

Activities



Using the Atlas

1. Using the map and chart at the top of page 52, answer the following questions:

- 1.1 Identify four land areas of Canada with the largest number of species at risk.
- 1.2 Identify the most “at risk” water area.
- 1.3 Identify the species group with the largest number of species at risk
- 1.4 Identify the number of species at risk for your local area.

2. The map of Acid Precipitation at the bottom of page 52 shows two elements: (1) the acidity of the precipitation—rain, fog, snow, and (2) the areas that are sensitive to acid precipitation. From the map,

- 2.1 Identify the areas of Canada with precipitation that are most acid.
- 2.2 Identify the areas of Canada where acid precipitation is less of a problem.
- 2.3 Identify the pH level of the precipitation in your local area.
- 2.4 Identify the area of Canada with the highest level of acidity combined with a high level of sensitivity to acid precipitation.

3. An area will have a sensitivity to acid precipitation based on the type of rock. Using the maps of Canadian geology (pages 4-5),

- 3.1 Identify the type of rock generally associated with the areas of high sensitivity to acid precipitation.
- 3.2 Identify the type of rock generally associated with the areas that are *not* shown as potentially sensitive to acid precipitation.

4. Examine the Greenhouse Gas Emissions map on page 53 and the associated bar graph of Fossil Fuel CO₂ Emissions. The map of Canada indicates the per capita intensity of greenhouse gas emissions. Pie graphs reflect the total amount of greenhouse gas emissions by each province, as well as the Canadian total.

- 4.1 Define the term “megatonne (Mt).”
- 4.2 What percent of the total Canadian greenhouse gas emissions come from each province? Which province has the highest proportion of its greenhouse gas emissions coming from:
 - a) power generation
 - b) industry and fossil fuel industries

c) building and agriculture

d) transportation?

4.3 Which three provinces have the lowest production of emissions from power generation?

Suggest reasons for the low production in each of these three provinces.

4.4 What areas of Canada produce the greatest intensity of greenhouse gases on a per capita basis? Suggest reasons for the higher intensity in these areas.



See Assessment Master 3

Note to teachers: Activities 4 through 8 are suitable for the Think-Pair-Share group learning structure outlined on page 20 of this guide.

5. Examine the trend in Fossil Fuel CO₂ Emissions on the bar graph on page 53.

5.1 Describe the trends in the graph.

5.2 Identify the period of time in which the biggest increase took place and suggest reasons for the increase.

5.3 The bar graph indicates that CO₂ emissions have levelled off in recent years. Suggest reasons for this.



See Assessment Master 10

6. Examine the Global Warming map on page 53.

6.1 What are the three main elements shown on the map?

6.2 Define the words “permafrost” and “treeline.”

6.3 In words, describe how global warming will affect each of the elements you identified in 6.1.

7. Global warming will have both direct and indirect influences on Canada (and other parts of the world).

7.1 What will be the direct effect of global warming on coastal water areas of Canada?

7.2 How will the northward movement of the area of permanently frozen ground affect transportation in this area?

7.3 How will the movement of the treeline affect animal life in the area?

7.4 How will the movement of the treeline affect use of the land in northern Canada?

7.5 Develop a word web to convey some of the possible effects of global warming if the Earth’s average temperature increases by 2 degrees Celsius.

Note to teachers: See the graphic organizer section on page 15 of this guide for an example.

Atlas and Beyond

8. Choose an endangered species from the list provided at the Scientific Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Web site at www.cosewic.gc.ca.

- 8.1 Define these terms: extinct, extirpated, endangered, threatened, special concern. Ensure that the species you have chosen is in the endangered category of COSEWIC's list.
- 8.2 Determine the type of environment favoured by the species you have chosen.
- 8.3 Find out why the species you identified is endangered.
- 8.4 Are any organizations actively involved in trying to improve the chances of your species? If so, what are they doing to help? How can you and your classmates help?

Note to teachers: COSEWIC's most recent report can be downloaded in .pdf format.



See Assessment Master 15

9. Go to www.spaceforspecies.ca.

- 9.1 Identify and choose one of the endangered species that are being monitored.
- 9.2 Establish a range of latitude and longitude for your endangered species.

- 9.3 Plot the latitude and longitude of the location of the species that you have chosen on a line master provided by your teacher.

Note to teachers: choose a line master that will include all of the areas covered by the migration of the species. The range will be greater for some species (e.g., Peregrine Falcon) compared to others (e.g., Leatherback Turtle).

- 9.4 Identify the elements of climate associated with movement.

- 9.5 Evaluate any threats to the species as they migrate.

10. The greenhouse gases are generally considered to be four different types: (1) Carbon Dioxide (CO₂), (2) methane (CH₄), (3) nitrous oxide (N₂O), and (4) halocarbons (including CFCs). Conduct research to determine the effects of each of these emissions on the Earth's atmosphere.

Note to teachers: This activity is suitable for the Group Investigation structure outlined on page 20 of this guide.

11. The Kyoto agreement commits Canada to reduce greenhouse gas emissions to 6 percent below 1990 levels. The timeframe for meeting this goal is by, or during the years 2008 to 2012. Investigate the Kyoto agreement and determine the different points of view on its implications for Canada.

Note to teachers: This activity is suitable for either the Corners or the Creative Controversy learning structure outlined on page 20 of this guide.



See Assessment Master 5

Culminating Activity



12. Choose one of the following themes: weather patterns, health, urban communities, forestry, agriculture, freshwater resources, or ocean resources. How would global warming affect the theme you have chosen?

- 12.1 Outline the direct implications of global warming in your chosen theme.
- 12.2 Determine what research is currently underway to understand more about the theme and how it is affected by global warming.
- 12.3 What are some of the things that Canadians can do, as individuals, to modify the climatic change that is taking place?
- 12.4 What are some of the things that the Canadian government can do to assist with the problem?

- 12.5 Choose one of the following organizations and find out what role it is playing in the fight against climatic change.

- the federal government
- your provincial or territorial government
- a company representing the fossil fuel industry
- an environmental group (Students may choose their own or select from these examples: Greenpeace (www.greenpeace.ca), Pollution Probe (www.pollutionprobe.org), Canadian Forestry Association (www.canadianforestry.com), Clean Nova Scotia (www.clean.ns.ca), and Green Teacher (www.greenteacher.com).



See Assessment Master 1