

CLIMATE CHANGE RESOURCES FOR TEACHERS



Learning for a Sustainable Future
LSF

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/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 Compendium October 2023

Elementary/Middle Level
Middle Level/Secondary

A. Lesson / Unit Plans

Resource Title	Synopsis	Curriculum Connections	
		Grade Level	Subject Area
Empowering the Youngest Learners in a Warming World Grades K-2	This resource is a comprehensive guide to climate change education with five different chapters. Each chapter consists of 3-4 guided inquiries to help bring climate change learning to your youngest learners. This guide provides educators with a blend of quality content (resources, videos, books, websites and ideas) and exemplary pedagogy to guide students through an inquiry-driven approach to climate change learning.	Elementary	Science Social Studies Math Physical Education and Health
Empowering Young Learners in a Warming World Grades 3-6	This Climate Change Inquiry resource is a comprehensive guide to climate change education with five different chapters. Each chapter consists of 3-4 guided inquiries to help bring climate change learning to your young learners. This guide provides educators with a blend of quality content (resources, videos, books, websites and ideas) and exemplary pedagogy to guide students through an inquiry-driven approach to climate change learning.	Elementary	Science Social Studies Math Physical Education and Health
What in the World Is Happening to Our Climate	Follow up activities to the children's book of the same title. Book introduces young readers to the basics of CC. Students collect data & graph data, build models to demonstrate impacts of sea level rise, calculate their greenhouse gas contributions & develop strategies to reduce emissions.	Elementary	Math & Science
Climate Justice and Action Through Art	Students explore their local environment in a creative manner to create an art piece that leads to a discussion of protecting the environment and through a second project to develop an appreciation of indigenous culture by learning about petroglyphs. Through art students learn more regarding the current problems with pollution, and climate change by making connections to the unnatural materials in our land, and waters.	Upper Elementary Middle	Science Social Studies Art
Climate Leadership	This toolkit is designed to support climate change action by students. The basics of climate change science are provided along with support for personal climate change action projects in the areas of consumerism, food and transportation. *Subject content*: Climate vs Weather, Greenhouse gases, Climate change, Human impacts & individual solutions	Upper Elementary Middle	Science
How Will We Fix Climate Change	This teaching guide accompanies **an episode** from the podcast series "Tai Asks Why", in which 7th-grader, Tai Poole interviews scientists and friends to learn about the dangers of climate change and steps individuals can take to make a difference. *Subject content*: climate change, greenhouse gases, global warming, citizenship, government responsibilities	Upper Elementary Middle	Science, Geography, Social Studies
Polar Bears & the Arctic	Cross curricular look at the polar bear's arctic habitat & effect of CC. Includes an action component	Upper Elementary	Science, Social Studies & Language Arts

Resource Title	Synopsis	Curriculum Connections	
		Grade Level	Subject Area
Our Changing Climate	Comprehensive, multi-lesson unit. Balance of content & process. What it is. Causes & impacts, What to do	Upper Elementary	Science & Language Arts
Earth: It's Everybody's Home	Students learn which human activities contribute to climate change, how climate change impacts their local community and what young people are doing about it. *Subject content*: climate change, Global Goals, using google earth, activism.	Upper Elementary Middle	Science
Designing for Climate Action	A project-based resource best employed following a study of climate change. Students explore the nature of the circular economy and how it can address climate change. *Subject content*: sustainable consumption, design processes, circular economy, climate change	Upper Elementary Middle	Science & Technology
Spotlight from Space: Taking Earth's Temperature	Students will learn how satellites are used to record changes in the earth's temperature. Activities include building a model of a satellite. *Subject content*: climate change impacts, role of satellites, global goals	Upper Elementary Middle	Science & Math
Climate Education is Our Right	From readings and short videos depicting young climate activists, students learn about the importance of climate education and individual action. *Subject content*: climate change, climate change education, young climate changemakers	Upper Elementary Middle	Science and Social Studies
Climate Change in the Garden: One Seed at a Time	Students explore the effect of rising temperatures on food production through a number of hands-on activities. *Subject content*: climate change, ecosystems, plant growth, pollination cycles	Upper Elementary Middle Level	Science & Social Studies
A Warmer World For Arctic Animals	Examines the impact of climate change on four arctic species and the resulting ripple effects that flow through the ecosystem. *Subject content*: climate impacts, populations, ecosystem concept/dynamics	Upper Elementary Middle	Science & Social Studies
Making Sense of the Climate Emergency	With inspiring case studies and creative ideas for taking action, this cross-curricular resource helps students to: make sense of the climate crisis; reflect on their values in life; discuss thoughts and feelings; and feel empowered to act – both individually and together with others.	Upper Elementary Middle	Science & Social Studies
Investigating Sea Level Using Real Data	Through the lessons in this module, students are guided through the use of NOAA data (sea level and tide data from NOAA's Center for Operational Oceanographic Products and Services) to understand how scientists monitor sea levels in order to determine the effect of sea level changes on coastal communities.	Middle	Science and Math
Next Generation Climate (6-8)	Provides videos, graphs, activities, games to explore evidence, causes, and impacts of CC. Includes action ideas	Middle	Science & Social Studies
To What Degree	Students use photos from Can. Museum of Science & Tech to explore CC impacts in different sectors across Canada. Specific attention to mitigation, adaptation & action	Middle	Science
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, adaptation, action plans	Middle	Social Studies & Science
Stories of Climate Change	Students learn about how climate change has impacted some of the world's poorest people and who is responsible. *Subject content:* climate change, climate justice, climate resilience & adaptation	Middle	Social Studies & Geography
Empowering Learners in a Warming World	A cross-curricular, nine-chapter inquiry resource to support climate change education in grades 7-12 across Canada. A blend	Middle Secondary	Science Environmental Science Math

Resource Title	Synopsis	Curriculum Connections	
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	of quality content and exemplary pedagogy to guide students through an inquiry-driven approach to climate change learning. *Subject content:* climate change, environmental impacts, human health, economy, Indigenous perspective, taking action		Geography
Building Awareness of Climate Sensitive infectious diseases in Canada	The lessons in the following toolkit are designed to guide students towards an early understanding of climate change, and the impact it is having on all living things. One of the consequences of these changes is the increasing presence of climate sensitive infectious diseases within Canadian communities. *Subject content*: climate sensitive infectious diseases, Lyme disease, West Nile virus, hantavirus, E. coli, giardiasis and salmonellosis.	Middle	Science Math Health
Spark Climate Conversations: Climate Justice in the Canadian Arctic	Through guided conversations, learners will identify ways that climate change is disproportionately affecting the livelihood of the Inuit in the Arctic. Through inquiry, learners will examine how climate change disproportionately affects Indigenous Peoples and identify ways of taking action to address how climate change disproportionately affects Indigenous People. *Subject content*: climate change, Indigenous Knowledge, Environmental Justice, ecosystems	Middle Secondary	Science Environmental Science Geography Social Studies
The Human Impact of Climate Change	These activities explore the human impact of the climate emergency and provide new spaces, approaches and opportunities for climate education and social action The resource frames the climate emergency as a human rights and people-centered issue and supports teachers to promote a sense of agency and empowerment within young people. This in turn is recognized as one strategy to help young people manage eco-anxiety, as well as disillusionment and disengagement with climate issues. *Subject content*: Climate Change, Human Rights, Equality, Climate Justice	Middle Secondary	Social Studies Geography
Think Big. Collective Action for Climate Change	Students witness examples of actions being taken both collectively and individually to combat the impacts climate change. Emphasis is placed on the power and influence each one of us has to make a difference. *Subject content*: climate change, activism, global goals	Upper Elementary Middle High School	Science & Social Studies
Community Conversations for Climate Change	Students gain an understanding of climate change and then engage with classroom guests to learn about changes to their own communities. *Subject content:* impacts of climate change global goals, communication,	Upper Elementary Middle Secondary	Science & Social Studies
The Climate in Our Hands: Oceans & Cryosphere	Students explore the importance of the ocean and cryosphere as well as the damage being done by anthropogenic climate change. Emphasis is placed on student action. *Subject content*: cryosphere, marine ecology, climate change impacts	Middle Secondary	Science
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. *Subject content*: climate change cause & effect, mitigation & adaptation	Middle Secondary	Science
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. *Subject content*: climate change, mitigation, adaption, sustainable development, data analysis & management.	Middle Secondary	Science & Math
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	Middle Secondary	Science, Math, Geography, Aboriginal Studies

Resource Title	Synopsis	Curriculum Connections	
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	northern life and culture, graphing, thermal expansion, indigenous perspective		
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, ecosystems	Middle Secondary	Science
What's All The Buzz About	How climate change effects disease transmission. *Subject content*: climate, Infectious disease – transmission & vectors:	Middle Secondary	Health, Social Studies, Science, Geography & Math
Weather Makers	This comprehensive, 15-lesson unit addresses climate science, climate change causes & consequences and encourages students to act on their learning. *Subject content*: weather, climate, climate science, climate change	Middle Secondary	Science
Climate Change Solutions – Low Impact Development	Students watch a video to learn how climate change affects cities and urban areas and how low impact development features can help reduce the stress on urban infrastructure. Students use what is learned to design a plan for a business that wants to be prepared for climate change. *Subject content*: climate change, urban runoff, urban infrastructure,	Secondary	Science Environmental Science Social Studies
Climate Change and Forests: From Seed to Carbon Sink E-Unit	This e-unit reflects current best practices in climate change education, integrating Indigenous perspectives and pedagogy. Each activity addresses different angles and lenses through which forests and climate change can be explored	Secondary	Science Social Studies Geography
Choosing the Earth's Climate Future	Students examine adaptation and mitigation as strategies to minimize the impacts of climate change and prevent possible global catastrophe. Students explore ways that adaptation and mitigation strategies can work at various levels to minimize suffering and then develop an evidence-based action plan for their local community. *Subject content*: climate change, adaptation, mitigation	Secondary	Science Environmental Science
Food, Farming and Climate Change	Students learn how climate change affects farms and farmers, research farming techniques and learn how agriculture can affect climate change in both positive and negative ways. *Subject content*: climate change, agriculture, resource management, food production and security, responsible consumption	Secondary	Science Environmental Science Social Studies
How is Climate Shaping This World	Students examine the environmental and social effects of climate change from global, national and local perspectives to gain an understanding of how climate change is shaping our world. *Subject content*: global warming, climate change impacts, IPCC,	Secondary	Science
The Heat is On	Examines correlation & causation within the context of climate change. Specific attention to impacts of human activity on climate. *Subject content*: climate change, fossil fuels, causation, correlation	Secondary	Science & Geography
Energy & Climate Change	A multi-activity resource that provides students with an overview of climate change, including its causes, consequences and responsibilities of nations around the world. *Subject content*: natural vs anthropogenic climate change, greenhouse gases, climate action, global goals	Secondary	Science, Geography, Social Studies
Climate Breakdown	This comprehensive resource offers an interdisciplinary study of the climate crisis including where we are, how we got here, what needs to be done and the urgent need for radical action. *Subject content*: Climate change facts, fake news & climate denial, key causes, climate solutions, climate action	Secondary	Science, Geography & Social Studies

Resource Title	Synopsis	Curriculum Connections	
		Grade Level	Subject Area
Decoding Carbon. A Carbon Policy Quest	Students will learn about how climate change is impacting the world and the role of climate policy in addressing the threats it poses. *Subject content*: climate science, climate modelling, climate justice, climate policy options & Canada's climate policy	Secondary	Science, Geography, Social Studies & Political Science
We Fight Climate Change	In this guided inquiry student teams research different aspects of the climate crises, produce written articles on their findings, collaborate using **Microsoft Teams** and publish a magazine. *Subject content*: Climate change causes & consequences, climate adaptation & mitigation, writing and publishing	Secondary	Science, Language Arts, Media Studies
Climate Change & Your Ecological Area	A comprehensive guided inquiry into the effects of climate change on the dynamics of a local ecosystem. *Subject content:* ecosystem components & interrelationships, climate change impacts on ecosystems	Secondary	Science
What is the Future of the Earth's Climate	In this guided inquiry students attempt to answer the (title) question. *Subject content*: climate change basics, carbon sources and sinks, climate modelling, constructing an argument	Secondary	Science, Chemistry, Geography & Social Studies
Inuit Knowledge & Climate Change	Teacher's guide with classroom activities and assignments to support the **film** of the same name. The film describes the effects of global warming on Inuit life in the Arctic as told by elders & hunters. *Subject content*: global warming, climate change impacts, Arctic ecosystems, TEK	Secondary	Science, Geography, Aboriginal Studies
Climate Change Negotiations Game	Simulation in which students role play delegates to an international climate conference to negotiate an agreement. Realistic look at the complexity of the issue.	Secondary	Science, Geography & World Issues
Climate Citizen Curriculum	Provides videos, readings, scientific reports, articles, blogs & role plays students use to better understand what goes into climate policy and negotiation. Topics explored include the carbon cycle, carbon budgets, climate targets, and the roles of technology, carbon tax and cap and trade in climate change mitigation and international climate negotiation.	Secondary	Science, Geography & World Issues
Exploring Canada's Energy Future	Up to date look at Canada's energy use now and projections for the future based on current data, trends and competing interests. Includes Indigenous perspectives	Secondary	Science & Geography
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. *Subject content*. Climate change case study, adaptation, mitigation	Secondary	Science & Geography
Personal Consumption and Climate Change	This toolkit focuses on using photographs and a range of active teaching and learning approaches and strategies to examine the themes of climate change, personal consumption and responsible living. *Subject content*: consumption, footprint, climate change, sustainable development	Secondary	Social Studies & Geography
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	Secondary	Science, Geography & Social Studies
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	Secondary	Science, Social Studies, Geography
The Buffer Zone: Acid Base Chemistry in the World's Oceans	How global warming effects marine environments: *Subject content*: acid- base theory, buffers	Secondary	Science

Resource Title	Synopsis	Curriculum Connections	
		Grade Level	Subject Area
Penguins on Thin Ice	Provides materials for musical production dealing with climate change. *Subject content*: musical, dramatic and visual arts composition & presentation	Secondary	Music, Drama & Science
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. *Subject content*: Climate change, human health, infectious disease, global citizenship	Secondary	Science, Social Studies & Health
Tread Lightly: Low Carbon Lunch	Students examine the relationship between food choices & climate change and take action to reduce their carbon footprint. *Subject content*: carbon footprint, local food, healthy food, waste reduction	Secondary	Science & Home Economics
Natural Gas. A Cleaner Energy Solution or Just Another Fossil Fuel	Students gather information on natural gas, compare its emissions to those of other fossil fuels and use systems-based analysis to defend their position. *Subject content*: fossil fuels, bridge fuels, greenhouse gases, energy use	Secondary	Science & Geography

B. Short Videos

Resource Title	Synopsis	Curriculum Connections	
		Grade Level	Subject Area
Climate Change (according to a kid)	This animated video uses the analogy of a blanket over the Earth to describe what causes global warming and how it affects our planet.The video also reinforces discussions about renewable and non-renewable resources, sustainabilty and responsible resource use.	Elementary	Science
Our Home, the Planet Earth	This video is the first of ten episodes that aim to teach students about climate change and positively influence their lifestyle to help reduce greenhouse gas production and limit climate change. **Other videos in Climate Change and Me! Series**	Elementary Middle	Social Studies & Science
A Call to Learning for Climate Education	This video profiles young people who have made a difference in their communities by taking action on climate change. It is supported by a lesson plan and supplemental activities.	Elementary Middle	Social Studies & Science
Climate Change: Earth's Giant Game of Tetris	Video compares the build-up of CO2 and other greenhouse gases that lead to climate change, as a game of Tetris.	Middle	Science & Social Studies
Climate Change Connections	Entertaining presentation of CC basics: what, why, evidence, impacts, actions	Middle	Science
Unlimited Renewable Energy in the 21st Century	A documentary in which a group of passionate grade six students call on adults to take action to address global warming by moving away from fossil fuels.	Middle	Science
This Bulb	Natalie Portman, Kyra Sedgwick and Chloe Sevigny explain how small changes in lifestyle can help reduce greenhouse gas emissions.	Middle	Science
The Cost of Carbon	This video focuses attention on the global cost of climate change. Evidence from climate science and footage of real time events are used to effectively illustrate the economic, personal, environmental and geopolitical costs of carbon pollution that humans have incurred due largely to our reliance on fossil fuels. The program provides a history of climate change and its impacts from the 19th century to today.	Middle Secondary	Geography Science Environmental Science

Resource Title	Synopsis	Curriculum Connections	
		Grade Level	Subject Area
Kids vs Global Warming	Introduces a remarkable young teenager who crusades against global warming	Middle Secondary	Science & Social Studies
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	Middle Secondary	Science
Who is Responsible for Climate Change?	The video describes the current climate crisis and the urgent need for action in order to avoid catastrophe. It provides an excellent accounting of the wide disparity in the past, present and future greenhouse gas contributions among the developed and developing countries and how this has led to finger pointing and a failure to act effectively.	Secondary	Social Studies Geography
What's the Deal with Carbon	Animation effectively describes the carbon cycle and the connections between carbon, burning fossil fuels and climate.	Secondary	Science & Geography
Australian Wildfires, Climate Change and the Family Farm	Through the experience of one family, the video illustrates the connection between climate change and catastrophic events. It also makes clear the need to balance economic and environmental needs.	Secondary	Science, Geography & Social Studies
How Does Climate Change Effect Biodiversity	Animation is used to describe how humans are accelerating climate change and the impact this is having on biodiversity.	Secondary	Science, Social Studies & Geography
Climate 101. Causes & Effects	Explores the human impact and consequences of climate change for the environment and our lives. Particular attention is paid climate change and our oceans, weather, food, and health.	Secondary	Science
Immersive Mixed Reality-Climate Change	The video uses immersive mixed reality to 'transport' viewers across the globe to see the effects of climate change over time.	Secondary	Science & Geography
Is a Carbon Tax the Best Way to Slow Climate Change	Examines the pros and cons of a carbon tax and cap and trade system in addressing climate change. Students examine the issue and then participate in an on-line forum.	Secondary	Science & Geography
Planning for Climate Resilience	Illustrates how the planning profession is at the forefront of developing policy, capacity, and climate resilience within communities and environments across the country.	Secondary	Science & Geography

Resource Title	Synopsis	Curriculum Connections	
		Grade Level	Subject Area
When Climate Change Hits Home	Visits Lennox Island, home to Prince Edward Island's Mi'kmaq First Nation for more than 10,000 years that now finds itself on the front lines of Canada's battle against climate change.	Secondary	Science, Geography, Aboriginal Studies
Inuit Knowledge & Climate Change	Elders and hunters examine impacts of global warming on the arctic. The film explores social and ecological aspects of the changing climate and reveals a good deal about the culture & expertise in traditional ecological knowledge	Secondary	Science & Geography
Life on a Shrinking Island	Provides powerful evidence of the impacts of CC in Canada…. it's smallest province. Great lead into mitigation/adaptation	Secondary	Science, Geography & World Issues
Climate Change in Great Bear Lake	Excellent case study of climate change impacts in the north. Highlights the contribution of TEK in documenting and understanding the impacts of CC	Secondary	Science, Geography, Aboriginal Studies
Adapting to A Changing Climate	Interviews & case studies from around the world illustrate the need for and potential of climate change adaptation	Secondary	Science
The End of the Arctic	Contributes to our understanding of how climate change is impacting the Arctic. Highlights TEK.	Secondary	Science, Geography, Aboriginal Studies
The Big Thaw	This video uses an effective combination of visual and narrative to introduce students to the Arctic as a unique bio-region and what the changes there tell us about climate change.	Secondary	Science & Geography
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	Secondary	Science & Geography
Can Animals Adapt to Climate Change	This Ted Ed Talk examines how plants and animals are adapting to our changing climate. Supports teaching of evolution in HS (Biology)	Secondary	Science

Resource Title	Synopsis	Curriculum Connections	
		Grade Level	Subject Area
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.	Secondary	Science
Chasing Ice	Powerful illustration of the melting of arctic ice using time lapse photography.	Secondary	Science & Geography
Global Warming: A Way Forward	Images used to illustrate consequences of climate change and the future scenarios that are possible	Secondary	Science, Geography & Social Studies
How to Feed the World in 2050	Examines the relationship between climate change and sustainable agriculture	Secondary	Science, Geography & Social Studies
When a Town Runs Dry	Documents the effects of severe drought on lives of those living in a small farming community	Secondary	Science & Geography
What's the Deal with Fossil Fuels	Fossil fuels. What they are. Why they are a problem. Steps for reducing reliance	Secondary	Science

C. Outdoor Activities

Resource Title	Synopsis	Curriculum Connection	
		Grade Level	Subject Area
Maple Trees & Marmots	A role-playing game to illustrate how changes in weather can affect the plants and animals- Subject content: characteristics of plants & animals, seasonal changes, effects of climate change	Elementary	Science
Climate Change Education Learning Resource	Through participation in games and simulations students learn how atmospheric carbon impacts oceans and their local environment. *Subject content*: climate change causes, impacts and action.	Elementary	Science, Social Studies & Geography
Arctic Survivor	Students role-play polar bears and their interactions with habitat components as they compete for food, water, shelter and space. *Subject content*: population dynamics, adaptation, ecosystem concept, climate change	Upper Elementary Middle	Science, Math & Physical Education

Climate Change Scavenger Hunt	Students participate in a scavenger hunt designed to help them learn more about their local environment. *Subject content*: climate change basics, leadership, teamwork	Middle	Science & Physical Education
The Carbon Dioxide Game	Based on the game of tag, this simulation effectively demonstrates the role and source of greenhouse gases and how humans are enhancing the greenhouse effect. *Subject content*: Carbon dioxide, greenhouse gases, human impacts on climate	Middle	Science & Physical Education
Carbon in Your Community Forest	In this hands-on activity, students investigate the role of trees in mitigating climate change. *Subject content*: carbon cycle, carbon sequestration, forest ecology	Middle Secondary	Science, Geography & Math
Carbon Cycles	In this game, students follow the path of carbon through the carbon cycle to learn where carbon is stored and how it circulates. Subject content: Carbon cycle, greenhouse gases, human impact on climate	Middle Secondary	Science & Geography
The Role of CO_2	In this simulation, students take on the roles of different components of the earth's surface and atmosphere in order to demonstrate in concrete terms, the greenhouse effect and how human activity is affecting it. *Subject content*: composition of the atmosphere, types of energy, greenhouse effect, climate change	Middle Secondary	Science & Geography
Climate Change Dodgeball	Students participate in an adapted game of dodgeball to show how increasing greenhouse gas concentrations causes global warming. *Subject content*: Greenhouse gases, global warming, human impacts	Middle Secondary	Science & Geography
Greenhouse Gas Game	Using a life-sized game board (provided), students are introduced to natural and enhanced sources of three of the most common greenhouse gases and their climate impacts. *Subject content*: greenhouse gases, greenhouse effect, climate change, stewardship	Middle Secondary	Science
Getting Outdoors with Physics	Students collect and analyze driving data related to the school's drop-off zone to provide authentic context for a discussion around CO2 emissions, efficiency & climate change	Secondary	Science

D. Children's Books

Resource Title	Synopsis	Curriculum Connection	
		Grade Level	Subject Area
Saving Planet Earthly	This book is the first in a series of adventures in which Thoko and her friends from around the world learn how climate change is affecting them and the plants and	Elementary	Literacy, Language Arts, Science

	animals around them. **Link to other books in the series**		
Our House is On Fire	This richly illustrated picture book describes how Greta Thunberg became an influential activist who has unified youth around the world with her "School Strike for Climate" campaign. As they read her remarkable story, young students will be inspired to help protect our planet with the small changes that can help dampen the "flames" fueled by human impacts on the environment.	Elementary	Science
Judy Moody Saves the World	Judy Moody wonders how one person can "heal the world". The story chronicles her personal efforts.	Elementary	Literacy, Language Arts, Science
What in the World is Happening to Our Climate	Explains the basics of climate change through and engaging story of the travel adventures of a young girl and her friends	Elementary	Literacy, Language Arts, Science
My Wounded Island	The book explores the themes of climate change and relocation as well as describing the daily lives of the Inuit people who inhabit the island of Sarichef.	Elementary	Literacy, Indigenous Studies, Science, Social Studies
Stand Up. Speak Up	This picture book profiles 14 young people from around the world who have taken action on environmental issues.	Elementary	Literacy, Social Studies
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	Middle	Science, Geography, Geography
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.	Middle	Literacy, Language Arts, Science & Social Studies
Because IPCC: A True Story From 100 Years in the Future	This entertaining graphic novel reveals many of the causes and impacts of the climate change and the important role played by the IPCC. The graphic novel is also available in video format.	Middle Secondary	Literacy, Science & Political Science
Ship Breaker	Many problems resulting from climate change are exposed in this suspense novel based on salvage practice known as 'ship breaking'	Secondary	Literacy, Language Arts, Science & Social Studies

E. Other Tools

Resource Title	Synopsis	Curriculum Connection	
		Grade Level	Subject Area
Writing Letters to the Earth	If the Earth had a voice, what would it say to the humans that have caused so much damage? This resource invites students to connect with their feelings about the Earth and the climate and nature crisis, and to consider how we can make change.	Elementary	English Language Arts Science
Birds and Climate Change	This activity is included on NASA's **Climate Kids** website. After learning about reasons	Elementary	Science

	for changes in bird distribution & migration, students build bird feeders to help mitigate the impacts of climate change & extreme weather.		
Climate Change: Passing Gas	In this lesson, students engage in an experiential learning activity, acting out the accumulation of gases in the Earth's atmosphere. Through this and related activities, the lesson reinforces understanding of the impact of human behavior on climate change.	Elementary Middle	Science Social Studies
What is Climate Change	This is one of 6 questions students can explore NASA's **Climate Kids website**. The activity focuses on why our climate is changing and why this is important.	Elementary Middle	Science
Climate Justice	This resource is comprised of two activities addressing the effects of climate change and the global inequalities that result. Students will learn that it is often the developing countries that emit the least amount of greenhouse gases yet suffer the most.	Upper Elementary Middle	Science and Social Studies
Climate Change, Human Activities and Biodiversity	In this role-play activity students become part of a food web to learn that in ecosystems, living organisms interact and depend on each other others and are adaptable to specific climates and landscapes. Students will also explore how human actions and climate change impact biodiversity and why this is important.	Upper Elementary Middle	Science
Climate Kids	Environment Canada's interactive website composed of games, activities and quizzes to inform students about climate change issues and support individual action.	Upper Elementary Middle	Science
Natural Inquirer	Students conduct research to identify and then 'interview' a species particularly sensitive to climate change.	Upper Elementary Middle	Science & Language Arts
Climate Education is Our Right	In this on-line activity, students learn about young changemakers who have acted on what they have learned about our climate.	Upper Elementary Middle	Science & Social Studies
Solutions	Solutions is an informative, educational game where students work cooperatively to fight climate change and reduce global emissions. Students face challenges and must propose climate solutions to keep warming under 1.5C. Each turn, they discuss the solutions with the highest carbon reduction impact to keep the temperature from rising too much. Students then rank the impact of their chosen solutions and flip the card to determine their fate.	Middle Secondary	Science Environmental Science
Understand How Climate Change Affects Others	This role play activity develops student empathy and understanding as they explore the inequality of climate change impacts based on age, gender, ethnicity and wealth.	Middle	Science

Writing Letters to the Earth	If the Earth had a voice, what would it say to the humans that have caused so much damage? This resource invites students to connect with their feelings about the Earth and the climate and nature crisis, and to consider how we can make change	Middle Secondary	English Language Arts Science
Youth Climate Action Guide	This resource was designed to support youth in mobilizing their communities toward climate action. The guide offers resources and strategies to help students implement climate action initiatives that are responsive and sensitive to the needs of their community.	Middle Secondary	Science Social Studies
What Role Can Canada Play in Global Climate Action?	Students will use background information provided to summarize the Climate Change Agreements that Canada has been part of and explore Canada's efforts to address climate change.	Secondary	Geography Science Social Studies
Climate Atlas of Canada	Toolkit to examine climate impacts & efforts in Canada. Includes video, documents & maps that explore impacts, adaptation & mitigation efforts in various regions of the country	Secondary	Science, Geography & World Issues
Global Impacts of Climate Change	Using an interactive tool from NASA, students review IPCC reports, summarize the findings and present what they have learning in poster format.	Secondary	Science
Climate Change Denial	A group activity that explores the issue of climate change denial, what lies behind it, the danger it poses and what might be done to combat it	Secondary	Science & Psychology