trackingchange...
...in the classroom

Science 10:
Climate Change

Indigenous Knowledge Lesson Plan

Local and Traditional Knowledge in Watershed Governance
www.trackingchange.ca

Science 10: Climate Change

SCIENCE 10: ENERGY FLOW IN GLOBAL SYSTEMS (SOCIAL AND ENVIRONMENTAL CONTEXTS EMPHASIS)

Focusing Questions: Are there relationships between solar energy, global energy transfer processes, climate and biomes? What evidence suggests our climate may be changing more rapidly than living species can adapt? Is human activity causing climate change? How can we reduce our impact on the biosphere and on global climate, while still meeting human needs?

Describe how the relationships among input solar energy, output terrestrial energy and energy flow within the biosphere affect the lives of humans and other species:

- Explain how climate affects the lives of people and other species, and explain the need to investigate climate change (e.g., describe the responses of human and other species to extreme climatic conditions; describe housing designs, animal habitats, clothing and fur in conditions of extreme heat, cold, dryness or humidity, wind)

Relate climate to the characteristics of the world's major biomes, and compare biomes in different regions of the world:

- Identify the potential effects of climate change on environmentally sensitive biomes (e.g., impact of a reduction in the Arctic ice pack on local species and on Aboriginal societies that rely on traditional lifestyles)

Investigate and interpret the role of environmental factors on global energy transfer and climate change:

- Assess, from a variety of perspectives, the risks and benefits of human activity, and its impact on the biosphere and the climate (e.g., compare the Gaia hypothesis with traditional Aboriginal perspectives on the natural world; identify and analyze various perspectives on reducing the impact of human activity on the global climate)

Skill Outcomes (focus on scientific inquiry):

Initiating and Planning

Students will: Ask questions about observed relationships, and plan investigations of questions, ideas, problems and issues.

- Identify questions to investigate that arise from practical problems and issue.

Performing and Recording

Students will: Conduct investigations into relationships between and among observable variables, and use a broad range of tools and techniques to gather and record data and information.

Cover Photo: Elk in Jasper, Alberta
Photo Credit: Annie Kwan

- Use library and electronic research tools to collect information on a given topic.
- Select and integrate information from various print and electronic sources or from several parts of the same source.

Analyzing and Interpreting

Students will: Analyze data and apply mathematical and conceptual models to develop and assess possible solutions.

- Compile and display, by hand or computer, evidence and information in a variety of formats,
- Including diagrams, flow charts, tables, graphs and scatterplots (e.g., construct climate graphs to compare any two of the following biomes: grassland, desert, tundra, taiga, deciduous forest, rain forest).

Communication and Teamwork

- Synthesize information from multiple sources or from complex and lengthy texts, and make inferences based on this information (e.g., use integrated software effectively and efficiently to produce work that incorporates data, graphics and text).
- Identify multiple perspectives that influence a science-related decision or issue (e.g., consult a wide variety of electronic sources that reflect varied viewpoints and economic, social, scientific and other perspectives on global warming and climate change).

Purpose:

Climate change is a global issue. Indigenous peoples in Canada, as well as in other parts of the world, are leaders in the fight against climate impacts. This lesson introduces students to ways young Indigenous peoples are involved in climate activism and allows them to investigate climate impacts in their own community. It also enables students to network their learning with students in other locations across the Mackenzie River Basin using online technology, in order to compare local knowledge of climate impacts across their region.

Teacher Resources:

- Indigenous youth climate activists: https://news.globallandscapesforum.org/37957/5-indigenous-youth-activists-to-start-following/
- Suggestions for In-Class Youth Knowledge Fair (attached)
- Youth Knowledge Fair Assignment (attached)
- Science and Indigenous knowledge in the arctic: https://www.rcinet.ca/en/2016/12/23/video-documentary-how-indigenous-knowledge-is-changing-what-we-know-about-the-arctic/
- Current role of northern and/or Indigenous peoples in the United Nations

climate conference (Conference of Parties, or COP):

- http://nunatsiaq.com/stories/article/65674increased_inuit_involvement_must_flow_from_global_climate_talks/
- https://unfccc.int/news/new-un-platform-to-boost-indigenous-peoples-and-local-communities-climate-action
- https://www.facebook.com/UNclimatechange/videos/10155661229705867/

- Mackenzie River Basin (location and introduction): http://www.trackingchange.ca/river-basins/mackenzie/
- This lesson is based on research from Tracking Change: Local and Traditional Knowledge in Watershed Governance: http://www.trackingchange.ca/.

Materials Required:

- Copies of Youth Knowledge Fair case study handouts
- Poster paper, markers, and other supplies to make research posters (e.g. computer and printer)
- Tacks or tape to hang research posters
- How to Interview handout [optional]

Key questions for student inquiry:

- How is climate change impacting your community? How are local people responding to climate threats?

LESSON PLAN PROPER

- **Location:** In classroom
- **Length of activity:** 4-5 class periods (1 for case study/introduction; 1 for group research; 1 for interview prep; 1-2 for poster creation; 1 for actual YKF)
- **Activating Strategies:**
  - *Introduction.* Climate change is a global issue. Indigenous peoples in Canada, as well as in other parts of the world, are leaders in the fight against climate impacts. We are going to explore some of the ways young Indigenous peoples are involved in climate activism across the planet. We are also going to investigate climate impacts in our own community - and think about how we might get involved.
  - Watch videos of two Indigenous youth activists speaking (and singing!) about the role of Indigenous peoples in addressing climate change. Suggested: India Logan-Riley (Maori from New Zealand) and Xiuhtezcatl Martinez (Aztec descent, U.S.).
  - https://news.globallandscapesforum.org/37957/5-indigenous-youth-

activists-to-start-following/

- As students watch the videos, ask them to pay attention to what these young people are saying about the role of Indigenous peoples (and the role of youth) in addressing climate change.
- After watching the videos, ask students to journal individually for a few minutes in response to the following:
  - What do these young people say about the role of Indigenous peoples and youth in addressing climate change?
  - How did you feel watching these videos?
  - How do you see people responding to climate change in your community?
  - Can you imagine any possibilities for better responding to climate change in your community?
- This lesson will give us the tools to answer the following questions: How is climate change impacting your community? How are local people responding to climate threats?

- **Learning Experiences:**
  - *Class Activity.* Divide students into groups and assign one of the three case studies. Ask the students to read their assigned case study and be prepared to share what they learned with the rest of the class. As a group discuss themes that emerged across the articles. What are some key takeaways from the case studies?
  - *Youth Knowledge Fair.* In this activity, students will create their own knowledge fair posters to communicate their community's understanding of climate change for display at a local (classroom/school/community) knowledge fair.
  - Students should consider the audience for their poster (e.g. local officials, other students, etc.) in order to create the most effective message and impact. Students will investigate climate change impacts on their community through secondary source research (e.g. websites, books) and, most importantly, interviewing Elders and community members.
    - Identify various sources that provide information on the issue. This could include web research on the selected topic, scientific testing, and local reports. It should also include speaking with land-users and Elders in a respectful manner.
    - Conduct initial research on the issue as a class. Divide students into groups to research and take notes on the issue of climate change in Canada's north.
    - Share the information together as a class to refine understanding of the issue.

- Lead students through the process of identifying potential interviewees and preparing for and completing an interview. Students may choose to speak with a local Elder(s), land user(s), or community/family member(s) who could share knowledge about climate change in their community. Discuss as a class: what other kinds of information could we learn by talking with a local Elder or land user? Generate a list of questions to ask this person. View the "How to Interview" handout for more details.
- Give students time to think about how they will display the information they learned during the interview on their research poster. Encourage them to review the example research posters from the 2018 Youth Knowledge Fair case study. Provide materials and time for students to assemble their posters.

CONCLUSION/YOUTH KNOWLEDGE FAIR

Host the in-class Youth Knowledge Fair! Hang posters around the classroom and ask students to stand beside their poster and answer questions as people walk around the room. Invite people that participated in interviews, as well as other students and community/family members to attend.

- For virtual classrooms, the students could share photos of their posters online and provide a brief 2-3 minute presentation to supplement their visual work.

Extension:

Share student posters and quotes about the Youth Knowledge Fair on the Tracking Change website. Give students time to explore the other Youth Knowledge Fairs that students have participated in. Encourage students to comment on others' posters noting: what did you learn? What commonalities and differences do you see between your communities? What questions do you have?

Keywords: youth knowledge fair; research

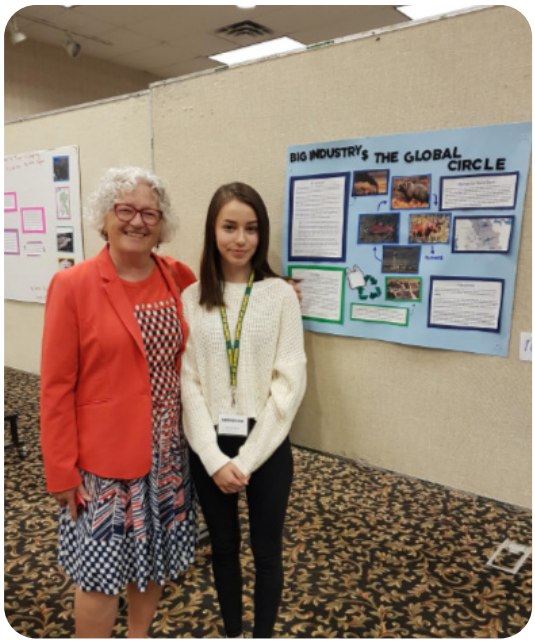
Themes: climate change; traditional knowledge; community perceptions

Teacher Handout: Suggestions for In-Class Youth Knowledge Fair

Youth perspectives on climate change are particularly important, as are opportunities for youth to learn from one another.

A Youth Knowledge Fair (YKF) is similar to a traditional science fair except the emphasis is placed on mobilizing Indigenous Knowledge and cultural practices. An in-class YKF is a great way for students to get first hand experience with data collection (i.e. interviews), learn from people in their community, and connect with their culture. The following are some suggestions for how to host a youth knowledge fair in your class.

1. Encourage students to get creative! The YKF is supposed to be a fun way for students to learn about climate change and share what they have learned with others. Previous students have worn cultural clothing, included words in their traditional language, and even brought in dry fish to share with the audience.
2. Invite other classes to visit your YKF. It can be inspiring for youth to see other young people investigating issues that matter to them and speaking out as leaders. Invite students from other grades to the YKF so they can view the research posters and ask questions.
3. Elders place great value on sharing knowledge with young people. Extend an invitation to Elders and land users in your community that way they can see what the students learned and how they are expressing themselves about the issue of climate change.
4. Consider inviting community leaders and government officials to view the posters. This is a great opportunity for students to talk to decision makers about issues that matter to them.



Students sharing their Posters at the 2018 Tracking Change Youth Knowledge Fair at the University of Alberta
Photo Credit: Tracking Change

Student Handout: Youth Knowledge Fair Overview

WHAT IS THE YOUTH KNOWLEDGE FAIR?

In 2016 and 2018, over 50 young Indigenous peoples from northern Canada travelled to Edmonton, AB for a Youth Knowledge Fair (YKF). Students spoke with their Elders, land users, and community members to learn about how climate change is impacting their communities. A YKF is similar to a science fair, except there is great emphasis placed on Indigenous Knowledge and cultural practices.

What is Indigenous Knowledge?

Indigenous knowledge is knowledge developed over long periods of time (hundreds or thousands of years) through direct contact with the land. It connects knowledge of the land with people's everyday lives. People note changes in the land over time that affect their communities. These people then use that knowledge to make decisions.

Indigenous Knowledge and Science:

Indigenous knowledge can involve things we usually think of as "science," like measuring, counting, and monitoring various things. In relation to climate change, this could include measuring changes in water temperature, numbers of fish and animals, and changing size of algae blooms.

It can also involve things we may not think of as "science," like memories of how the land and water has changed (or stayed the same) over generations. People keep and pass on this knowledge because it is relevant to their lives and wellbeing.

Oral Histories:

Oral histories are an important aspect of the knowledge held by Indigenous communities about the Mackenzie River Basin. Oral histories are histories that are not written down. Instead, they are passed on out loud from generation to generation. Elders and active harvesters are an important part of oral history. They are experts about environmental changes. Their past experiences, observations and perceptions represent important "data" that exists about the regions, places, and resources that matter most to communities.

Place-based Knowledge:

A lot of knowledge about both social and ecological change is linked to specific places. Elders and active harvesters have knowledge about how climate change is impacting places that matter to them, including areas around traditional fish camps, travel routes, spiritual sites, sites for healing, and more.

Respond: Why do you think Indigenous knowledge is important for understanding and responding to climate change?

Find out more about why Indigenous knowledge is important to climate change conversations by watching a video on muskoxen monitoring in Nunavut.

- https://www.rcinet.ca/en/2016/12/23/video-documentary-how-indigenous-knowledge-is-changing-what-we-know-about-the-arctic/

The youth interviewed people in their community to gain a better understanding of local climate effects. They brainstormed interview questions that would help them answer their research questions and then talked to people that were knowledgeable about that topic. Students asked questions like, "Has the land and water changed since you were a kid? In what ways has it changed?", "How is climate change impacting our community?" and "What are people in the community doing to respond to these changes?"

Once students travelled to Edmonton they took what they learned in the interviews and visually displayed it on large pieces of poster paper and through foods, crafts, and artifacts. Students had to think about **a) the audience that would see the poster, and b) what message they wanted the audience to take away.**

They used the answers to these questions to help design their displays. Many of the youth used markers, scissors, pictures, and coloured paper to create posters. A few used Microsoft PowerPoint to digitally create their designs.

CHECK IT OUT!

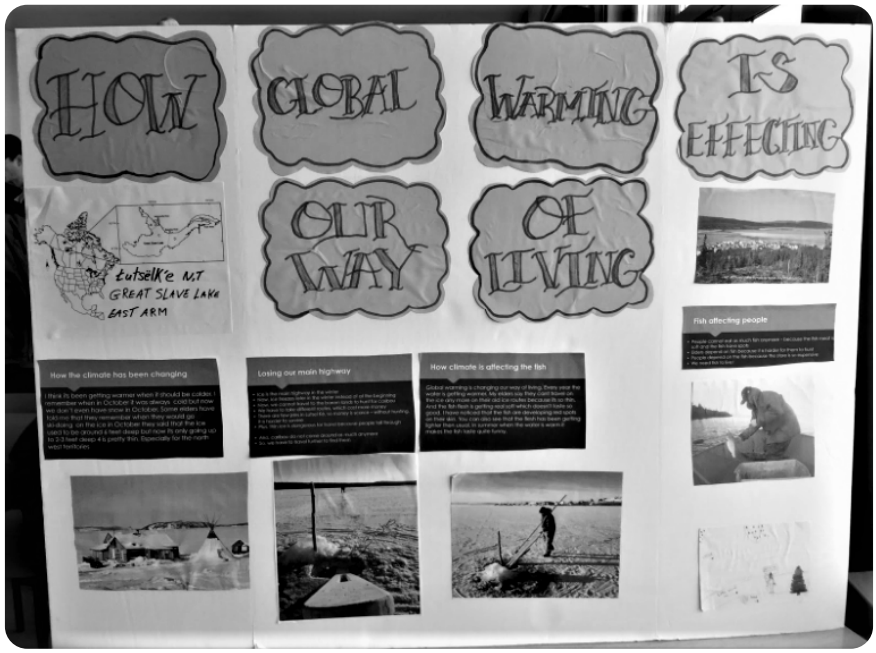
The Tracking Change Youth Knowledge Fair provides an opportunity for hands-on experience in our Traditional Knowledge Workshops!

Indigenous Knowledge is important for understanding and responding to climate change issues!

The winners of the Youth Knowledge Fair Poster Competition went to the 24th Conference of the Parties to the United Nations Framework Convention, otherwise known as COP24, in Katowice, Poland in December 2018!

Students at the 2018 Youth Knowledge Fair getting some hands-on experience in the workshops!
Photo Credit: Tracking Change

Student Handout: Youth Knowledge Fair Going Global Case Study



One of the amazing posters created by a Student at the 2018 YKF
Photo Credit: Tracking Change

Indigenous Knowledge and Global Climate Talks

The United Nations holds an annual climate conference called the Conference of Parties (COP), which assesses progress in dealing with climate change. The conferences works to implement the Paris Agreement and establish legally binding obligations for countries to reduce their greenhouse gas emissions and develop alternative energy sources.

Indigenous people are an important part of these talks because of the special knowledge they offer. Watch this video on the importance of Indigenous peoples at COP23 and other global meetings.

- **https://www.facebook.com/UNclimatechange/videos/10155661229705867/**

Inuit Circumpolar Council's Canadian president, Nancy Karetak-Lindell, said that many Indigenous groups at COP, representing some of the 370 million Indigenous peoples worldwide, had "similar concerns as us Inuit and our challenges to be recognized as knowledge holders of our land and waters and how we can offer solutions to the weather changes affecting our planet and many other struggles we have as a people."

Read More:

- **http://nunatsiaq.com/stories/article/65674increased_inuit_involvement_must_flow_from_global_climate_talks/**

What happened after the Youth Knowledge Fair?

Six of the YKF participants were invited to travel to Europe to present their posters for policymakers. The students spoke for audiences at the United Nations Educational, Scientific, and Cultural Organization (UNESCO) in Paris, France and at COP events in Katowice, Poland. This was an opportunity for the youth to share their research posters about climate change impacts in their community with an international audience!

A journalist from Finland even travelled across Europe to do an in-person interview with the youth. He wrote an article about the threats of climate change to Indigenous peoples and published it in the journal Hyvän sään aikana.

"It was the first time I realized my home was sinking" Climate change is threatening Indigenous peoples whose young people want to take action now
Erkki Mervaala

[Translated with Google Translate]

"I saw a Swedish girl online who doesn't go to school on Fridays because it's useless to teach her about the future if the future is uncertain. I found it encouraging. "

16-year-old Kaidynce Storr from Canada's Tuktoyaktuk refers to Greta Thunberg of Sweden, whose school strike for climate has received worldwide attention. In Tuktoyaktuk, the effects of climate change are already approaching.

"I'm scared of human security. In winter, moving outside has become more dangerous. In addition, it is only a couple of meters left that the houses of the residents do not fall into the ocean. "

Storr is part of a group of indigenous youth in the University of Alberta's Tracking Change research project. During the project, in addition to climate change, young people will learn about nature, animal migration routes and fish stocks, among other things. Based on the presentations they prepared during the project, six students were selected to attend the COP24 climate summit in Katowice, Poland, in December.

"We have studied to learn about changes in nature, water and the environment, including through indigenous traditions. We also considered how this knowledge could influence policy and governance. Communities are interested in the opinions of young people and should be listened to, "says Carrie Kaarsgaard, who is leading the project.

After six months of preparation gone on a journey the group has appeared among others in Paris, UNESCO and the UN's Public Youthin of a packed and have floor to the indigenous forum. At the Katowice Climate Summit, young people spoke and gave presentations on several occasions, including the UN Youth14 Conference and the Indigenous Caucus Forum of Indigenous Peoples.

Fear is the ultimate feeling about climate change for Canadian children.

"It's sad that the climate is changing and we know it's happening. I think we should learn how it happens and how it affects us, "says 13-year-old Kelsey Lockhart.

Article Con't...

[Translated with Google Translate]

"It's very scary and it's progressing much faster in the Arctic than many think," 17-year-old Gavin Winter-Sinnott continues.

Ryan Schaefer, 17, who gave a presentation on the Slave River in his homeland, woke up to climate change as he toured the country with his uncle.

"I started to see the change with my own eyes and not just on TV."

"We see bladders in deer and other animals. Even buffaloes no longer show up much in our area. The water level is constantly rising and falling, "says 16-year-old Portia Morin.

"As a child, I played on the beach, but as I grew up, the beach became unstable and unsafe, and I was no longer allowed to go there. It was the first time I realized my home was sinking. "

Morin finds it difficult to discuss climate change. According to [her], indigenous peoples are most concerned because it affects them the most. Many people in her community do not know what they could do.

"They may not have enough information or anyone to teach about climate change. Many don't want to talk about it because it's such a difficult subject. They dare not tell the truth but push it aside" Portia says.

About 370 million people, or about 5 percent of the world's population, belong to indigenous peoples. Indigenous peoples are particularly vulnerable to the effects of climate change, as they are often more dependent on natural resources and more vulnerable to the damage caused by extreme weather events. In addition, for example, isolation from decision-making, weaker land ownership rights and poverty negatively affect the ability of indigenous peoples to influence their countries 'climate action.

Native American Tom Goldtooth, 65, has led the Indigenous Environmental Network, which focuses on the Americas since 1996. He believes climate change can also be curbed in courtrooms. According to Goldtooth, indigenous peoples must pursue a new kind of legal trend that sees the "Mother of Nature" as an independent entity and not just a resource, as capitalism sees it. According to him, land, and even water and air should have rights.

In Katowice, Goldtooth spoke about cooperation between indigenous peoples at both the national and international levels. Founded in Paris in 2015, the Alliance of Mother Nature's Guardians brings together the indigenous peoples of the world to secure the protection of the planet for future generations by peaceful means. It represents all the members of the world's indigenous peoples from more than 70 countries, more than 5,000 different groups and 4,000 different languages. The organisation's objectives include protecting or "sanctifying" forests and planning a fair transition from fossil fuels to clean energy, taking into account the rights of indigenous peoples.

In addition to the natural upheaval, young people in the Tracking Change project in

Article Con't...

Katowice expressed concern about the disappearance of their cultures. The effects of climate change are endangering the old ways of following the indigenous cultures of many indigenous cultures.

According to Portia Morin, many communities do not even want to think that their country or culture could disappear. She is deeply disappointed that policymakers are not listening to the aspirations of indigenous peoples to limit the power of industry in their home region.

"My community forbade them from coming to our lands, but they still came. It made me angry that we are being told the government has the power to stop them, but they don't. I think they should respect what people say and not continue despite the bans. "

Protecting indigenous cultures therefore also means policies to curb climate change. For example, ILO Convention 169, drawn up by the United Nations International Labor Organization (ILO) in 1989, could also be applied to climate policy. The purpose of the agreement is to prevent the extinction of indigenous cultures and languages and to ensure equal treatment of indigenous peoples with other sections of the population. It also includes the right of indigenous peoples to own and control the countries in which they traditionally reside. A binding agreement holds national governments accountable for the rights of indigenous peoples.

The agreement was first ratified by Norway in June 1990. Among the 21 countries that have ratified the agreement, Norway is still the only country in the Arctic. Canada and the United States have justified their non-ratification on the grounds that they do not believe in the international community's ability to monitor the implementation of the agreement.

In Finland, the Ministry of Justice announced on 24 January that ratification of ILO Convention 169 would no longer proceed during this term. Ratification of the agreement, the Nordic Sámi Treaty and the reform of the Sámi Parliament Act passed to the next government for consideration.

Canada Ft. Richard Stewart, 18, from McPherson aka Tetlit Zhe, initially didn't want to leave for Katowice, but eventually, on the recommendation of other group members, decided to come tell his story.

"I heard about climate change from my father, but my father didn't call it climate change. Most elders don't even talk about climate change but they call it man-made change. My dad talks about how animals and plants have changed so much. He talks about how many animals there were in the 1970s and 1980s and now there aren't that many anymore, "Stewart says.

"Our lifestyles are slowly dying."

Article can be found at: https://hyvansaanaikana.fi/ilmastonmuutos-uhkaa-alkuperaiskansoja/?fbclid=IwAR0Gts8Y7_6uozHgQK-5iienvDNDpQ-pFVtV9OwoLyuVHsMCArK3rYnGvZc

What did you think of this article?

Discussion Questions:

Discuss the following questions with your group members and jot down notes. Be prepared to share what you learned with the rest of the class.

1. How have communities in the Mackenzie River Basin experienced climate impacts and responded to changing climatic conditions (e.g. housing designs, clothing, transportation, hunting/fishing patterns, food storage)?
2. What components of the worldviews represented in these communities help us consider ways to move forward?

Tracking change is investing in the development, research skills, knowledge sharing and relationship building between the next generation of knowledge holders in the Mackenzie River Basin.

Images from top to bottom: 1. Crafts at the YKF and 2. Workshops at the YKF!
Photo Credit: Tracking Change

Student Handout: Youth Knowledge Fair leads to discussion on Gender and Climate Change

Kaidynce Storr, one of the Youth Knowledge Fair (YKF) participants, was interviewed for an article about climate change and gender during the COY14 (Conference of Youth) and COP24 in Katowice in 2018, (see previous case studies for more details). The article focuses on how climate change impacts people differently according to such factors as gender, age, race, and access to wealth. Because people are impacted differently, it is important to consider various people's perspectives when thinking about how to address climate change.

Excerpt from **(Un)Learning about Girls & Women for Intersectional Climate Justice: 7 Stories from Across The World**
Emily B. N'Dombaxe Dola

Not feeling listen to (Excerpt): Kaidynce is a teenage girl from Tuktoyaktuk, a small town in North-West Canada. She is Inuit, from the Inuvialuit community. Tuktoyaktuk is a coastal settlement that is predominantly indigenous, with its residents seeing first-hand the effects of climate change. Houses are sinking due to coastal erosion and rising sea levels, and people are unsure about what to do about it. Food production systems have been affected too: whereas fruits like berries are taking longer to grow, fish like salmon are more abundant than normal. Another prominent issue is that whilst the community is used to travelling on ice, they can no longer do it easily due to seasonal changes and safety concerns. Higher temperatures have meant more snow, and it is harder for people to tell if the ocean, lakes or creeks they normally travel on are frozen or not.

In essence, the natural world of Kaidynce's community is changing, and with that, everything else. In particular, Kaidynce is concerned about how their traditional indigenous knowledge is becoming obsolete and less applicable owed to changes to their environment, and subsequently way of life, due to climate change. Nevertheless, though Kaidynce didn't discard the importance of climate adaptation, she argued that climate mitigation was the main imperative: without it, there wouldn't be anything left to adapt to. Indeed, as part of mitigation efforts, her community has been using windmills to reduce their dependence on fossil fuels. In addition, there are ongoing efforts to educate youth about the environmental changes affecting their community, to push for the inclusion of climate change in the school curriculum, and to form local groups (made up of harvesters, experts, youth, researchers…) that can work on collecting data, monitoring the land, and acting on climate change.

At a personal level, Kaidynce was involved in a community research project from the University of Alberta, focused on youth involvement in knowledge production, mainly in relation to climate change and indigenous knowledge. Kaidynce was one of the First Nation and Inuit teenagers at the 14th Conference of Youth (COY) who showcased their resulting research from this initiative. As an Inuit teen, she contended that young girls like her aren't very involved and/or represented in climate change discussions and action, even if people are working to improve this. In her opinion, the reasons for this lack of inclusion range from the girls' own shyness to them "not feeling listened to". Indeed, Kaidynce shared surprise at how people cared for and listened to her, and her peers, discussing their research during the COY session. She particularly liked when an indigenous girl from New Zealand stood up and spoke in her native language, showing solidarity with indigenous communities in Canada. It made her feel appreciated.

Article Con't...

Concluding Excerpt: Being heard and indigenous solidarity. Social vulnerability and women's livelihoods. Traditional knowledge and sustainability. Contextual privilege and social status. National interests and expertise. Upbringing and faith. Youth and their concerning future. Many things can be highlighted in the stories presented. The diverse realities of Kaidynce, Sharon, Cai May, Alfa, Pramisha, Nouhad and Fatou [other women and girls interviewed for the story], which are almost certainly deeper than explored in this article, are a microsome of how girls and women engage in climate action across the globe, and how that work relates to their lives and/or identities. Diverse and multi-dimensional personal narratives coexist within this post, as multiple identities and issues **intersect** in women and girls' experiences.

None of the stories is equal to the other (even if the same line of questioning was applied to all). This shows the diversity and complexity of being a girl/woman and being more than just a girl/woman. Being affected by gender inequality, being affected by more than gender inequality. Not all women and girls are equally disadvantaged, some are (more) privileged, and already have a seat at the policy table, which might be unrepresentative of other girls and women across the globe. Even distinctive but homogenising labels such as "indigenous" and "Global South" are not enough without considering local contexts and communities. I bet this sounds pretty obvious and straight-up common sense right now, but it is often lost within gender equality rhetoric, policy and action processes (and not just in climate action).

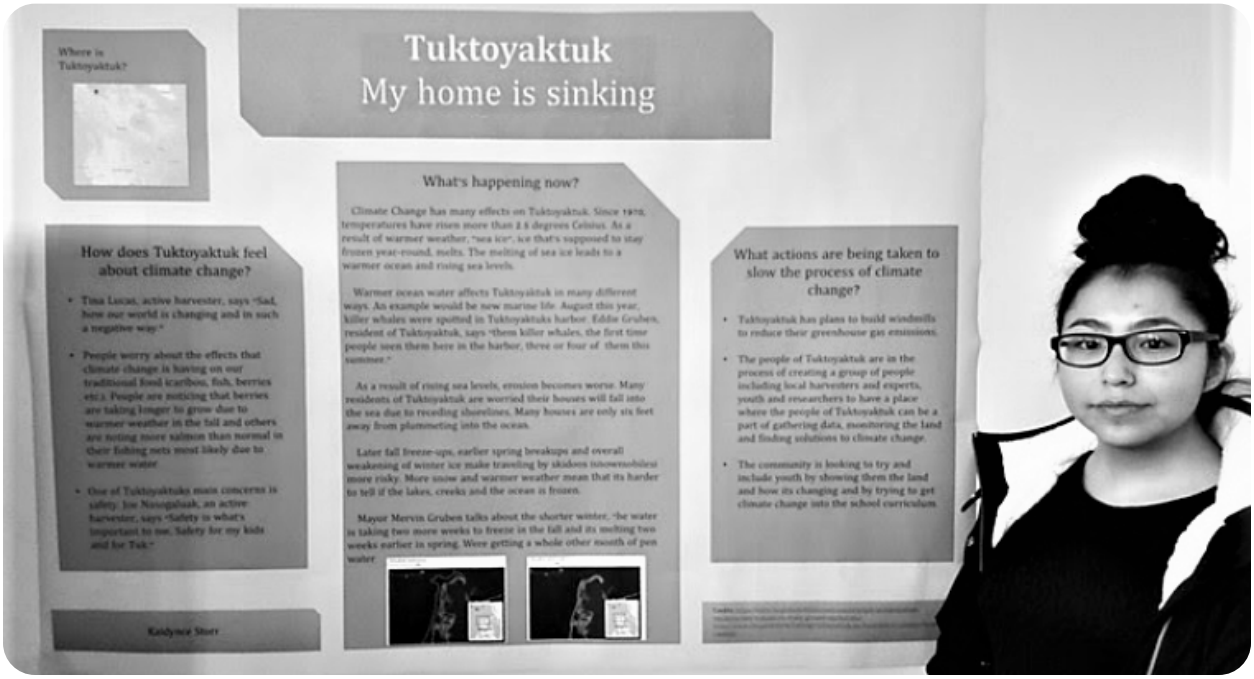
Overall, the United Nations Framework Convention on Climate Change's (UNFCCC) GAP is a commendable step in the right direction: considering gender perspectives and inequalities should always be part of climate policy, negotiations and action. However, to achieve truly transformational and intersectional climate justice, attention must be paid to structures and relations outside the UNFCCC. The backgrounds, identities and experiences that make up the everyday lives of girls and women shape their ability and decision to be part of climate action, to begin with, as well as their interests and concerns. In addition, a single narrative on gender inequality is not enough, and using only a gender lens to address the issues affecting girls and women is misguided. For a proper intersectional approach, there is a need to go beyond exploring identities, delving deeper into how multiple and interlinked experiences of discrimination and oppression affect girls and women in different contexts. Lastly, acknowledging this piece fails to do so, there is a need to engage more with men and non-binary people, going beyond narrow ideas of gender and gender issues.

Article can be found at: https://www.ukycc.com/post/un-learning-about-girls-women-for-intersectional-climate-action-7-stories

Discussion Questions:

Discuss the following questions with your group members and jot down notes. Be prepared to share what you learned with the rest of the class.

1. How have communities in the Mackenzie River Basin experienced climate impacts and responded to changing climatic conditions (e.g. housing designs, clothing, transportation, hunting/fishing patterns, food storage)?
2. What components of the worldviews represented in these communities help us consider ways to move forward?



Kaidynce Storr presenting her research at the Tracking Change Youth Knowledge Fair
Photo Credit: Tracking Change

Winners of the Tracking Change Youth Knowledge Fair Poster Competition in Katowice, Poland! From left to right: Gavin Winter-Sinnott, Mayo YT, Ryan Schaefer, Fort Smith NWT, Richard Stewart, Ft. McPherson (Tetlit Zheh) NWT, Kaidynce Storr, Inuvik NWT, Portia Morin, Edmonton AB, and Kelsey Lockhard, Lutsel K'e, NWT (Image below)

> *"In the beginning, I had no clue what UNESCO meant or how big of a deal this opportunity was for me. I learned that I was at the world's headquarters of UNESCO and was speaking in front of world leaders on climate change from around the world. These people listened to what I had to say about the impact of climate change on my home community."* - Ryan Schaefer, Fort Smith NWT

Winners of the Poster Challenge in Katowice, Poland, December 2019.
Photo Credit: Tracking Change

Optional Student Handout: Youth Knowledge Fair (Additional Reading)

How the COP24 climate talks betrayed the fight for human rights
Kera Sherwood-O'Regan

It's 2.58am on Sunday in Kraków, Poland. After an intense 48-hour final day at the COP24 Climate Negotiations an hour and a half away in Katowice, myself and thousands of other climate nerds are poring over the new text that will shape the way states combat the looming climate crisis.

While much of New Zealand has spent the past two weeks winding down to a summer Kirihimete, a weird subset of the global population – diplomats, activists, indigenous leaders, vegan pamphleteers, journalists, exasperated looking baristas, and let's not forget the Polish Policja – have been occupied round the clock in a conference where world leaders finally came (more or less) to an agreement about how to move forward together on climate change.

The COP21 conference in 2015 saw the creation of the Paris Agreement, with states around the world agreeing to work collectively to limit global temperature rise to "well below 2C". This year's conference has seen the development of the 'Paris Rulebook' which gives the agreement substance, and setting out how it will actually be implemented.

Coming to consensus on such an important plan sounds like a great win for global diplomacy. The catch? Achieving that consensus included hacking a huge human rights-shaped hole out of the heart of the agreement.

Human rights references in the Paris Agreement were hard fought for and won by global civil society campaigning, and indeed the hard work of many of our Māori activists. This commitment to rights has been echoed again and again throughout the Katowice conference, with many groups, including the International Indigenous Peoples Forum on Climate Change and our homegrown rangatahi rōpu, Te Ara Whatu, campaigning directly for rights to be front and centre.

Despite numerous recommendations from human rights experts and advocates, references to human rights were gutted from the text, with the exception of the preamble and a chapter on carbon markets, which Brazil effectively blocked until 2019.

This situation is made all the more bitter by the proposal to strip rights from the text coinciding with Human Rights Day, the 70th Anniversary of the UN Declaration of Human Rights. It also happened immediately after the parties (states) and indigenous peoples celebrated a supposedly historic step forward with the adoption of the Local Communities and Indigenous Peoples Platform during the first week of the talks.

Poetic.

It's now 12.43am Tuesday, and the extra two days or so of reflection has only made the gravity of this situation clearer (continued on next page...)

Article Con't

I'm still not really sure how to process the last two weeks, let alone this heavy issue of human rights. Tonight, I've been thinking about the stories we tell about climate change. We are quick to remind "non-believers" that climate change will affect everyone, and it's true on one level. But on another, we know it is already affecting some more than others, and this weekend's decision to write rights out of the text makes that cut a little deeper.

We know that marginalised groups such as indigenous peoples, disabled people, women, and those in developing nations have contributed least to climate change, and yet bear the brunt of its effects. Look to the recent Camp Fire in Paradise, California to see that even "disasters" discriminate. Many of those who perished were elderly and the disabled, for whom escape was literally inaccessible.

Over the last two weeks, I've also heard indigenous people from around the world share their own stories of climate change. Those aren't stories set in the future. They're not talking about what will happen in five or ten or 20 years. They're sharing how climate change is already on their doorstep and in some cases, threatening to knock the door down.

Kaidynce Storr, a 17-year-old from Tuktoyatuk in the Canadian Arctic, told a room full of our indigenous caucus that her "home is sinking" and how she fears that, six feet away from the eroding coastline, the house is "one storm away from falling into the ocean." Other youth from her rōpu shared how the traditional knowledge they learned from their elders no longer matched the ecosystem they saw before their eyes, as the permafrost thins, as algae blooms create dead zones in their awa, and as their traditional fishing spots are now home to different species of fish than generations before them.

As the communities on the frontlines of climate change, and the communities leading the way in climate solutions, we deserve to be directly involved in decision making that affects our communities. Yet looking at the text that has come out of COP24, we barely feature. Stripping human rights language, and especially direct references to indigenous rights, opens a channel for countries to railroad indigenous and human rights in the name of climate action.

Sidelining indigenous rights under the guise of clean development is not a novel opportunity either. Under the Paris Agreement's predecessor, the Kyoto Protocol, the Panamanian government attempted to claim carbon credits under the Clean Development Mechanism (CDM) through the Barro Blanco Dam. The dam development, however, repeatedly excluded indigenous communities from information and decision making about the dam, and forced indigenous Ngaäbe people from their homes. While eventually withdrawn from the CDM in 2016, this, and other such cases set a dangerous precedent and make it even more important that human rights remain at the core of these climate negotiations.

Thinking about what has been cut out of this agreement, the apocalyptic image that is stuck in my mind is the prospect of our own wāhi tapu back home being desecrated to make way for solar plants or wind farms (continued on next page...)

Article Con't

It can be easy to think that something like that wouldn't happen in Aotearoa, and for sure, there are other protections in place that would hopefully prevent such flagrant disregard for our indigenous rights, but if there's one thing this COP has taught me, it's that we can't take anything for granted.

The erosion of rights starts out slowly, and subtly, and this disappointing outcome for the Rulebook should be a reminder that we cannot take these rights for granted. We cannot simply rely on the good faith of states. We should take note that the country responsible for punting the one rights-inclusive part of the Rulebook to later negotiations is also the one who just elected a President who has promised mining on indigenous Amazon whenua, amongst other anti-environmental, anti-indigenous, and anti-human rights kaupapa.

While we are right to be proud of UNDRIP, Te Tiriti o Waitangi, and other protections we have in place in Aotearoa, it looks likely that our indigenous cousins in Brazil, and elsewhere around the world have a steep uphill battle ahead. Having spent the past three weeks surrounded by indigenous strangers from around the world who very quickly became whānau, I'm reminded that while we need to step up the mahi and keep te ahi kā burning, we also need to both tautoko as well as draw strength from our indigenous whānau across the globe

For definitions of some of the word used in this article see the original article at: https://thespinoff.co.nz/atea/19-12-2018/how-the-cop24-climate-talks-betrayed-the-fight-for-human-rights/?fbclid=IwAR0zh_xWbByMvdex_vCsv8D11TFy7v-HMAgrUPO8GDEd2rI1bzAfxdgz8is).

Discussion Questions:

Discuss the following questions with your group members and jot down notes. Be prepared to share what you learned with the rest of the class.

1. How have communities in the Mackenzie River Basin experienced climate impacts and responded to changing climatic conditions (e.g. housing designs, clothing, transportation, hunting/fishing patterns, food storage)?
2. What components of the worldviews represented in these communities help us consider ways to move forward?

Image: Protesting for action against Climate Change at COP24 in Katowice, Poland.
Photo Credit: Tracking Change

Student Handout: Preparing for the Youth Knowledge Fair - Poster Competition

The Youth Knowledge Fair is your opportunity to share knowledge about how your community is experiencing climate change - and acting to address it. As a young person, your voice is important to the climate conversation. This project is a chance for you to share important knowledge with your school, community, and young people throughout the greater Mackenzie River Basin.

WHAT IS THE YOUTH KNOWLEDGE FAIR?

A *knowledge* fair is like a *science* fair, except that it focuses on Indigenous knowledge of the environment. This means that it incorporates information from knowledge holders in your community, such as Elders, harvesters, and other land users. It also connects knowledge of the land with people's everyday lives. Finally, it links that knowledge with decision-making.

WHAT DO I NEED TO INCLUDE IN MY PROJECT?

Because your community is connected to a river system, focus on the impacts of climate change on the local aquatic ecosystem. Your knowledge fair display should include:

- Historical and contemporary observations and perceptions of conditions and change in the health of the aquatic environment (e.g. water quality, quantity, flow, groundwater, permafrost conditions)
- Historical and contemporary observations and perceptions of conditions and change in fish species (population, movements, diversity, invasive species) and other related species (e.g. geese, beaver)
- Sustainability of fishing livelihoods (e.g. harvesting levels and practices, diet, health, access, issues, perceptions of change in the health of valued fish species)
- Implications for decision-making (e.g. how to ensure decisions maintain health relationships to the ecosystem, maintain respectful and spiritual relationships, respect treaty rights)

WHAT SHOULD MY DISPLAY LOOK LIKE?

Your display must include a poster, but you can also include other objects and/or multimedia:

- Posters should be a minimum of 36x48 inches in size
- Posters should be informative and visually appealing, including:

- Large title and subtitles/headings (visible from at least two meters away)
- Photos and other images (graphs/charts)
- Stories, interviews, summaries, and quotes
- Details about how the knowledge was collected (e.g. who did you interview?)

- Displays can be multimedia and three dimensional (e.g. include materials, foods, arts/crafts, tools, video, music, and/or other props)

Creating your Poster: Questions to Consider

During the design process (before you hand your poster in), continue to ask yourself the following questions.

Content

- What is the most important/interesting/astounding finding from my research project? Is this clear on my poster?
- Do my subpoints contribute to my most important point? Do I provide clear and interesting examples?
- Is my text clear and to the point? Do I need to add any forms of text like quotes or poems that add interest or convey things that don't fit in report-style writing?
- Do my photographs and artwork contribute to my most important point?
- Does my poster mention the people who contributed to my understandings?

Design

- Is the title of my poster clear and catchy?
- Do I use bullets, numbers, and/or subheadings to make my poster easy to read?
- Are my images clear, interesting, and appealing? Do they support my main points?
- Do the colors on my poster look good together?
- Is my layout clean, consistent, and easy to view?

Beyond the Poster

- What kind of information can I convey by speaking that will complement my poster? Are there stories I could tell? Songs to share?
- Are there other objects/artifacts that I could bring along to show people when I present my poster?

Teacher Handout: Suggestions for In-Class Youth Knowledge Fair

Youth perspectives on climate change are particularly important, as are opportunities for youth to learn from one another.

A Youth Knowledge Fair (YKF) is similar to a traditional science fair except the emphasis is placed on mobilizing Indigenous Knowledge and cultural practices. An in-class YKF is a great way for students to get first hand experience with data collection (i.e. interviews), learn from people in their community, and connect with their culture. The following are some suggestions for how to host a youth knowledge fair in your class.

1. Encourage students to get creative! The YKF is supposed to be a fun way for students to learn about climate change and share what they have learned with others. Previous students have worn cultural clothing, included words in their traditional language, and even brought in dry fish to share with the audience.
2. Invite other classes to visit your YKF. It can be inspiring for youth to see other young people investigating issues that matter to them and speaking out as leaders. Invite students from other grades to the YKF so they can view the research posters and ask questions.
3. Elders place great value on sharing knowledge with young people. Extend an invitation to Elders and land users in your community that way they can see what the students learned and how they are expressing themselves about the issue of climate change.
4. Consider inviting community leaders and government officials to view the posters. This is a great opportunity for students to talk to decision makers about issues that matter to them.

Students sharing their Posters at the 2018 Tracking Change Youth Knowledge Fair at the University of Alberta
Photo Credit: Tracking Change

Student Handout: How to Conduct an Interview

Generating Interview Questions:

There are different types of interview questions:

1. Closed-ended questions require a simple answer (what is your name?), or a selection from a few set answers. Closed-ended questions are handy when you are interviewing a lot of people and want to easily compare their answers.
2. Open-ended questions require the person being interviewed to explain in some detail. Open-ended questions are helpful when you want to discover more depth or complexity. You might ask them as follow-up questions to things people have said earlier in an interview.

Activity: Interviews

Read and label each question below in the blank provided. For closed-ended questions, write "C," and for open-ended questions, write "O." (Adapted from NWT Heritage Fairs Teacher Manual https://www.pwnhc.ca/wp-content/uploads/2014/03/nwt_heritage_fairs_teacher_manual.pdf):

_____ 1. What was it like when you went fishing as a child compared to now?

_____ 2. When were you born?

_____ 3. You said earlier that travelling over the ice is different for young people today than it was when you were young. Can you tell us how it is different?

_____ 4. Would you tell me about your memories of hunting caribou with your uncle?

_____ 5. Do you like ice hockey?

Share the information together as a class to refine understanding of the issue. Prepare for the interview. Interviews may take place in school or outside of school. If the interview takes place outside the school, students may meet the Elder somewhere natural (in a home or outside), and they may help with daily tasks, so conversations will flow more naturally. If students are inviting the guest(s) to the school, prepare to welcome them and create a hospitable environment in the classroom. Walk through the "Best Practices for Interviews" section. Role play interview best practices in pairs.

Best Practices for Interviews:

Keep these best practices in mind when you're conduciting interviews for your project:

1. Locate a quiet and comfortable place for the interview.
2. If the person being interviewed is more comfortable in another language, then ensure you've planned for a translator.
3. Introduce yourself.
4. Record the person's name, the date of interview, and the location.
5. If you're planning on recording the interview on your phone, tablet, computer, or other type of recording device, make sure you ask for consent before you begin.
6. Explain the purpose of the interview and how you will use the information.
7. Do more listening than talking.
8. Take necessary notes.
9. Ask for clarification of special language and terms.
10. Write follow-up notes about your impressions, ideas, and questions you still need to ask. Analyze your findings to identify the important points.
11. Decide if any follow-up is needed.
12. Send your interviewee a thank-you notes

Interview the Elder(s) or community member(s) using the students' interview guide. Students should take notes during the interview on a blank piece of paper. Following the interview, have students invite their interviewee(s) to the class Youth Knowledge Fair so that the knowledge holder can see the outcome of the interview.

Adapted from NWT Heritage Fairs Teacher Manual https://www.pwnhc.ca/wp-content/uploads/2014/03/nwt_heritage_fairs_teacher_manual.pdf

Student Handout: Presentation Rubric

NAME _____ **GRADE:____/20**

	4	3	2	1
Content **x2**	Clear, detailed, and effective explanation of: the potential effects of climate change on environmentally sensitive biomes; how climate affects the lives of people and other species; the risks and benefits of human activity, and its impact on the biosphere and the climate	Adequate explanation of: the potential effects of climate change on environmentally sensitive biomes; how climate affects the lives of people and other species; the risks and benefits of human activity, and its impact on the biosphere and the climate	Limited explanation of: the potential effects of climate change on environmentally sensitive biomes; how climate affects the lives of people and other species; the risks and benefits of human activity, and its impact on the biosphere and the climate	Does not address the key content outcomes.
Organization and Detail	Addresses selected issue with depth and creativity; provides clear purpose; includes important examples, stories, facts, images, and/or evidence; provides relevant quotes, stories, and/or examples from local knowledge holders	Addresses selected issue well; somewhat clear purpose; some supportive examples, stories, facts, images, and/or evidence; provides quotes, stories, and/or examples from local knowledge holders	Somewhat addresses issue; attempts to define a purpose; provides weak examples, stories, facts, images, and/or evidence; provides few quotes, stories, and/or examples from local knowledge holders	Does not address issue; does not define a purpose; weak or no supportive evidence of subject; provides irrelevant or no quotes, stories, and/or examples from local knowledge holders
Poster Design and Layout	Excellent and creative visuals engage the audience and emphasize key takeaways; title and key ideas are clearly displayed and impactful; photos, artwork, and/or charts/graphs highlight Indigenous knowledge of the issue	Visuals are appealing and emphasize key takeaways; title and key ideas are clearly displayed; clear photos, artwork, and/or charts/graphs are present	Visuals are somewhat appealing/colorful; title and key ideas are evident; photos, artwork, and/or charts/graphs are present but somewhat unclear or disconnected	Little to no attempt to engage the audience with visuals
Presentation	Demonstrates strong enthusiasm; demonstrates knowledge by answering all questions with strong explanations	Shows some enthusiasm for topic; answers questions with good explanations	Shows little or mixed enthusiasm for topic; uncomfortable with information and answering questions	Shows no interest in topic presented; does not have grasp of information and unable to answer questions
Comments				