TO WHAT DEGREE?

Telling Climate Change Stories Through Photos

A Lesson Plan for Grade 6 to 9
TEACHER BACKGROUND

INTRODUCTION

Welcome to a series of activities designed to engage you and your students in a discussion on climate change and energy in Canada. Using photographs from Ingenium Canada’s new exhibition, To What Degree? Canada in a Changing Climate, your students will be exploring the power of photos to tell the story of how climate change is impacting Canada today.

CONTEXT

This unit plan is comprised of four lessons to develop critical thinking around climate change adaptation and mitigation. We hope they will help you engage with your students in discussions on the impacts of climate change through visual, digital, and critical literacy by using source material from the travelling exhibition. To What Degree? Canada in a Changing Climate tells stories of climate change impacts across sectors in Canada, from agriculture to transportation, biodiversity to wildfires, cool roofs to urban forests, and diseases to electric vehicles. Over the course of this unit, students will explore the power of photos to tell a compelling story on larger topics—such as climate change—that are often challenging to explain.

THEME AND GRADES

This unit is geared towards Grades 6 to 9 (Primary 6 to Secondary 3), with a focus on middle years and early high school. The activities and final project have connections not only to science, but to social science and language arts as well. Canadian National Standards for Geography and Natural Science Training Outcomes are provided, to connect the outcomes of the activities to your own respective curriculum.

Key themes of the activities and concepts include:

- Climate change adaptation and mitigation
- Science communication
- Photo and media literacy
- Community learning
- Environmental citizenship
- Visual design
- Geography

You may wish to use the lesson plans in order—as a mini-unit on climate change—or pick and choose activities or discussions from them to accompany your teaching plan. Each lesson begins with a shorter activity, then moves into extensive exercise building on climate change knowledge in an inquiry-based environment. There are suggestions for evaluation in each lesson plan, and an editable evaluation rubric for the final project.
LESSON OUTLINE

PART 1: How do we adapt to and prevent climate change? (1 class)

- Opens with a value line activity, to brainstorm and discuss prior knowledge of climate change
- Work in groups to categorize activities as either adaptation or mitigation
- Students connect actions and activities they see locally as examples of adaptation and/or mitigation

PART 2: A picture tells a thousand stories (2 classes)

- Opens with a Family Feud competition, to talk about how different actions have different impacts on mitigating climate change
- Explore how photos can effectively tell a story on the environment and climate change
- Analyze photos from the exhibit, then create word clouds and captions for one of the images
- Share their created captions and the real caption is revealed

PART 3: Researching climate change (2 classes)

- Delve deeper into one of the photos and conduct research to get a bigger picture of the story
- A ‘first steps’ list of news articles, infographics, and videos from government, news sources, etc. are provided as a starting point (as needed)
- Present back to others on the story, with more information in a Museum Walk format

PART 4: Climate change in our words and photos (3 classes)

- Work together as a class on a climate change photo exhibition of their own
- Tell a local/global story with their own photos or research, or approach it as an art project
- Research background information and create captions
- Share and display with other classes, the school, and ideally the greater community

Unit length: 2 weeks

LOOKING FOR MORE CLIMATE CHANGE AND ENERGY LESSON PLANS?

For more information on other resources and lesson plans, visit our website at: www.letstalkenergy.ca
Here you will find our climate change infographic and lesson plan series, geared towards grades 7 to 12, that focuses on urban life and biodiversity. You’ll also discover online resources from Ingenium – Canada’s Museums of Science and Innovation, literacy organization recommendations from across the country, our curated YouTube channel, Pinterest board, and other lesson plans and ideas on energy and climate change.
ABOUT THE EXHIBITION

Canada’s changing climate is a deeply complex issue that presents us with both losses and opportunities. Adapting to it is challenging but necessary. To What Degree? Canada in a Changing Climate is a new, travelling photographic display sharing Canadian stories, some hopeful, some disheartening, all true, and all happening right now.

Created in partnership with the Government of Canada and Canadian Geographic, this travelling display tells of the unique ways that people and ecosystems within Canada are adapting to our changing climate. Through compelling photography and minimal text, these stories explore individual and community resilience in the face of extreme events. Even in the face of heat, storms, wildfires, and changes in livelihood due to habitat shifts, possibilities still exist for improved quality of life.

This unit highlights 10 photos from the exhibit. If your community is interested in booking a digital or physical copy to show, please contact Ingenium’s Travelling Exhibits office at: outreach-rayonnement@IngeniumCanada.org

FEEDBACK

We welcome feedback on this and other lesson plans we have developed. Let us know how the lessons and share your class’s climate change exhibit with us.

Tag us on social media @enertweets on Twitter, Facebook.com/talkenergy.parlonsenergie, or email us at: energy-energie@ingeniumcanada.org

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- Environment and Climate Change Canada
- Natural Resources Canada
- Public Health Agency of Canada
- Health Canada
- Indigenous and Northern Affairs Canada
- Fisheries and Oceans Canada

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THE COMMON FRAMEWORK OF SCIENCE LEARNING OUTCOMES, GRADES 4-6 (1997)

Social and Environmental Contexts of Technology

- Describe applications of science and technology that have developed in response to human and environmental needs
- Describe positive and negative effects that result from applications of science and technology in their own lives, the lives of others, and the environment
- Describe how personal actions help conserve natural resources and care for living things and their habitats
- Describe how technological products and systems can be used to conserve natural resources
- Describe how personal actions help conserve natural resources and protect the environment in their region
- Identify their own and their family’s impact on natural resources

Initiating and Planning

- Make observations and collect information that is relevant to a given question or problem

Analyzing and Interpreting

- Classify according to several attributes and create a chart or diagram that shows the method of classifying

Communication and Teamwork

- Work collaboratively to carry out science-related activities and communicate ideas, procedures, and results

Knowledge

- Describe and predict causes, effects, and patterns related to change in living and non-living things
- Describe natural phenomena that cause rapid and significant changes to the landscape
- Describe interactions within natural systems and the elements required to maintain these systems

Attitudes

- Appreciate the role and contribution of science and technology in their understanding of the world
- Be sensitive to and develop a sense of responsibility for the welfare of other people, other living things, and the environment
THE COMMON FRAMEWORK OF SCIENCE LEARNING OUTCOMES, GRADES 7-9 (1997)

Relationships between Science and Technology

- Explain how science and technology interact with and advance one another

Social and Environmental Contexts of Science and Technology

- Illustrate how the needs of individuals, society, and the environment influence and are influenced by scientific and technological endeavours
- Provide examples of how science and technology affect their lives and their community
- Analyze social issues related to the applications and limitations of science and technology, and explain decisions in terms of advantages and disadvantages for sustainability, considering a few perspectives
- Describe possible positive and negative effects of a particular scientific or technological development, and explain how different groups in society may have different needs and desires in relation to it
- Make informed decisions about applications of science and technology, taking into account personal and social advantages and disadvantages
- Propose a course of action on social issues related to science and technology, taking into account personal and community needs
- Propose a course of action on social issues related to science and technology, taking into account human and environmental needs

Analyzing and Interpreting

- Use or construct a classification key

Communication and Teamwork

- Work cooperatively with team members to develop and carry out a plan, and troubleshoot problems as they arise
- Evaluate individual and group processes used in planning, problem solving, decision making, and completing a task

Earth and Space Science

- Explain how Earth provides both a habitat for life and a resource for society
- Explain patterns of change and their effects on Earth

Attitudes

- Appreciate that the applications of science and technology can have advantages and disadvantages
- Confidently pursue further investigations and readings
- Consider observations and ideas from a variety of sources during investigations and before drawing conclusions
- Project, beyond the personal, consequences of proposed actions
CANADIAN NATIONAL STANDARDS FOR GEOGRAPHY, GRADERS 6-8 (2001)

Places and Regions
- Analyze the physical and human characteristics of places
- Factors that influence people’s perceptions of places and regions
- Explain how technology affects the ways in which cultural groups perceive and influence places

Physical Systems
- Explain the distribution of ecosystems from local to global scales

Human Systems
- Make some general conclusions about how innovation in transportation and communication affects patterns of economic interaction

Environment and Society
- Explain the critical importance of energy resources to the development of human societies
- Identify and explain the ways in which human-induced changes in the physical environment in one place can cause changes in other places
- Integrate multiple points of view to analyze and evaluate contemporary geographic issues

CANADIAN NATIONAL STANDARDS FOR GEOGRAPHY, GRADERS 9-12 (2001)

Places and Regions
- Explain why places, nations, and regions are important to individual human identity and as symbols for unifying or fragmenting society
- Use regions to analyze geographic issues and answer geographic questions

Physical Systems
- Describe how physical processes affect different regions of Canada and the world

Environment and Society
- Explain the global impacts of human changes in the physical environment
- Analyze examples of changes in the physical environment that have reduced the capacity of the environment to support human activity
- Analyze and assess the global impacts of human changes in the physical environment

The Common Framework of Science Learning Outcomes:
http://science.cmec.ca/index.en.htm

Canadian National Standards for Geography:
http://www.cangeoeducation.ca/resources/learning_centre/docs/Canadian_Geography_Standards.pdf