and words are inextricably bound to all other aspects of the universe	Human thought, feeling and words are formed apart from the surrounding world
Wisdom and ethics are derived from direct experience with the natural world	Human reason transcends the natural world and can produce insights independently	Human role is to participate in the orderly designs of nature	Human role is to dissect, analyze and manipulate nature for own ends
Respect for elders is based on their compassion and reconciliation of outer- and inner-directed knowledge	Respect for others is based on material achievement and chronological old age		
Sense of empathy and kinship with other forms of life	Sense of separateness from and superiority over other forms of life		
View proper human relationship with nature as a continuous two-way, transactional dialogue	View relationship of humans to nature as a one-way, hierarchical imperative		

(Adapted from Knudtson and Suzuki, 1992, p. 13-15)

Discuss as a class:

Ask the class the **Essential Question**: How do people find answers to questions? How do people figure stuff out? **What methods do people use to find solutions to problems?**

Use this as an example: How would you determine which bottle of ketchup flows the fastest? Ask students to describe this to me as a class.

I would write down key words and phrases on the board like: **Observation, Experimentation, Question, Guess, Duplication, Research, History of the question, Have people asked the same question before?**

Then into the scientific method.

Bring three key words from the previous lesson: **Observation, Experimentation and Duplication.**

Discuss where and how they fit into the scientific method. Discuss the reason for the “**null-hypothesis**”.

Give a small quiz for the next class: 1. What aspects of the scientific method does the Inupiat culture use. 2. Why use a null-hypothesis? 3. List three key-words of the scientific method.

