



Climate Change Resources For Teachers 2019 - Saskatchewan



Learning for a
Sustainable Future

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Climate Change Resources for Teachers

*Climate change is a problem of global proportions whose solution may collectively be our greatest challenge.*¹

Climate Change Learning

Learning for a Sustainable Future accepts the consensus of the scientific community that human-induced climate change is underway and that impact at some level cannot be avoided. LSF also supports the view that the degree of harm resulting from human-induced climate change can be greatly decreased by taking action now and that action will be required for the foreseeable future.

Climate change is the most complex and wide-reaching challenge facing humankind today; it is essential that we help younger generations to be better equipped to take on this challenge and that we call on their energy, creativity and need to contribute to help us all take up the task.

While climate change presents educators with daunting challenges, these challenges also present valuable opportunities to evolve practice so that students have a sound understanding of climate change and get involved in contributing to solutions in their schools and communities.

Climate Change Presents Educators with Challenges & Opportunities

Complexity

The scope of climate change and its impacts is immense. Everything we do depends on a stable climate. Our understanding of climate change and its impacts requires an understanding of multiple related systems including physical (glaciers, rivers, sea levels), biological (terrestrial, marine) and human (agriculture, energy, health, economy).

A challenge of this complexity provides endless opportunities for learning, from dissecting the individual systems above, to developing critical thinking and media literacy skills, to exploring multiple sources of information to really comprehend the full scope of the issue

Emotions

Discussion of climate change can lead to feelings of fear and anxiety and cause people to distance themselves from the problem, leading them to disengage, doubt and even dismiss it. So how do we address emotions in the teaching of climate change?

Every individual is different, and emotional responses are influenced by the beliefs, worldviews, and existing emotions each individual brings to the table. Classroom cultures of trust must be created where the range of students' perspectives and questions students have on climate change can be expressed and explored through group knowledge building and critical reflection. There

¹ Weather, Climate and Climate Change: Key Themes in Education for Sustainability, Learning for a Sustainable Future, 2006, page 3.

are many ways to approach climate change; there is room for fear and hope, wonder and suspense, sadness and curiosity, and all the rest of human emotion.

Changing Worldviews

Addressing climate change requires us to question many of society's norms. This includes: how we define progress and the role of science and technology; capitalism, material growth and consumerism; exploitation of nature; and the dominance of individualistic values, such as freedom, independence, success, performance, social recognition, and comfort. An effective understanding of climate change will be transdisciplinary, apply systems perspectives, span from local to global considerations, and cultivate respectful ways of approaching contested positions—all approaches that are transferable to supporting students' development in other areas!

Conventional Schoolings vs Transformative Learning

Conventional teaching, based on information transfer and finding the “right” answers, does not align well with the complexity of climate change education. With the internet at their fingertips, students have access to more information than they could ever process. And society has not yet found the right answers when it comes to climate change. Our students need more.

Education reforms now promote strategies such as Transformative Learning, Education for Sustainable Development, 21st Century Global Competencies, and others that are better suited to tackling complex problems like climate change. These strategies often begin with the understanding and experiences that students bring with them. Educators, who themselves are grappling with climate change issues, take the role of facilitator and guide learners with their questions. School learning is brought into contact with the real world, allowing learners to cultivate creativity and innovation as they bump into real-life complexities. Students develop the attitudes and skill sets necessary to address challenges to which we don't yet have the right answers, the same skills they need to be successful individuals, citizens and entrepreneurs.

Climate Change Websites and Links for Educators

This selection of resources has been compiled based on a position of acceptance of climate change as a human-caused phenomenon that is currently negatively affecting the earth and its systems.

Understanding the Science of Climate Change	
What is Climate? Our scientists explain it all to an eleven-year old	https://www.iisd.org/ela/blog/commentary/climate-scientists-explain-eleven-year-old/
Vital Signs of the Planet	https://climate.nasa.gov/
Nine Pictures That Show How Climate Change Is Impacting Earth	https://futurism.com/nine-pictures-show-climate-change-impacting-earth/
NASA Images of Change	https://climate.nasa.gov/images-of-change?id=623#623-arctic-sea-ice-coverage-hits-record-low
The Guardian UK: The ultimate climate change FAQ	https://www.theguardian.com/environment/series/the-ultimate-climate-change-faq

Climate Change: Deeper Understanding and Possible and Ways Forward	
Resilience.org aims to support building community resilience in a world of multiple emerging challenges: the decline of cheap energy, the depletion of critical resources like water, complex environmental crises like climate change and biodiversity loss, and the social and economic issues which are linked to these. We like to think of the site as a community library with space to read and think, but also as a vibrant café in which to meet people, discuss ideas and projects, and pick up and share tips on how to build the resilience of your community, your household, or yourself.	http://www.resilience.org/
Union of Concerned Scientists was founded in 1969 by scientists and students at the Massachusetts Institute of Technology. By mobilizing scientists and combining their voices with those of advocates, educators, business people, and other concerned citizens, UCS has built a reputation for fairness and accuracy and amassed an impressive history of accomplishments.	https://www.ucsusa.org/global-warming/#.WpsFRHxG0dU

Non-Mainstream Canadian Media that Present Alternative Perspectives on Climate Change	
DeSmog Canada 's mission is to make complex energy and environment news accessible to Canadians and to shine a light on critical, under-reported stories.	https://www.desmogblog.com/
The Tyee is an independent news outlet that aims to “revive old-style, long-form reporting and shed light on the stories and solutions big media ignores.”	https://thetyee.ca/
National Observer is an independent journalism website with a strong emphasis on ethics and accountability.	https://www.nationalobserver.com/

Climate Change Deniers – Be Aware!	
Friends of Science is a Calgary-based organization that believes the sun is the main cause of climate change, not human activity.	https://friendsofscience.org/
Blog post: “Who needs old-time climate-change deniers when we've got the 'New Climate Denialism'?”	http://rabble.ca/blogs/bloggers/albert-a-diary/2017/05/who-needs-old-time-climate-change-deniers-when-weve-got-new

Climate Change Classroom Learning Resources

Learning for a Sustainable Future (LSF) has identified and reviewed a wide range of climate change classroom resources, children's literature books and videos which are available on LSF's Resources for Rethinking (www.R4R.ca) database.

WWW.R4R.CA is a free online database which provides access to over a thousand excellent, peer-reviewed, curriculum-matched resources for educators from hundreds of publishers. These resources include lesson plans, activities, children's literature, and videos. Educators can search by language, jurisdiction, grade, subject, curriculum unit, and sustainability theme in order to get the perfect resource. About 10,000 teachers per month visit the R4R.ca website to access resources.



Climate Change Learning in Grades K-6

Climate change resources on R4R focus primarily on Grade 7-12. Although we believe climate change is an important issue to be taught at all ages, students younger than grade 7 may not have the developmental readiness to confront the full complexity of the problem. Our climate change resources for grades K-6 focus on the "building blocks" of climate literacy, helping teachers to introduce students to foundational concepts including weather, seasons, energy, habitats and responsible citizenship. These resources are intended to foster a strong, positive connection with the natural world and serve as a sound basis for increasing students' understanding of issues related to climate change. To find K-6 climate change resources on R4R, use the "Theme" search; "Climate Change" is a searchable theme under "Air, Atmosphere & Climate." You can then refine your search to explore specific grades or subjects.

Learning for a Sustainable Future (LSF) is a Canadian charitable organization whose mission is to promote, through education, the knowledge, skills, values, perspectives, and practices essential to a sustainable future. LSF has been working with the federal and provincial governments, universities, business, educators and youth across Canada to support Climate Change and Sustainable Development Education since 1991. LSF's innovative programs and strategic partnerships are reshaping education policy and transforming learning methods, helping students learn to address the increasingly difficult economic, social, and environmental challenges of the 21st century.

For further information on our programs, please contact us at:

Learning for a Sustainable Future
343 York Lanes, York University,
4700 Keele Street, North York, ON M3J1P3

E-mail: info@LSF-LST.ca
Phone: 1.877 250-8202
Website: www.LSF-LST.ca

Climate Change Resources for Saskatchewan Teachers

All resources are connected to SK Grade 10 Science: Climate and Ecosystem Dynamics

A. Lesson/Unit Plans

Resource Title	Synopsis
Canada in a Changing Climate: The Living World	Students learn about the impact of climate change on food production in Canada. Through a variety of activities students take a critical look at the various threats that contribute to climate change and find solutions to the problems. <i>Subject content:</i> climate change cause & effect, mitigation & adaptation
Canada in a Changing Climate: Society and Economy	Students explore causes & consequences of climate change including how to reduce risk and take advantage of opportunities. <i>Subject content:</i> climate change, mitigation, adaption, sustainable development, data analysis & management
Energy: Making Sustainable Choices	Decision-making approach to exploring sustainable energy choices in a Canadian context. <i>Subject content:</i> Energy sources & choices, energy supply & demand, energy use & climate change, fracking, oil sands, pipelines, renewable energy.
Getting to the Core	Students analyze and graph ice core data to explore the link between atmospheric temperature and carbon dioxide. <i>Subject content:</i> Greenhouse effect, climate change, carbon cycle, graphing
Climate Change, Children and Youth	The resource features activities and support documents that address six interconnected themes as presented in the UNICEF UK's Climate Change Report 2008: Our climate, our children, our responsibility. <i>Subject Content:</i> climate change, developing word, food security, water, energy, sustainability
Melting Ice	Examines the global causes and effects of melting ice. <i>Subject content:</i> global warming, sea level rise, Aboriginal perspectives, interconnectedness
A Teacher's Guide for the Video Sila Alangotok - Inuit Observations on Climate Change	Explores economic, social and environmental impacts of climate change in Canada's North. <i>Subject content-</i> TEK, Aboriginal society, greenhouse gases, climate
Tread Lightly: Low Carbon Lunch	Students examine the relationship between food choices & climate change and take action to reduce their carbon footprint. <i>Subject content:</i> carbon footprint, local food, healthy food, waste reduction
The Big Picture On Climate Change and Biodiversity	Students explore the relationship among climate change, biodiversity and human health. Resource includes a video component, simulation, outdoor activities & an action component. <i>Subject content:</i> ecosystems, human impacts, biodiversity, climate change, and human health
Understanding Climate Change in Grade 11 & 12 Geography	This resource provides information and inquiry-based activities concerning climate change. <i>Subject content:</i> climate change causes & effects
Connecting Climate Change Through Rich Performance Tasks in Grade 10 Science	Another inquiry-based approach to the study of climate change. Includes a look at the chemistry of climate change and an option of 2 culminating tasks. <i>Subject content:</i> climate change, transportation, forest management, environmental impact assessments,
Climate Change, Poverty and Women	Examines climate change as a human crisis through activities that focus on how the most vulnerable are being affected. <i>Subject content:</i> climate change, adaptation, social justice, globalization, gender roles
The Heat is On	Examines correlation & causation within the context of climate change. Specific attention to impacts of human activity on climate. <i>Subject content:</i> climate change, fossil fuels, causation, correlation
Weather Makers	This comprehensive, 15-lesson unit addresses climate science, climate change causes & consequences and encourages students to act on their learning. <i>Subject content:</i> weather, climate, climate science, climate change
Climate Change & the Arctic	Students identify patterns and trends in Arctic sea ice using maps and satellite imagery then make predictions about the extent and impact of future changes in the Arctic. <i>Subject content:</i> climate change, sea ice, maps & mapping

B. Short Videos

Resource Title	Synopsis
Kids vs Global Warming	Introduces a remarkable young teenager who crusades against global warming
Climate Change, Wildlife and Wetlands	Impact of CC on Wildlife. Challenges students to "go outside" and examine how nature is changing. Students are also encouraged to adopt lifestyle choices and actions to help make a difference
Adapting to a Changing Climate	Offers a comprehensive look at climate change adaptation with a focus on sustainability and resilience as core strategies
Global Warming: It's All About the Carbon	The 5-part video package delivers entertaining chemistry lesson on the behavior of the carbon atom and its role in global warming
Biodiversity & Climate Change	Examines cause and effect relationship between climate change and biodiversity
Inuit Observations on Climate Change	The video documents climate change in Canada's north from an Inuit perspective
My Cheeseburger Footprint	Tracks the amount of CO ₂ emitted from the production of a cheeseburger, then extrapolates the larger impact of fast food on greenhouse gas emissions.
What's the Deal with Fossil Fuels	Fossil fuels. What they are. Why they are a problem. Steps for reducing reliance

C. Children's Books/Novels

Resource Title	Synopsis
Ship Breaker	Many problems resulting from climate change are exposed in this suspense novel based on salvage practice known as 'ship breaking'