

## CLIMATE CHANGE: THE FUTURE IS UPON US

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### Description:

This week-long lesson will encourage students to explore global climate change with a focus on Canada. Students read about climate change and complete graphic organizers, construct and administer a survey about climate change, present information in a class newscast, and propose a strategy to deal with climate change.

### Grade Levels:

Suitable for Grades 6-8

### Subjects:

Social Studies/Geography/Science

### Duration:

Five 80-minute block class periods, which could be extended to a unit of study

### Goal:

Students will understand the complexity of the global climate change issue and the numerous effects on global physical and human landscapes.

### Objectives:

The student will:

- construct a cause and effect diagram of climate change
- construct a T-chart identifying the positive and negative effects of climate change on physical and human landscapes
- ask thoughtful questions about climate change and construct generalizations
- make inferences and draw conclusions about the nature of global climate change based on analyses and comparison of data and position statements
- develop a project to support action towards climate change

### Standards:

This lesson meets MN state standards for History and Social Studies:

- The student will identify physical characteristics of places and use this knowledge to define regions, their relationships among regions, and their patterns of change.
- The student will give examples that demonstrate how people are connected to each other and the environment.
- The students will describe how humans influence the environment and in turn are influenced by it.

### Background Information:

Students have been introduced to climates and climate graphs and are familiar with climate types, causes of climates, and how to construct and interpret climate graphs.

## Materials:

- Equipment for a power point presentation
- Computers for each student or students may share
- Articles from, or access to, the Government of Canada website at <http://climatechange.gc.ca/english>
- Highlighters
- Newsprint
- Markers

## Procedures:

### Day One, Introduction to Climate Change and Its Causes and Effects:

1. Introduce climate change with a brief power point presentation (attached).
2. Students work in small cooperative groups to gather information about climate change. Each student reads an article (such as “What is Climate Change?”, “The Earth is a Greenhouse”, and “The Greenhouse Gases” available at the Government of Canada climate change website or other similar articles) and reports to the small group.
3. As a result of the reports, each small group constructs a cause and effect diagram of climate change with its definition and causes using newsprint and markers.
4. Students investigate the effects of climate change and complete their cause and effect diagram. Valuable resources are listed at the bottom of [www.climatechange.gc.ca/english/climate\\_change/maps.asp](http://www.climatechange.gc.ca/english/climate_change/maps.asp) and are labeled “Sensitivities to Climate Change in Canada” and “Global Warming: Early Warming Signs”. In addition, students should investigate the Interactive Global Warming Map: Early Warning Signs and click on North America located at [www.climatehotmap.org/](http://www.climatehotmap.org/)

### Day Two, Asking Major Questions: What is being done about climate change? Is climate change harmful in all regions? What is the attitude and behavior of others toward climate change?

1. Students will read “How Will Climate Change Affect Us” available at Government of Canada climate change website. Discuss why climate change will be important in Canada, the United States and other countries worldwide.
2. What is being done? Read “Climate Change Affects Us All” and brief information of the Kyoto Protocol at <http://climatechange.gc.ca/english/affect/overview.asp>
3. Students construct a T-Chart to identify the positive and negative effects if global warming were to become a reality in their community.
4. Do adults believe that global climate change is occurring? What are adults doing about climate change? Do young people have similar views? Develop a class survey of 7 questions to identify attitudes and behaviors of people about climate change. Each student is to ask 5 adults and 5 young people the same questions as a homework assignment.

### Day Three, What Is the Future of Climate Change?

1. Compile results of the survey. Discuss results and compose generalizations about survey results.
2. What are the positions of the major players in climate change? Students will use a newscast as a forum for the presentation and discussion of perspectives. Students are to divide into small groups and assume the perspective of the government, an organization, or an individual to investigate perspectives about climate change. The 5-6 small groups will assume one of the following role categories:
  - Prime Minister Paul Martin & his cabinet officials
  - President George W. Bush & his cabinet officials

- environmentalists from the Sierra Club and Greenpeace
  - business leaders including auto makers
  - experts from biology and climatology
  - individual consumers
3. Students collaboratively research the perspective and prepare a paragraph position statement and three questions which, if answered, would support their position on climate change.
  4. Explain the newscast program that will occur the following day. The newscast will have at least one representative of each group as part of a panel and others will be in the audience asking questions. The moderator will lead the newscast.

#### Day Four, The Newscast

1. After preparation time, students will conduct the newscast. One member of each small group will be on the newscast panel and other members will be in the audience asking questions.
2. Each panel member reads position statement before questions are posed and the discussion continues.
3. A final discussion of the process concludes the newscast.

#### Day Five, What Students will do about Climate Change

1. What can you do about climate change? Reference the Canadian Youth Climate Change Conference of 2005 at [www.yc3.net/com](http://www.yc3.net/com) and the Students on Ice expedition in 2005 at [www.studentsonice.com/arctic05/html/more.html](http://www.studentsonice.com/arctic05/html/more.html) and other ideas for youth at [www.climatechange.gc.ca/english/candada/schools.asp](http://www.climatechange.gc.ca/english/candada/schools.asp)
2. What will you do? Develop an action plan as a class, which could be individually-based to reduce greenhouse gases, a school-wide campaign to impact students' behaviors, a community-wide endeavor to foster change in attitudes.
3. Students might construct a poster, brochure, video commercial, display boards, public announcements, a power point presentation, write letters to their congress, write and perform a skit for the student body, another school, or the general public

#### Assessment:

Students will complete a carousel brainstorming activity with questions including: What is climate change? What causes climate change? Why are some people concerned about climate change and who are they? Why are some people not concerned about climate change and who are they? What is being done about climate change?

Carousel brainstorming is a strategy for all students to participate in a small group assessment. Questions are posed as titles on separate sheets of newsprint displayed as stations around the room. The small groups rotate through each of the questions, brainstorming their responses by using the same colored marker at each station. Students add new responses to the list of answers, but may star (\*) those responses with which they already agree. Students spend 2-5 minutes at each station, which is predetermined by the teacher and announced to the class before you begin. In addition, students may assume roles such as timekeeper, writer, questioner, and facilitator. When completed, students return to their original question and write a summary answer to the question utilizing the responses. Each group then reports to the class the question and answer and a general class discussion of the topic or issue concludes the assessment.

The position paper and questions about climate change.

**Student Rubric:**

	10	8	6	4	2
<b>Position Paper</b>	Clearly and thoughtfully summarizes position on climate change	Clearly and completely summarizes position on climate change	Clearly summarizes position on climate change	Summarizes position on climate change	Summary of climate change is incomplete or unclear
<b>Questions &amp; Answers</b>	Completes 3 thoughtful questions & responses that challenge panelists	Completes 3 questions & answers that somewhat challenge panelists	Completes 3 questions & answers for panelists	Completes 3 questions for panelists that are unclear or have incomplete answers	Completes less than 3 questions and answers for panelists
<b>Participation &amp; Support of Others</b>	Actively & positively participates in the discussion & encourages others	Actively & positively participates in the discussion & supports others	Makes valuable contributions to the discussion & supports others	Makes a contribution to the discussion & supports others	Neglects to contribute to the discussion, but supports others

**Additional Notes:**

Extensions include the following options:

1. Construct a Venn Diagram comparing Canada and United States positions on global warming.
2. Construct climate graphs of cities in the U.S. and Canada using the website [www.weatherbase.com/weather/](http://www.weatherbase.com/weather/) and place on a large map of Canada and or the U.S. Students will also identify the economic activity appropriate for their sites. Discuss the changes in economic activity that would occur with changes in temperature and precipitation.
3. Identify the climate trends of your climate graph site by using the interactive map of global temperature trends at <http://www.climatetrend.com/>
4. Using the Degree Confluence Project at [www.confluence.org](http://www.confluence.org) students view the climate graph sites and write brief descriptions about the vegetation and land use using the various photographs of the location.
5. Students review the Top 10 Weather Stories in Canada for 2004 and previous years at [www.Canadainfolink.ca/climate.htm](http://www.Canadainfolink.ca/climate.htm) to explain the impact climate change might have on extreme weather conditions.
6. Interview in person, phone, or email an expert on climate change or meteorology from a local university or media center.
7. Research the Kyoto Protocol to identify the controversy over global climate change using websites such as: <http://www.cbc.ca/news/background/kyoto/>
8. Review the results of the Montreal International Kyoto Conference, December 2005

**Additional Resources:**

- <http://www.canadainfolink.ca/climate.htm>  
[www.uk.oneworld.net/.../climate\\_home.html](http://www.uk.oneworld.net/.../climate_home.html)  
[www.greenteacher.com/](http://www.greenteacher.com/)  
[www.climate-science.gov/.../vision/overview.htm](http://www.climate-science.gov/.../vision/overview.htm)  
[www.ngdc.noaa.gov/paleo/ctl/abrupt.html](http://www.ngdc.noaa.gov/paleo/ctl/abrupt.html)

## The Climate Change Newscast

*The RMS Newscast will address the critical global issue of climate change. You will actively participate in the presentation and discussion through your preparation, presentation, and discussion of the issue. To provide opportunities for everyone and to show the complexity of the issue, each small group will represent one of the major perspectives of climate change.*

Each small group will assume one of the following role categories:

- President George W. Bush & his cabinet officials
- Prime Minister Paul Martin & his cabinet officials
- environmentalists from the Sierra Club and Greenpeace
- business leaders including auto makers
- experts from biology and climatology
- individual consumers

Research your perspective together and prepare a written paragraph position statement which explains your attitude towards global climate change that you will read.

Write three questions and answers which support your position on climate change. These questions might be used to disprove one of the other group's perspectives.

Be prepared for the newscast! One member of your group will present the paragraph position statement as a member of the panel. Other members of the small group will be in the audience posing the questions which your representative will be able to answer.

A microphone will be provided, but please bring nametags, artifacts, posters, and clothing to enhance your presentation.

The Newscast is worth 30 points and I am sure you will all be successful in earning the points! Enjoy!

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