

CHAPTER 3:

How does addressing climate change make us healthier?

A Project of Learning for a Sustainable Future
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Chapter 3. How Does Addressing Climate Change Make Us Healthier?

This collection of inquiries explores sensitive material. It explores the connection between climate change and many facets of human health. We have included resources, activities, and information to inform educators of the serious and widespread effects that climate impacts have on physical and mental health across Canada. This inquiry also invites students to reflect and consider their own health in the face of these serious climate changes. We explore how many of the actions to reduce greenhouse gas emissions also have the co-benefit of improving our health.

Through open-ended discussion probes, thoughtful provocations, and several hands-on activities, this inquiry provides multiple directions for educators to take as human health and climate change are explored side by side.



Illustration by: Preeti Singh for ArtistsForClimate.org

Before you Begin: Background Information for Educators

To help you have conversations with your students about their feelings on the existential threats of climate change, we recommend several additional resources. Before feeling ready to create a safe space where students can explore issues of climate change, you should feel supported and informed with the help of expert voices on the subject. Here is a list of both theory and practices from some of the leading voices in this field:

Theory

- Jennifer Atkinson - [Facing It](#) (Climate grief podcast)
- Sophy Banks - Transition Town: [What is 'Inner Transition'](#) (video)
- Dr. Avivit Cherrington - [Global Education \(Episode 17\): How Children Experience Hope](#) (podcast)
- Leslie Davenport - [Emotional Resiliency in the Era of Climate Change](#)
- Bob Doppelt - [Transformational Resilience](#)
- Katie Hayes - [5 Ways Communities are Coping with Climate Anxiety](#) (article)
- Rob Hopkins with Lise Van Susteren - [Pre-Traumatic Stress Disorder & The Imagination](#) (podcast/article)
- Renee Lertzman - [How to turn climate anxiety into action](#) (TedTalk)
- Panu Pikhala - [Climate Anxiety](#)
- Sarah Jaquette Ray - [Teaching Climate Change](#) (video)
- Espen Stoknes - [How to transform apocalypse fatigue into action on global warming](#) (video)

Practices

- Jennifer Atkinson - [Emotional Impact of Climate Change](#) (video)
- Climate Therapy Alliance - [Emotional Resilience Toolkit for Climate Work](#)
- Leslie Davenport - [Climate Psychologist on using guided imagery](#) (radio interview/article)
- Panu Pikhala - [Spectrum of ecological emotions activity](#) (activity)
- David Selby and Fumiyo Kagawa - [Unleashing Blessed Unrest - Climate Change Despair and Empowerment](#) (article)
- [Dr. Lise Van Susteren's Resources](#): Climate for Health
- Anuradha Rao - [One Colour People of Colour Protecting our Planet](#) (book)
- Harriet Rohmer - [Heroes of the Environment True Stories of people who are helping to protect our environment](#) (book)
- [Professor Fikile Nxumalo](#) (research)

The climate is changing at a rapid rate, and this change continues to have [implications for human health](#) in a profound way. It is important to consider human health as more than simply the absence of disease; human health is a multidimensional framework that encompasses mental, physical and emotional well-being as equal contributors. [Climate change has both direct and indirect implications for mental health and psychosocial well-being](#). Overall, recent studies have found that Canadians are increasingly experiencing mental health conditions and

symptoms related to the effects of climate change. As well, in terms of the impacts on physical health, “Climate change is already impacting health in a myriad of ways, including by leading to death and illness from increasingly frequent extreme weather events, such as heatwaves, storms and floods, the disruption of food systems, increases in zoonoses and food-, water- and vector-borne diseases, and mental health issues” ([WHO, 2021](#)). In order to properly address the urgency of climate change in Canadian classrooms within a health and well-being framework, it is important to understand the impact of climate change on all facets of human health.

Educating students about the health-related effects of climate change is critical due to the close link between comprehending and acting on climate change. [Psychological Research and Climate Change](#) showed that people are better able and more motivated to act on climate change solutions when they can relate information and solutions to their own health and well-being or local environment.

There are many additional factors that can affect an individual’s or region’s susceptibility to the negative physical effects of climate change including: geographic location, the presence of pre-existing illness or disability, and inequalities (socioeconomic, demographic, education level, economic status and age).

Physical Health

The Public Health Agency of Canada has classified physical health risks as a result of climate change into five categories: temperature-related morbidity and mortality, weather-related natural hazards, air quality, water- and food-borne contamination, and health effects of exposure to ultraviolet rays. Some health effects can be directly linked to concrete climate events like natural disasters (droughts, floods, storms), but other changes are more gradual ([Health Canada](#)).

Temperature-related morbidity and mortality: periods of higher than normal heat and the numbers of days per year above 35 degrees Celsius are multiplying and, on this trajectory, will continue to do so throughout the next century, causing:

- respiratory and cardiovascular illnesses
- increased occupational health risks

Weather-related natural hazards: climate change is increasing both the severity and frequency of natural hazards throughout Canada which can cause:

- damaged public health infrastructure
- injuries and illnesses
- social and mental stress
- increased occupational health hazards
- population displacement

Air quality issues: cars, planes and industrial facilities are causing air pollution and it is being intensified by warmer temperatures, causing:

- increased exposure to outdoor and indoor air pollutants and allergens
- respiratory diseases
- cancer, heart attacks, strokes
- other cardiovascular diseases

Water-borne contamination and food safety: climate change causes increased precipitation, storm surges, and water temperatures [which can contribute to flooding and runoff](#) that can spread sewage, chemicals, diseases, bacteria, and toxic algae. Climate change can also [put food safety at risk](#) due to changing environmental and social conditions that increase the likelihood of contamination.

Health effects due to exposure of ultraviolet rays: Increased UV exposure poses a high risk and has the potential to cause:

- skin damage and increased risk of skin cancer
- cataracts
- disturbed immune function

Mental Health

Mental health is influenced in many ways by climate change, both directly and indirectly, and it can have both acute and chronic impacts on human health. Chronic mental health impacts can be less obvious than in physical illness, but no less important. Individuals may experience fear and feelings of helplessness that can manifest into [serious mental health conditions](#) such as post-traumatic stress disorder, anxiety, depression, grief, substance abuse disorders, and others.

Acute mental health consequences often occur as a reaction to a natural disaster which has caused damage to infrastructure, food systems, medical services, transportation, home and belongings, or loved ones. Natural disasters can cause or exacerbate stress, and the psychological effects can be profound and long-lasting.

Chronic mental health consequences can occur as a result of gradual climate changes. Feelings of powerlessness, despair, and constant worry about the future of the planet, one's own health, and that of future generations have been termed [“eco-anxiety.”](#)

According to [Mental Health and Our Changing Climate](#), both acute and chronic mental health effects can include:

- Anxiety
- Depression
- Post-traumatic stress disorder
- Compounded stress
- Loss of personal and occupational identity
- Feelings of fatalism and helplessness
- Trauma and shock

Click [here](#) for an in-depth look at the specific impacts of climate change on mental health.

It is crucial to be informed about and cognizant of students' mental health when addressing climate change in the classroom. There are clear risks associated with catastrophizing the problem and leaving students feeling helpless or solutionless. However, when the emphasis is placed on taking action against climate change, the impacts on mental health can be positive rather than negative. Encouraging students to make lifestyle choices that benefit the environment or taking collective action can curtail some of the negative effects of climate change. According to the [American Psychological Association](#), "climate solutions not only improve the quality of air and food but also enhance our cognitive abilities and strengthen our mental health."

- Learn more about the relationship between Mental Health and Climate Change by reading [Mental Health and Our Changing Climate](#)
- [Health of Canadians in a Changing Climate](#) ([NRCAN, 2022](#))

General Introduction to the Inquiries in this Chapter:

This chapter offers 3 different structured and scaffolded inquiries to support *How Addressing Climate Change Makes us Healthier*. Each of the 3 inquiries begin with a provocation followed by the other steps of the inquiry model which includes many strategies and examples.

These steps can be completed in their entirety as stated. However, as inquiry is an organic and fluid process based on student input, educators may wish to adapt, modify or replace the suggested steps to create their own inquiry with their class. We therefore suggest that teachers review the whole chapter first in order to create a plan that will work best with their particular group of learners.

The following 3 inquiries are connected to curricular concepts as shown in this chart. These curricular concepts are applicable across Canada.

Curricular connections	Concepts
Science	Living things Ecosystem Protection Habitats Sustainability Survival Change Environment
Language	Communication Retelling
Physical Education and Health	Motor skills Locomotor

	Cooperation Relationships Choice Self-awareness
The Arts	Creativity innovation Interpretation Colour Space

Tool: Journaling

Encourage students to record their thinking and learning throughout the learning process. The main reason for developing a journal is for students to then be able to look back and track their growth and progression with their connection to climate change. Students scaffold their thinking throughout their learning journey. The entries can be a combination of personal reflections and assigned reflections. This can be done as illustrations, concept maps or written reflections.

Inquiry 1: Impacts on Health- *Campaign for Vitamin D*

Through yoga exercises, observing nature and understanding the importance of keeping our planet earth healthy, students will explore the concepts of health and its benefits.

Resources:

- [Possible Pictures for Concept Maps](#)
- Frames: These can be made out of cardboard or cereal boxes
- [Happy vs. Sad Earth Sorting Activity](#)

Inquiry 2 : Impacts on Health - *Sustainable Well-being*

Students will explore idling and its impact on our health. Through games, observations and collection of data, students will educate other students or the community about anti-idling.

Resources:



- [Pollution and Ecosystems Role Play Simulation](#)
- [Sit Spots](#)
- [Possible Pictures for Concept Maps](#)

Inquiry 3 : Impacts on Health - *Water*

Students will further explore how climate change impacts water pollution. This will be investigated through observing and analyzing environmental impact.

Resources:

- [Possible Pictures for Concept Maps](#)
- [The Lump! A Rhyming Kids' Story About Plastic Pollution in the Sea](#)

Inquiry 4 : Impacts on Health - *Food Security*

Students will further explore how climate change impacts food security. This will be investigated through experiments, observing images of environmental impact and videos.

Resources:

- [Plant Experiment](#)
- [Possible Pictures for Concept Maps](#)
- [Use of Photographs as a Powerful Tool in Teaching/Learning Environment](#)