



Climate Change Resources For Teachers 2016



Climate Change Resources for Teachers

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

COP 21 has set a new global agenda to address climate science, climate impacts, mitigation actions and adaptation measures. Here in Canada the new Federal government has made significant action on climate change part of the general mandate of every Minister.² Leadership on this cross-cutting issue is central to the mandate of the newly renamed Department of “Environment and Climate Change:”

“[Y]our overarching goal will be to take the lead in implementing the government’s plan for a clean environment and a sustainable economy. Your key priority will be to ensure that our government provides national leadership to reduce emissions, combat climate change and price carbon. I expect you to help restore Canada’s reputation for environmental stewardship.”

Success in moving Canada toward a “clean environment and a sustainable economy” will require support and buy-in at all levels of Canadian society that can only be achieved through increased awareness, education, and skills development for the general public, private and public sectors, and especially for youth.

The scope and complexity of climate change presents educators with a formidable challenge. Understanding climate change involves phenomena that cross traditional school subject boundaries ranging from geosciences to media and requires that one have a grasp of the process of change and an understanding of system dynamics. Many climate change scientific findings challenge broadly held societal beliefs and ambitions. How society is presently responding provides an ideal context for new learning.

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

² The introductory section of the Mandate Letter for each and every Minister includes the following passage: “If we are to tackle the real challenges we face as a country – from a struggling middle class to the **threat of climate change** – Canadians need to have faith in their government’s honesty and willingness to listen. I expect that our work will be informed by performance measurement, evidence, and feedback from Canadians. We will direct our resources to those initiatives that are having the greatest, positive impact on the lives of Canadians, and that will allow us to meet our commitments to them. I expect you to report regularly on your progress toward fulfilling our commitments and to help develop effective measures that assess the impact of the organizations for which you are answerable.” [Emphasis added]

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 6,600 teachers per month visit the R4R.ca website to access resources.



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:

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Climate Change Resources for Teachers

Middle School
Secondary School

A. Lesson / Unit Plans

Resource Title	Review	Synopsis	Curriculum Fit	
			Course	Unit
Heat Up Over Climate Change	http://r4r.ca/en/resource/heat-up-over-climate-change	Explores the social, economic & environmental effects of climate change on children. <i>Subject content-</i> climate change cause and effects, global connections	Social Studies 6 Geography 7	-People & Environments -Physical Patterns in a changing world
Sow the Seed	http://www.resources4rethinking.ca/en/resource/sow-the-seed	Examines the impact of climate change on agriculture. <i>Subject content-</i> plant growth, impacts of climate change around the world	Social Studies 6 Geography 7 Science & Technology 7	-People & Environments -Physical Patterns in a Changing World -Interactions in the Environment
Climate Change: Connections & Solutions (6-8)	http://r4r.ca/en/resource/climate-change-connections-and-solutions-gr-6-8	Examines the economic, social and environment dimensions of CC. <i>Subject content-</i> Carbon cycle, greenhouse effect, energy sources, climate change	Science & Technology 6 Science & Technology 7 Math 6, 7 & 8 Social Studies 6	-Electricity & Electrical Devices -Interactions in the Environment -Data Management -People & Environments
Climate Change: Creating Solutions for our Future	http://www.resources4rethinking.ca/en/resource/climate-change-creating-solutions-for-our-future	Explores the past, present & future aspects of climate change. <i>Subject content-</i> greenhouse effect, CO2 emissions, weather & climate, inter-connections	Science & Technology 5 Science & Technology 6 Science & Technology 7 Geography 7 Science & Technology 8	-Conservation of Energy -Biodiversity -Interactions in the env. -Physical patterns in a changing environment -Systems in action
Sunny Schools Resources	http://resources4rethinking.ca/en/resource/sunny-school-resources	Multi activity resource that examines the climate change cause , effects around the world and the importance of investments in renewable energy	Science & Tech. 5 Science & Technology 6 Geography 7 Geography 9	-Conservation-Energy & Res -Electricity -Natural resources & Sustai -Interactions- Physical
Real World Math	http://www.resources4rethinking.ca/en/resource/real-world-math-lessons-7-9-and-12	Students use climate change examples to write, graph and solve inequalities. <i>Subject content-</i> solving inequalities, carbon footprint, greenhouse gases	Math 8	-Measurement & number sense
Taking Our Temperature	http://resources4rethinking.ca/en/resource/taking-our-temperature-4-lesson-plans	Examines health issues related to global warming. <i>Subject content-</i> water-borne pathogens, transmission of vector-borne diseases, greenhouse gas effects	Science & Technology 7 Science & Technology 8 Health & Physical Ed. 8 Issues in Canadian Geography 9 Science & Technology 10 (Academic & Applied)	-Interactions in the Environ. -Water Systems -Healthy Living -Interactions in the Physical Env -Earth and Space Science
What's All The Buzz About (Middle School links)	http://r4r.ca/en/resource/whats-all-the-buzz-about	How climate change effects disease transmission. <i>Subject content</i> – climate, Infectious disease – transmission & vectors, data collection & presentation	Geography 7 Math 7 & 8 Phys. Ed & Health 7 & 8 Geography 9	-Physical Patterns in a Changing World -Data Management & Prob. -Healthy Living -Interactions in the Physical Env.

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Mining the Carbon Out of People's Lifestyles	Currently under review	Explores our use of electricity & its impact on the environment. <i>Subject content</i> - climate, renewable & non-renewable energy, energy consumption, fossil fuels, phantom power	Science & Technology 6 Geography 7	-Electricity & Electrical Devices -Natural Resources: Use & Sustainability
Eneraction-Sustainable Transportation Lessons	http://resources4rethinking.ca/en/resource/eneraction-sustainable-transportation-lesson-package	Students explore the environmental impacts of various methods of transportation. <i>Subject content</i> -Transportation, Greenhouse gases, Data collection, computation, case study analysis,	Math 5,6,7 Science & Tech 5 & 8 Science & Tech 7	-Data Management, Numeracy -Systems in Action -Interactions in Ecosystems
Rethinking Energy	http://resources4rethinking.ca/en/resource-review/rethinking-energy	Students examine different forms of alternate energy and take personal action to reduce reliance on fossil fuels.	Science & Technology 5 Science & Technology 6 Geography 7	-Conservation-Energy & Res -Electricity -Natural resources & Sustai
Changes Ahoof	http://resources4rethinking.ca/en/resource/changes-ahooof	Students use a computer model to investigate the impact of climate change variables on the Porcupine Caribou population. Other activities include the construction of a board game to simulate the challenges and climate change effects on the caribou's annual migration	Science 7 Geography 9 Science 10	-Interactions in the Env. --Interactions: Physical Env. -Sustainability of Ecosystem
Connections to Climate Change in Grade 11 and 12 Science	http://www.resources4rethinking.ca/en/resource/connections-to-climate-change-in-science-in-grade-11	Resource provides climate & energy activities connected to outcomes in Biology, Chemistry & physics. Specific topics include ocean acidification, bioenergy & energy transformation	Biology 11 Chemistry 11 Physics 11 Environmental Sci 11	-microbiology -gases & atmospheric chem.. -hydrocarbons & energy -energy & society -Scientific Solutions -Human impacts
Melting Ice	http://r4r.ca/en/resource/melting-ice	Examines the global causes and effects of melting ice. <i>Subject content</i> -global warming, sea level rise, Aboriginal perspectives, interconnectedness	Science 10. Academic & Applied Geographers toolkit (Geog) 11 Envir Science 11	-Earth & Space-Climate -Human Impact on the Environ. -Global Connections -Human Impact
Climate Change: Connections & Solutions (9-12)	http://r4r.ca/en/resource/climate-change-connections-solutions-gr-9-12	Examines the economic, social and environment dimensions of CC. <i>Subject content</i> - Carbon cycle, greenhouse effect, energy sources, climate change	Geography 9 Science & Tech 9 Science 10 Env. Science 11 Physical Geography 11 Canada & World Issues 12 The Env & Resource Mgt. 12	-Interactions in the Environ -Sustainable Ecosystems -Conservation of Energy -Contemporary challenges -Earth & Space-Climate -Human Impact -Understanding & Managing change & Human-Environment Interactions -Human-Environ. Interactions -Global Connections & Human-Env. -Human Envir. Interactions -Human Envir. Interactions
My 2050 Tool Kit	http://r4r.ca/en/resource/my-2050-schools-toolkit	How to reduce carbon emissions & maintain a secure energy	Geography 9 Academic	-Inter actions in the environment & Managing

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		supply. <i>Subject content</i> -Climate change, greenhouse gases, energy sources -supply and demand	Science 10 Civics Studies 10 Environmental Science 11 Physical Geography 11 The Env & Resource Mgt. 12	Canada's resources -Earth & Space Science: Climate -Active citizenship -Conservation of Energy & Solutions to Contemporary Env. Challenges -Understanding & managing change -Human-Environment Interactions
What's All The Buzz About	http://r4r.ca/en/resource/whats-all-the-buzz-about	How climate change effects disease transmission. <i>Subject content</i> – climate, Infectious disease – transmission & vectors:	Environ. Science 11 Health for Life 11 Science 12: College/Workplace Canada & World Issues 12	-Human Health & the Environment -Community Health -Pathogens & Disease, Disease & its prevention -Human-Environment Interactions
The Buffer Zone: Acid Base Chemistry in the World's Oceans	http://r4r.ca/en/resource/the-buffer-zone-acid-base-chemistry-in-the-worlds	How global warming effects marine environments: <i>Subject content</i> - acid- base theory, buffers	Science 9 Science 10 Chemistry 11 Chemistry 12: College P	-Biology: sustainable ecosystems -Chemistry: Chemical Reactions -Solutions & Solubility -Chemistry in the Environment
Mining the Carbon Out of People's Lifestyles	http://r4r.ca/en/resource/mining-the-carbon-out-of-peoples-lifestyles	Connects electricity use to climate change. <i>Subject content</i> -energy use, energy consumption, electrical generation, phantom power	Science 9: Civic Studies 10 Science 10 Environ. Science 11 Science 12: Workplace	-Physics- Electricity -Active Citizenship -Earth & Space Science-Climate -Conservation of Energy -Electricity at home and at work
A Teacher's Guide for the Video Sila Alangotok - Inuit Observations on Climate Change	http://www.resources4rethinking.ca/en/resource/a-teachers-guide-for-the-video-sila-alangotok-inuit	Explores economic, social and environmental impacts of climate change in Canada's North. <i>Subject content</i> -TEK, Aboriginal society, greenhouse gases, climate	Geography 9 Science 9 Science 10 Physical Geography 11 Aboriginal Studies 10 Aboriginal Beliefs in Contemp. Society 11	-Interactions in the physical E -Sustainable ecosystems -Earth & Space -Climate -Human-Env. Interactions -Challenges -Relationships.
Penguins on Thin Ice	http://www.resources4rethinking.ca/en/resource/penguins-on-thin-ice	Provides materials for musical production dealing with climate change. <i>Subject content</i> - musical, dramatic and visual arts composition & presentation	Integrated Arts 9 Visual Arts 10, 11 Music 9, 10, 11 Drama 9, 10, 11	-Creating & Performing -Foundations

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Local Connections to Global Issues: Health	http://resources4rethinking.ca/en/resource/local-connections-to-global-issues-health	Includes activities that bring to life current child health issues and how the spread of infectious disease is being impacted by changing climate. <i>Subject Content</i> - Climate change, human health, infectious disease, global citizenship	Science (Applied) 10 Environ. Science 11 Health Education 11 Social Studies 11 Canada & World 12 Health Education Science 12	-Earth & Space Science -Human Health/Impact -Health for life -Equity, Diversity & Social Justice -Human –Environ. Interactions -Health Care -Science & Public Health -Disease & its Prevention
Tread Lightly: Low Carbon Lunch	http://www.resources4rethinking.ca/en/resource/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	Family Studies 9 & 10 Science 10 Env. Science 11 (Work) Geography 11 Geography 12	-Food & Nutrition -Earth & Space Science -Human Impact on the Environ. -Human-Env. Interactions -Human-Env. Interactions
Serious Game	http://www.resources4rethinking.ca/en/resource/serious-game	In this simulation students are tasked to develop a strategy for reducing consumption of energy, increasing energy efficiency and choosing the best renewable energies. <i>Subject content</i> - energy conservation, renewable energy, sustainable development	Geography 9 Physical Geography 11 Environ. Science 11 Geography 12	-Livable communities -Human-Env. Interactions -Conservation of Energy -Global Connections -Human-Env. Interactions
The Big Picture On Climate Change and Biodiversity	http://resources4rethinking.ca/en/resource/the-big-picture-on-biodiversity-and-climate-change	Students explore the relationship among climate change, biodiversity and human health. Resource includes a video component, simulation, outdoor activities & an action component.	Geography 9 Geography 11 Environ. Science 11	-Interactions: Physical Env. - Human-Env. Interactions -Human Health & the Env. -Human Impact on the Env.
Chemistry Innovations in Sustainable Development	http://www.resources4rethinking.ca/en/resource/chemistry-innovations-in-sustainable-development	Chemistry resource includes activities on greenhouse gases and climate change	Science 10 Chemistry 11 Env. Science 11 Chemistry 12	-Earth, Space –climate change -Hydrocarbons & Energy -Gases & Atmospheric Chem -Human Health & Impact -Chemistry in the Environment
Natural Gas. A Cleaner Energy Solution or Just Another Fossil Fuel	http://www.resources4rethinking.ca/en/resource/natural-gas-a-cleaner-energy-solution-or-just-another	Students gather information on natural gas, compare its emissions to those of other fossil fuels and use systems-based analysis to defend their position	Geography 9 Chemistry 11 Env. Science 11	-Interactions-Physical -Managing Canada’s resource -Hydrocarbons and Energy -Energy Conservation -Natural Resources
Sustainability and Really Cool Technologies	http://www.resources4rethinking.ca/en/resource/sustainability-and-really-cool-technologiesenergy	Activities include an examination of our reliance on fossil fuels, peak oil and reducing our dependence	Geography 9 Science & Technology 9 Science 10 Env. Science 11	-Interactions-Physical -Electricity -Earth & Space- Climate -Solutions to issues -Conservation of Energy
Understanding Climate Change in Grade 11 & 12 Geography	http://resources4rethinking.ca/en/resource/understanding-climate-change-in-grade-11-and-12-geography	This resource provides information and inquiry-based activities concerning climate change.	Geography 9 Geography 11 Geography 12	-Inquiry and Skills -Interactions, Physical -Human-Envir. Interactions -Inquiry -numerous outcomes in all grade 12 courses
Connecting Climate Change Through Rich	http://resources4rethinking.ca/en/resource/connecting-to-climate-change-	Another inquiry based approach to the study of climate change. Includes a look at the chemistry of	Science & Technology 9 Science 10 Env. Science 11	-Ecosystems -Earth & Space-Climate -Human Impact

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Performance Tasks in Grade 10 Science	through-rich-performance	climate change and an option of 2 culminating tasks		-Natural Resource Mgt
Climate Change, Poverty and Women	http://resources4rethinking.ca/en/resource/climate-change-poverty-and-women	Examines climate change as a human crisis through activities that focus on how the most vulnerable are being affected	Social Studies 11 Social Studies 12 Geography 11 World Geography 12	-equity, diversity, social justice -global social justice -Geographics- global connect. - Global Connections

B. Short Videos

Resource Title	Review	Synopsis	Curriculum Fit	
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Conversations in Action- The Bulb	http://www.resources4rethinking.ca/en/resource/conversations-in-action	Looks at how small personal changes can make a difference with respect to global warming	Science & Technology 5 Science &Technology 6	-Conservation of Energy -Electricity & Electrical devices
Kids vs Global Warming	http://www.resources4rethinking.ca/en/resource/kids-vs-global-warming	Introduces a remarkable young teenager who crusades against global warming	Social Studies 6 Geography 7	-People and Environments -Natural Resources...Use & Sustainability
This Bulb	http://video.nationalgeographic.com/video/this-bulb-ngv	Natalie Portman, Kyra Sedgwick and Chloe Sevigny explain how small changes in lifestyle can help reduce greenhouse gas emissions.	Science 5 Science 6 Social Studies 6 Geography 7	-Conservation of Energy -Electricity and Electrical Devices -People and Environments -Natural Resources...Use & Sustainability
Climate Change, Wildlife and Wetlands	http://resources4rethinking.ca/en/resource/climate-change-wildlife-wildlands	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	Science & Technology 6 Social Studies 6 Science & Technology 7 Science 9 (Academic & Applied) Science 10 (Academic & Applied)	-Biodiversity -People and Environments -Interactions -Sustainable Ecosystems - Climate
Chasing Ice	http://www.resources4rethinking.ca/en/resource/chasing-ice	Graphic illustration of the melting of arctic ice	Geography 9 Science 10 Physical Geography 11 Env. & Resource Mgt.12	-Interactions in the Physical Env. -Earth & Space Science- Climate -Understanding & Managing Change -Human-Environment Interactions
300 Years of Fossil Fuels	http://www.resources4rethinking.ca/en/resource/three-hundred-years-of-fossil-fuels-in-three-hundred	Traces our dependence on fossil fuels, the consequences and solutions	Environmental Science 11 Physical Geography 11 Media Studies 11 Environment & Resource Mgt.12	-Energy conservation, Contemporary challenges, Human impact -- Understanding & Managing Change, Human-Environment Interactions -Media & Society -Human-Environment Interactions
Global Warming: A Way Forward	http://www.resources4rethinking.ca/en/resource/global-warming-a-way-forward	Images used to illustrate consequences of climate change and the future scenarios that are possible	Geography 9 Environmental Science 11 Physical Geography 11 Canada & World Issues 12	-Interactions in the Physical Envir. -Managing Canada's Resources -Solutions to Contemporary Challenges, Human impact on the environment -Understanding & Managing Change -Global Connections, Human-Environment Interactions

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			Environment & Resource Mgt.12	-Global Connections, Human-Environment Interactions
How to Feed the World in 2050	http://www.resources4rethinking.ca/en/resource/how-to-feed-the-world-in-2050	Examines the relationship between climate change and sustainable agriculture	Family Studies 10 Environmental Science 11 Health for Life 11 Physical Geography 11 Environment & Resource Mgt.12	-Food & Nutrition -Human Health & the Environment, Sustainable Agriculture, Human Impact -Determinants of Health -Human-Environment Interactions -Human-Environment Interactions, Global Connections
Climate Change-Planet Ocean	http://www.resources4rethinking.ca/en/resource/climate-change-1	Provides a compelling look at the effects of changing climate in the far north	Science 9 Science 10 Environ. Science 11 Geographics 11 Physical Geography 11 Canada & World Issues The Environ. & Resource Mgt	-Sustainable Ecosystems -Earth & Space- Climate -Env. Challenges / Human Impact -Human –Envir. Interactions -Understanding & Managing Change - Human –Envir. Interactions - Human –Envir. Interactions -Understanding & Managing Change - Human –Envir. Interactions -Understanding & Managing Change
Biodiversity & Climate Change	http://resources4rethinking.ca/en/resource/-biodiversity-and-climate-change	Examines cause and effect relationship between climate change and biodiversity	Science 10 Env. Science 11 Physical Geography 11 Geog 12 (Canada & World) Geog 12 (Env. & Resource Mgt)	-Earth & Space- Climate -Human Impact -Human – Env. Interactions -Human – Env Interactions -Human – Env. Interactions
Inuit Observations on Climate Change	http://resources4rethinking.ca/en/resource/-5	The video documents climate change in Canada's north from an Inuit perspective	Geography 9 Science 9 Aboriginal Studies 10 Science 10 Env. Science 11 Physical Geography 11 Aboriginal Beliefs in Contemporary Society 11	-Physical Interactions -Sustainable Ecosystems -Aboriginal Peoples in Canada -Earth, Space-climate -Human impact -Human- Environment interactions -Relationships
My Cheeseburger Footprint	http://resources4rethinking.ca/en/resource/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.	Science & Technology 7 Geography 9 Science 10 Env. Science 11 Geography 12 (Canada & World, Env & Resource Mgt, World Geography)	-Interactions in the Environment -Physical Interactions -Earth & Space-climate -Human impact -Human – Environment Interactions

C. Children's Books/Novels

Resource Title	Review	Synopsis	Curriculum Fit	
			Grades	Subjects
How We Know What We Know About Our Changing Climate	http://resources4rethinkking.ca/en/resource/how-we-know-what-we-know-about-our-changing-climate	Introduces young people to current climate change research. Emphasis is placed on the importance of citizen science	Grades 5 - 8	Science, Geography, Geography
Judy Moody Saves the World	http://www.resources4rethinking.ca/en/resource/judy-moody-saves-the-world	Judy Moody wonders how one person can "heal the world". The story chronicles her personal efforts.	Grades 3 and 4	Literacy, Language Arts, Science
Empty	http://resources4rethinkking.ca/en/resource/empty	Exciting drama that offers a glimpse of what our world might look with a continued reliance on fossil fuels	Grades 6-9	Literacy, Science, Geography
Siberia	http://www.resources4rethinking.ca/en/resource/siberia	The novel describes a world of the future where climate change and habitat destruction have ravaged the Earth. Rosita and Mama struggle to eke out an existence in their bleak environment.	Grades 5-8	Literacy, Language Arts, Science & Social Studies