Natural Disasters in the Developed and Developing World

Students will examine how countries in the developed and developing world respond to natural disasters. Students will study the impact that factors such as existing infrastructure, stable governing system, and international assistance have on a country’s ability to respond in times of natural crisis. They will use the earthquakes in Haiti, Chile and Japan and flooding and hurricanes in Canada as examples. Students will analyse how Canada can be of use to respond to natural disasters in countries that have fewer resources available to them.

Grade Level
Grades 9 - 12

Time Required
150 minutes

Curriculum Connection
Atlantic Provinces Curriculum for Social Studies: Council of Atlantic Ministers of Education and Training (CAMET): Newfoundland and Labrador, Grade 9 Social Studies, Canadian Geography 1202, World Geography 3200/3202

Additional Resources, Materials and Equipment Required
- Student Activity #1: Human Development Index (attached)
- Student Activity #2: Natural Disasters in Three Countries (attached)
- Student Activity #3: International Aid (attached)
- Student Activity #4: How Canadians Can Help (attached)
- Computers, LCD projector, internet access

Websites
Canadian Atlas Online – Canada and overseas development
canadiangeographic.ca/atlas/
CIDA
acdi-cida.gc.ca/home
A developing world – 2008 edition
canadiangeographic.ca/worldmap
United Nations Development Programme
beta.undp.org/undp/en/home.html
Natural Resources Canada – Earthquakes Canada
earthquakescanada.nrcan.gc.ca/index-eng.phpeng.php
Public Safety Canada
publicsafety.gc.ca/prg/em/jeic-eng.aspx
Main Objective
Students will recognize that the degree to which a country can respond to natural disasters may depend on many factors that have been identified as being part of the United Nations Development Programme’s Human Development Index (HDI). Students will be able to perceive that existing infrastructure, organized governmental systems, economic resources and international assistance will play an important role in times of natural disasters.

Learning Outcomes
By the end of the lesson, students will be able to:

• access information online;
• locate Haiti, Chile, Japan and Canada;
• understand why the United Nations Development Programme created a human development index;
• understand challenges facing developing, as well as developed countries, in times of natural disaster;
• understand how countries higher on the human development index (HDI) can better respond to natural disasters;
• understand why it is important for countries like Canada to provide international aid in times of crisis;
• understand why it is important for citizens of the world to take political and individual actions to aid countries facing natural disasters.
**Lesson**

| Introduction | Before the lesson:  
|              | Review the web sites.  
|              | With students:  
|              | Explain the mandate of the United Nations Development Programme.  
|              | Ask: “What factors do we need to take into account when determining how developed a country is?”  
|              | Assign *Student Activity #1: Human Development Index*.  
|              | Discuss:  
|              | • What factors affect a country’s ability to respond to a natural disaster?  
|              | • Which of these countries would have the most difficult time coping with a disaster? Why?  
|              | • How can the international community co-ordinate actions to help poorer countries in times of need?  
|              | • Does a country that is higher on the Human Development Index need international assistance in time of crisis?  

| Lesson Development | Ensure that students have knowledge of the geographical location of the countries discussed. (You may wish show videos or images of disasters in Japan, Chile, and Haiti.)  
|                    | Assign *Student Activity #2: Natural Disasters in Three Countries*.  
|                    | Ask questions to compare and contrast the differing responses to disasters. Discuss the role of factors such as a country’s infrastructure, GDP and political stability.  
|                    | Assign *Student Activity #3: International Aid* (this can be completed individually or in groups). Stress the difference between ongoing programs offered by Canada and those suited to times of crisis.  
|                    | Assign *Student Activity #4: How Can Canadians Help?*  
|                    | Lead a discussion on the following topics:  
|                    | • Role of international assistance, both from governmental and non-governmental organizations, to help countries affected by natural disasters.  
|                    | • How actions taken by Canadians, individually or as part of a group, can be of importance in helping fellow global citizens in time of need.  

| Conclusion | Discuss the results of the activities.  

Lesson Extension
Examine natural disasters that have occurred in Canada and examine the response to these disasters. Students could research:

- Hurricanes Juan and Igor
- Flooding in Quebec and Manitoba (2011)
- Forest fires in Alberta (2011)

Assessment of Student Learning
Students can complete the following questions to assess learning.

Answer the following:

1. What is the function of The Human Development Index developed by the United Nations Development Program?
2. What are some factors that may come into play in a county’s ability to respond to a natural disaster?
3. Compare and contrast the response of Japan, Chile and Haiti to the natural disasters that occurred in 2011-12.
4. In what way is international assistance of great importance during times of natural disaster?
5. Should individual Canadians offer aid to countries in times of natural disaster? Express your opinions on this issue.

Link to Canadian National Standards for Geography

Essential Element #2: Places and Regions
- Physical and human processes shape places and regions
- Interdependence of places and regions
- Critical issues and problems of places and regions

Essential Element #5: Environment and Society
- Global effects on the human environment by changes in the physical environment
- Impacts of major natural hazards/disasters on humans
- Impacts of technological hazards/disasters on the physical environment

Essential Element #6: The Use of Geography
- Local, regional, and world policies and problems with spatial dimensions

Geographic Skill #2: Acquiring Geographic Information
- Systematically locate and gather geographic information from a variety of primary and secondary sources.
Geographic Skill #4: Analyzing Geographic Information
• Use the processes of analysis, synthesis, evaluation and explanation to interpret geographic information from a variety of sources.

Geographic Skill #5: Answering Geographic Questions
• Formulate valid generalizations from the results of various kinds of geographic inquiry.
Student Activity #1: The Human Development Index

The United Nations Development Programme (UNDP) has created a composite index that measures the quality of life in United Nations member countries on an annual basis. This index is based on three aspects of human development: longevity (measured by life expectancy at birth), knowledge (measured by a combination of adult literacy and school enrolment), and standard of living (measured by GDP per capita in US$ PPP).

Use the map entitled ‘A Developing World’: [canadiangeographic.ca/worldmap](http://www.canadiangeographic.ca/worldmap) to obtain information to complete the chart below.

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<th>Canada</th>
<th>Haiti</th>
<th>Chile</th>
<th>Japan</th>
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<td><strong>Surface area (square km)</strong></td>
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<td><strong>Population</strong></td>
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<td><strong>Net Primary Enrolment rate (men/women)</strong></td>
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<td><strong>Gross Domestic Product per Capita</strong></td>
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1. Why did the United Nations Development Programme believe it necessary to create the Human Development Index (HDI)?

2. How can this index be of help to national and international organizations in dealing with natural disasters in various countries?

3. What other factors would these national and international organizations take into account when planning assistance for countries facing natural disasters?

4. Rank the four countries compared above in terms of each country’s ability to deal with natural disasters. Provide an explanation for your ranking.
Student Activity #2: Natural Disasters in Three Countries

On January 12, 2010, an earthquake measuring 7.0 on the Richter scale struck Port-au-Prince, the capital of Haiti. On February 27, 2010 an earthquake of magnitude 8.8 struck near the coast of Chile, followed by a tsunami that affected the Pacific Basin. A magnitude 9.0 earthquake occurred on March 11, 2011 near the northeast coast of Honshu, Japan and was also followed by a tsunami.

Research the way that these countries managed and responded to the natural disaster that they experienced. The following websites (and others) may be of assistance.

- acdi-cida.gc.ca
- canadiangeographic.ca/worldmap
- undp.org/
- earthquakescanada.nrcan.gc.ca
- publicsafety.gc.ca

For each country, compare

- the magnitude of the earthquake
- the depth at which it occurred;
- the estimated number of deaths
- the estimated amount of property damage
- amount of international aid received (to date)
- the estimated amount of time needed for the area to recover.

After your comparison is completed, write down three conclusions about the ability of each of these countries to respond to the disasters.
Student Activity #3: International Aid

Imagine that you were asked to draft a ten-point plan to guide the Canadian government in dealing with the crises caused by natural disasters in the world. Draft the main points of your plan in the space provided.

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**Student Activity #4: How Canadians Can Help**

Review the section entitled ‘CIDA's Humanitarian Response to Crises (How Canadians Can Help)’ found on CIDA’s website acdi-cida.gc.ca. In a journal entry, express your opinions on whether this offers good advice for individual Canadians to follow: