

Public District School Board Writing Partnership

Course Profile **Geography of Canada**

Grade 9
Applied

• *for teachers by teachers*

Course Profiles are professional development materials designed to help teachers implement the new Grade 9 secondary school curriculum. These materials were created by writing partnerships of school boards and subject associations. The development of these resources was funded by the Ontario Ministry of Education. This document reflects the views of the developers and not necessarily those of the Ministry. Permission is given to reproduce these materials for any purpose except profit. Teachers are also encouraged to amend, revise, edit, cut, paste, and otherwise adapt this material for educational purposes.

Any references in this document to particular commercial resources, learning materials, equipment, or technology reflect only the opinions of the writers of this sample Course Profile, and do not reflect any official endorsement by the Ministry of Education or by the Partnership of School Boards that supported the production of the document.

©Queen's Printer for Ontario

Acknowledgments

Public District School Board Writing Team - Canadian and World Studies

Lead Board

Kawartha Pine Ridge District School Board
Fiona White, Manager

Course Profile Writing Team

Rob Andrews, Kawartha Pine Ridge District School Board
Charlotte Barnoski, Kawartha Pine Ridge District School Board
Ron Chasmer, York Region District School Board, OAGEE Representative
Doug Hinan, Kawartha Pine Ridge District School Board
Kim Kasperski, Kawartha Pine Ridge District School Board
Mark Lowry, Toronto District School Board, OAGEE Representative
Anthony Lynn, Trillium Lakelands District School Board
Dan McMaster, Kawartha Pine Ridge District School Board
Todd Pottle, Kawartha Pine Ridge District School Board
Brian Schouten, York Region District School Board, OAGEE Representative
Jeanette Van Loon, Kawartha Pine Ridge District School Board

Internal Review and Support Team

Laina Andrews, Kawartha Pine Ridge District School Board
Bruce Brydges, Kawartha Pine Ridge District School Board
Carol Carr, Kawartha Pine Ridge District School Board
Leigh Facey-Crowther, Kawartha Pine Ridge District School Board
Mike Filip, Kawartha Pine Ridge District School Board
Cec Knight, Kawartha Pine Ridge District School Board
Gale May, York Region District School Board, OAGEE Representative
Sonja Vandermeer, Trillium Lakelands District School Board

Unit 3: Humans in the Environment

Time: 25 hours

Development Date: August 9, 1999

Unit Description

This unit centres on our place within the local bioregion and the natural systems inherent within a specific bioregion. On a national scale, concentration is on natural resource use with a focus on energy creation and consumption. The conflicting demands we place on our environment are addressed both through a study of our unique ecological footprint and the culminating activity which looks at the components of a consumable good and its relationship to environmental sustainability.

Strand(s) and Expectations

Strand(s): Space and Systems, Human-Environment Interactions, Understanding and Managing Change, Methods of Geographic Inquiry

Overall Expectations: SSV.01B, SSV.02B, SSV.04B, SSV.05B, HEV.01P, HEV.02P, HEV.03B, UMV.01B, UMV.02B, MIV.01B, MIV.02B, MIV.03P.

Specific Expectations: SS1.01B, SS1.03B, SS1.05P, SS2.01P, HE1.01B, HE1.02B, HE1.03B, HE1.04B, HE2.01P, HE2.02P, HE2.05P, UM1.02B, UM2.01B, UM2.02B, UM2.03B, UM3.02P, UM3.05P, MI1.01B, MI1.02B, MI2.01P, MI2.03P, MI2.04B, MI2.05B, MI2.08B, MI2.10P, MI2.11P, MI2.12B, MI2.13B, MI3.01B, MI3.03B.

Activity Titles (Time and Sequence)

Activity 1	Developing Ecological Footprints	225 minutes
Activity 2	Studying Human Activity in the Local Region	375 minutes
Activity 3	Making an Inventory of Canada's Natural Resources	225 minutes
Activity 4	Researching and Discussing Energy Sources	150 minutes
Activity 5	Evaluating Energy Mega-Projects	150 minutes
Activity 6	Investigating the Environmental Impact of the Hamburger	375 minutes

Prior Knowledge Required

From the Grade 7 and 8 curriculum, it is expected that students have some experience with:

- the themes of geographical inquiry, (location, place, environment, region, interaction, and movement);
- using a variety of multi-level information sources;
- producing maps and graphs;
- an understanding of the concepts of sustainable development and the implications for the environment and communicating results of their inquiries;
- an understanding of the use and value of natural resources;
- how human activity affects humans and the environment.

Students need to draw upon information learned in previous units:

- ecozones and ecoregion;
- physical and human systems;
- relationship between human systems and ecozones;
- locality study.

Unit Planning Notes

- Present the culminating activity to the students at the beginning of the unit. This provides a focus for the unit, and provides opportunity for student input.
- An understanding of the terminology is essential to the successful teaching of this unit. The primary term in the unit is bioregion. For the purpose of this unit, bioregion is defined as: a region defined by its natural and human characteristics. It constitutes a natural ecological community.
- Collect appropriate resources in the form of local planning maps, commercial street maps, or Ontario Base Maps (topographic), either digitized or hard copy, from local sources. Air photos of the local areas can also be obtained from similar sources.
- Check with the science department for overlap/resources (especially *Energy Educators of Ontario* Fact Sheets) and for connections to the Grade 9 Science curriculum (Electricity).
- Activities using geotechnologies can be done on paper if software is not available
- Book time for field trip if necessary.
- Arrange for a guest speaker for the culminating activity if needed.
- Contact local fast food restaurant if the field work is included.
- Collect examples of student work at different levels for use with future classes.
- Plan to display exemplary student work throughout the unit to clarify expectations for students.
- Prepare key terms word lists to assist with accommodations for students with special needs.

- The following framework was used in writing the unit; it may be useful in planning for teaching it, especially if modifications are made.

Activity	Overalls	Specifics	Strategies	Assessment	Timing, comments
1. Developing Ecological Footprints	SSV.05B, HEV.03B, MIV.03P	SS1.01B, SS1.05P, HE1.01B, HE1.02B, HE2.05P, MI2.01P, MI2.08B	Teacher explanation, student-generated graphs and analysis, calculations, report writing	Checklist (formative, peer/self) Rating Scale (formative, self/teacher - T/L 3) Rubric (formative, teacher - T/L 8)	225 minutes Appendix 3.1.1 Appendix 3.1.2
2. Studying Human Activity in the Local Region	HEV.01P, SSV.01B, SSV.02B, SSV.05B, UMV.01B, MIV.01B, MIV.02B, MIV.03P	HE1.02B, HE1.03B, HE2.05P, SS1.01B, 03B, SS3.06B, UM2.02B, 03B, MI1.01B, 02B, MI2.03P, 04B, 10P, 11P, 13B, MI3.01B, 03B	Mapping, inventory, comparison	checklists (formative, self - T/L 1) Rubric (formative, self/peer - TL 4) marking scheme (summative, peer/teacher - T/L 4) Rating Scale (formative, self/peer - T/L 3) Rubric (summative, teacher - T/L 5)	375 minutes Appendix 3.2.1 Appendix 3.2.2 Appendix 3.2.3
3. Making an Inventory of Canada's Natural Resources	SSV.04B, HEV.02P, MIV.01B, MIV.02B, MIV.03P	SS1.03B, SS2.01P, HE1.02B, MI1.02B, MI2.04B, MI2.12B	Inventory, research, evaluate, mapping	quiz (diagnostic, peer - T/L 1) checklist (formative, teacher - T/L 5) Rubric (formative, teacher - T/L 6)	225 minutes
4. Researching and Discussing Energy Sources	HEV.02P, HEV.03B, UMV.02B, MIV.01B	HE1.04B, HE2.01P, UM3.05P, MI2.03P, 05B, 10P	Brainstorming, scored discussion	Score sheet (formative, peer - T/L 3))	150 minutes

Activity	Overalls	Specifics	Strategies	Assessment	Timing, comments
5. Evaluating Energy Mega-Projects	SSV.01B, HEV.02P, HEV.03B, UMV.01B, MIV.01B, MIV.03P	SS1.03B, HE1.04B, HE2.02P, UMI.02B, UM2.01B, MI1.02B, MI2.03P, 04B	Listening to audio, comparison chart, paragraph writing	checklist (formative, peer/self - T/L 3) marking scheme (summative, self/teacher - T/L 4)	150 minutes Appendix 3.5.1
6. Investigating the Environmental Impact of the Hamburger	HEV.01P, HEV.02P, HEV.03B, UMV.02B, MIV.01B, MIV.02B, MIV.03P	HE1.02B, HE2.05P, UM2.01B, UM2.02B, 03B, UM3.02P, MI2.03P, 04B	field trip, mapping, class discussion, group work, flow charts, guest speaker, report writing	rubric (summative, peer/teacher - T/L #6) checklist (formative, teacher - T/L #4)	375 minutes Appendix 3.6.1 Appendix 3.6.2 Appendix 3.6.3

Teaching/Learning Strategies

Teacher explanation	Creating graphs	Graph analysis
Data analysis	Report writing	Thematic mapping
Inventory creation	Inventory analysis	Comparative analysis
Research	Brainstorming	Scored discussion
Listening	Developing organizers	Written interpretation
Field trip	Class discussion	Group work
Flow charts	Guest speaker	Presentation
Letter writing	Press release	Small group discussion

Assessment/Evaluation

During this unit checklists and rating scales are used to provide frequent feedback to support the development of good learning skills for the course. Self- and peer-assessment enables individual goal-setting. In addition, rubrics are used for the more complex tasks involved in the different types of written reports and maps; (some rubrics are included in the appendix as models, and demonstrate connections between their criteria and the categories in the achievement charts). Student input into rubric creation should be encouraged (see Activity 3 for details on how this can be done). Rubrics should be shared with students beforehand and students should be given the opportunity to view exemplary student work to support improving student learning.

The learning activities are designed to meet a cluster of expectations, and the variety of assessment tools allow for students to demonstrate their achievements of the expectations at all levels and in all categories of the achievement charts. While self- and peer-assessment of individual and group activities are used for formative assessment, teacher assessment of individual student work is used for summative assessment and evaluation.

Resources

In addition to the listings in the Resources section on pages 9-10 of Phase I, the following resources are useful for this unit:

Wackernagel and Rees. *Our Ecological Footprint: Reducing Human Impact on the Earth*. New Society Publishers. ISBN 1-55092-251-3

Yamada, Karen. *Ecoquest: Reducing Our Ecological Footprint*. Toronto: Lever-Pond's, 1996. ISBN 0-9698878-3-3

The approved textbooks for this course are also useful for this unit, and are referred to in many of the activities.

Cartwright, F., G. Birchall, and G. Pierce. *Contact Canada 3rd Edition*. Oxford University Press Canada, 1999. ISBN 19-5414-896

Clark, B.W. and J.K. Wallace. *Making Connections: Canada's Geography*. Prentice Hall Ginn, 1999. ISBN 0-7702-6633-9

Draper, G. and W. Andrew. *Perspectives: Canadian Geography*. Irwin Publishing, 1999. ISBN 0-7725-2757-1

Wright, I.A., L.A. Swatridge, W. Hildebrand, C.A. Oliver, and G.D. Pyzer. *Canada: Exploring New Directions*. Fitzhenry & Whiteside, 1999. ISBN 1-55041-377-5

Resources useful for specific activities are listed under the Resources heading for each activity.

Activity 1: Developing Ecological Footprints

Time: 225 minutes

Description

In this activity students study the concept of an ecological footprint. They learn about the carrying capacity of our environment, compare footprints of selected countries, develop their own footprint, understand the idea of sustainability, and learn ways to reduce the size of their own footprint. At the completion of the activity, the teacher introduces the culminating activity for the unit - the environmental impact of the hamburger - to provide a focus for the unit, and provide opportunity for student input.

Strand(s) and Expectations

Strand(s): Space and Systems, Human-Environment Interactions, Methods of Geographic Inquiry

Overall Expectations: SSV.05B, HEV.03B, MIV.03P.

Specific Expectations: SS1.01B, SS1.05P, HE1.01B, HE1.02B, HE2.05P, M12.01P, M12.08B.

Planning Notes

- Review culminating activity.
- Prepare handouts to explain the activity.
- Provide graph paper, blank sheets of paper, and markers.
- Prepare notes on footprints, carrying capacity, and sustainability.
- Download questionnaire from web site (see Resources). Questionnaire should be sent home with students to discuss with their parent/guardian. The information on the questionnaire requires parent/guardian input.

Prior Knowledge Required

Students need to draw upon prior learning in Grade 7 and 8 in which they demonstrated an understanding of geographic inquiry and the different methods in which to communicate graphic information, and demonstrate an understanding of how human activity affects people and the environment.

Teaching/Learning Strategies

1. The teacher introduces the concepts of an ecological footprint and carrying capacity.
2. In groups, students develop a list of criteria that could be used to assess the size of a footprint.
3. Students prepare a graph of ecological footprints of selected countries. (See *Making Connections*, p. 479, fig. 36-4: Our Ecological Footprint.) They then compare the size of the various footprints and analyse the resulting patterns. Students should ponder the questions: Are Canadians living at a level beyond the earth's carrying capacity? Are we taking more than our share?
4. Students identify how Canada's ecological footprint is calculated and compare it to selected countries. (*Making Connections*, chapter 36: Our Ecological Footprint)
5. Students develop their own ecological footprint. They then trace their footprint on a blank piece of paper, put their name and the number of hectares. These can be posted in the classroom to generate discussion.
6. The teacher builds on the concept of sustainability that students have from Grades 7 and 8. A quick think/pair/share brainstorming session about sustainability is a good diagnostic tool to find out what students already know/remember from previous years.

7. In groups students describe their footprint. Each group develops a checklist of methods by which the size of an ecological footprint can be reduced (in their home, local ecozone, province, Canada, and the world).
8. The group submits a report which includes the following: title page (with an appropriate illustration); definitions of ecological footprint, carrying capacity, and sustainability; the graph and analysis; individual footprints; checklist of methods to reduce the size of ecological footprints.
9. The teacher introduces the culminating activity for the unit - the environmental impact of the hamburger - to set the stage for the activities in the rest of the unit which develop the skills and concepts needed.

Assessment/Evaluation

Tool	Purpose	Who	Activity
checklist (teacher-generated)	formative	peer/self	group work evaluation
rating scale (see Appendix 3.1.1)	formative	self/teacher	bar graph (Teaching/Learning Strategy 3)
rubric(see Appendix 3.1.2)	formative	formative	report (Teaching/Learning Strategy 8)

Accommodations

- Encourage collaboration among students.
- Provide flexible timelines and explicit directions.
- Provide the opportunity for verbal responses for those students who have difficulty expressing themselves on paper.

Resources

Web Site

<http://www.wwfcanada.org/footprints/index.shtml>

Activity 2: Studying Human Activity in the Local Region

Time: 375 minutes

Description

Students create a land-use map of their specific bioregion (see definition). They use local maps that include planning, topographic, and/or Ontario base maps to create a personal map that demonstrates the activities that take place in the local community. From this map they create an inventory of these specific activities and the systems that are related to the land use. Special emphasis is placed on the energy consumption inherent in the various land-use activities and on ways to improve the balance between human needs and natural systems through waste and energy use. They then compare their bioregion with a bioregion within Nunavut.

Strand(s) and Expectations

Strand(s): Human-Environment Interactions, Space and Systems, Understanding and Managing Change, Methods of Geographic Inquiry

Overall Expectations: HEV.01P, SSV.01B, SSV.02B, SSV.05B, UMV.01B, MIV.01B, MIV.02B, MIV.03P.

Specific Expectations: HE1.02B, HE1.03B, HE2.05P, SS1.01B, SS1.03B, SS3.06B, UM2.02B, UM2.03B, MI1.01B, MI1.02B, MI2.03P, MI2.04B, MI2.10P, MI2.11P, MI2.13B, MI3.01B, MI3.03B.

Planning Notes

- Collect resources and baseline information for the local bioregion. (This activity is based on a variety of tasks that build on the understanding of the local bioregion and the systems both human and natural that are in play within a specific bioregion. There is a great deal of flexibility in what resources are used.)
- Determine the dimensions of the bioregion to be studied. (The dimensions have been left quite vague in order that the teacher be able to tailor it to the resources that they have available.)
- Determine the approach that is taken in the mapping activity, which is dependent on the base map resources available. Possible base maps might be:
 - a) Ontario Base maps - hard copy or digital;
 - b) air photos of the local bioregion from the local planning office or companies such as Triathlon or Geovisuals;
 - c) local planning maps;
 - d) commercial street maps - hard copy or digitized;
 - e) topographic maps;
 - f) planning maps.
- Determine whether to have the mapping activity involve the production of a hand-drawn hard copy, a computer drawing made with *MS Paint*, or with GIS software such as *Arcvoyager*, *Thinkspace*, or *IDRISI*.

Prior Knowledge Required

Students need to draw upon the information learned in the previous units on ecozones, ecosystems, and land-use maps, as well as their prior learning in Grades 7 and 8 to demonstrate an understanding of mapping skills, regions, and geographic inquiry.

Teaching/Learning Strategies

1. The teacher leads a discussion around the practical definition of a bioregion and extracts examples of human and natural systems in both the local bioregion and Nunavut. The various human activities are listed in an organizer that has a number of extra columns to allow students to add data in following tasks. This could be a created blank master by the teacher.

Land use	Related human activity	Natural systems involved	Natural and Human energies involved in activity	Per cent of total land use
				(to be filled in at Task 3)

2. The students create a land-use map of their local bioregion. Students create this map using the proper cartographic conventions and symbols that are representative of topographic maps (charts of topographic symbols can be found in all of the new textbooks).
3. Students take their previously created local bioregion land-use map and, using the master chart created in task 1, create a chart specific to their bioregion. After the chart is completed they also create a pie graph to demonstrate the land use by percentage. This should include all land that is within the boundary of the map.
4. Students use the outline of the previous map to create other thematic maps. It is important for the teacher to prompt the students ahead of time to save the outline of their first map prior to entering topographic symbols. As a class, the teacher can discuss the concept of thematic maps, and, with the students, brainstorm the various traditional and non-traditional types. Some of the non-traditional types may include energy use, waste generation, and demographics as it relates to items such as car parking. Students are expected to create two other maps.
5. Nunavut Comparison: Students then take their local bioregion maps and, using supplied data, compare their local region to that of Nunavut. If it is possible, this can be obtained from Canada base map data or from the textbooks required for this course. As interpretation at this level the teacher could supply a number of photographs to show urban and rural situations in Nunavut. There are many good sites on the web that are included in the Resources section. Students use the previous organizer and create a pie chart similar to task 3. Students then complete a two- to three-paragraph comparison of the land use and the resource consumption in their local bioregion and Nunavut.

Assessment/Evaluation

Tool	Purpose	Who	Activity
checklist	formative	self	human activity chart (Teaching/ Learning Strategy 1)
rubric (see Appendix 3.2.1)	formative	self/peer	local bioregion map (Teaching/ Learning Strategy 2)
marking scheme (see Appendix 3.2.2)	summative	peer/teacher	thematic maps (Teaching/ Learning Strategy 4)
rating scale for graph criteria (see Appendix 3.2.3)	formative	self/peer	pie graph (Teaching/ Learning Strategy 3)
rubric (teacher-generated)	summative	teacher	Nunavut comparison (Teaching/ Learning Strategy 5)

Accommodations

- Extend time lines if required.
- Have students work in pairs or groups.
- Have vocabulary review easily accessible.
- Have students do a ½day field trip to establish the parameters and activities within their bioregion as an extension.
- This exercise would fit very well into Natural Resources Canada’s “Communities Schools Atlas project” and, if this is the case, comparison of bioregions across Canada is a viable extension to this activity. (Web site: <http://www.CCATlas@ccrs.nrcan.gc.ca>)

Resources

Airphotos

Geovisuals, Box 42007, Waterloo, Ontario N2L 6K5

Textbooks

Web Sites

Canada and the World Backgrounder

<http://tor-pw1.netcom.ca/~canworld/index.html>

Canadian Community Atlas Website

<http://www.CCAtlas@ccrs.nrcan.gc.ca>

Activity 3: Making an Inventory of Canada's Natural Resources

Time: 225 minutes

Description

Students prepare an inventory of Canada's natural resources. Students are asked to construct an organizer to help them evaluate the resources base, benefits, and potential problems in each of Canada's ecozones (based on previous knowledge). Once the problems have been identified each student chooses one and completes a mini-research paper.

Strand(s) and Expectations

Strand(s): Space and Systems, Methods of Geographic Inquiry, Human-Environment Interactions

Overall Expectations: SSV.03B, HEV.02P, MIV.01B, MIV.02B, MIV.03P.

Specific Expectations: SS1.03B, SS2.01P, HE1.02B, MI1.02B, MI2.04B, MI2.12B.

Planning Notes

- Produce and distribute blank map of Canada's Ecozones.
- Produce and distribute blank organizer sheets. (Optional)

Prior Knowledge Required

Students need to draw upon prior learning in Grades 7 and 8 in which they demonstrate an understanding of the themes of environment and region, gather and communicate geographic information, demonstrate an understanding of how people use resources and understand the concept of sustainable development. Students build on their understanding of ecozones from Unit 1.

Teaching/Learning Strategies

1. Students complete a teacher-generated quiz on renewable and non-renewable resources.
2. Students are asked to evaluate ecozones in Canada in terms of the benefits and problems that the existence of these resources present.
3. Students make reference to transportation, population distribution, and landform maps to help them evaluate the potential problems in each region.
4. Students may use the blank ecozone map to record the resources found in each region. Encourage students to develop symbols to denote different resources. Students can be paired to complete this activity.
5. If students prepare an organizer, the following headings could be used:

Ecozone	Resources	Population Density	Benefits to the Region	Potential Problems
----------------	------------------	---------------------------	-------------------------------	---------------------------

Note: teachers may wish to break up the task for those students who might have difficulty with this type of activity.

6. Students write a one-page report naming three ecozones that are or will be under stress as identified in the organizer. They include in the report the reasons for their selections and identify the environmental stresses. Finally, each student selects one potential problem, and briefly describes the problem, its cause, and possible solutions. Students help generate the marking rubric for the report before they begin their writing.

Assessment/Evaluation

Tool	Purpose	Who	Activity
quiz (teacher-generated)	diagnostic	peer	quiz - renewable and non-renewable resources (Teaching/Learning Strategy 1)
checklist	formative	teacher	organizer (Teaching/Learning Strategy 5)
rubric (student-generated)	formative	self/peer	report (Teaching/Learning Strategy 6)

Accommodations

- Allow for collaboration among students, with possible small group work.
- Pair students to allow for peer tutoring.
- Extend timelines.

Resources

Atlases
Textbooks

Activity 4: Researching and Discussing Energy Sources

Time: 150 minutes

Description

Students do directed research on selected renewable and alternative energy sources and take part in a scored discussion about their findings.

Strand(s) and Expectations

Strand(s): Human-Environment Interactions, Understanding and Managing Change, Methods of Geographic Inquiry

Overall Expectations: HEV.02P, HEV.03B, UMV.02B, MIV.01B.

Specific Expectations: HE1.04B, HE2.01P, UM3.05P, MI2.03P, MI2.05B, MI2.10P.

Planning Notes

- Students need their resource list from previous class.
- Collect a series of articles on renewable and alternative energy sources - energy from waste, geothermal energy, hydro-electric power, passive solar energy, photovoltaic cells, tidal energy, wind energy, and hydrogen fuel cell.

Prior Knowledge Required

Students need to draw upon prior learning in previous units on ecozones, as well as the prior learning in Grades 7 and 8 to gather and communicate geographic information, demonstrate an understanding of Canada's natural resources and their value and impact on the environment, and links to human activities.

Teaching/Learning Strategies

1. The teacher leads discussion on the need to use natural resources wisely for sustainable development. (*Perspectives*, pp. 154-156 has a section on energy sustainability.)
2. Students brainstorm what makes a good discussion (relevant comment, factual information, asking a clarifying question, moving the discussion along, recognizing contradictions, praising someone for a good point, building on another's idea or example, using evidence to support a point, etc.), and what makes a bad discussion (not paying attention, distracting others, interrupting, irrelevant comment, monopolizing, personal attack, etc.).
3. The class uses the brainstormed ideas to create a scoring sheet to be set up as follows:

Positive points	Student Names					

Do the same for the negative points. Students can receive up to three points for each positive point, and lose up to three points for each negative point.

4. Each group is given information on one of the renewable or non-renewable energy sources in Canada and summarizes it under the headings which form the outline for their discussion:
 - i) Introduction of your topic
 - ii) What is it?
 - iii) Present use
 - iv) Optimum conditions necessary
 - v) Technology involved
 - vi) Environmental impacts
 - vii) Where is it located in Canada?
 - viii) Future importance
 - ix) What would best serve your community?
 - x) Conclusion
5. Once students have gathered the information, each group is given ten minutes to complete their discussion at the front of the class. As each group completes their discussion, the other groups score them.
6. Once the scoring is completed, groups should be given time to go over their results, as well as evaluate ways in which they can improve their discussion skills.
7. The class generates a note on the different types of renewable and alternative energy sources, the present use, the future importance for these resources, and the environmental impacts. Or students answer questions from *Perspectives*, pp. 154-156, or other approved textbook, on energy sustainability.

Assessment/Evaluation

Tool	Purpose	Who	Activity
check sheet (see Teaching/Learning Strategy 3)	formative	teacher, peer	scored discussion (Teaching/Learning Strategy 3)

Accommodations

- Encourage alternatives such as use of visuals for those who have difficulty expressing themselves in front of the class.
- Provide explicit, written directions.

Resources

Atlases

Energy Educators of Ontario Fact Sheets, (they are now out of business, however, many science departments will have copies, so check with them)

Textbooks

Web Sites

<http://library.advanced.org/20331/>

<http://www.thinkenergy.com/energy/>

<http://www.seia.org/energy.htm>

<http://www.thinkquest.org/library.20331.html>

Activity 5: Evaluating Energy Mega Projects

Time: 150 minutes

Description

Students listen to a series from *As It Happens*, which feature interviews with Matthew Coon Come and Quebec Hydro representatives. Students complete an organizer comparing the benefits and disadvantages of selected energy mega projects starting with James Bay.

Strand(s) and Expectations

Strand(s): Space and Systems, Human-Environment Interactions, Understanding and Managing Change, Methods of Geographic Inquiry

Overall Expectations: SSV.01B, HEV.02P, HEV.03B, UMV.01B, MIV.01B, MIV.03P.

Specific Expectations: SS1.03B, HE1.04B, HE2.02P, UM1.02B, UM2.01B, MI1.02B, MI2.03P, MI2.04B.

Planning Notes

- Arrange for a tape recorder for playing the *As It Happens* interview. If tape is not available, see Resources list for Internet sites from Quebec Hydro, as well as interviews of Matthew Coon Come.
- Book computer lab if necessary.
- Consider having students generate a rubric to assess their paragraph (see Teaching/Learning Strategy 4) instead of the marking scheme.

Prior Knowledge Required

Students need to draw upon prior learning in Grades 7 and 8 in which they demonstrate an understanding of the theme of location/place and environment, gather and use an organizer to communicate geographic information, and demonstrate an understanding of how human activity affects people and the environment.

Teaching/Learning Strategies

1. Students make a comparison chart in their notes:

Project	benefits	disadvantages	location requirements
James Bay			

2. Students listen to excerpt from the *As It Happens* interview. Based on the information given, students complete the first row of their chart. Students should leave room for a variety of benefits and disadvantages for each energy mega project. The activity can be done using copies of interviews of Matthew Coon Come, as well as information from Quebec Hydro. (See resource list for web sites.)
3. Students then research a second energy mega project and add the information to their chart. One of the energy mega projects should be the one closest to their home. If time is a problem, students can research from the approved textbooks, or the teacher can get information from the web sites listed below.

4. Students write a summary paragraph that determines whether the benefits outweigh the costs of energy mega projects. Students, with the teacher’s help, could generate a marking rubric for their paragraph rather than using the marking scheme given (Appendix 3.5.1). To start students in the direction of generating their own rubrics, the teacher gives them an outline of what is needed:

Criteria	Level 1 “Look Fors”	Level 2 “Look Fors”	Level 3 “Look Fors”	Level 4 “Look Fors”
Benefits of Mega Projects: <ul style="list-style-type: none"> analysing evaluating 				
Costs of Mega Projects: <ul style="list-style-type: none"> analysing evaluating 				
Point of View stated: <ul style="list-style-type: none"> evaluating information 				

Students fill in the “Look Fors” for each of the criteria/topic. They can refer back to previous marking rubrics for help in what to put down for the levels. The criteria can be expanded and/or changed.

Assessment/Evaluation

Tool	Purpose	Who	Activity
completion check	formative	peer/self	chart (Teaching/Learning Strategy 1-3)
marking scheme (see Appendix 3.5.1)	summative	teacher/self	summary paragraph (Teaching/Learning Strategy 4)

Accommodations

- Have transcripts of interview for students.
- Pair students to complete research and chart.
- Provide for an oral summary.

Resources

As It Happens, Interview, Radio Canada -1-800-721-TEXT

Websites

http://www.edf.org/programs/International/Dams/NAmerica/b_GreatWhale.html

<http://www.nativenet.uthscsa.edu/archive/nl/91d/0011.html>

<http://www.nativenet.uthscsa.edu/archive/nl/9610/0147.html>

<http://www.sierraclub.org/ecoregions/hudsonbay.htm>

<http://www.sierraclub.org/planet/199412/ftc-canada.html>

<http://www.inac.gc.ca/pubs/information/info14.html>

<http://www.nativeforest.org/cambaigns/neforest/hq.html>

<http://www.hydro.qc.ca/en/>

<http://www.hydroquebec.com/visit/baie-james/bourassa.html>

Activity 6: Investigating the Environmental Impact of the Hamburger

Timing: 375 minutes

Description

Students identify the environmental impacts of producing a hamburger at a fast food restaurant. Students play an Internet-based game to investigate the various stages in producing a hamburger. Using a flow chart, students show the inputs/outputs for each of the components of a hamburger. Using the information from their flow charts, students complete a Venn diagram showing the life cycle inventory of a hamburger. Students produce two news releases from opposing viewpoints, one from the viewpoint of the fast food industry, one from the viewpoint of a pollution control group, to show the environmental impacts of hamburger production. One component of this activity could be a trip to a fast food restaurant where students would complete a questionnaire (see Appendix 3.6.1).

Strand(s) and Expectations

Strand(s): Human-Environment Interactions, Understanding and Managing Change, Methods of Geographic Inquiry

Overall Expectations: HEV.01P, HEV.02P, HEV.03B, UMV.02B, MIV.01B, MIV.02B, MIV.03P.

Specific Expectations: HE1.02B, HE2.05P, UM2.01B, UM2.02B, UM2.03B, UM3.02P, MI2.03P, MI2.04B.

Planning Notes

- Set up for field trip if necessary.
- Copy questionnaire (see Appendix 3.6.1).
- Book computer lab in advance.
- If Internet is not available, the teacher can make overheads from game and do using overheads.
- Make overheads of various stages of production.
- Collect examples of news releases.

Prior Knowledge Required

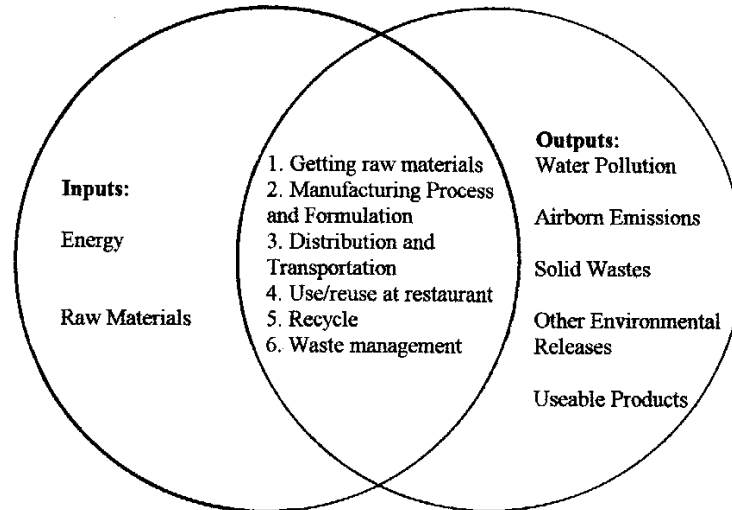
Students need to draw upon prior learning in Grades 7 and 8 to demonstrate an understanding of geographic inquiry, be able to gather, process, and communicate geographic information, and demonstrate an understanding of how human activity affects people and the environment.

Teaching/Learning Strategies

1. The teacher facilitates a field trip (within school time, or individually outside of school hours) to a fast food hamburger restaurant, where students complete a questionnaire (see Appendix 3.6.1).
2. The teacher takes the class to computer lab for students to play “The Life of a Hamburger” game on the Internet (see Resources).
3. The teacher leads a question-and-answer session after completion of game. Students fill in flow charts for the different components of a hamburger (see Appendix 3.6.2).

4. From flow charts, students develop a Venn diagram of the life cycle inventory of a hamburger. Students brainstorm the individual stages of the life cycle inventory as well as inputs and outputs. See below for an example of the Venn diagram.

LIFE CYCLE INVENTORY OF A HAMBURGER



Life cycle inventory measures the inputs (energy and raw materials) and outputs (waste and useable product) from the start, when raw materials are obtained, to the finish and use of the product.

5. Students identify the stage of the life cycle that they believe produces the most damaging ecological footprint. Students refer back to their questionnaire. Is this where they thought the most waste would be? In groups students put their responses onto chart paper. The chart paper is posted around the room. After reading all of the responses, the class discusses the similarities and differences between the responses.
6. Students work in partners to produce two news releases. One partner writes a release that defends the position that fast food restaurants are environmentally friendly; the other partner defends the position that fast food restaurants are environmentally damaging. They should use information from their questionnaire, flow charts, and Venn diagram to do this. In both releases, students must mention steps needed to plan for future resource sustainability.

Assessment/Evaluation

Tool	Purpose	Who	Activity
rubric (see Appendix 3.6.3)	summative	peer/teacher	news release (Teaching/Learning Strategy 6)
checklist	formative	teacher/peer	Venn diagram (Teaching/Learning Strategy 4)

Accommodations

- If students do not have access to a fast food restaurant, have them take the questionnaire home and get help from parents to complete as best as possible or check out Internet sites.
- Provide opportunities for students who have difficulty expressing themselves on paper to present their news release in the form of a television infomercial, press release, or interview.

Resources

<http://www.plasticbag.com/KIDS/hamburger/inventory.html>

Appendix 3.1.1

Bar Graph Rating Scale Criteria

Put a mark on the line where you think you are.

Graph Essentials	Developing	Competent	Exemplary
1. Title - descriptive, includes statistical year	-----		
2. Legend - colour/shading, neatly printed	-----		
3. Date - date graph made	-----		
4. Vertical axis - appropriate, equal spacing, equal jumps between numbers	-----		
5. Horizontal axis - correct countries identified	-----		
6. Vertical and horizontal axis labels - correct, describes what is being shown on each axis	-----		
7. Accuracy - bars correct spacing, same width, correct height	-----		
8. Appearance - neat, ruler used	-----		

Appendix 3.1.2

Report Rubric

Criteria	Level 1	Level 2	Level 3	Level 4
Accuracy and Content K/U	You define geographic terms with limited accuracy	You define geographic terms with some accuracy, and attempt to use terms in context	You define geographic terms, and use them in context most of the time	You define geographic terms correctly, and use them in context all of the time
Analysis of Graph, Conclusion, and Patterns T/I	You are able to draw limited conclusions based on your graph, few patterns are identified	You are able to draw some conclusions from your graph, some patterns are identified	You are able to draw conclusions from your graph, identifying many of the resulting patterns	You are able to draw accurate conclusions from your graph, identifying most of the resulting patterns
Individual Footprint Accuracy T/I	You are able to calculate your individual footprint with little accuracy	You are able to calculate your individual footprint with some accuracy	You are able to calculate your individual footprint with considerable accuracy	You are able to calculate your individual footprint with a high degree of accuracy and effectiveness
Graph (Appendix 3.1.1 has rating scale for criteria) C	Graph incomplete, limited accuracy and effectiveness, few criteria met	Graph completed with some accuracy and effectiveness, some criteria met	Graph completed with considerable accuracy and effectiveness, most criteria met	Graph completed with a high degree of accuracy and effectiveness, all criteria met
Methods to reduce ecological footprints A	Checklist has few points, with little variety	Checklist has some points, some organization, some variety of methods	Checklist complete, well organized, some variety of methods, methods are attainable	Checklist complete, well organized, large variety of attainable methods

*(Report requirements: Title page, definitions, graph and analysis, individual footprint, checklist, mechanics)

Appendix 3.2.1

Local Bioregion Map Rubric

Criteria	Weighting	Level 1	Level 2	Level 3	Level 4
six map elements (title, legend, scale, compass, border, date)	X .25	- few requirements met	- some requirements met	- many requirements met	- all requirements met
Content of map - natural characteristics	X .25	- shows natural characteristics with limited clarity	- shows natural characteristics with some clarity	- shows natural characteristics with considerable clarity	- shows natural characteristics with a high degree of clarity
Content of map - human characteristics	X.25	- shows human characteristics with limited clarity	- shows human characteristics with some clarity	- shows human characteristics with considerable clarity	- shows human characteristics with a high degree of clarity
Presentation - how your map look (neatness, correct tools used)	X .25	- map is drawn with limited success	- smudges, ruler and colour used some of the time	- neat, care taken, ruler and colour used where appropriate most of the time	- neat, care taken, colour and ruler used where appropriate, free of smudges

Weighting can change, depending on the emphasis you want on each of the criteria. More emphasis on the six map elements, as well as the presentation, may be needed at the beginning of the course - e.g., six map elements X .50, Content (in total) X .25, and Presentation X .25. Towards the end of the course, more emphasis can be put on the content of the map - six map elements X .10, Content (in total) X .65, and Presentation X .25.

Six map elements

title - printed, underlined using a ruler, descriptive

date - current date

compass - neatly drawn, correct orientation

border - present, ruler used

scale - present, neat, accurate for map

legend - present, correct symbols, neat

Appendix 3.2.2

Thematic Map Marking Scheme

Six map elements (title, border, scale, legend, date, compass)	0	1	2	3	4	5	6
Legend (criteria identified, consistent)	0	1	2				
Accuracy (correct information)	0	1	2	3	4		
Appearance (ruler used, printing on map, effort)	0	1	2	3			

Total: _____/15

Appendix 3.2.3

Pie Graph Rating Scale Criteria

Put a mark on the line where you think you are.

Graph Essentials	Emerging	Competent	Exemplary
1. Title - descriptive, includes statistical year	-----		
2. Legend - colour/shading, neatly printed	-----		
3. Date - date graph made	-----		
4. Accuracy - each section of the pie graph has correct number of degrees	-----		
5. Appearance - neat, ruler used, proper circle	-----		

Appendix 3.5.1

Energy Mega Project Paragraph Marking Scheme

Intro Sentence (Introduces topic, correct sentence structure, proper wording)	0	1	2					
Body Sentences (relevant information, backs up intro sentence, correct sentence structure, proper wording)	0	1	2	3	4	5	6	
Concluding Sentence (Concludes paragraph, correct sentence structure, proper wording)	0	1	2					

Total: ____/10

Appendix 3.6.1

Fast Food Hamburger Restaurant Field Trip Questionnaire

Name: _____

1. State the name of the restaurant visited.
2. List the natural resources involved in the manufacture of ground beef, buns, condiments, paper packaging, and plastic packaging.
3. List all the products/packaging used at the restaurant visited.
4. Circle one of the five terms below that, in your opinion, best describes the amount of waste produced at the restaurant visited. Explain your choice below.

Very Low

Low

Moderate

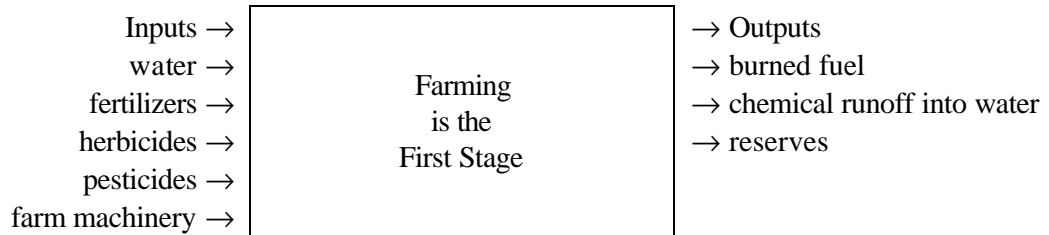
High

Very High

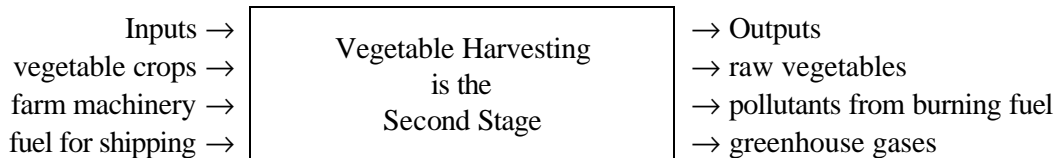
5. State whether or not the restaurant visited had any recycling stations.
6. If your answer was yes, the restaurant did have recycling stations, check which of the following recycling stations were present.
glass ____ paper ____ plastic ____ cans ____ styrofoam ____
7. Explain at which stage in production of the hamburger you think the most waste is created and why.

Appendix 3.6.2

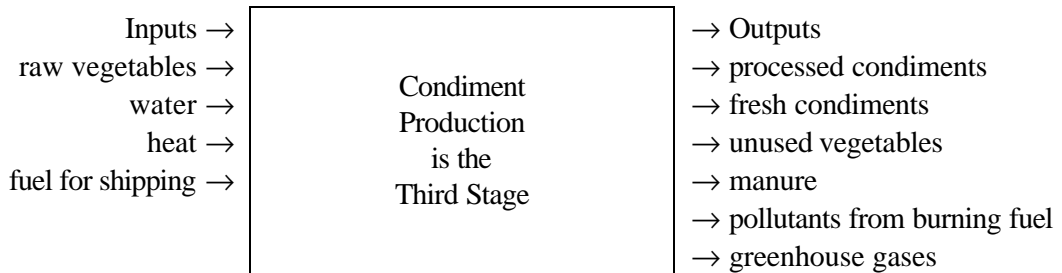
Condiment Life Cycle Sample Flow Chart



B



B



Appendix 3.6.3

Rubric for Press Release

Criteria	Level 1	Level 2	Level 3	Level 4
Use of facts/terms (from flow chart, Venn diagram, questionnaire) K/U	The facts you use need to be relevant, and you need to show how they fit together	Some of the facts you used help you make your point, however, the facts need to fit together	You used facts from more than one source to help you make your point, and you showed how they fit into the big picture	You used facts from a variety of sources to make your point, and you showed that you understand how they fit together into the big picture
Expressing your point of view - picking a side and arguing it T/I	You need to make your point of view clear	You state a point of view, but don't stick to it well	Your point of view is clearly stated	Your point of view is clear and convincing
Written Language C	Grammar and spelling get in the way of your writing, repeat the same words too often, you need to follow the given format*	Some paragraphs do not follow the given format*, a few grammar and spelling mistakes	Correct grammar, spelling, active sentences, good choice of words, concise, followed format*	Correct grammar, spelling, active sentences, good choice of words, concise, imaginative use of quotations, you make good use of format* structure
Future resource sustainability – predictions A	Your future predictions need to be attainable, you need to use facts to back up your ideas	You make some simple predictions for the future, but not fully based upon your facts	Your future predictions are based upon facts and are attainable	Your future predictions are solidly based upon given facts, imaginative, informative, short-term and long-term elements

Press Release Format

Paragraph 1: the 5 W's (who, what, where, when, why)

Paragraph 2, 3, 4: background information, statistics, facts, etc. One major idea per paragraph. (You can have fewer or more here as needed.)

Paragraph 5: future trends

Paragraph 6: where to go for more information (contacts, web pages, books, government reports, scientific journals, etc.)

Unit 4: Global Interactions

Time: 25 hours

Development Date: August 9, 1999

Unit Description

In this investigation of Canada's links to the global community, students are given the opportunity to investigate our international role with respect to environmental, cultural, and economic activities. Students investigate the role that Canada plays with respect to the developed and less developed countries, emphasizing aid, economic, tourism, and recreational links. Also, there is a focus on the relationship of human and natural global systems affecting the quality of life for Canadians.

Strand(s) and Expectations

Strand(s): Space and Systems, Human-Environment Interactions, Understanding and Managing Change, Global Connections, Methods of Geographic Inquiry

Overall Expectations: SSV.01B, SSV.02B, SSV.05B, HEV.01P, UMV.01B, UMV.03B, GCV.01P, GCV.02B, GCV.03B, MIV.01B, MIV.02B, MIV.03P.

Specific Expectations: SS1.01B, SS1.05P, SS2.04P, HE1.03B, HE1.04B, HE2.02P, UM1.01B, UM1.02B, UM1.03P, UM2.01B, UM2.02B, UM3.04P, GC1.01P, GC1.02P, GC1.03B, GC1.04P, GC1.05P, GC2.01P, GC2.02P, GC2.03P, GC2.04P, GC3.01P, MI1.01B, MI1.02B, MI2.01P, MI2.02B, MI2.03P, MI2.04B, MI2.05B, MI2.06B, MI2.08B, MI2.09P, MI2.11P, MI2.12B, MI2.13B, MI2.14B.

Activity Titles (Time and Sequence)

Activity 1	Identifying Cultural Origins and Diversity	75 minutes
Activity 2	Investigating Global Climate Change	225 minutes
Activity 3	Examining Quality of Life Issues	150 minutes
Activity 4	Researching International Trade and Occupations for a Global Economy	225 minutes
Activity 5	Conducting Mock Interviews on Canada's Links with the World	225 minutes
Activity 6	Determining Canada's Role in International Aid	150 minutes
Activity 7	Mapping and Graphing Tourism and Recreational Links in Canada	150 minutes
Activity 8	Analysing Canada's Place in the Global Community	300 minutes

Unit Planning Notes

- Present culminating activity at the beginning of the unit to allow for student input.
- Book computer lab in advance for culminating unit.
- Review aid concepts such as bilateral and multilateral aid, long-term and disaster relief, and acronyms related to various governmental, and non-governmental national and international organizations. Develop list of key terms and acronyms for student use.
- Various geotechnologies are referenced throughout the unit, but activities can be done on paper if access is a problem.
- Check with history and civics teachers for overlap and/or resources.
- Check with art/dance/music for ideas/resources for culminating activity.
- Collect current resources from newspapers, video, radio, and Internet articles to keep the unit relevant. Consider displaying them on a bulletin board for visual references during the unit.

- Check with student services regarding career planning.
- Obtain an accurate up-to-date world map (check in the teacher guides for approved textbooks).
- The following framework was used in writing the unit; it may be useful in planning for teaching the unit, especially if modifications are made.

Activity	Overall	Specific	Strategies	Assessment	Timing, comments
1. Identifying Cultural Origins and Diversity	GCV.OIP, SSV.OIB, SSV.04B, UMV.OIB, MIV.03P	GCI.05P, UMI.03P, SS2.05P, MI1.01B, MI1.02B, M12.04B, MI2.08B, MI2.11P, MI2.13B	mapping using GIS tools, organizers, analysing, story writing	checklist (formative, self - T/L 1) rating scale (formative, peer - T/L 4) rubric (summative, teacher - T/L 6)	75 minutes
2. Investigating Global Climate Change	GCV.01P, GCV.02B, GCV.03B, UMV.01B, MIV.01B, MIV.02B, MIV.03B	GC1.02P, GC1.04P, GC2.01P, 02P, UMI.02B, UM2.01B, UM2.02B, MI1.01P, MI2.05B, 06B, 09P	ranking, assessment, quiz, role playing, note making, letter writing	quiz (diagnostic, peer/self - T/L 3) rating scale (formative, teacher, self - T/L 4) rubric (summative, teacher - T/L 9)	225 minutes Appendix 4.2.1 Appendix 4.2.2
3. Examining Quality of Life Issues	SSV.05B, HEV.01B, MIV.01B, MIV.03P	SS1.01B, SS1.05P, He1.04B, HE2.02P, UM3.04P, MI2.01P, MI2.08B	class discussion, mapping, point form summary, story writing	rating scale (formative, peer/self - T/L 3) rubric (formative, teacher - T/L 6)	150 minutes Appendix 4.3.
4. Researching International Trade and Occupations for a Global Economy	GCV.01P, UMV.03B, MIV.01B, MIV.03P	GC1.01P, GC3.01P, UM1.02B, UM2.01B, UM3.03P, MI1.02B, MI2.01P, MI2.03P, MI2.05B, MI1.06B, MI2.09P, MI2.03B	discussion, definitions, mapping, compiling lists, poster, mini-debate	checklist (formative, teacher - T/L Part 1 7) paragraph marking scheme (formative, peer/teacher - T/L Part 1 8) rubric (formative, teacher - Part 2 2) rubric (summative, teacher - Part 3)	225 minutes

5. Conducting Mock Interviews on Canada's Links with the World	GCV.01P, GCV.02B, MIV.01B, MIV.03P	GC101P, GC1.02P, GC1.03B, MI1.02B, MI2.01P, 02B, 03P, 04B	research, interviewing (drama), summary chart	check list (formative, teacher - T/L 7) student generated rubric (formative, peer/teacher - T/L 3)	225 minutes
6. Determining Canada's Role in International Aid	GCV.01P, GCV.03B, UMV.03B, MIV.01B, MIV.03P	GC1.01P, GC1.03B, GC2.01P, UM3.04P, MI1.01B, MI1.02B, MI2.03P, 11P, 12B	articles/readings, spreadsheets, group research, portfolio	portfolio/rubric (summative, teacher, self - T/L 1-4)	150 minutes
7. Mapping and Graphing Tourism and Recreational Links in Canada	HEV.01P, GCV.01P, MIV.01B	HEI.03B, GC1.04P, GC2.03P, GC2.04P, MI2.03P, MI2.03B, MI2.13B	survey, summarizing information, class discussion, graph making, flow line mapping, report writing	rating scale (formative, teacher/peer - T/L 8) marking scheme (summative, teacher - T/L 9) student-generated rubric (summative, teacher - T/L 10)	150 minutes (refers back to Appendix 3.3.3) Appendix 4.7.1
8. Analysing Canada's Place in the Global Community	GCV.01P, GCV.02B, GCV.03B, MIV.01B, MIV.02B, MIV.03P	GC1.03B, GC2.01P, GC3.01P, MI1.01B, MI1.02B, MI2.02B, 03P, 04B, 05B, 08B, 11P	research report - written and creative elements	student-generated Rubric - report (summative, teacher, self - T/L 3) student-generated Rubric – artistic (summative, teacher, self - T/L 3)	300 minutes Appendix 4.8.1

Prior Knowledge Required

From the Grade 7 and 8 curriculum, it is expected that students have some experience with:

- the themes of geographical inquiry (location, place, environment, region, interaction, and movement);
- using a variety of multi-level information sources;
- producing maps and graphs;
- an understanding of the concepts of sustainable development and the implications for the environment, and communicating results of their inquiries;
- an understanding of natural resources, both renewable and non-renewable.;
- an understanding of climate patterns and the effects of natural phenomena;
- characteristics of developed and developing countries;
- Canada's economic role in the global community;
- migration and culture.

Students need to draw upon information learned in previous units:

- physical and human systems;
- relationship between human systems and ecozones;
- demographics, migration, and immigration;
- sustainability, resource management.

Teaching Learning Strategies

Thematic mapping	Ranking and sorting	Quiz
Geotechnologies	Summary statement	Role playing
Note making/taking	Class discussion	Research
Letter writing	Point-form summary	Interviewing
	Story writing	Drama
	Internet use	Summary chart
	Article reading	Survey
	Spreadsheet creation	Graphing
	Group research	Report writing
	Portfolio creation	Art work

Assessment/Evaluation

During this unit checklists and rating scales are used to provide frequent feedback to support the development of good learning skills for the course. Self- and peer-assessment enables individual goal-setting. In addition, rubrics are used for the more complex tasks involved in the different types of written reports and maps. Students create rubrics, building on their input into rubric creation from the previous unit.

The teacher assists in the student-generated rubric for the two components of the culminating activity. Students should draw on outside experiences and interests when picking the creative element, as well as for their rubric creation.

Resources

In addition to the listings in the Resources section (Phase 1) the textbooks listed in Unit 3 are also useful references. Resources specific to each activity are listed with that activity.

Activity 1: Identifying Cultural Origins and Diversity

Time: 75 minutes

Description

In this activity, students use available texts to identify and explain the regional distribution patterns of Aboriginal peoples across Canada, i.e., where various peoples are located and why they settled there. This is linked to the distribution of mother tongue and visible ethnicity distribution by province.

Strand(s) and Expectations

Strand(s): Space and Systems, Global Connections, Understanding and Managing Change, Methods of Geographic Inquiry

Overall Expectations: GCV.O1P, SSV.O1B, SSV.O2B, SSV.O3B, MIV.O1B, MIV.O2B.

Specific Expectations: GC1.05P, UM1.01B, UM1.03P, SS2.05P, MI1.01B, MI1.02B, MI2.04B, MI2.08B, MI2.11P, MI2.13B.

Planning Notes

- Arrange for student access to a computer lab that is loaded with a global GIS program with Canadian immigration data, e.g., OAGEE *GEOtoolKIT*. If access is not possible, activities can be done on paper.
- Plan to have students do the initial work in pairs and then increase to larger groups for sharing and assessment.
- Have students complete a family tree for countries of origin (where do their ancestors come from?) before the start of the lesson.

Prior Knowledge Required

Students need to draw upon prior learning in Grades 7 and 8 to demonstrate an understanding of geographic inquiry and be able to gather, process, and communicate geographic information using a variety of tools and techniques, and identify patterns and trends in immigration and migration and their effects on Canada. Students also build on understanding of immigration from Unit 2.

Teaching/Learning Strategies

1. Students identify the ethnocultural backgrounds within their community. Students write two summary statements: one statement describes the ethnocultural distribution of the community, and the other statement describes how they think the distribution in the community compares to Ontario and the rest of Canada.
2. On the board, draw a time line that begins 40,000 years ago to the present. Pose the following question to the class: “Who first settled Canada?” As students come up with responses, add them to the time line where appropriate:
 - 40,000 years ago Canada’s first people migrated here over a land bridge that once extended across the Bering Sea from Asia
 - groups spread throughout North, Central, and South America
 - 1600s-1759 France supplied most of Canada’s immigrants
 - 1759-1960s Great Britain was source of the largest number of new Canadians
 - 1800-present - US supplied the second largest number of immigrants
 - 1900-1920 great number of immigrants came from Eastern Europe
 - Years following WWII - large number of Italians immigrated to Canada

- 1970s - present - many citizens of Hong Kong, India, African countries, and the West Indies have immigrated to Canada
3. Using available texts and/or atlases, students identify the regional distribution patterns of Canada's First Nations.
 4. Once students have located maps showing the distribution, they compare it to their ecozones map. Students write a journal response identifying reasons why different Aboriginal groups settled where they did.
 5. Students look at present day maps that show the distribution of mother tongue and visible ethnicity distribution by province (if using the OAGEE CD-ROM, instructions are on the disk). Most atlases have maps showing these themes. Students note where Aboriginal people make up a significant part of the language/ethnicity. In pairs, students create an organizer to identify those individual provinces that have significant mother language or visible ethnicity (if using the OAGEE CD-ROM, detailed instructions are included and are available with the CD-ROM project).
 6. Students write a story about what it would be like to be part of a minority group (if they are not part of one) or about what it would be like to be part of a majority group (if they are part of a minority group).

Assessment/Evaluation

Tool	Purpose	Who	Activity
checklist (teacher-generated)	formative	self	summary statements (Teaching/Learning Strategy 1)
rating scale (teacher-generated)	formative	peer	journal response (Teaching/Learning Strategy 4)
rubric (teacher-generated)	summative	teacher	story (Teaching/Learning Strategy 6)

Accommodations:

- Allow students to use oral story telling.
- Encourage peer interaction and support during computer-based activities.

Resources

Atlases
 Canada census data by province
 OAGEE *GEOtoolKIT*

Activity 2: Investigating Global Climate Change

Time: 225 minutes

Description

Students write a summary paragraph on how they feel about global climate change (global warming). Students are given a short quiz on global climate change and then reassess their views on the subject based on the information they learned from the quiz. Students complete an activity that shows them how shorelines will change if we have an increase in the average temperature (*Arcview* activity, or can be done by hand). Students complete a role-playing activity about global climate change, generate a class note on the topic, and then write a letter to the government expressing their views.

Strand(s) and Expectations

Strand(s): Global Connections, Understanding and Managing Change, Methods of Geographic Inquiry

Overall Expectations: GCV.01P, GCV.02B, GCV.03B, UMV.01B, MIV.01B, MIV.02B, MIV.03P.
Specific Expectations: GC1.02P, GC1.04P, GC2.01P, GC2.02P, UMI.02B, UM2.01B, UM2.02B, MI1.01B, MI2.05B, MI2.06B, MI2.09P.

Planning Notes

- Collect a variety of articles on global warming - *Canada and the World Backgrounders*'s September 1998 issue on Climate Change has a variety of articles

Prior Knowledge Required

Students need to draw upon prior learning in Grades 7 and 8 to demonstrate an understanding of the five themes of geographic inquiry, use a variety of geographic representations, tools, and technologies to gather, process, and communicate geographic information, and understand how human activity affects Canada and the global environment.

Teaching/Learning Strategies

1. Using an atlas, students look at different world maps - landforms, climates, biomes, etc. Students explain how Canada's natural systems form parts of global systems. (Canada's natural systems do not end at our borders.)
2. In the classroom, the teacher marks off a scale across the front of 1 to 5, and then asks students how they feel about global warming: 1 being *don't think it is a problem*, to 5 being a *serious problem*. Students line up along the line where they feel they best fit. As a class make a summary statement(s) about the class's perception on global warming.
3. Students complete a quiz on climate change (Appendix 4.2.1). The teacher takes up answers once everyone is finished.
4. The teacher then leads a class discussion about points they found interesting or didn't already know. Students write a paragraph on how they would place themselves on the scale now, after having completed the quiz and why (Appendix 4.2.2).
5. Students complete *Arcview* activity on global warming (*Making Connections*, p. 467). If access to computers is limited, students can bring in pictures from magazines of shorelines. Using blue tissue paper, have them show the effects along the shoreline of a one-metre increase in sea level due to the melting of glaciers and polar ice sheets due to global warming. Students identify how this affects an area (e.g., tourism, beaches).
6. The teacher explains to students the purpose of the role-playing activity: They are representatives from a variety of countries, scientists, and special interest groups who are attending a forum on global climate change. Their job is to try and reach some sort of resolution on what, if anything, should be done about global climate change. Each representative is given time to introduce themselves and express their position on the matter. They then work together as a whole to try and reach a compromise that everyone at the forum can accept.
7. Students are given a role description from the teacher (see Appendix 4.2.3).
8. After the completion of the role-playing activity, students in small groups summarize their information on chart paper to post and share with the rest of the class. Using the chart paper information, the class generates a board note on global climate change. Areas to cover can include the following: greenhouse effect, causes of global warming, local effects, summits, and the politics involved.
9. The class brainstorms ways in which people can influence government decisions such as letter writing, protests, joining political parties, and phoning members of parliament. Students write a letter to the government which states their opinion on global warming, if it is a problem, the causes, and whether or not Canada is doing enough about it. Students must use facts to back up their opinions.

Assessment/Evaluation

Tool	Purpose	Who	Activity
quiz (Appendix 4.2.1)	diagnostic	peer/self	quiz on climate change (Teaching/Learning Strategy 3)
marking scheme (Appendix 4.2.2)	formative	teacher/self	paragraph (Teaching/Learning Strategy 4)
rubric (teacher-generated - check with English department)	summative	teacher	letter to government (Teaching/Learning Strategy 9)

Resources

Arcview

Current Atlas

Canada and the World Backgrounder, Climate Change, September 1998 (E-mail:canworld@netcom.ca)

Web Sites

<http://www.epa.gov/globalwarming/climate/index.html>

<http://www.epa.gov/globalwarming/actions/global/us/govpos.html>

http://www.enviroweb.org/edf/ishappening/warmcentury/warmcent_tempcool.html

http://www.enviroweb.org/edf/ishappening/peopleemc2/peoplenenergy_globalper.html

<http://www.gcrio.org/gwcc/booklet1.html>

<http://www.ec.gc.ca/climate/whatis/factors.html>

<http://www2.vivid.net/~ses/co2.html>

<http://www.api.org/globalclimate/page2bizandindustry.html>

<http://www.api.org/globalclimate/page2emitequitylink.htm>

<http://global.newscientist.com/nsplus/insight/global/politics.html>

<http://global.newscientist.com/nsplus/insight/global/focus.html>

<http://www.heartland.org/canada.htm>

<http://www.public-policy.org/~ncpa/ba/ba230.html>

<http://globalwarming.org/brochure.html>

Accommodations

- Provide criteria where necessary for role characteristics.
- Encourage use of computer for writing letter
- Build in proof-reading time
- Read quiz questions out loud and allow for oral responses if necessary.

Activity 3: Analysing Quality of Life Issues

Time: 150 minutes

Description

In this activity students learn about quality of life issues and how Canada compares to other countries in the world. Discussion evolves around the Human Development Index, comparisons of life styles, economic development, health care, and literacy.

Strand(s) and Expectations

Strand(s): Space and Systems, Human-Environment Interactions, Understanding and Managing Change, Methods of Geographic Inquiry

Overall Expectations: SSV.04B, HEV.01P, MIV.01B, MIV.03P.

Specific Expectations: SS1.01B, SS1.05P, HE1.04B, HE2.02P, UM3.04P, M12.01P, MI2.08B, MI2.08P.

Planning Notes

- Prepare a blank map of the world.
- Book computers.

Prior Knowledge Required

Students need to draw upon prior learning in Grades 7 and 8 in which they have an understanding of methods of geographic inquiry, the ability to analyse, synthesize, evaluate, and communicate information as well as an understanding of the characteristics of developed and developing countries.

Teaching/Learning Strategies

1. The teacher leads a discussion on what makes up a person's quality of life. The concept of Human Development Index (UN rating of countries quality of life measured by life expectancy, educational attainment, and adjusted income) is introduced. (A newspaper article such as *Globe and Mail* - "Canada again tops survey as best place to live", July 12/99, p. A3, can be used to introduce topic)
2. By mapping selected countries on the world map (top and bottom 20 countries according to the Index) students learn the geographic location of these countries (see Appendix 4.3.1 for rankings).
3. Students discover the differences between the top and bottom 20 countries by constructing bar graphs for Canada, USA, Chad, and Afghanistan using the following criteria: GNP or GDP, literacy rate, number of doctors/capita, growth rates, and food supply. (The statistics can be found in an up-to-date atlas, or at <http://www.undp.org/hdro/93hdi.htm>.)
4. Students prepare a point form summary listing the characteristics of each group.
5. The teacher leads a de-briefing session summarizing the characteristics and introducing the terms: developed, developing, and underdeveloped. The teacher then discusses with the students the advantages and disadvantages of such groupings.
6. Students write a story describing what it would be like to live in an underdeveloped country. They summarize what they have learned by doing the above activity and expressing why they are fortunate to live in a developed country such as Canada where we have all the basic requirements. Students work with teacher to generate rubric for assessment.

Assessment/Evaluation

Tool	Purpose	Who	Activity
rating scale (see Appendix 3.1.1)	formative	peer/self	bar graph (Teaching/Learning Strategy 3)
rubric (teacher/student-generated)	formative	teacher	story (Teaching/Learning Strategy 6)

Accommodations

- Encourage collaboration among students.
- Extend timelines.
- Provide clearly stated directions in printed form.

Resources

Atlas

Globe and Mail, July 12/99, p. A3 - can be obtained through local libraries

Web Sites

<http://www.undp.org/hdro/98hdi.htm>

<http://www.undp.org/hdro/hd.htm>

<http://www.undp.org/hdro/HDI.html>

<http://www.undp.org/hdro>

<http://www.ybdo.org/hdro/HDImap.html>

Activity 4: Researching International Trade and Occupations for a Global Economy

Time: 240 minutes

Description

This activity is divided into three parts. In Part 1 the students construct posters to show the impact of international trade in Canada. The posters include a flow map of goods entering and leaving Canada. The poster acts as a springboard to further discussions in Part 2, where the students are asked to choose an occupation, which is related to geography, and complete an Internet research activity. Part 3 looks into the future in terms of occupations and discusses the role that trade agreements play now and will likely play in the future.

Strand(s) and Expectations

Strand(s): Global Connections, Understanding and Managing Change, Methods of Geographic Inquiry

Overall Expectations: GCV.01P, UMV.03B, MIV.01B, MIV.03P.

Specific Expectations: GC1.01P, GC3.01P, UM1.02B, UM2.01B, UM2.03B, UM3.03P, MI1.02B, MI2.01P, MI2.03P, MI2.05B, MI1.06B, MI2.08P, MI2.09B.

Planning Notes

- Make sure blank maps of the world, markers, glue, and Bristol board are available for students.
- Arrange to have old magazines available for cutouts.
- Book computers.

-
- Arrange for time in Student Services and the Information Learning Center.

Prior Knowledge Required

From the Grade 7 and 8 curriculum the students have an understanding of methods of geographic inquiry, the ability to analyse, synthesize, evaluate, and communicate information.

Teaching/Learning Strategies

Part 1: Import/Export Poster

1. The project begins with a discussion and identification of products purchased by students in the class that originate from a foreign source. Students then attempt to list those products sold to foreign countries by Canada.
2. Teacher discusses the type of products (resources) that are traded (goods, commodities, services, ideas).
3. Students determine imports, exports, and trade balance (surplus/deficit).
4. Students determine which are Canada's leading trade partners (imports/exports).
5. Students construct a flow map to indicate the amount and direction of trade.
6. Students compile a list of leading exports and imports.
7. Students construct a poster to display the map and the types of imports and exports. Graphs and charts are to be included on the poster.
8. Students write a paragraph explaining the importance of trade to Canada's economy.

Part 2: Career Opportunities

1. The posters are displayed around the room. Students make a list of the various careers involved in the production of the goods and services displayed on the posters.
2. Students choose one geographic occupation of interest to them and write an employment ad which includes the nature of the occupation, education required, location of the occupation, salary range, and why a person would want to choose this occupation. (See Resources.)

Part 3: Careers of the Future

1. Teacher introduces the trade issues of Canada's reliance on commodities exports (natural resources), "Putting our eggs in one basket", 80% of our trade is with the USA, and the impact of NAFTA.
2. Students choose one of the issues and prepare arguments to support or oppose it.
3. The teacher organizes a mini-debate where students are asked to present their arguments. Students summarize their position in a paragraph.
4. Students write a paragraph on what impact their position will have on jobs in the future.
5. Students make a list of what they see as the five most important occupations in the future and explain why they chose these occupations.

Assessment/Evaluation

Tool	Purpose	Who	Activity
checklist (teacher-generated)	formative	teacher	poster (Teaching/Learning Strategy Part 1, 7)
paragraph marking scheme (see Appendix 4.2.2 for example)	formative	peer/teacher	paragraph explaining importance of trade to Canada (Teaching/Learning Strategy Part 1, 8)
rubric (teacher-generated)	formative	teacher	employment ad (Teaching/Learning Strategy Part 2, 2)
rubric (teacher-generated)	summative	teacher	report (Teaching/Learning Strategy Part 3)

Accommodations

- Encourage collaboration among students.
- Extend timelines.
- Provide clear, printed directions.
- Allow students to work in pairs or small groups if needed.
- Provide examples of maps and graphs.

Resources

Atlas

Canada Year Book

Student Services career-related web sites

School Finder (self-assessment, career information, employment outlook)

Textbooks

Web Sites

<http://www.schoolfinder.com/careers/interests.index.htm>

Career questionnaire

<http://collegeboard.org/career/html/searchQues.htm>

Ontario Job Futures – Occupational Profiles

<http://www.on.hrdc-drhc.gc.ca/english>

College Link

<http://www.edu.gov.on.ca/eng/general/list/college.html>

University Link

<http://www.edu.gov.on.ca/eng/general/list/univers.html>

Free Trade Treaties

<http://lexmercatoria.net>

Activity 5: Conducting Mock Interviews on Canada's Links with the World

Time: 150 minutes

Description

Students research and then conduct mock interviews about Canada's involvement in the global community.

Strand(s) and Expectations

Strand(s): Global Connections, Methods of Geographic Inquiry

Overall Expectations: GCV.01P, GCV.02B, MIV.01B, MIV.03P.

Specific Expectations: GC1.01P, GC1.02P, GC1.03B, MI1.02B, MI2.01P, MI2.02B, MI2.03P, MI2.04B.

Planning Notes

- If time is short, gather the research information in advance for students.
- Book the camcorder if needed.

Prior Knowledge Required

Students need to draw on prior learning in Grades 7 and 8 in which they demonstrate an understanding of the themes of location, movement, and region, gather and communicate geographic information, and demonstrate an understanding of how countries interact.

Teaching/Learning Strategies

1. Using teacher-generated lists, students work with a partner to find countries on a world map that are related to specific organizations and/or strategic partnerships to which Canada belongs (UN, NATO, NAFTA, Commonwealth, La Francophonie, CIDA, WHO, NORAD, etc.), using appropriate geotechnologies that include *PCGlobe*, *Arcview*, *Arcvoyager*, etc. This activity could be turned into a knock-out game where one partner times the ability of another as he/she identifies the different countries in specific organizations with the objective of an eventual class winner. This should not take more than 30 minutes.
2. Students work with a partner to research two different organizations to which Canada belongs.
3. Students interview each other about the two different organizations they researched. One student in the pair takes on the role of a news correspondent; the other takes on the role of a person involved with the organization. Once one of the partners has been interviewed, students switch roles and complete a second interview. The use of props, etc. is encouraged to help students adopt their roles.
4. Questions include the basic who, what, where, when, and why, as well as further analysis of Canada's role in the organization. Students help generate a marking rubric for their interviews before they take place.
5. Interviews can be live or taped.
6. Students complete a facts chart as groups are presenting to help them summarize the information:

Organization	Purpose	Canada's Role

Assessment/Evaluation

Tool	Purpose	Who	Activity
check list (teacher-generated)	formative	peer/self	interviews (Teaching/Learning Strategy 6)
rubric (student-generated)	formative	peer/teacher	interviews (Teaching/Learning Strategy 3)

Resources

Textbooks
Internet

Accommodations

- Provide alternatives to presentations such as having students tape their interview beforehand.
- Find articles for students ahead of time, and provide a reader or taped set if necessary.
- Have students use puppets, animation, or role play for interview.

Activity 6: Determining Canada's Role in International Aid

Time: 150 minutes

Description

This activity brings together the concepts of aid and demonstrates Canada's role in Foreign Aid. Students use articles, spreadsheets, thematic maps, and organizers to exemplify their findings.

Strand(s) and Expectations

Strand(s): Global Connections, Methods of Geographic Inquiry, Understanding and Managing Change

Overall Expectations: GCV.01P, GCV.03B, UMV.03B MIV.01B, MIV.03P.

Specific Expectations: GCI.03B, GC1.01P, GC2.01P, UM3.04P, MI1.01B, MI1.02B, MI2.03P, M12.11P, MI2.12B.

Planning Notes

- Obtain an article or reading that introduces the topic of International Aid - otherwise use a reading from one of the approved texts.
- Book computer lab for creating spreadsheets and GIS program or arrange for T/L Strategies 2 and 3 to be done as paper exercises. If there is no Internet access, students use the library for their research in T/L Strategy 4.

Prior Knowledge Required

Students need to draw on prior learning in Grades 7 and 8 in which they gather and communicate geographic information, and demonstrate an understanding of Canada's economic role in the global community, as well as the characteristics of developed and developing countries.

Teaching/Learning Strategies

1. The teacher introduces the topic of Foreign Aid through an article or reading that identifies such terms as multilateral aid, bilateral aid, NGO'S's, CIDA, ODA, various UN aid agencies, FAO, and WHO. Through the use of one or more articles, the teacher demonstrates the difference between aid that is given for long-term economic problems and disaster relief.
2. Using data on bilateral aid for selected countries (e.g., *Canada: Exploring New Directions*) the students create a spreadsheet to include the fields of Countries and Total Bilateral Aid. The spreadsheet could include other data such as Canada's rank among aid donors and relationship to GNP. From this spreadsheet students then use a number of calculations that include sorting, ranking, and simple queries to group counties by regional areas.
3. Students then take the material generated by the spreadsheet and join it to a GIS program that has a world countries file (e.g., *Arcview*, *Thinkspace*, *Arcvoyager*). Students then create a thematic map to demonstrate the variations in aid grants. A second thematic map could be created that shows the countries' GNP thematically. This can be done on paper if access to GIS is a problem.
4. Students, divided into groups, research one specific NGO. Students use the Internet to find out history, goals, and geographical area of operation. This organizer is linked to a portfolio that includes the spreadsheet, thematic maps, and the NGO's organizer.

Assessment/Evaluation

Tool	Purpose	Who	Activity
rubric (teacher-generated)	summative	teacher/self	portfolio (Teaching/Learning Strategy 1-4)

Accommodations

- Encourage peer interaction and support during computer activities.
- Give step-by-step instructions to students who have difficulty staying focussed, perhaps using checklists.
- Provide numerous opportunities to assess progress of tasks.

Resources

Atlases
Textbooks
GIS software

Activity 7: Mapping and Graphing Tourism and Recreational Links in Canada

Time: 150 minutes

Description

Students generate and then complete a survey on travel destinations for students in the class. Students create a map showing destinations of class travellers and one for Canadian travellers outside of Canada. Students then prepare a short report comparing their travel to the rest of Canadians.

Strand(s) and Expectations

Strand(s): Human-Environment Interactions, Global Connections, Methods of Geographic Inquiry

Overall Expectations: HEV.01P, GCV.01P, MIV.01B.

Specific Expectations: HE1.03B, GC2.04P, GC2.03P, MI2.03P, MI2.09B, MI2.13B.

Planning Notes

- Produce and distribute blank maps of Ontario, Canada, and the world.

Prior Knowledge Required:

Students need to draw on prior learning in Grades 7 and 8 curriculum in which they demonstrate an understanding of geographic inquiry, as well as the ability to analyse, synthesize, evaluate, and communicate information.

Teaching/Learning Strategies

1. Students do a quick tally of who has travelled to places in Ontario, Canada, USA, and the world. Have students generate questions they could ask to get information about travel in the class (where, when, reason, etc.).
2. Teacher puts up along the top of the blackboard the different regions - Ontario, Canada, USA, world. Have students come up and fill in information about their travels.
3. Students summarize information into their notes - type of travel most common, distance from home, etc.
4. Lead a class discussion on the importance of tourism to Canada (*Canada: Exploring New Directions*, pp. 398-399 and *Perspectives*, pp. 246-247).
5. Students brainstorm for locations of where people travel within Canada (major cities, National Parks, World Heritage Sites, etc.).
6. The teacher shows students a graph showing the popularity of Canada's National Parks (*Canada and the World, A Resource Atlas*, 2nd ed.). Have students determine why attendance varies from park to park (distance, climate, landforms, etc.). Have students speculate on how much the physical landscape determines the types of activities carried out in the parks. Introduce topic of ecotourism, and relate to national parks.
7. Class discussion on World Heritage Sites within Canada and the world - purpose, type (natural, cultural), effectiveness.
8. Students complete a pie graph showing the sources of the largest number of visitors to Canada. (Use data from *Canada: Exploring New Directions*, pp. 398-399.)
9. Students complete a flow line map showing out of country destinations for Canadian tourists. (Use data from *Perspectives*, pp. 246-247.)
10. Prepare a formal paragraph comparing the travel of the class to that of Canada as a whole.

Assessment/Evaluation

Tool	Purpose	Who	Activity
rating scale (see Appendix 3.2.3)	formative	teacher/peer	pie graph (Teaching/Learning Strategy 8)
marking scheme(see Appendix 4.7.1)	summative	teacher	flow line map of tourist destinations (Teaching/Learning Strategy 9)
rubric (student-generated)	summative	teacher	comparison report (Teaching/Learning Strategy 10)

Resources

Stephenson, M. *Canada's National Parks, A Visitors Guide*. Prentice Hall Canada Inc.

Textbooks

Web Sites

<http://www.e-view.com/canada/tourism/index.html>

<http://www.unesco.org/whc/nwhc/pages/home/pages/homepage.htm>

<http://www.unesco.org/whc/hwhc/pages/sites/main.htm>

Video

Ecotourism Classroom Video

Accommodations

- Provide step-by-step instructions for graphing.
- Provide examples of graphs and maps.

Activity 8: Analysing Canada's Place in the Global Community

Time: 300 minutes

Description

Students use a variety of media sources effectively to produce an independent research report on one of the following topic areas: sports, arts, media, entertainment, food, fashion, technology, medical research, retail, etc.

Strand(s) and Expectations

Strand(s): Global Connections, Methods of Geographic Inquiry

Overall Expectations: GCV.01P, GCV.02B, GCV.03B, MIV01.B, MIV.02B, MIV.03P.

Specific Expectations: GC1.03B, GC2.01P, GC3.01P, MI1.01B, MI1.02B, MI2.02B, MI2.03P, MI2.04B, MI2.05B, MI2.09B, MI2.11P.

Planning Notes

- Book learning resource centre and computer lab

Prior Knowledge Required

Students need to draw on prior learning in Grades 7 and 8 curriculum in which they demonstrate an understanding of geographic inquiry, the ability to analyse, synthesize, evaluate, and communicate information as well as the skills and information acquired during this unit.

Teaching/Learning Strategies

1. The teacher leads a class discussion on what is culture, and what influences it. Students create a web diagram as an organizer for information derived from the discussion.
2. Students pick a topic area from the following list and work independently to produce a two-page research report. Students look at how Canada influences the rest of the world and how the rest of the world influences Canada. Students analyse Canada's role in the global community, and determine what, if any, our influence is.
Topics: sports, arts, media, entertainment, food, fashion, technology, medical research, retail, etc.
3. The final report consists of two parts: 1. written report; and 2. creative element (paintings, dance, sports olympics for younger grades, music, poetry, video, etc.).

Assessment/Evaluation

Tool	Purpose	Who	Activity
rubric (see Appendix 4.8.1)	summative	teacher/self	written report (Teaching/Learning Strategy 3)
rubric (student-generated*)	summative	teacher/self	creative element (Teaching/Learning Strategy 3)

* Because of the wide range of formats that can be used for the creative element, it is important that the students have a say in how it is evaluated.

Resources

Canadian Geographic
OAGEE Monograph

Accommodations

- Break down the task into small achievable parts, and check on progress repeatedly where assistance is required with organization.
- Use log sheets for tracking work.
- Use peer-helpers to keep students focussed.
- Provide access to computers for typing report.
- Extend timelines where required.

Appendix 4.2.1

True/False Climate Change Quiz

1. At present, human activity adds about three billion tonnes of carbon (in the form of CO₂) to the air each year.
2. Scientific evidence indicates variations in global temperature are likely to be naturally occurring and cyclical over very long periods of time.
3. The highest smog concentrations in Canada are in the lower Fraser Valley in British Columbia and in southern New Brunswick.
4. Global warming is caused totally by human actions.
5. Between 1990 and 1997, Canada decreased its emission of greenhouse gases.
6. Businesses don't want controls on greenhouse gases because it will cost them money to put pollution controls in place.
7. In a 1997 Environics poll, 61% of Canadians said governments should act now to reduce human impact on the world's climate, even if there are major costs.
8. In 1998 Canada signed the Kyoto Protocol (global warming treaty), stating they must cut emissions 6% below 1990 levels.
9. Under the Kyoto Protocol, developing countries have to make severe cuts in emissions.
10. Under the Kyoto Protocol, forested countries will have to pay more because trees absorb carbon dioxide.

Answers:

1-T, 2-T, 3-T, 4-F (a combination of human and natural), 5-F (it increased by 13%), 6-T, 7-T, 8-T, 9-F (developing countries are not required to make any cuts), 10-F (they get a break on their targets - can build up credits by planting trees)

Appendix 4.2.2

Global Climate Change Paragraph Marking Scheme

- | | | | | | | | | |
|---|---|---|---|---|---|---|---|--|
| 1. Intro Sentence | 0 | 1 | 2 | | | | | |
| (introduces topic, correct sentence structure, proper wording) | | | | | | | | |
| 2. Body Sentences | 0 | 1 | 2 | 3 | 4 | 5 | 6 | |
| (relevant information, backs up intro sentence, correct sentence structure, proper wording) | | | | | | | | |
| 3. Concluding Sentence | 0 | 1 | 2 | | | | | |
| (concludes paragraph, correct sentence structure, proper wording) | | | | | | | | |

Total: ____/10

Appendix 4.2.3

Climate Change Roles

A Representative of the European Economic Community (EEC)

The EEC wants to aggressively pursue an ambitious plan to reduce greenhouse gases 15% below the 1990 levels by the year 2010. Most people in Europe live in highly populated regions, and are already experiencing the effects of heavy air pollution. Some European nations have already put programs in place encouraging people to use cleaner energy, smaller homes, and smaller, more efficient cars/trucks.

The Secretary of the Environment for the United States

As the most powerful industrialized nation in the world, the United States must show leadership, but all countries must participate in the solution. However, the United States feels they cannot meet the targets put forth by the European Economic Community. Their reasoning is the cost, the greater distances, and the colder winters in northern states. The U.S. also feels more study needs to be made on the effects of climate change and the role of humans in the equation. The cost and the need for long-term solutions must also be addressed.

A Representative from the U.S. Petroleum Industry

This representative has serious doubts about the research done to date. The issue requires more serious inquiry and analysis. The industry is opposed to any sort of legally binding mandate and timetable for the reduction of carbon emissions. The industry is concerned about the consequences on our economy and feels that it is unfair to put controls on companies that have voluntarily put in place controls to reduce carbon emissions and improve energy efficiency. The industry feels that the average American will be hit hard as the price of gas would go up 50% if the United States reduces its levels of greenhouse gases to 7% lower than in 1990. The industry also feels that it is not fair that developing countries do not have to reduce their emissions as well.

Industrial Energy User Association

This association believes that the GDP of developed countries would shrink, jobs would be lost, wages would go down, and investment in businesses could decline if limits are put on greenhouse gas emissions. For the average consumer, this would mean a 40% increase in energy costs per household: higher costs for heating, cooling, and lighting. Prices would go up for consumer goods resulting in consumers buying less, jobs being lost, and slower economic growth. The only winner would be developing countries which would gain a competitive advantage at the expense of developed countries.

Minister of the Environment for Canada

Canada feels that global warming poses a real threat, but is not sure if humans are the primary cause. We should act on cutting back greenhouse gas emissions which would result in less pollution, better urban air quality, and a more efficient economy. As is the case with the United States, we have huge distances, more space, bigger homes, bigger cars, and cold, long winters. We have developed wasteful habits because of the abundant availability of energy resources. Global warming may not be a disaster, but if it is, we have to be ready for it.

Appendix 4.2.3 (Continued)

A Representative from a Developing Country

Although the developing countries recognize the need to address the issue, we feel that it is not an issue of our making. More pressing to us is the need to develop our economy and increase the standard of living of our people. Due to our present state of technology more efficient forms of energy production are not available to us.

Environmental Organization Representative

We feel that one of the most important environmental issues facing human kind today is the build-up of greenhouse gases and their resulting consequences. We strongly endorse a 20% reduction in CO₂ emissions by industrialized countries by the year 2005. Our organization feels that developing new reserves of coal, oil, and natural gas should be stopped and investment in renewable/alternate sources of energy should be pursued.

Organization of Petroleum Exporting Countries (OPEC) Representative

OPEC opposes limits to emissions of greenhouse gases to all developing and developed countries. The only way we will accept cuts is if compensation is given to us to protect against lost exports.

Insurance Industry Representative

The insurance industry supports limiting greenhouse gas emissions. We are worried that claims will rise due to climatic catastrophes such as storms, floods, and crop failures caused by global warming. If we don't limit greenhouse gas emissions, our industry will become bankrupt.

A Scientific Community Representative

Scientists are divided over the causes and effects of global warming. Opinions range from global catastrophe to patterns that are cyclical in nature. In general scientists feel that it is an issue that needs our immediate attention and delaying any action could result in events that are difficult to reverse.

Appendix 4.3.1

Human Development Index, Top 20 and Bottom 20 Countries

Source: *Human Development Report*, 1999 (www.undp.org/hdro/HDI.html)

Top 20 Countries:

1. Canada
2. France
3. Norway
4. USA
5. Iceland
6. Finland
7. Netherlands
8. Japan
9. New Zealand
10. Sweden
11. Spain
12. Belgium
13. Austria
14. United Kingdom
15. Australia
16. Switzerland
17. Ireland
18. Denmark
19. Germany
20. Greece

Bottom 20 Countries:

155. Benin
156. Tanzania, U. Republic of
157. Djibouti
158. Uganda
159. Malawi
160. Angola
161. Guinea
162. Chad
163. Gambia
164. Rwanda
165. Central African Republic
166. Mali
167. Eritrea
168. Guinea-Bissau
169. Mozambique
170. Burundi
171. Burkina Faso
172. Ethiopia
173. Niger
174. Sierra Leone

Appendix 4.7.1

Flow Line Map Marking Scheme

Six map elements (title, border, scale, legend, date, compass)	0	1	2	3	4	5	6
Legend (range identified, consistent)	0	1	2				
Accuracy (correct locations, correct arrow widths)	0	1	2	3	4		
Appearance (ruler used, printing on map, effort)	0	1	2	3			

Total: _____/15

Appendix 4.8.1

Cultural Report

Criteria	Level 1	Level 2	Level 3	Level 4
Use of facts and terms /U	You define geographic fact and terms with limited accuracy	You define geographic terms with some accuracy, and attempt to use terms in context	You define geographic terms, and use them in context most of the time	You define geographic terms correctly, and use them in context all of the time
Defining the issue T/I	You define your issue with limited clarity and effectiveness	You define your issue with moderate clarity and effectiveness	You define your issue with considerable clarity and effectiveness	You define your issue with a high degree of clarity and effectiveness
Providing evidence T/I	You have provided limited evidence	You have provided some evidence	You have provided considerable evidence	You have provided evidence with a high degree of clarity and effectiveness
Communicating information and ideas C	You have written your report with limited effectiveness, you communicate information and ideas with limited clarity	You have written your report with some effectiveness, you communicate information and ideas with some clarity	You have written your report with considerable effectiveness, you communicate information and ideas with considerable clarity	You have written your report with a high degree of effectiveness, you communicate information and ideas with a high degree of clarity and confidence
Drawing logical conclusions/ generalizations on Canada's role in the global community A	You draw few conclusions, they need to be based on facts	You draw some simple conclusions, based on some facts	Your conclusions are based upon facts and are realistic	Your conclusions are solidly based upon facts, imaginative, and informative

Unit 5: Sustainable Development

Time: 10 hours

Development Date: August 9, 1999

Unit Description

In this unit students complete a culminating task related to the Great Lakes which allows them to demonstrate achievement of a range of the overall and specific expectations from throughout the course. This activity addresses the themes of sustainability, conflict over resource use, and changes over time, using a newspaper format.

Strand(s) and Expectations

Strand(s): Space and Systems, Human-Environment Interactions, Understanding and Managing Change, Global Connections, Methods of Geographic Inquiry

Overall Expectations: SSV.05B, GCV.03B, HEV.01P, HEV.02P, HEV.03B, UMV.01B, UMV.02B, MIV.02B, MIV.03P.

Specific Expectations: have been covered in the previous units.

Activity Titles (Time and Sequence)

Activity 1	Producing the Great Lakes Newspaper	600 minutes
------------	-------------------------------------	-------------

Prior Knowledge Required

From the Grade 7 and 8 curriculum, it is expected that students:

- demonstrate an understanding of the themes of geographical inquiry (location, place, environment, region, interaction, and movement);
- demonstrate an understanding of different methods in which to communicate graphic information;
- demonstrate an understanding of how human activity affects people and the environment;
- demonstrate an understanding of the use and value of natural resources, and the concept of sustainability.

Students draw on information learned in previous units of this course:

- physical and human systems;
- relationships between human systems and ecozones;
- demographics, migration, immigration;
- sustainability, resource management;
- international relations.

Unit Planning Notes

- Check with science department for additional resources.
- Check with English department for additional resources for the writing components and/or overlap.
- Check with the Technology department for ideas with publishing.
- Book time in computer lab.
- Set up formal conferencing times for groups.

- The following framework was used in writing the unit; it may be useful to use in planning for teaching it, especially if modifications are made.

Activity	Overalls	Strategies	Assessment	Timing, comments
1. Producing the Great Lakes Newspaper	SSV.05B, GCV.03B, HEV.01P, HEV.02P, HEV.03B, UMV.01B, UMV.02B, MIV.02B, MIV.03P	video, brainstorming, conferencing, work logs, group work, newspaper writing, analysis, editorial writing	conference sheets (formative, teacher/student - see Planning Notes) log sheets (formative, peer, - T/L 4) rubric (formative, self/peer - T/L 9) rubric (summative, teacher/peer - T/L 10) rubric (summative, self/teacher - T/L 11)	600 minutes Appendix 5.1.1 Appendix 5.1.2 Appendix 5.1.3

Teaching/Learning Strategies

Video	Group work	Research
Web organizers	Geotechnologies	Mapping
Graphing	Small group discussion	Opinion writing
Art work	Letter writing	

Assessment/Evaluation

During this unit, log sheets are used to track student progress. As well, conferencing is used to provide frequent feedback to support the development of expectations. Self and group assessment is used to evaluate effort which is reported separately on the new report card. Student feedback opportunities are built into the unit. In addition, rubrics are used by the teacher to carry out summative evaluation of the final product. This can be used as part or all of the final evaluation for the course.

Resources

Textbooks

Great Lakes Atlas. 3rd Edition, 1995.

Great Lakes CD-ROM

Includes many Internet links

Great Lakes Solution Seeker CD-ROM

Environmental Data and Activities

Web Sites

Great Lakes Information Network

<http://www.great-lakes.net>

Canada's State of the Environment Report

<http://www1.ec.gc.ca/~soer>

Discover the Great Lakes on CD-ROM

<http://www.cciw.ca/glimr/great-lakes-cd-rom/>

Videos

Great Lakes Alive: Restoring the Balance

Great Cleanup

Great Lakes, Fragile Seas. National Geographic Television, Educational Films, No. 51447

Rise and Fall of the Great Lakes

Activity 1: Producing The Great Lakes Newspaper

Time: 600 minutes

Description

Students work in groups to create a Great Lakes newspaper. The paper consists of articles, maps, and graphs which cover overall expectations addressed in the previous units: natural systems, human systems, humans in the environment, and global interactions. Individually, each student writes a “What’s Inside” analysis and an editorial which looks at the topic of sustainability of the Great Lakes and surrounding area.

Strand(s) and Expectations

Strand(s): Space and Systems, Human-Environment Interactions, Understanding and Managing Change, Global Connections, Methods of Geographic Inquiry

Overall Expectations: SSV.05B, GCV.03B, HEV.01P, HEV.02P, HEV.03B, UMV.01B, UMV.02B, MIV.02B, MIV.03P.

Specific Expectations: have been covered in previous units.

Planning Notes

- Set up formal conferencing times for each of the groups throughout the next 600 minutes.
- There is considerable leeway for teachers to tailor the activities in the unit to fit individual classes. Length of the newspaper is dependent on the articles and other pieces that the students produce.
- Collect a variety of newspapers, especially local ones, to use as examples. Collect student examples for use with future classes as well.

Prior Knowledge Required

Students need to draw upon prior learning in Grades 7 and 8 in which they demonstrated an understanding of geographic inquiry and the different methods in which to communicate graphic information, demonstrate an understanding of how human activity affects people and the environment, and sustainability. Students need to draw upon information learned in previous units of this course: physical and human systems, relationships between human systems and ecozones, demographics, migration, immigration, sustainability, resource management, and international relations.

Teaching/Learning Strategies

1. The teacher introduces culminating activity. Students work in groups to create a Great Lakes newspaper. The paper consists of articles, maps, graphs, photos, organizers, etc., which cover overall expectations from each of the profile units: natural systems, human systems, humans in the environment, and global interactions.
2. The teacher shows video on Great Lakes (see Unit Resources for suggestions) and then has students create a web to organize the ideas from the video.

-
3. The teacher puts students into groups and has them pick a newspaper name. Using examples (small, local papers work well), students look at newspaper layouts for types of articles they can include - letters to editor, news articles, weather reports, advertisements, editorials, sports, leisure, etc.
 4. Students keep a work log (Activity, Time Spent, etc.) showing time spent working on the newspaper. They should begin right away filling in times and activities.
 5. Students divide up work within their groups.
 6. Each group's newspaper includes at least one article with appropriate diagrams (maps, graphs, photos, etc.) for each of the following:
 - analyse factors that affect natural and human systems in the Great Lakes and surrounding area;
 - demonstrate an understanding of the interdependence of natural and human systems in the Great Lakes area looking at rural and urban landscapes;
 - investigate environmental agreements between Canada and the U.S. on the Great Lakes;
 - analyse the ways in which resources in and around the Great Lakes are used;
 - demonstrate an understanding of how natural systems change over time and from place to place in and around the Great Lakes;
 - investigate changes in the geography of the Great Lakes and surrounding area with respect to land use and urban patterns as well as resource depletion in order to plan for the future.Topics can include the following: human settlement focussing on population around the Lakes; economic activities - fishing, farming, forestry, industry; pollution in and around the Great Lakes; tourism - National and Provincial parks, heritage sites, ecotourism, recreation, sports; wetlands and wildlife; movement along Great Lakes - transportation, communications; and the effects of global warming - climate graphs could be incorporated here and/or a short story about what life would be like around the Great Lakes if global warming occurs.
 7. Students can use a publishing program on the computer to assemble their newspapers. If computer access is a problem, the newspapers can be assembled by hand, using photocopied or hand-drawn pictures/drawings.
 8. The finished newspapers are posted around the class. Beside each paper, put a comment sheet for students to fill in as they move around looking at/reading each newspaper. Comments include strengths and weaknesses of the newspaper. Discuss with students that comments, both positive and negative, should be done constructively. Allow students time to read and react to the comments and rubric scores that were made about their newspaper.
 9. Students make revisions before handing in their newspaper for summative evaluation. There must be equal representation between all the group members for the work that is chosen, i.e., the work cannot be done by one writer.
 10. Individually, students complete a "What's Inside" analysis of a different group's newspaper. (The teacher needs to make copies of the newspapers so that this can be accomplished individually.) The What's Inside consist of the author, title, short synopsis, and analysis of the main points of the article.
 11. Using only their individual What's Inside, each student writes an individual editorial on the present state of the Great Lakes and surrounding area, and makes predictions for the future.

Assessment/Evaluation

Tool	Purpose	Who	Activity
conference sheet	formative	teacher/student	formal conference(s) (see Planning Notes)
log sheets (teacher/student-generated)	formative	peer	work logs (Teaching/Learning Strategy 4)
rubric (see Appendix 5.1.1)	summative	teacher	newspaper (Teaching/Learning Strategy 7)
rating scale (teacher-generated)	summative	teacher	What's Inside (Teaching/Learning Strategy 8)
rubric (see Appendix 5.1.3)	summative	teacher	editorial on sustainable development (Teaching/Learning Strategy 9)

Accommodations

- For a student who requires assistance with organization, break down the task into manageable parts.
- Monitor closely and provide checklists.
- Use peer helpers where available.
- Provide alternatives such as setting up a news documentary.
- Use the Communities Atlas format.
- Enrichment - use spatial analysis tools with geotechnologies.

Resources

Textbooks

Great Lakes Atlas. 3rd Edition, 1995.

Great Lakes CD-ROM

Includes many Internet links

Great Lakes Solution Seeker CD-ROM

Environmental Data and Activities

Web Sites

Great Lakes Information Network

<http://www.great-lakes.net>

Canada's State of the Environment Report

<http://www1.ec.gc.ca/~soer>

Discover the Great Lakes on CD-ROM

<http://www.cciw.ca/glimr/great-lakes-cd-rom/>

Appendix 5.1.1

The Great Lakes Newspaper

Criteria	Level 1	Level 2	Level 3	Level 4
Analysis of ways in which Canadians use the resources of the Great Lakes and surrounding area and patterns that exist (HEV.02P) T/I	You are able to answer how Canadians use resources in the Great Lakes and surrounding area with limited success, and few patterns are identified	You are able to answer how Canadians use resources in the Great Lakes and surrounding area with some success, and some patterns are identified	You are able to answer how Canadians use resources in the Great Lakes and surrounding area, identifying many of the resulting patterns	You are able to answer accurately how Canadians use resources in the Great Lakes and surrounding area, and you identify most of the resulting patterns
Analysis of factors that affect natural and human systems in and around the Great Lakes (SSV.05B) T/I	You are able to identify few of the factors that affect natural and human systems in and around the Great Lakes	You are able to identify some of the factors that affect natural and human systems in and around the Great Lakes, and some patterns are identified and explained	You are able to identify factors that affect natural and human systems in and around the Great Lakes, and identify and explain many of the patterns that exist	You are able to identify with a high degree of accuracy factors that affect natural and human systems in and around the Great Lakes, and identify and explain most of the patterns that exist
Research (inquiry skills) of international agreements between Canada and the U.S.A. concerning the Great Lakes (GCV.03B) T/I	You have identified an international agreement between Canada and the U.S.A. concerning the Great Lakes with limited clarity and effectiveness. The material you have found has limited relevance, your information contradicts itself, you draw conclusions with limited effectiveness	You have identified an international agreement between Canada and the U.S.A. concerning the Great Lakes with some clarity and effectiveness. You have found some relevant information which is consistent with the conclusions you draw.	You have identified an international agreement between Canada and the U.S.A. concerning the Great Lakes with considerable clarity and effectiveness. You have found relevant information which backs up the conclusions you draw.	You have identified an international agreement between Canada and the U.S.A. concerning the Great Lakes with a high degree of effectiveness. You have found relevant information which you use to successfully draw conclusions.
Use of maps, graphs, pictures, etc., with links to articles (MIV.02B) C	Few graphics, used with limited success, few links made to accompanying articles	Uses graphics to communicate information and ideas with some clarity, some links made to accompanying articles	Uses graphics to communicate information and ideas with considerable effectiveness, specific references to artwork are made in the accompanying articles	Uses graphics to communicate information and ideas with a high degree of effectiveness, clear and accurate references to graphics are made in the accompanying articles
Interdependence of natural and human systems in and around the Great Lakes (HEV.01P) A	You are able to make connections between human and natural systems in and around the Great Lakes with limited effectiveness	You are able to make connections between human and natural systems in and around the Great Lakes with moderate effectiveness	You are able to make connections between human and natural systems in and around the Great Lakes with considerable effectiveness	You are able to make connections between human and natural systems in and around the Great Lakes with a high degree of effectiveness

Criteria	Level 1	Level 2	Level 3	Level 4
Changes in the natural systems over time and from place to place in and around the Great Lakes (UMV.01B) A	You are able to identify changes over time in the natural systems of the Great Lakes and surrounding area with limited effectiveness	You are able to identify and explain changes over time in the natural systems of the Great Lakes and surrounding area with moderate effectiveness	You are able to identify and explain changes over time in the natural systems of the Great Lakes and surrounding area with considerable effectiveness	You are able to identify and explain changes over time in the natural systems of the Great Lakes and surrounding area with a high degree of effectiveness

Appendix 5.1.3

Editorial on Sustainability in and around the Great Lakes

Criteria	Level 1	Level 2	Level 3	Level 4
Relevancy of identification of problems facing the Great Lakes and surrounding area (UMV.01B) K/U	The problems you identified have limited relevancy, and need to fit together.	Some of the problems you identified help you make your point, however, the facts need to fit together.	You identified a variety of problems to help you make your point, and you showed how they are connected.	You used a wide variety of problems to make your point, and you showed that you understand how they fit together into the big picture.
Drawing conclusions about problems in the Great Lakes and surrounding area (UMV.02B) T/I	You are able to draw limited conclusions about the problems facing the Great Lakes and surrounding area, and few patterns are identified	You are able to draw some conclusions about the problems facing the Great Lakes and surrounding area, and some patterns are identified	You are able to draw conclusions about the problems facing the Great Lakes and surrounding area, and many patterns are identified	You are able to draw accurate and insightful conclusions about the problems facing the Great Lakes and surrounding area, and most of the patterns are identified
Editorial presenting a viewpoint on resource sustainability in the Great Lakes and surrounding area as the result of geographic inquiries (MIV.03P) C	The editorial is written with limited effectiveness, you communicate the information and ideas with limited clarity.	The editorial is written with some effectiveness, you communicate the information and ideas with some clarity.	The editorial is written with considerable effectiveness, you communicate the information and ideas with considerable clarity.	The editorial is written with a high degree of effectiveness, you communicate the information and ideas with a high degree of clarity and confidence.
Making predictions about the future of the Great Lakes and surrounding area - resource sustainability (UMV.02B, HEV.03B) A	You make few predictions for the future, they need to be based upon facts.	You make some simple predictions for the future, based upon some facts.	Your future predictions are based upon facts and are realistic.	Your future predictions are solidly based upon facts, imaginative, informative, including both short and long term elements.
Implications of meeting the challenges facing the Great Lakes and surrounding area (HEV.03B) A	You have planned a course of action for achieving resource sustainability in the Great lakes and surrounding area that will have limited success.	You have planned a course of action for achieving resource sustainability in the Great lakes and surrounding area that will have some success.	You have planned a course of action for achieving resource sustainability in the Great lakes and surrounding area that will have considerable success.	You have planned a course of action for achieving resource sustainability in the Great lakes and surrounding area that will be highly effective.