

# Climate Change in the Canadian Arctic

## Outcomes from the Grade 9 from the Atlantic Canada Social Studies Curriculum Guide

### Essential Graduation Learnings

#### **Communication**

Understand the term Information Superhighway and how it can affect people. (4.1.5)

#### **Problem Solving**

- Suggest ways that students can increase awareness of global citizenship in the community at large. (5.4.3)

#### **Technological Competence**

Evaluate how improvements in transportation and communication systems have led to increased global awareness in the twentieth Century. (5.2.5)

### Specific Expectations

#### **Theme One: Physical Setting**

1.3 Identify the basic weather and climatic patterns of Atlantic Canada.

#### **Theme Two: Culture**

2.5 Demonstrate an understanding of the issues and events surrounding cross-culture understanding at the local, regional and global levels.

2.7 Demonstrate an understanding of the local and global forces that cause cultures to constantly change.

#### **Theme Three: Economies**

3.3 Evaluate the importance of economics in entrepreneurship.

#### **Theme Four: Technology**

4.4 Analyze how technology affects transportation and communication in the Atlantic region.

#### **Theme Five: Interdependence**

5.2 Examine and analyze how Atlantic Canadians are members of the global community through different interconnected systems.

## Introduction

During this unit we will be looking at Climate Change and the effect that it has on us here in Canada.

What role did the Northwest Passage play in the development of our country?  
*Short class discussion*

Climate Change might soon make the Northwest Passage a viable Arctic Trade Route. In the October 3, 2005 issue Maclean's magazine had an article about the race for new arctic trade routes

([http://www.macleans.ca/topstories/canada/article.jsp?content=20051003\\_113126\\_113126](http://www.macleans.ca/topstories/canada/article.jsp?content=20051003_113126_113126)). *Handout copies of the reading. After reading the articles, students have small group discussions about the pros and cons. Then as a whole group each group presents their findings. Framing questions: What three trade routes are discussed? What are some of the pros and cons of Arctic shipping routes?*

Introduce the assignment: students will choose one of the trade routes and research what the impacts (positive and negative) on the environment and indigenous populations might be if one of the proposed trade route was developed. They will keep track of their findings using a graphic organizer, and keep a list of sites and other sources with a bibliography.

## Next day

*Whole class discussion framing questions:*

What is climate change? What does it look like? Is there really such a thing? Does it affect us here in Nova Scotia? How can we find out more about changing conditions in the Northwest Passage?

*Move the class to the computer lab (or start there in the first place). Before students start their research, give a mini lesson on searching the deep web by using the E-Stat database.*

Sometimes when you research on the internet you can turn up irrelevant and out-of-date information, or you can hit information overload when searching on Google often yields too many hits, and it only searches a small part of the internet. Some people say that there might be 500 times more information in the deep web, where Google can't search, than on the part you can search with Google. Google can't search inside a database like Statistics Canada E-Stat Database, but it contains a lot of really useful information.

*Using a computer with an overhead projector, review the following sections in Human Activity and the Environment*

[estat.statcan.ca/content/HAE/english/home.htm](http://estat.statcan.ca/content/HAE/english/home.htm)

The Getting Started Guide

[estat.statcan.ca/content/HAE/english/tutorial/tutorial.htm](http://estat.statcan.ca/content/HAE/english/tutorial/tutorial.htm)

Chapters on Climate Change, Transportation and Water Resources

[estat.statcan.ca/content/HAE/english/modules/module-0/mod-0.htm](http://estat.statcan.ca/content/HAE/english/modules/module-0/mod-0.htm)

What are some of the causes of Global warming?

*Working in small groups (ensure there is equitable access to the computers); students read the chapters and discuss some of the causes with their group. Review findings in a large group discussion.*

As a large group, look at Table 5.5.4 Activity at Selected Ports 1997, in the Water Resources Chapter. Review the key features of the chart, to ensure everyone can understand it.

*Ask students to use the data to answer the following questions (write them on the board) and hand them in at the end of class:*

Which is the busiest port? Which transports the most international cargo?

What are some of the impacts of the transportation on the environment? Have them hand in their handwritten answers as they leave the lab.

### **Next day**

*Have students assemble in the computer lab. As a whole group explore the IceTrek expedition (<http://nsidc.org/icetrek>).*

Next students will use the handout **On-Line Research on Climate Change, Water and Ice** they will research what the impacts (positive and negative) on the environment and indigenous populations might be if one of the proposed trade routes we read about was developed. Students will keep track of their findings using a graphic organizer, and keep a list of their sources for the bibliography. Both of these will be handed in at the end of the unit.

*Make sure that the handout is available on line, on the school website, in the in/out box for the website, whatever technology is available and supported in the lab.*

### **Next few classes:**

Students will select one of the trade routes (or they will research the Northwest Passage) and do a formal debate about whether or not they should open it up as a Shipping Route.

**As an end of the unit for a take home exam, students will answer the following questions:**

Which Arctic Shipping Route would you invest in? Why?

## Assessment

Attitude and Participation /10

Questions from *Activity at Selected Ports 1997* on E-Stat /10

Mind Map /20

Bibliography /20

Debate participation/10

Take Home Exam /30

Other units which can be used to supplement this unit, or as sources of enrichment include:

Careers in the Resource Industries in Canada which is available on the Stats Canada website [www.statcan.ca/english/kits/hae2000/caree1.htm](http://www.statcan.ca/english/kits/hae2000/caree1.htm)

Water, Art, and the Canadian Identity: At the Water's Edge from Environment Canada [www.ec.gc.ca/water/en/info/pubs/FS/e\\_FSA7.htm](http://www.ec.gc.ca/water/en/info/pubs/FS/e_FSA7.htm)