



Climate Change Resources For Teachers 2019 - Ontario

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

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

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 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.

Acknowledgements:



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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/alberta-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 6,600 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:

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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
Personal Consumption and Climate Change	http://resources4rethinking.ca/en/resource/images-and-objects-active-learning-toolkit-2-personal	This toolkit focuses on using photographs and a range of active teaching and learning approaches and strategies to explore the themes of climate change, personal consumption and responsible living.	Geography 7 Social Studies 8	Natural Resources Around the World: Use and Sustainability The Individual in Canadian Society: resources & Wealth
Leandro and the Mysterious Case of the Disappearing and Reappearing River	http://resources4rethinking.ca/en/resource/leandro-and-the-mysterious-case-of-the-disappearing	Students work together to think about the importance of rivers to humans and about the consequences and impacts for people and environment when rivers are unpredictable.	Science 8 Geography 8 Science and Technology 8	Water Systems on Earth's Surface Agricultural Territory The Earth and Space
Canada in a Changing Climate: The Living World	http://resources4rethinking.ca/en/resource/canada-in-a-changing-climate-the-living-world-1	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	Science 7 Geography 7 Science and Technology	Interactions and Ecosystems Plants for Food and Fibre Earth and its climate have changed over geological time Evolution by natural selection Agricultural territory The Living World The Technological World
Canada in a Changing Climate: Society and Economy	http://resources4rethinking.ca/en/resource/canada-in-a-changing-climate-society-and-economy	Students learn about the factors that contribute to climate change and their effects on society, the economy and the environment. They also explore adapting to the existing and projected effects of climate change to reduce risk and take advantage of opportunities.	Science 7 Math 8 Geography 7	Interactions and Ecosystems Statistics and Probability Interactions within Ecosystems Earth and its climate have changed over geological time
Electricity Conservation & You	http://www.resources4rethinking.ca/en/resource/electricity-conservation-and-you	Students explore use and consequences of different renewable and non-renewable sources of electricity. Subject content: renewable vs. nonrenewable energy, causes and consequences of climate change, greenhouse effect, action plan to reduce emissions.	Science & Technology 5 Science & Technology 6 Geography 7	Conservation of Energy & Resources Electricity & Electrical Devices Natural Resources: Use & Sustainability
Arctic Survivor	http://www.resources4rethinking.ca/en/resource/arctic-survivor	Outdoor activity to introduce students to the impacts of climate change on animal populations. Subject content: Habitats, limiting factors, population dynamics, climate change in Canada's north	Science & Technology 5 Science & Technology 6 Geography 7	Conservation of Energy & Resources Electricity & Electrical Devices Natural Resources: Use & Sustainability

Resource Title	Review	Synopsis	Curriculum Fit	
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Climate Challenge for 11 to 14 year olds	http://www.resources4rethinking.ca/en/resource/climate-challenge-for-11-to-14-year-olds	Students explore the impacts of climate change on communities around the world and the steps being taken to address them. Subject content: Climate change causes & impacts on vulnerable communities, adaptation, action plans	Science & Technology 6 Social Studies 6	Biodiversity People and Environments
Ch Ch Ch Changes	http://resources4rethinking.ca/en/resource/ch-ch-ch-changes	Challenges students to think about the effects of changing climate on sea ice in Canada's north and the related problems and challenges that result. Subject content: Climate impacts on northern life and culture. Graphing, Thermal expansion	Science & Technology 7 Geography 7 Science & Technology 8 Math 8 Geography 9: Issues in Canadian Geography Science 9 (Academic & Applied) Science 10 (Academic & Applied)	Interactions in the Environment Physical Patterns in a Changing World Water Systems Data Management Interactions in the Physical Environment Biology: Sustainable Ecosystems Earth and Space Science- Earth's Climate
Corals and Chemistry	http://resources4rethinking.ca/en/resource/corals-and-chemistry	Students explore the impacts of climate change on the oceans with particular attention to coral reefs. Subject content: carbon cycle, fossil fuels, ph, coral reef ecosystems	Science & Technology 7 Science & Technology 8 Science 9 (Academic & Applied) Science 10 (Academic & Applied) Science 10: Academic & Applied)	Interactions in the Environment Water Systems Biology: Sustainable Ecosystems Chemistry: Chemical Reactions Earth and Space Science- Earth's Climate
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 justice	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	Science & Technology 5 Science & Technology 6 Science & Technology 7 Geography 7 Science & Technology 8	Conservation of Energy Biodiversity Interactions in the Environment 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 & Sustainability Interactions- Physical

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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.
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
Car Wars	http://resources4rethinking.ca/en/resource/car-wars	In a board game format students explore sources/consequences of increasing carbon dioxide in the atmosphere	Science 7 Science 8 Science 9 (Applied) Technological Ed 9	Interactions in the Environment Systems in Action Sustainable Ecosystems Tech, Environment & Society
Adapting to a Changing World	http://resources4rethinking.ca/en/resource/adapting-to-a-changing-world	Students assess individual and national opinions on climate change and explore strategies that communities are employing to adapt to aspects of climate change that are already affecting them or may affect them in the future.	Social Studies 11 Environmental Science 12 Geography 12 Economics 11	Geography Contemporary World: Environment Environmental Science Weather and Climate Canadian Geography Economic issues
Global Warming Lesson Plan with Video	http://resources4rethinking.ca/en/resource/mr-green-lesson-plan	Designed to be used with the film Mr. Green, a parable about climate change in which a jaded government official becomes the unwitting test subject in an experimental program to curb global warming.	Biology 11 Biology 12 Science 11	Biology 20: Photosynthesis and Cellular respiration Molecular genetics Biology 30: Cell Division Technology, Society and the Environment
Canada in a Changing Climate: The Living World	http://resources4rethinking.ca/en/resource/canada-in-a-changing-climate-the-living-world-1	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	Science 10 Geography 10	Experiential Science 10 energy flow, investigating Matter and Energy in the Environment Geographic Issues of the 21 st Century Sustainability of Ecosystems Climate and Ecosystem Dynamics
Canada in a Changing	http://resources4rethinking.ca/en/resource/canada-in-	Students learn about the factors that contribute to climate change and their effects on society, the	Science 9 Math 9 Science 10	Environmental Science

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Climate: Society and Economy	a-changing-climate-society-and-economy	economy and the environment. They also explore adapting to the existing and projected effects of climate change to reduce risk and take advantage of opportunities.	Geography 10	The biosphere, geosphere, hydrosphere and atmosphere are interconnected Analyzing data Senior 2 Science: Dynamics of Ecosystems and Weather Dynamics Geographic Issues of 21 st Century
Energy: Making Sustainable Choices	http://resources4rethinking.ca/en/resource/energy-making-sustainable-choices	Decision-making approach to exploring sustainable energy choices in a Canadian context. Subject content: Energy sources & choices, energy supply & demand, energy use & climate change, fracking, oil sands, pipelines, renewable energy.	Science 10: Academic & Applied) Chemistry 11 Environmental Science 11 (Univ./College Prep) Regional Geography 11 Chemistry 12 (College Prep) Environment & Resource Management 12	Earth and Space Science- Earth's Climate Gases & Atmospheric Chemistry Conservation of Energy & Environmental Challenges Sustainability & Stewardship Chemistry in the Environment Sustainability and Stewardship of Natural Resources
Climate Change Controversy	http://resources4rethinking.ca/en/resource/climate-change-controversy-student-inquiry	Students learn the skills associated with the inquiry process-asking questions, evaluating information sources, reading and viewing critically, working with others, sharing, discussing and possibly debating issues -in exploring climate change. Subject content: IPCC, climate change evidence, climate skeptics,	Civic Studies 10 Science 10 (Academic & Applied) Environmental Science 11 (Univ/College Prep) Environmental Science 11 (Workplace Prep)	Civics & Citizenship- Civic Engagement Earth & Space Science- Climate Scientific solutions to Environmental Challenges Human Impact on the Environment
After Fukushima	http://resources4rethinking.ca/en/resource/after-fukushima-we-should-abandon-nuclear-power	Students explore the question- 'should the disaster at Fukushima and others like it force us to take a step back & consider whether such a potentially dangerous energy source is worth the risk for the clean energy it provides. Subject Content: meeting energy demands, the pros & cons of nuclear power, climate change	Science 10 (Academic & App) Environmental Science 11 (Workplace Prep) Environmental Science 11 (Univ/College Prep) Physics 11 Physics 12	Earth and Space Science- Earth's Climate Human Impact on the Environment Conservation of Energy & Solutions to Contemporary Challenges Energy & Society Energy Transformations
Getting to the Core	http://resources4rethinking.ca/en/resource/getting-to-the-core	Students analyze and graph ice core data to explore the link between atmospheric temperature and carbon dioxide. Subject content: Greenhouse effect, climate change, carbon cycle, graphing	Math 9 (Academic & Applied) Science 9 (Applied) Science 10. Academic & Applied Environmental Science 11 (Univ. & College Prep) Environmental Science 11 (Workplace Prep)	Linear Relations Biology- Sustainable Ecosystems Earth & Space-Climate Solutions to Contemporary Problems Human Impact

Resource Title	Review	Synopsis	Curriculum Fit	
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Making the Decision About the Construction of an Oil Pipeline Through BC	http://resources4rethinking.ca/en/resource/making-the-decision-about-the-construction-of-an-oil	Students analyze a real-world environmental issue involving the building of a pipeline through the province of British Columbia. Subject content: pros & cons of pipelines, First Nations perspectives, critical analysis, sustainable development	Aboriginal Beliefs, Values & Aspirations 11 (Univ & College Prep) Environmental Science 11 (Workplace) Regional Geography 11 (Univ. & College Prep) Environment & Resource Mgt 12 (Univ. & College Prep) Living in a Sustainable World 12	Challenges Human Impact Sustainability and Stewardship Methods of Geographic Inquiry & Sustainability and Stewardship Sustainability of Natural Resources & Ecosystems & Human Activity
Climate Change in Photos	http://resources4rethinking.ca/en/resource/-climate-change-in-photos	Students analyze and discuss photos to learn about the impact of climate change. Subject Content: Climate Change impacts and responses around the world, climate justice	Environmental Science 11 (Workplace) Regional Geography 11 Living in a Sustainable World 12 Forces of Nature: Physical Processes 11 The Environment & Resource Mgt. 12 (Workplace)	Human Impact Sustainability & Stewardship Sustainability of Natural Resources & Ecosystems & Human Activity Sustainability and Stewardship Human-Environment Interactions
Climate Change, Children and Youth	http://www.resources4rethinking.ca/en/resource/climate-change-childrens-rights	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. Subject Content: climate change, developing world, food security, water, energy, sustainability	Science 9 Environmental Science 11 (Univ. & College Prep) Environmental Science 11 (Workplace Prep) Regional Geography 11 Living in A Sustainable World 12	Sustainable ecosystems & human activity Human Health & the Envir. & Sustainable Agriculture & Conservation of Energy Human Health and the Environment & Human Impact Dynamics and Change Sustainability and Natural Resources
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, bio-energy & energy transformation	Biology 11 Chemistry 11 Physics 11 Environmental Science 11 (Workplace)	Microbiology Gases & atmospheric chem. & Hydrocarbons & energy Energy & society Scientific Solutions Human impact on the Environ.
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 Environmental Science 11 (Workplace Prep) Forces of Nature 11	Earth & Space-Climate Human Impact on the Environ. The Physical Environment: Sustainability & Stewardship

Resource Title	Review	Synopsis	Curriculum Fit	
			Course	Unit
			Living in a Sustainable World 12	Ecosystems & Human Activity
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	Issues in Can. Geography 9 (Academic & Applied) Science 9 Science 10 (Academic & Applied) Environmental Science 11 (Workplace Prep) Environmental Science 11 (Univ./College Prep)	Interactions in the Environment Sustainable Ecosystems & Earth & Space-Climate Human Impact on the Environ. Conservation of Energy & Solutions to Contemporary challenges
My 2050 Tool Kit	http://r4r.ca/en/resource/my-2050-schools-toolkit	How to reduce carbon emissions & maintain a secure energy supply. <i>Subject content</i> -Climate change, greenhouse gases, energy sources -supply and demand	Issues in Can. Geography 9 (Academic & Applied) Science 10 (Academic & Applied) Civics Studies 10 Environmental Science 11 (Univ./College Prep) Regional Geography 11 The Env. & Resource Mgt. 12	Inter actions in the environment & Managing Canada’s resources Earth & Space Science: Climate Active citizenship Conservation of Energy & Solutions to Contemporary Env. Challenges Dynamics of change Sustainability & Stewardship
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:	Environmental Science 11 (Univ./College & Workplace Prep) Regional Geography 11 Health for Life 11 Science 12: College/Workplace	Human Health & the Environment Dynamics of Change Community Health Pathogens & Disease, Disease & its prevention
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 Prep	Biology: sustainable ecosystems Chemistry: Chemical Reactions Solutions & Solubility Chemistry in the Environment
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	Issues in Can. Geography 9 Science 9 (Academic & Applied) Science 10 (Academic & Applied) Aboriginal Studies 10 Aboriginal Beliefs in Contemp. Society 11	Interactions in the physical Env. Sustainable ecosystems Earth & Space -Climate 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 (Workplace) Health Education 11 Social Studies 11 Science 12	Earth & Space Science: Climate Human Health & the Environ. Health for life Equity, Diversity & Social Justice 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 Environmental Science 11 (Workplace) Living in A Sustainable World 12	Food & Nutrition Earth & Space Science- Climate Human Impact on the Environ. Ecosystems & Human Activity
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	Issues in Can. Geography 9 Environ. Science 11 (Univ./College Prep) Environ. Science 11 (Workplace) Environment & Resource Mgt.12 (Univ./College) Environment & Resource Mgt.12 (Workplace)	Livable communities Conservation of Energy Human Impact Sustainability & Stewardship Global Connections
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.	Science 9 (Academic & Applied) Issues in Can. Geography 9 Science 10 (Academic & Applied)	Sustainable Ecosystems Interactions: Physical Env. Earth & Space Science: Climate
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 (Academic) Chemistry 11 Chemistry 12	Earth, Space –climate change Hydrocarbons & Energy Gases & Atmospheric Chem 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	Issues in Can. Geography 9 Chemistry 11 Env. Science 11	Interactions-Physical Env. Managing Canada’s resources Hydrocarbons and Energy Conservation of Energy
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	Issues in Can. Geography 9 Science & Technology 9 Science 10 Env. Science 11 Living in a Sustainable World 12	Interactions-Physical Env. Electricity Earth & Space- Climate Solutions to Challenges Conservation of Energy Sustainability of Natural Resources
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.	Regional Geography 11 Environ. & Resource Mgt. 12 (Univ./College) Environ. & Resource Mgt. 12 (Workplace)	Dynamics and Change Sustainability & Stewardship Sustainability & Stewardship Human-Environment Interactions

Resource Title	Review	Synopsis	Curriculum Fit	
			Course	Unit
Connecting Climate Change Through Rich Performance Tasks in Grade 10 Science	http://resources4rethinking.ca/en/resource/connecting-to-climate-change-through-rich-performance	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	Science 10 (Academic & Applied)	Earth & Space-Climate -Human Impact
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	Equity, diversity, social justice Global social challenges
The Heat is On	http://www.resources4rethinking.ca/en/resource/the-heat-is-on-cause-and-effect-and-climate-change	Examines correlation & causation within the context of climate change. Specific attention to impacts of human activity on climate	Science & Tech. 7 Science 10 (Academic & Applied) Environmental Science 11 (Univ. & Workplace)	Heat and the Environment Earth & Space Science: Climate Conservation of energy
Moving Oil	http://www.resources4rethinking.ca/en/resource/moving-oil-case-study	In this case study approach, students examine the different ways oil is transferred from place to place and consequence of each	Issues in Canadian Geography 9 Environmental Science 11 (Univ/College) Environmental Science 11 Regional Geography 11 Technological Ed. 11 & 12	Managing Canada's Resources Solutions to Challenges Human Impact on the Enviro. Sustainability & Stewardship Technology, Environment & Society
Weather Makers	http://resources4rethinking.ca/en/resource/weather-makers-secondary	This comprehensive, 15-lesson unit addresses climate science, climate change causes & consequences and encourages students to act on their learning	Science 7 Science 8 Science 9 (Academic & Applied) Science 10 (Academic & Applied)	Heat in the Environment Water Systems Biology: Sustainable Ecosystems Earth & Space Science: Climate Chemistry: Chemical Reactions
Climate Change & the Arctic	http://resources4rethinking.ca/en/resource/climate-change-and-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.	Issues in Canadian Geog. 9 (Academic & Applied) Science 9 (Applied) English 10 Science 10 (Applied) Environmental Science 11 (Workplace) Regional Geography 11	Geographic Inquiry Biology: Sustainable Ecosystems Media Studies Earth And Space Science: Climate Human Impact on the Environ. Dynamics and Change Sustainability and Stewardship

B. Short Videos

Resource Title	Review	Synopsis	Curriculum Fit	
			Course	Unit
Unlimited Renewable Energy in the 21 st Century	http://www.resources4rethinking.ca/en/resource/unlimited-	A documentary in which a group of passionate grade six students call on adults	Sci & Technology 5 Sci & Technology 6	Conservation of Energy & Resources Electricity & Electrical Devices

Resource Title	Review	Synopsis	Curriculum Fit	
			Course	Unit
	renewable-energy-in-the-21st-century	to take action to address global warming	Geography 7	Natural Resources: Use & Sustainability
Oil Sands Field Trips	http://www.resources4rethinking.ca/en/resources/oil-sands-field-trips	This four-part series takes viewers on video field trips to the Alberta oil sands. Students learn what oil sand is, why it is important, how it is taken out of the ground and the challenges involved.	Geography 7 Science & Technology 7 Issues in Canadian Geography 9 (Academic & Applied)	Natural Resources: Use & Sustainability Interactions in the Environment Interactions in the Physical Environment
Kids vs Global Warming	http://www.resources4rethinking.ca/en/resources/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-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	Science & Technology 6 Social Studies 6 Science & Technology 7 Science 9 (Academic & Applied) Science 10 (Academic & Applied)	Biodiversity People and Environments Interactions Sustainable Ecosystems Earth & Space: Climate
The Big Thaw	http://resources4rethinking.ca/en/resource/the-big-thaw	This video uses an effective combination of visual and narrative to introduce students to this unique bio-region and what the changes there tell us about climate change.	Aboriginal Studies 10 Social Studies 11 Social Studies 12 Aboriginal Languages and culture 10 Environmental Science 10 Geography 11 Science 11	Origin and Settlement Patterns Human Geography Aboriginal Studies Contemporary Indigenous Studies First Nation Studies Cultural and Linguistic Diversity Citizenship and Sustainability Global Issues Experiential Science Marine Systems
Sea Level Rise	http://resources4rethinking.ca/en/resource/sea-level-rise	This video examines the causes and consequences of climate change.	Geography 12 Geography 10 Science 10 Social Studies 12 Science 11 Social Studies 11	Canadian Geography Ocean Environment Land Environment Weather and Climate Weather Dynamics World Issues Experiential Science: Marine Systems Experiential Science: terrestrial Systems Human Geography
Climate Change Adaptation: It's Time for Decisions Now	http://resources4rethinking.ca/en/resource/climate-change-adaptation-its-time-for-decisions	This video serves to make students aware that the effects of climate change are here and there is urgency in considering how we are to adapt to this reality	Social Studies 11 Science 12 Geography 12 Environmental Studies 12 Geography 11 Science and Technology 10	Human Geography Environmental Science Physical Geography World Geography Northern Climate Impacts of Change The Earth and Space

Resource Title	Review	Synopsis	Curriculum Fit	
			Course	Unit
Global Warming: It's All About the Carbon	http://www.resources4rethinking.ca/en/resource/global-warming-its-all-about-carbon	The 5-part video package delivers entertaining chemistry lesson on the behavior of the carbon atom and its role in global warming	Science 10 (Academic & Applied) Chemistry 11 Environmental Science 11 (Workplace Prep)	Earth and Space- Climate Hydrocarbons and Energy Human Impact on the Environment
Can Animals Adapt to Climate Change	http://www.resources4rethinking.ca/en/resource/can-wildlife-adapt-to-climate-change	This Ted Ed Talk examines how plants and animals are adapting to our changing climate	Biology 11 (Univ. Prep) World Issues: A Geographic Analysis 12	Evolution Sustainability & Stewardship
Climate Change 101 with Bill Nye	http://www.resources4rethinking.ca/en/resource/climate-change-101-with-bill-nye	Bill Nye explains what causes climate change, how it affects our planet, why we need to act promptly to mitigate its effects, and how each of us can contribute to a solution.	Issues in Can. Geography 9 Science 9 (Academic & Applied) Exploring Technologies 9 (Open) Science 10. Academic & Applied	Interactions in the Physical Environment Sustainable Ecosystems Technology, the Environment & Society Earth and Space- Climate
Chasing Ice	http://www.resources4rethinking.ca/en/resource/chasing-ice	Graphic illustration of the melting of arctic ice	Issues in Can. Geography 9 Science 10 Regional Geography 11 Living in a Sustainable World 12 Env. & Resource Mgt.12 (workplace)	Interactions in the Physical Env. Earth & Space Science- Climate Dynamics and Change Ecosystems & Human Activity 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	Environ. Science 11 (Univ. /College & Workplace) Forces of Nature 11 Media Studies 11 Living in a Sustainable World Environment & Resource Mgt.12	Energy conservation, Contemporary challenges, Human impact The Physical Environment Media & Society Sustainability of Natural Resources Ecological Systems
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	Issues in Can. Geography 9 Environmental Science 11 Regional Geography 11 Living in a Sustainable World 12 Environment & Resource Mgt.12	Interactions in the Physical Envir. & Managing Canada's Resources Solutions to Contemporary Challenges, Human impact on the environment Dynamics and change Ecosystems & Human Activity 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 Environment & Resource Mgt.12	Food & Nutrition Human Health & the Environment, Sustainable Agriculture, Human Impact Determinants of Health Human-Environment Interactions, Global Connections

Resource Title	Review	Synopsis	Curriculum Fit	
			Course	Unit
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 (Academic & Applied) Science 10 (Academic & Applied) Environ. Science 11 (Univ./College & Workplace) Regional Geography 11	Sustainable Ecosystems Earth & Space- Climate Solutions to Enviro. Challenges Human Impacts on the Enviro. Dynamics & 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 (Academic & Applied) Env. Science 11 Regional Geography 11 Living in a Sustainable World 12	Earth & Space- Climate Solutions to Enviro. Challenges Human Impacts on the Environment Dynamics & Change Ecosystems & Human Activity
Inuit Observations on Climate Change	http://resources4rethinking.ca/en/resource/-5	The video documents climate change in Canada's north from an Inuit perspective	Issues in Canadian Geography 9 (Aca& Appl.) Science 9 (Aca & Appl) Aboriginal Studies 10 Science 10 (Aca & Appl) Env. Science 11 Regional Geography 11 Aboriginal Beliefs in Contemporary Society 11 Living in a Sustainable World 12	Interactions in the physical env. Sustainable Ecosystems Aboriginal Peoples in Canada Earth & Space-climate Solutions to contemporary challenge Human impact on the Environment Dynamics and change Relationships Ecosystems & Human Activity
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 Issues in Canadian Geography 9 Science 10 Env. Science 11 Living in a Sustainable World 12	Interactions in the Environment Interactions in the physical env. Earth & Space-climate Solutions to contemporary challenges Human Impact on the Environment. Ecosystems and Human Activity
When a Town Runs Dry	http://www.resources4rethinking.ca/en/resource/when-a-town-runs-dry	Documents the effects of severe drought on lives of those living in a small farming community	Science 10 (Academic & Applied) Environmental Science 11 (Univ./College) Environmental Science 11 (Workplace) Forces of Nature & Regional Geography 11 Living in A Sustainable World 12 The Environment &Resource Mgt. World Issues 12 (Univ. & College)	Earth & Space Science: Climate Sustainable Agriculture Human Impact on the Environment Sustainability & Stewardship Sustainability of Natural Resources Human-Env. Interactions Sustainability & Stewardship
What's the Deal with Fossil Fuels	http://www.resources4rethinking.ca/en/resource/whats-the-deal-with-fossil-fuels	Fossil fuels. What they are. Why they are a problem. Steps for reducing reliance	Geography 7 Issues in Canadian Geog. 9 (Academic & Applied)	Natural Resources: Use & Sustainability Managing Canada's Resources & Industries

Resource Title	Review	Synopsis	Curriculum Fit	
			Course	Unit
			Science 9 &10	Chemistry & Earth & Space Science: Climate

C. Children's Books/Novels

Resource Title	Review	Synopsis	Curriculum Fit	
			Grades	Subjects
How We Know What We Know About Our Changing Climate	http://resources4rethinking.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://resources4rethinking.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
Ship Breaker	http://www.resources4rethinking.ca/en/resource/ship-breaker	Many problems resulting from climate change are exposed in this suspense novel based on salvage practice known as 'ship breaking'	Grades 9-11	Literacy, Language Arts, Science & Social Studies