Activity 2 Defining Climate Change

Teachers are offered a variety of means for introducing their students to the topic of climate change in the resources listed below. Since this will be the first time many of the students will be learning about the topic, the teacher may wish to extend this session over a few classes to ensure that students have a solid grasp of climate change issues. An EcoSchools multimedia presentation has been produced to support the Grade 9 Geography curriculum connections to climate change.

This activity has been broken into three parts:

- is an introduction to climate change;
- has students review a summary of the Kyoto Protocol;
- has students explore the impact of climate change in Canada, recording their findings on a class map.

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1. Review climate change materials to prepare a class lesson. Include the following:
   - what climate change is;
   - what causes it (fossil fuel use/ greenhouse gases);
   - how climate change affects us;
   - a general overview of some strategies to respond to climate change.
2. Some resources to consult are:
   - the EcoSchools multimedia presentation designed especially for this course (to order, see page back cover);
   - Big Ideas/Focus Questions found earlier in this document;
   - www.climatechange.gc.ca;
   - http://adaptation.nrcan.gc.ca;
   - course textbooks.
3. Photocopy Appendix 2.1 *Summary of the Kyoto Protocol* — one for each student.
4. Remind students to bring their copy of Appendix 1.2 *Student Task: Town Planning to Address Climate Change* that was handed out in Activity 1.
5. Decide on how to divide the class into groups.
6. Print copies of the regional impact fact sheets found at . To access these fact sheets, click on the regions shown on the map then select the subtopics as appropriate. If possible, laminate these fact sheets or put them in protective covers for future use.
7. Gather enough atlases for the groups to use as they research their community.
8. Photocopy Appendix 2.2 *The Impact of Climate Change in Canada* — one for each student.
9. For Activity 2c obtain or make a sturdy large-scale map of Canada. There should be enough blank space on the map for students to post their work. This class-derived "Climate Change in Canada" annotated map will serve as a reference for students when they are developing their own individual maps.
10. Arrange for a computer, a data projector and a screen if you are showing the multimedia presentation.

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- The teacher leads a class on climate change either as a new topic, a supplement or a review. (See Planning Notes 1 and 2, previous page.)

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1. Ask students if they have heard of the Kyoto Protocol. What do they think it is about?
2. Distribute Appendix 2.1 *Summary of the Kyoto Protocol*. In pairs, students articulate their understanding of the Kyoto Protocol. Provide them with a set of guiding questions (see box below).

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1. Tell students that they will now be working in groups to research the impact of climate change on different parts of Canada. Together they will annotate a large classroom "Climate Change in Canada" map. This will serve as a working model that students will be able to use later as reference for their own individual annotated maps.
2. Divide the class into groups. Refer to Appendix 1.2 *Student Task: Town Planning to Address Climate Change* and assign a town or city to each group (Appendix 4.1a). Each group should receive a package of the regional impacts fact sheets found at // . . . / / - . . To access these fact sheets, click on the regions shown on the map then select the subtopics relevant to their town or city. Students use atlases and the regional impact fact sheets to complete the chart in Appendix 2.2 *The Impact of Climate Change in Canada*.
3. On index cards, groups record the most significant changes either documented or anticipated at their location. These cards are posted on the large classroom "Climate Change in Canada" map.

2.1 *Summary of the Kyoto Protocol*
2.2 *The Impact of Climate Change in Canada*

Class Discussion Questions

- ***What problem does the Kyoto Protocol address?***
- ***Who was involved?***
- ***What is required?***
- ***What is Canada's commitment?***
- ***Describe a carbon "sink". Give an example.***
- ***What are some ways that individuals, businesses and/or government are responding to climate change?***

x .1 *Summary of the Kyoto Protocol*

Countries around the world have recognized that climate change affects us all. The volume of greenhouse gases produced by human activity, added to the gases occurring naturally in the atmosphere, has led to extreme weather events, temperature changes and the melting of the Arctic icecaps.

In December 1997, Canada and more than 160 other countries met in Kyoto, Japan, and agreed to targets to reduce greenhouse gas emissions. The agreement that set out those targets, and the options available to countries to achieve them, is known as the Kyoto Protocol. Canada's target is to reduce its greenhouse gas (GHG) emissions to 6% below 1990 levels by the period between 2008 and 2012.The goal of Kyoto is to reduce the total emissions of industrialized countries to 5.2% below 1990 levels.

The Government of Canada and the provincial/territorial and municipal governments are working together to achieve reductions in greenhouse gases. Investment in new technologies will help business to operate in a more efficient way and Canadians will benefit by having a cleaner environment. The Kyoto Protocol allows the presence of carbon sinks to count toward a country's commitment to reduce greenhouse gases. A "sink" is any process that removes greenhouse gases from the atmosphere. For example, forests form a carbon "sink" through the process of photosynthesis – trees and other plants take up carbon dioxide (CO_2) and break it down. The oxygen (O_2) is released and the carbon (C) becomes part of the tree.

The Kyoto Protocol allows countries to buy carbon credits from other countries. This means that countries that reduce their greenhouse gas emissions by more than is required under Kyoto can sell their unused carbon credits to countries that find it difficult or expensive to reduce emissions[1]. This is called emissions-reduction trading. In other words, countries that have "overperformed" (met and exceeded their target for reduction) may sell their "unused right to pollute" to countries that have failed to meet their emissions reduction target. Canada believes that a solution that uses the market has a part to play in achieving an overall reduction of greenhouse gases globally.

It is important that countries that have signed the Kyoto Protocol comply with the rules. To that end, Canada is working to build an effective way to measure whether everyone is doing their part. This is a way of checking that countries obey the rules agreed upon, giving them strong incentives to take their commitments seriously.

Based in part on information found at www.climatechange.gc.ca.
For a glossary of terms, please see the Resources section at the end of this document.

[1] While it may appear strange that one country can buy the right to pollute from another country, remember that the total emissions of participating countries selling and buying carbon "credits" are to reach the agreed upon targets between 2008 and 2012. Some believe that countries being able to pay others in order to keep polluting is wrong; others say that it is a way of encouraging those who can to make greater reductions while penalizing those who don't.

x . *The Impact of Climate Change in Canada*

Task: Complete the following chart using your atlas and Regional Impact sheets. You will have to use your analytical and prediction skills to make judgements about what might happen in the future should emissions of greenhouse gases (GHGs) continue to increase.

Temperature: January/June		
Precipitation/snow		
Soil capability/ agricultural land		
Endangered species		
Water resources		
Access to electricity/ energy sources		
Forestry Fishing Other natural resources		
Population distribution/ density		
Other		