



Climate Change 12 – National and Global Action

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School Name: <i>Aurora Virtual School</i>	Signature of Superintendent:
Committee Approval Date: August 2, 2022	Committee Chair Signature:
Course Name: Climate Change 12 – National and Global Action	Grade Level of Course: 12
Number of Course Credits: 4	Number of Hours of Instruction: 110

Department Authorized Prerequisite(s):

n/a

Special Training, Facilities or Equipment Required:

n/a

Course Synopsis:

Climate change is the most complex and wide-reaching challenge facing humankind today. Reducing the impacts of climate change and moving Canada and the globe toward resilience and adaptability for climate impacts will require substantial changes at all levels of Canadian and global societies. It is critical that Canadians understand climate change causes, impacts and risks. An educated, proactive public, including youth, is essential to driving the required transformation. Yukon Climate Change 12 is designed to provide students with a background permitting actions to address climate change.

Goals and Rationale:

The Canadian Climate Atlas identifies goals that are those of Yukon Climate Change 12. The Atlas challenges individuals and communities to take environmental and climate action. Things like upgrading our home insulation, riding our bikes and taking public transit are important, but these small-scale personal choices take place in a wider world. Our social, political, and economic systems

have a responsibility to lead by example, set policies that will guide communities and governments to tackle the climate challenge effectively.

There are two aspects of climate action: mitigation (making sure climate change does not get worse by decreasing atmospheric emissions) and adaptation (getting ready to handle the impacts of ongoing climate change). Mitigating and adapting to climate change will require a combination of:

- **Technical know-how**

to find solutions that allow us to effectively transition to low-carbon sources of energy, to provide data and analysis to understand global aspects of climate change and its consequences and benefits to create innovative adaptation tools and methods.

- **Political will**

to create market incentives such as carbon taxes that reduce our collective reliance on high-carbon fuels, and to create climate-smart laws and regulations in the face of resistance and denial.

- **Personal responsibility**

to recognize the importance and urgency of climate change, to make changes in our own lives, and to empower community, government and business leaders to take a key role in our communal effort, so we can creatively rise to the collective economic and social challenge.

The Yukon Climate Change 12 provides a national and global focus to inform students about climate change processes, related political, economic and social issues and encourage students to become active in addressing the issue.

Yukon First Nations Perspectives:

The knowledge and experiences of Yukon First Nations provide intimate insights to the impacts that climate change is having on the Yukon environment. Indigenous people have been stewards for and caretakers of the land for countless generations and have known that climate has always been changing – but are now seeing and experiencing the impact that human interference with natural processes is having on climate change. The course seeks to inform students about the Indigenous and Yukon First Nation experience of climate change, help them learn how First Nations have adapted over millennia, and ensures they learn about current Indigenous-based solutions that are being proposed and implemented worldwide.

The Yukon Climate Change 12 program goals coincide with many aspects of the Yukon First Nations Umbrella Final Agreement, particularly Chapter 11: Land Use Planning; Chapter 14: Water Management; Chapter 16: Fish and Wildlife; Chapter 17: Forest Resources. These chapters all speak to the need for Yukon First Nations to have the capacity to protect a way of life that is based on

an economic and spiritual relationship between Yukon First Nation people and the land. Central to this is the right to ensure the land and its habitats are managed and protected by First Nations. It is critical that First Nation students understand climate change, on both a local and global perspective, to become effective lifelong land stewards for their Nations.

BIG IDEAS

Processes adding carbon to the atmosphere are causing climate change impacting global environments

Political, economic and social systems supporting the production and consumption of fossil fuels are resistant to change

The rate of climate change gives urgency to achieving net-zero emissions, implementing mitigation measures, and developing adaption plans

Yukon First Nations relationship with the land and water provide insights into the effects of climate change

Health, wellbeing and resilience need to be promoted as key responses to climate change

Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to do the following:</i></p> <ul style="list-style-type: none"> • Use social and scientific inquiry processes and skills to ask questions; gather, interpret, and analyze ideas about climate change in Canada and communicate findings and decisions • Assess the significance of an uneven distribution of climate change impacts on Yukon environments, economy, communities, and people, and explore challenges these impacts may have on communities. • Understand Yukon Government, Yukon First Nations governance, Umbrella Final Agreement goals and directions, political institutions, ideologies, environmental, political, and economic policies • Assess the extent to which climate change is an issue of human rights and inequality, especially to Indigenous peoples • Assess how prevailing conditions and the actions of individuals or groups affect events, decisions, and climate change adaptations • Explain and infer different perspectives on past or present people, places, issues, or events by considering prevailing norms, values, worldviews, and beliefs • Make reasoned ethical judgments about actions taken in response to climate change findings and decisions 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • Adding carbon to the atmosphere, particularly from sequestered carbon sources is increasing the rate of climate change • Political, economic, and social systems dependent and benefiting from consumption of fossil fuels resist change and often camouflage their actions • Climate change poses threats and dangers to the survival of Indigenous communities worldwide, even though Indigenous peoples contribute the least to greenhouse emissions • Various legal and institutional barriers affect Indigenous peoples’ ability to cope with, and adapt to climate change • Energy and resources needed for transition to net zero need to be meet low carbon production requirements • The practice of listening and learning from elders provides insights into the nature of environmental changes and ways to mitigate and adapt • Social and psychological stresses when addressing

- Assess the significance of places by identifying the physical and/or human features that characterize them
- Identify and assess how human and environmental factors and events influence each other
- Evaluate different political, economic and social institutions regarding both policies and actions directed toward net zero carbon emission goals
- Identify actions and processes for influencing political, economic and environmental decisions at all levels
- Evaluate how climate change actions or events affect human practices or outcomes
- Distinguish between rhetoric that appears to but avoids addressing climate change and actions that require addressing climate change
- Evaluate successes and short comings of mitigation and adaptation actions and how to use such evaluations to improve processes
- Evaluate the resilience of region, community and family and, the capacity to learn and adapt from problem
- Recognize local, community, domestic and international conflicts and co-operation around climate change topics
- Understand the application of the Climate Change Adaptation Certification Tool provides insights into possible individual and community action
- Apply a Climate Change Adaptation Certification Tool to your region

climate change

- Indigenous peoples are among the first to face the direct consequences of climate change, due to their dependence upon, and close relationship, with the environment, and its resources

Big Ideas – Elaborations**Climate Change 12 – National and Global Action*****Yukon First Nations relationship with the land and water provide insights into the effects of climate change:***

Climate change poses threats and dangers to the survival of Indigenous communities worldwide, even though Indigenous peoples contribute the least to greenhouse emissions. In fact, Indigenous peoples are vital to, and active in, the many ecosystems that inhabit their lands and territories, and may therefore help enhance the resilience of these ecosystems. In addition, Indigenous peoples interpret and react to the impacts of climate change in creative ways, drawing on traditional knowledge and other technologies to find solutions which may help society at large to cope with impending changes. In North America, some Indigenous groups are striving to cope with climate change by focusing on the economic opportunities that it may create. For example, the increased demand for renewable energy using wind and solar power could make tribal lands an important resource for such energy, replacing fossil fuel-derived energy and limiting greenhouse gas emissions

Curricular Competencies – Elaborations**Climate Change 12 – National and Global Action****Content – Elaborations****Climate Change 12 – National and Global Action****Adding carbon to the atmosphere, particularly from sequestered carbon sources is increasing the rate of climate change**

- Human emissions of fossil carbon change the atmosphere exacerbating changes to climate, weather, terrestrial, and marine environments and ecosystems
- Positive feedback loops resulting from a warming climate accelerate the rate of climate change adding urgency to mitigation and adaptation efforts.
- Tables, graphs, charts and data sets related to climate change provide insights into risks and possible initiatives related to social, political, and economic conditions
- Fossil fuels have provided a relatively inexpensive, transportable, available energy source human development has depended on
- Reduction in the consumption of fossil fuels is essential in mitigating climate change

Political, economic and social systems dependent and benefiting from consumption of fossil fuels resist change and often camouflage their actions regardless of climate change

- International targets to reduce emissions of greenhouse gases have not been met indicating compulsory strategies are required
- Political, economic and technological systems that contribute to greenhouse gas emissions are slow to change and overcoming such resistance is an essential element in mitigating climate change
- Compulsory regulations are shown to be more effective in addressing carbon outputs than non-compulsory policies
- Climate change is a global, national, regional, and local crisis that require integration and action at all levels
- Citizens need to demand consistency in policy and practice from political, economic and societal systems in addressing climate change
- Climate models are continuously improving in both accuracy and use as a predictive tool
- Attribution science anticipates extent, severity and duration of extreme weather events

The practice and behaviors associated with listening and learning from elders provides insights into the nature of environmental changes

- Identifying northern environmental changes related to changing climate provides insights into mechanisms needed
- Climate change alters forests, plant growth, aquatic systems, and animal populations, which affect our way of life
- First Nations relationships to the land provides insights how such changes alter a way of life

Social and psychological stresses created by prospects associated with climate change need to be addressed

- Health, well-being and resilience are all affected by climate change and the uneven impacts on some populations and communities
- Developing plans to address climate change require changes in behavior and individual, community, regional and national resilience
- Individual and societal resilience is developed through working through problems, recognizing failures, learning from failures and persisting in addressing problems
- Mitigation addresses the reduction of greenhouse gases while adaptation addresses changes that can be made to reduce the impacts of climate change
- Climate change mitigation and adaptation actions require individual, family, community, national and global actions
- Recognize the essential relationships between mitigation and adaptation

Recommended Assessment Components: Ensure alignment with the **Principles of Quality Assessment**

Learning Resources:

- Climate Atlas of Canada: <https://climateatlas.ca/videos>
- IPCC Climate Model evaluations: https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter09_FINAL.pdf
- Government of Canada’s Partnership with Indigenous peoples on Climate: <https://www.canada.ca/en/environment-climate-change/services/climate-change/indigenous-partnership.html>
- University of California – Davis: Climate Change lectures and videos
 - Atmospheric Structure: https://www.youtube.com/watch?v=I_QnTwrIrazY
 - Met Office Global Circulation: <https://www.youtube.com/watch?v=7fd03fBRsuU>
 - Met Coriolis: <https://www.youtube.com/watch?v=PDEcAxfSYaI>
 - Met Jet Stream: <https://www.youtube.com/watch?v=5wCq2Y9CB6Y>
 - Changing Atmosphere: <https://www.youtube.com/watch?v=YEQ2OznGDgM>
 - Aerosols: <https://www.youtube.com/watch?v=QcU-7miEYOI>
 - Ozones: <https://www.youtube.com/watch?v=iZLvikaZXUI>
 - Water in Atmosphere: <https://www.youtube.com/watch?v=I3VxLrdhGBM>
 - Clouds: <https://www.youtube.com/watch?v=CNh0uko7Htk>
 - Dynamics: <https://www.youtube.com/watch?v=ok473yzbwZ4>
 - General Circulation: <https://www.youtube.com/watch?v=6p003QZymZY>
 - Extreme weather: <https://www.youtube.com/watch?v=uKLwzx6wrzI>
 - Extreme storms: <https://www.youtube.com/watch?v=d7AHxQ2uZ4w>

- Mitigation and Adaptation: <https://www.youtube.com/watch?v=UtaLmZmFa4E>
 - Ocean Dynamics: <https://www.youtube.com/watch?v=4dxBR4XLDQU>
 - Paleoclimate: https://www.youtube.com/watch?v=8BITlpAH7_U
 - Climate and earth: <https://www.youtube.com/watch?v=fk78Qok30iA>
 - Earth and energy: <https://www.youtube.com/watch?v=V8YinC9852g>
 - Global Warming: <https://www.youtube.com/watch?v=YEQ2OznGDgM>
 - Temperature and energy: <https://www.youtube.com/watch?v=JJlv26Kt-DM>
 - Climate Change Impacts: <https://www.youtube.com/watch?v=P60rJFcy6as>
- Yukon University Climate Change Research
 - <https://www.yukonu.ca/research/our-research/northern-climate-exchange/collaboratively-developing-a-water-strategy-for-cafn>
 - <https://www.yukonu.ca/research/our-research/northern-climate-exchange/projects>
- Green Resilience: https://act-adapt.org/wp-content/uploads/2017/11/ACT_ALTGR_Web4.pdf
 - Developing Resilience: <https://www.mindtools.com/pages/article/resilience.htm>
 - SFU Climate Change Mitigation and Adaptation process: <https://summit.sfu.ca/item/17658>
 - NASSA Climate Change global model: https://climate.nasa.gov/earth-now/#/vitalsign?vitalsign=air_temperature&altid=0&animating=f&start=&end=
 - Climate Atlas of Canada: Indigenous Knowledge: <https://climateatlas.ca/indigenous>
 - Climate change policies Canada: https://www.youtube.com/watch?v=AyTZw_c7_IA
 - Attribution science: <https://phys.org/news/2021-10-attribution-science-linking-climate-extreme.html>
 - Mitigation of Climate Change IPCC: https://www.ipcc.ch/report/ar6/wg3/?mkt_tok=MTg4LVZEVS0zNjAAAAGDy9p1EH8R1bUJGPCM-Cj9OCeZD-ifNTsM9CkYhPHor4QJd_IWsJ70AojZOgGszKHoW8iuUsFMCrZgYR2VrnSaAn_cPoGXn_oP9-RNG9dtHMUu

Suggested Text for the course:

The Citizen's Guide to Climate Success: Overcoming Myths that Hinder Progress by Mark Jaccard