INDIGENOUS CLIMATE IMAGINARIES
What Is a Climate Imaginary?

A climate imaginary is how a person envisions the future of the world, their community, and themselves in terms of climate change. The researchers, Dr. Natalie Ban and Kim-Ly Thompson, set out to better understand the climate imaginaries of the Gitga’at First Nation, located in Hartley Bay, British Columbia. Their research question was: what are the Gitga’at climate imaginaries and how do they take shape? Followed by: how do they interact with settler-dominant climate imaginaries?

Climate Imaginaries of the Gitga’at Nation

The authors call the climate imaginary of the Gitga’at People *Turning to the Territory*, to represent the turning to the reciprocal relationships found between human and non-human species, as well as the generations of knowledge found within the Nation’s people. Weathering changes in climate is not new for the Gitga’at Nation. Knowledge of how people adapted to the last ice age remains in *adaawx*, oral records of social and historical events passed along generations through stories and lessons. The Gitga’at People’s past, highlights the importance of showing respect for the species which offer themselves as food and medicine in times of hardship.

For a decade now, the Gitga’at Nation has been creating and implementing formal plans to address climate change including the “We Monitor by Living Here” program. By interviewing community members who regularly fish, hunt, or harvest food and medicine from the land, they are able to document changes and how they impact their way of life. Predicting weather patterns is key for timing harvests and preserving goods. Community members are embracing technologies which allow them to adapt to the increased unpredictability. One example of adaptation is using freezers to store seaweed until good weather arrives and they can be laid out to dry in the sun.

Dr. Ban and Thompson have been working alongside the Gitga’at Nation for many years and felt that this research was an opportunity for them to reflect on their experiences. While neither Dr. Ban nor Thompson are of Indigenous heritage, they have cultivated strong personal and professional relationships within the nation over the years and had members of the Gitga’at Nation review their work to ensure accuracy and privacy.
Reciprocal Relationships

When it comes to understanding Indigenous climate imaginaries, we must first understand the relationships Indigenous Peoples have with the land. These relationships are reciprocal. There is a mutual respect between humans and land that goes both ways. Putting this idea in the context of climate change, Thompson says that these relationships are more important now than ever. She emphasizes that climate is changing. Things are behaving in different ways, and so it is crucial to listen carefully to what is happening on the ground in order to respond appropriately. She adds that these relationships have allowed the Gitga’at People and many other Indigenous communities to be resilient through change.

Dr. Ban explains that Indigenous Peoples or others who have deep reciprocal relationships with non-human beings have a better understanding of change. This is important in terms of climate change because these relationships communicate change. Dr. Ban tells us that people with these relationships will be more aware of species that are at risk, species that are increasing, and illness. Importantly, she notes that people with reciprocal relationships are at the front lines of experiencing climate change and also experience it more deeply because it is an integral part of their being.

Embracing Multiple Narratives

We all have our own way of understanding of climate change. This understanding may come from our parents, our teachers, social media, the news, or other learning outlets. A popular imaginary in Western culture is the “fossil fuels forever” climate imaginary. This imaginary does not see harm in fossil fuels. Instead, it is believed that fossil fuels are the way to our future. Sometimes, when we think we understand something or accept something as being true, we stop learning and lose our sense of curiosity about the world. Dr. Ban says that it is important that educators encourage students to think critically about the narratives that we hear in the media. Additionally, she explains that we as a society need to embrace the deep lived experiences of Indigenous communities rather than only focusing on the western scientific data. Climate change is a particularly important area of our lives because it impacts all of us. When we as individuals take it upon ourselves to educate ourselves and our families, we will then be able to work together to combat climate change.
What Can You Do to Help?

Indigenous knowledge is often wrongly compared to western scientific knowledge. Comparing them is problematic because the two ways of knowing and understanding come from very different places. Thompson explains that it is critical to make the time to go interact with what is outdoors and to have an understanding of what land means from different perspectives.

It is important to include Indigenous voices and bring Indigenous ways of knowing into our narratives. One way to do it is to read literature by Indigenous authors. As a class, take the time to develop a land acknowledgement. Additionally, integrate reflective practices within yourself and within your school community. Reflective practices can take the form of journaling or discussion within the classroom.

What Does It Look Like to Study Indigenous Climate Imaginaries?

Dr. Natalie Ban is a professor at the University of Victoria in the School of Environmental Studies. She enjoys working with communities to affect change and mentor people early in their career. Additionally, she is “drawn to the intersection of really bright young minds, that are so enthused to try to affect change, and First Nations communities and others, that are really the long-term stewards of their territories.” She says “those are the two things that give me hope going forward. So being able to have the ability in my job to focus on those and being able to decide what I have put my energy into is really quite special.”

Kim-Ly Thompson is a Ph.D. student at Simon Fraser University. When asked what her favourite part of her job was, she said that she likes being able to “work with and interact with people whether it is within academic communities or communities on the ground that bring hope. And I think when thinking about working with the Gitga’at Nation, it is hopeful to see that there are different ways of doing things. You know that there are different ways of navigating changes. Another thing that really puts the wind in my sails is just being in these places, being within the Gitga’at territory. And, you know, the place itself, I think inspires hope.”
Building a Biosphere Activity
Recommended for Science, Grade 7 (Learners will analyse the interconnectiveness of living things and the environment, in relation to the concept of Netukulimk)

Activity Summary
Learners will work as a class to construct a biosphere of a local ecosystem and understand it in the context of climate change.

Learning Goals
1. To understand the importance of biotic and abiotic relationships within an ecosystem.
2. To observe and analyze how these relationships function within an ecosystem.
3. To understand Netukulimk and how we can use these practices and narratives to guide our environmental practices.

Introduction
What is an ecosystem?
- “An ecosystem is a geographic area where plants, animals, and other organisms, as well as weather and landscapes, work together to form a bubble of life.”
- A collection of living (biotic) and non-living things (abiotic).

What are biotic and abiotic factors of an ecosystem?
- Biotic factors of an ecosystem are the things that are living. These living things include everything from humans to plants, to tiny microorganisms like bacteria.
- Abiotic factors are the non-living parts of an ecosystem. This includes water, temperature, sunlight, nutrients, soil, and the atmosphere.

What is the biosphere?
- The biosphere is a closed system – no matter enters or leaves, but it is not isolated, that means energy enters and leaves the system.
- “The biosphere recycles its air, water, organisms, and minerals constantly to maintain an amazingly balanced state.”

What is Netukulimk?
- “Netukulimk governs the physical, emotional, cognitional, social and spiritual relationships a person has with everything, including the physical features of the land, the rhythms and cycles and patterns of Wskitqamu (Mother Earth), and all her living beings and nonliving things.”
- To deepen your knowledge on Netukulimk, please see the following resources:
  - Netukulimk – UINR(Unama’ki Institute of Natural Resources) (Website)

Additional Resources:
- Education Corner – Mi’kmaw Conservation Group (Website)
- Two-Eyed Seeing in the Classroom Environment: Concepts, Approaches, and Challenges (Scholarly Article)
- Two-Eyed Seeing – Integrative Science (Online Article)
- Mi’kmawe’l Tan Teli-kina’muemk Teaching About the Mi’kmaq (Document)
- Two-Eyed Seeing and other lessons learned within a co-learning journey of bringing together indigenous and mainstream knowledges and ways of knowing (Scholarly Article)

Materials (per group)

- One 2-litre pop bottle with cap
- Scissors
- Clear packing tape (to seal the bottle)
- Two to three cups of soil
- ½ cup of gravel
- Two to three rocks (depending on size)
- ½ cup of water (local pond water)
- One cup of dead pinecones, needles, leaves (source of nutrients as they decompose)
- One to two small plant(s), leaves, moss (to supply oxygen), and/or seeds of small plants
- Animals (could be sow bugs or worms; this is optional)
- Note-taking supplies

Methods

1. As a class discuss the “introduction” topics prior to beginning this activity.
2. Choose an ecosystem in your area to model your biosphere after.
3. Identify several key species within this chosen ecosystem. Consider: what makes up the soil. Is the dirt bare or covered with moss, rocks, or plants? Do some plants prefer to be crowded by rocks or have space to grow? You may want to take photos as a reference.
4. Split up into groups of four or five.
5. Using the scissors, cut the top part of your bottle (close to the taper) but make sure to save it.
6. Gather soil, rocks, moss, and/or fallen foliage to create the base of your biosphere. When gathering materials be sure to only take what you need and minimize disruption of the ecosystem.
7. Lay the soil base of your biosphere. The dirt layer should fill about two to three inches at the bottom of the biosphere.
8. Choose several small plants to replant within your biosphere.
9. Dig holes within the dirt layer where you plan to place your plants.
10. Using your hands or a gardening trowel, dig a circle around the plant several inches from the base. Gently pry up the soil, attempting to keep as much of the root system intact.
11. Lightly massage the roots and soil to break up any clumps. Place root system in the pre-dug holes. Fill in the hole with surrounding soil and firmly press soil around the base of the plant.
12. Consider any animals, such as beetles or worms, that you encountered when gathering the soil or digging up the plants. Add these to the biosphere.
13. Once all the components have been added to the biosphere put the top of the bottle back on and seal with duct tape. Ecosystems are fragile, and things within the ecosystem may die. It is okay if things die because they become food for something else within the ecosystem.
14. Within your small groups, observe your biosphere daily. Reflect on the questions below and then share with the class.
15. Optional: Insert a PASCO temperature probe, seal with putty, and take short- or long-term temperature readings in the biosphere. How does the temperature inside compare to the room temperature?

Observation Questions

1. Describe the role of each part of your ecosystem.
2. Describe the relationships within the ecosystem.
   a. How do they help each other survive and grow?
3. How can we tell if our ecosystem is healthy/unhealthy?
4. What changes took place over the course of the observation period?
5. What cycles are taking place inside the biosphere?
Discussion Questions
1. What impact, positive or negative, can humans have on an ecosystem?
2. How have human relationships with the environment changed over time?
3. Why are relationships between living and non-living things important?
4. How do the living and non-living things in this ecosystem interact?
5. How does Netukulimk encourage us to access and use resources in a sustainable way?

Questions for the Future
What questions did the activity leave you with?
How could you find the answers?

The research feature is written based on:

Kim-Ly Thompson and Natalie Ban, interview by Libby Morash and Sadie Russell, August 3, 2022, transcript, Microsoft Teams, Halifax, NS.
Building a Biosphere Activity

Name: _______________________________________________________

Observation Questions
1. Describe the role of each part of your ecosystem.
   _______________________________________________________________________________________
   _______________________________________________________________________________________
   _______________________________________________________________________________________

2. Describe the relationships within the ecosystem.
   a. How do they help each other survive and grow?
      _______________________________________________________________________________________
      _______________________________________________________________________________________
      _______________________________________________________________________________________

3. How can we tell if our ecosystem is healthy/unhealthy?
   _______________________________________________________________________________________
   _______________________________________________________________________________________
   _______________________________________________________________________________________

4. What changes took place over the course of the observation period?
   _______________________________________________________________________________________
   _______________________________________________________________________________________
   _______________________________________________________________________________________

5. What cycles are taking place inside the biosphere?
   _______________________________________________________________________________________
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Discussion Questions

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_______________________________________________________________________________________

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_______________________________________________________________________________________

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4. How do the living and non-living things in this ecosystem interact?

_______________________________________________________________________________________

_______________________________________________________________________________________

5. How does Netukulimk encourage us to access and use resources in a sustainable way?

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_______________________________________________________________________________________

Questions for the Future

What questions did the activity leave you with? How could you find the answers?

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