

Environmental Science 3205

Climate Change
Curriculum Connections

Office of Climate Change
& Energy Efficiency



Curriculum Connections

Environmental Science 3205

This document provides a list of online resources for teachers to supplement the curriculum guide for Environmental Science 3205. It is designed to assist teachers in developing lesson plans about climate change for unit five of this course, titled “The Atmosphere and the Environment.”

A significant portion of the resources are drawn from the Government of Newfoundland and Labrador’s *Turn Back the Tide* website on climate change, but a variety of other online resources are also included. In many instances, the resources reflect more up-to-date information than is provided in the course textbook.

Outcomes Covered:

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Outcome 5.22	4
Outcome 5.23	4
Outcome 5.25	5

Prepared by:

The Office of Climate Change and Energy Efficiency, in collaboration with the Department of Education and Early Childhood Development

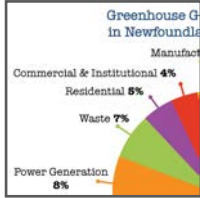
Questions, comments or suggestions?

Contact the Office of Climate Change and Energy Efficiency at 709-729-1210 or climatechange@gov.nl.ca.

Outcome 5.17

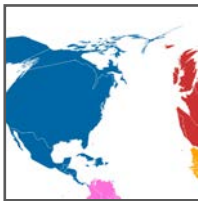
Identify that climate change can have a catastrophic effect on Earth

Topic: Sources of Greenhouse Gas Emissions



Graph of Greenhouse Gas Emissions in NL

This graph shows a sector-by-sector breakdown of where greenhouse gases come from in Newfoundland and Labrador. It can be used as a starting point to discuss which human activities are causing climate change ([Get Resource](#)).



Carbon Map Website

The quantity of greenhouse gases released by countries varies significantly. This interactive tool shows how different countries compare. Use the variables across the top of the page to discuss the factors that affect the amount of greenhouse gases released in different countries, such as population in China and consumption in the United States ([Get Resource](#)).



United States Environmental Protection Agency's Website

The United States EPA is an authoritative source of information on global greenhouse gas emissions. This website contains resources that are useful for explaining the different types of greenhouse gases and their sources. For example, of all the greenhouse gases emitted by humans worldwide, 72% comes from only seven countries - including Canada ([Get Resource](#)).

Topic: Climate Change Science



Piecing Together the Temperature Puzzle (Video)

This video (5:48 minutes) was developed by NASA. It provides an introduction to climate change science and its main findings, such as the fact that global sea levels rose over an inch in the last decade ([Get Resource](#)).



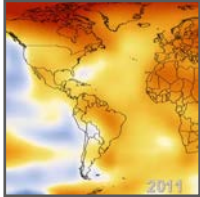
NASA Website

NASA's website shows the depth of information supporting climate scientists. It contains various materials that can be used in lesson plans or research projects, such as a graph showing the amount of carbon dioxide in the atmosphere over the last 400,000 years, with a profound spike in the last century ([Get Resource](#)).

Outcome 5.17

Identify that climate change can have a catastrophic effect on Earth

Topic: How Human Activities Affect Climate



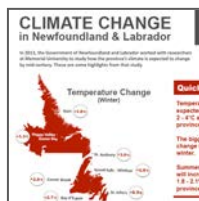
Rising Global Temperatures (Video)

NASA created this 27-second video using satellite information. It is an excellent resource to illustrate how temperatures have changed around the world since 1880. Particularly interesting is the significant warming that has occurred in the last 30 years, predominantly in northern areas ([Get Resource](#)).

Turn Back the Tide Website – What Is Climate Change?



This section of the *Turn Back the Tide* website, which was developed by the Provincial Government, contains information about the causes and effects of climate change. It is a useful resource for gathering global and local information. For example, 30 billion tonnes of greenhouse gases are emitted globally each year by burning fossil fuels, and another 12 billion tonnes from deforestation ([Get Resource](#)).



Fact Sheet: Climate Projections for NL

A study was completed in 2013 about how climate change is expected to affect Newfoundland and Labrador by mid-century. This fact sheet provides an overview of that study. It explains how temperature, precipitation and extreme weather are expected to change, and the potential impact this could have on the province ([Get Resource](#)).

Outcomes 5.19 – 5.22

Describe the impacts of climate change on forests, the fishery, and coastal areas

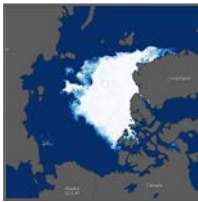


Turn Back the Tide Website – Impacts of Climate Change

This section of the Provincial Government's *Turn Back the Tide* website contains information about how climate change is expected to impact Newfoundland and Labrador's environment and economy. It is a useful resource for discussing a global issue in a local context. It can be used to help achieve several curriculum outcomes relating to the impacts of climate change ([Get Resource](#)).

Outcome 5.22

Describe the impacts of climate change in Canada on coastal zones

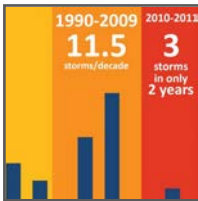


Graphics of Melting Arctic Ice

These graphics were developed by NASA to show the significant ice loss that has occurred in the Arctic Ocean. It can be used as a starting point for discussing the impacts of climate change, as melting ice leads to a host of other impacts, including rising sea levels ([Get Resource](#)).

Outcome 5.23

Describe the impacts of climate change in Canada on extreme weather events



Graph of Hurricane/Tropical Storm Frequency in NL

Extreme weather is increasing in Newfoundland and Labrador due to climate change. This bar graph shows the historical frequency of hurricanes and tropical storms in the province. It draws attention to the increase in tropical storms and hurricanes the province has experienced in recent decades ([See Page 7](#)).

Outcome 5.25

Describe efforts made to address climate change

Topic: Local Efforts to Reduce Greenhouse Gases



Local Case Studies of Action - Communities

Communities worldwide are taking action on climate change. These case studies show examples of actions in Newfoundland and Labrador that are being taken to reduce greenhouse gas emissions and adapt to climate change ([Get Resource](#)).



Local Case Studies of Action - Businesses

Climate change is a shared challenge and businesses must be a part of the solution. These case studies show how businesses in Newfoundland and Labrador are lowering their greenhouse gas emissions by saving energy and reducing waste ([Get Resource](#)).

Topic: Economic Approaches to Reducing Greenhouse Gases



Carbon Hunters Documentary

Carbon trading is one of the main economic approaches to tackling climate change. This 45-minute CBC Doc Zone episode provides an interesting look at how this is being done in areas around the world ([Get Resource](#)).

Topic: Individual Actions to Reduce Greenhouse Gas Emissions



I Can Make a Difference (Video)

This video (1:24 minutes) was developed by the Government of Newfoundland and Labrador as part of the province's *Turn Back the Tide* campaign on climate change. It focuses on the challenge of climate change and how individuals can help make a difference ([Get Resource](#)).



Carbon Calculator

This calculator is designed specifically for residents of Newfoundland and Labrador to estimate the carbon footprint of their household. Students can use this resource to understand where their greenhouse gas emissions come from and how they compare to the provincial average ([Get Resource](#)).

Outcome 5.25

Describe efforts made to address climate change

Topic: Individual Actions to Reduce Greenhouse Gas Emissions



Turn Back the Tide Website – Take Action at Home

This section of the Provincial Government's *Turn Back the Tide* website provides information on how individuals can be greener at home. It is an excellent source for facts and tips on a variety of subjects, including home heating, lighting, appliances, electronics and more ([Get Resource](#)).



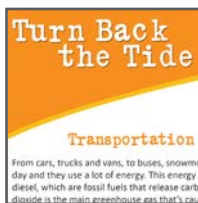
Fact Sheet: Waste and Climate Change

The waste we generate is a significant source of greenhouse gases. This fact sheet can be used as a handout for students to explain the connection between waste and climate change, along with tips for reducing the amount of waste we produce ([Get Resource](#)).



Turn Back the Tide Website – Take Action on the Move

Reducing greenhouse gas emissions from our transportation sector is one of the main ways we can take action on climate change. This section of the *Turn Back the Tide* website contains facts and tips that can be incorporated into a discussion about taking action on the move ([Get Resource](#)).



Fact Sheet: Transportation and Climate Change

Transportation is the second biggest source of greenhouse gases in Newfoundland and Labrador. This fact sheet can be used as a handout to explain the connection between climate change and transportation, along with tips for being greener on the go ([Get Resource](#)).



Interactive House

This interactive tool allows users to visit different areas in a typical home to find tips for saving energy and reducing waste. It can be used to demonstrate the numerous ways that individuals can take action on climate change in their everyday lives, particularly by being more energy efficient ([Get Resource](#)).

Appendix:

Hurricane/Tropical Storm Frequency in Newfoundland and Labrador

