

Public District School Board Writing Partnership

Canadian and World Studies

Course Profile

The Environment and Resource Management

Grade 12
Workplace Preparation
CGR4E

• *for teachers by teachers*

This sample course of study was prepared for teachers to use in meeting local classroom needs, as appropriate. This is not a mandated approach to the teaching of the course. It may be used in its entirety, in part, or adapted.

Course Profiles are professional development materials designed to help teachers implement the new Grade 12 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.

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Acknowledgments

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Course Overview

The Environment and Resource Management, CGR4E, Grade 12, Workplace Preparation

Policy Document: *The Ontario Curriculum, Grades 11 and 12, Canadian and World Studies, 2000.*

Prerequisite: Geography of Canada, Grade 9, Academic or Applied

Course Description

This course examines the impact of human activities on the natural environment and emphasizes responsible resource management, mainly in the context of the local environment. Students will learn about ecosystem structures and processes, the ecological impact of human activities, and sustainable resource management, and will develop practical solutions to environmental and resource management issues.

Course Notes

In planning this course, consideration must not only be given to the accountability of meeting the curriculum expectations, but also the nature of the diversity of students taking the course.

The emphasis of this course is that the course knowledge and skills will have a personal and local application, making the course relevant to students. Concepts must then be extended to the global context. Students will gain knowledge and apply this in “real world” situations.

Teachers must be extremely sensitive to the fact that when dealing with environmental issues, students may hold many differing viewpoints. The intent of this course is to provide students with knowledge and inquiry skills so they can discuss a wide range of issues. The critical challenge will be to encourage students to be open to many different viewpoints, develop supported opinions rather than just opinions, and take informed action.

Health and safety considerations relate to the physical and personal well-being of students in class, in community-based learning activities, and in the workplace. Teachers must take all reasonable steps to ensure the health and safety of students

Course Profile Design

This Course Profile was created within the parameters of the strands outlined in *The Ontario Curriculum, Grades 11 and 12, Canadian and World Studies 2000* document. Course expectations were used to develop enduring learnings that can be used to provide direction for the teacher in terms of the conceptual framework on which to build the course. These enduring learnings provide the philosophical, or big picture, tone, and approach to the course. For students, the enduring learnings provide a basis for life-long learning, with an emphasis on environmental stewardship.

It is intended that as a result of this course, students will:

- understand the impact of their choice and demonstrate responsible environmental behaviour;
- understand we are a part of nature, not apart from nature; for example, the language of resource management often undermines the idea that humans are one element within the environment and the environment does not exist **only** for human use;
- understand the roles and responsibilities of stakeholders (individual, business, industry, and government) in environmental and resource management in the search for a common good;
- analyse environmental issues, support a point of view, and make recommendations for action;
- understand that **all** environmental issues, including local ones, have global impacts;
- use geographic skills, methods, and technologies to gather, analyse and communicate information and make decisions.

Expectations from the strands were organized to form five units and then further clustered around key focus questions. These questions provide flexibility in curriculum development. In order to meet the expectations, teachers may choose to use only the key focus questions without the teaching/learning strategies provided in the Course Profile. It should be noted that the Course Profile is just one interpretation of how the course could be constructed. Teachers are encouraged to alter, reorder, and reword units and activities to meet their needs and the needs of their students. For example, Units 3 and 4 may be divided into smaller units of study. Teachers may also adjust the amount of teacher-directed or student-centred work according to the dynamics of the class. This is especially the case in Unit 1 where the majority of activities are student-centred.

While some concepts are emphasized in certain units and not directly taught in others, they must be threaded through each unit. The Grade 9 Geography course and Grade 10 Civics course provide key foundations upon which this course builds. Concepts such as the ecological footprint, sustainability, and citizenship, have been taught in other curricula and will be used to support new concepts relating to this course.

Destination-Workplace

This course is intended for workplace destination; therefore, it is critical to recognize the importance of developing workplace skills. As curriculum expectations are being met, learning skills such as teamwork and working independently are essential. See the learning skills tracking sheet in Unit 1, Appendix 1.5.1. The ability to self-assess, problem solve, and clearly communicate should not be overlooked.

Accommodations will be critical in meeting the needs of the student. (See Accommodations.)

The delivery of the course should be as practical and engaging as possible. Teachers may choose to develop this course along with a cooperative education program or an interdisciplinary program of study. (See OSS Considerations.)

Units: Titles and Time

While the following unit recommendations suggest four units plus the Independent Study Units, the needs of the students may require the units be subdivided. This is especially true for Units 3 and 4.

* Unit 1	Introduction: Evaluating How We Live	10 hours
Unit 2	Natural Systems: Choosing the Best Path	25 hours
Unit 3	Pollution: Managing Our Mess	30 hours
Unit 4	Population and Resources: Sharing the World's Wealth	35 hours
Unit 5	Making a Change in a Local Environment: Course Summative Evaluation	10 hours

* This unit is fully developed in this Course Profile.

Unit Overviews

Unit 1: Introduction: Evaluating How we Live

Time: 11 hours

Unit Description

Students examine how their daily lives interact with and depend on the natural environment. Students reflect on their personal and their community's behaviours. In order to identify existing problems, the teaching/learning strategies are linked to an analysis of personal behaviours. The unit summative project has students produce an infomercial informing others of environmentally sound daily practices. Practical skills such as information gathering, analysis, and communication are an integral part of this unit. The skills taught in this unit continue to be practised throughout the course. Students then demonstrate an appropriate level of mastery in Unit 5, the course summative evaluation. (See the Skills Development Chart.)

Unit Overview Chart

Cluster	Learning Expectations	Assessment Categories	Focus
1	HE1.01, GI2.07	Knowledge/Understanding Thinking/Inquiry Communication	What is a need vs. a want?
2	HEV.02, HE1.02	Thinking/Inquiry	How do we rely on the natural environment?
3	UCV.01, GC1.01, UC1.05, GI1.01	Knowledge/Understanding Communication Application	What are our rights and responsibilities to the natural environment? <ul style="list-style-type: none"> • Sustainability • Stewardship
4	GI2.04, GIV.02, GI3.03, GIV.01, UC3.04, GI1.01, GI2.05, GI3.02	Knowledge/Understanding Thinking/Inquiry Communication Application	How does all of this relate to my daily life

Unit 2: Natural Systems: Choosing the Best Path

Time: 25 hours

Unit Description

This unit addresses the questions, Are people a part of nature or separate from nature? Where do people fit in? Are we wildlife? Through the study of interconnections and interdependence, students understand the complexity of natural systems. Concepts such as ecosystems, ecological processes, and biodiversity are applied to Canada's endangered species and spaces. As a unit summative project, students use these concepts in a local application by making recommendations for a recreational trail system.

Unit Overview Chart

Cluster	Learning Expectations	Assessment Categories	Focus
1	SSV.01, SS1.01, SS2.02, HE1.03	Knowledge/ Understanding	How do the spheres of the earth sustain life? <ul style="list-style-type: none"> • Spheres of the earth and role • Closed systems (finite)
2	SSV.02, SS1.03, SS2.01, SS2.04, HEV.01, GI1.01	Knowledge/ Understanding Thinking/ Inquiry	What makes up an ecosystem and how does it work? <ul style="list-style-type: none"> • Ecological processes • Human impact (interconnections and interdependence) • Fragility of ecosystems
3	SS1.02, SS1.04, SS2.03, HE3.01, GI2.05	Thinking/ Inquiry	Who is for lunch? <ul style="list-style-type: none"> • Interconnections through food webs • Systemic impact of toxic substances (DDT, mercury, PCBs, dioxin, etc.)

Cluster	Learning Expectations	Assessment Categories	Focus
4	SS3.02, SS3.01, SSV.03	Knowledge/ Understanding Application	How am I connected from a local bioregion to global ecosystems? <ul style="list-style-type: none"> Local bioregion interactions Biome interconnections
5	SS3.03, HE3.02, UC1.02, UC1.01, GI2.02, GI2.03	Thinking/Inquiry Communication Application	What is Canada doing in protecting species and spaces? <ul style="list-style-type: none"> Biodiversity Canadian endangered species and spaces What can we do?
6	SS3.02, GIV.01, UC3.03, GI2.02, GI2.03, GI2.06, GI3.02, GI3.04, GIV.02, GIV.03	Thinking/Inquiry Communication Application	Summary of unit

Unit 3: Pollution: Managing Our Mess

Time: 30 hours

Unit Description

The focus of this unit is to analyse problems associated with waste creation and management. Students study the impacts of domestic and industrial waste. They then have an opportunity to evaluate national and international agreements which propose solutions to global concerns. The unit summative task is to produce a four-part magazine on the management of industrial waste/pollution and the environment. Students contribute visuals and articles that relate to an industry profile, the technology needed for improvement, a review of government actions taken, and related careers. The magazine includes local and global perspectives. Students demonstrate individual responsibilities, and also develop their learning skills working as part of a team.

Unit Overview Chart

Cluster	Learning Expectations	Assessment Categories	Focus
1	UC1.03, HE2.02, HE2.03	Knowledge/ Understanding	What is pollution? <ul style="list-style-type: none"> Identify types of pollution & their sources Environmental impact
2	UC1.04	Knowledge/ Understanding	What is solid waste? <ul style="list-style-type: none"> Toxic and non-toxic waste Quantity of “garbage”
3	UC2.01, GI1.02, GC1.03, GI1.01	Knowledge/ Understanding Thinking/Inquiry Application	How do we reduce the amount of waste we create? How do we manage the waste we create? <ul style="list-style-type: none"> Methods of disposal Reduce, reuse, recycle Implications of management Use of geotechnology

Cluster	Learning Expectations	Assessment Categories	Focus
4	UC3.02, GI1.02, GI2.01, GI2.06, HE3.03, GIV.03	Thinking/Inquiry Communication Application	What are examples of responsible waste management? Case studies of businesses or industries
5	UC2.02	Knowledge/ Understanding Thinking/Inquiry	Who is responsible? <ul style="list-style-type: none"> Individual to global responsibilities
6	GCV.03, GC1.04, GC1.06, GC3.01, GI2.07	Knowledge/ Understanding Thinking/Inquiry	What is the role of global agreements? <ul style="list-style-type: none"> International agreements Canada's role Are participants fulfilling their agreements?
7	UCV.02, GIV.01, UC2.04, GIV.02, GI2.01, GC3.03, GI2.05, UC2.05, GI2.06, UC2.06, GI3.04, UCV.03	Knowledge/ Understanding Thinking/Inquiry Communication Application	Unit Summative: magazine Magazine Subheadings <ul style="list-style-type: none"> Industry profile Technologies for improvement Government Careers

Unit 4: Population and Resources: Sharing the World's Wealth

Time: 35 hours

Unit Description

Students focus on the carrying capacity of the earth. How far can we stretch the earth's resources, considering the earth's population growth rate? Human use of land, energy, agriculture, and other resources requires careful management in order to be sustainable. The impact of globalization is explored. The unit summative task is a response to a case study or simulation, where students are required to summarize the situation, predict consequences, and communicate preventative plans of action.

Unit Summary Chart

Cluster	Learning Expectations	Assessment Categories	Focus
1	GC2.01, GC3.02	Thinking/Inquiry	Can we live like this? <ul style="list-style-type: none"> Footprint comparisons (individual to global) Sustainability Stewardship
2	HE1.04, HEV.03, GI2.02	Knowledge/ Understanding Communication	What is a resource? <ul style="list-style-type: none"> Renewable/non-renewable Mapping resource distribution Mapping exercise
3	HE2.01, HE2.04, UC2.03, GI2.05, HEV.02	Knowledge/ Understanding Thinking/Inquiry Communication Application	At what cost are resources available? <ul style="list-style-type: none"> Energy, e.g., oil, gas Agriculture Selected resources, e.g., fishing/forestry/mining

Cluster	Learning Expectations	Assessment Categories	Focus
4	GC2.02, GC1.02, GC1.05, GC2.03, GIV.03, GI2.02, GI2.03, HEV.03	Thinking/Inquiry Communication Application	How are we living? <ul style="list-style-type: none"> • Pattern of demographics • Socio-economic indicators • Standard of living (food)
5	GCV.02, GC2.04	Application	How do we become sustainable? <ul style="list-style-type: none"> • Stakeholders • Globalization
6	GCV.01, GIV.01, GIV.02, GI1.01, GI2.06, GI2.07, GI3.01	Knowledge/ Understanding Thinking/Inquiry Communication Application	Food, people, and resources How do we become sustainable?

Unit 5: Making a Change in a Local Environment: Course Summative Evaluation

Time: 10 hours

Unit Description

In preparation for employment, this final course summative task (part of the 30%) requires students to apply acquired knowledge and skills to a local context. Students produce an action plan for rehabilitating a local environment or managing an existing local resource in a sustainable way, e.g., industrial activities such as gravel pit rehabilitation, forest land use, garbage collection processes, heating design, waterfront design.

This action plan can be developed for their school, home, or workplace. The action plan should include:

- identification of the problem(s);
- collection of data illustrating the problem (making their case);
- researched possible solutions.

The final product must include information relating the problem to each of the following:

- the relationship to the relevant natural systems (Unit 2);
- environmental impacts, pollution (Unit 3);
- population trends, resource involvement, and/or governments involved (Unit 4).

Teachers may wish to have students communicate their action plans to appropriate authorities, e.g., letter, e-mail, meeting, or other action. The final product may take the form of a written report, display, and/or presentation.

This course evaluation requires students to examine human environmental interactions and make recommendations for sustainability. The idea of stewardship must be evident.

Unit Overview Chart

Cluster	Learning Expectations	Assessment	Focus
1	HE3.03, GIV.01, UC3.01, GI1.01, GIV.02, GI2.01, GIV.03, GI2.02, GI2.03, GI3.01, GI3.02, GI3.03, GI2.05, GI2.06	Knowledge/ Understanding Thinking/Inquiry Communication Application Final Course Summative Evaluation (part of the 30%)	What are the environmental interactions? (flowchart) What is the action plan for rehabilitation and sustainability? What is the rationale for the recommendations? What are the social and economic impacts of the action plan?

Teaching/Learning Strategies

This Workplace Preparation course should be a practical application of knowledge and skills. The culminating task in Unit 1, the infomercial, is a typical example of an application of student learning. Other activities for consideration include having students manage the school paper recycling program, do an energy audit, present an energy-saving plan to the school principal and maintenance staff, establish a no-idling zone outside the school, etc. Further, if they have jobs, students could identify a resource management problem associated with work, develop a plan and take action on it.

Teaching/learning strategies may have more of an impact on students if they are related to the local area. Many of the expectations are “locally based.” Field trips such as the examples suggested below may be appropriate:

- sewage treatment plant
- water treatment facility
- landfill site
- the local dump
- recycling station
- conservation area
- recreational park
- vehicular counts
- “walks around the block”

To reach the wide variety of students taking this course, it is suggested the activities be designed as succinct concentrated sub-units of work. The teacher should use a variety of strategies to address different learning styles and multiple intelligences. Offering students choice of topics will also address the variety of student interests. The type of teaching/learning strategies should be flexible and open-ended to allow for students to reach their highest potential. The following are some teaching/learning strategies teachers may wish to employ throughout the course.

Teacher-Directed

- Brainstorming – small or large group generation of initial ideas
- Conferencing – student-to-student or teacher-to-student discussion
- Debate – research-based exchange of points of view
- Experiential learning - teachers draw on student experiences
- Classifying – group according to an identified pattern
- Video – visual presentation
- Field Excursion – class trip to initiate interest and/or reinforce classroom learning
- Games – team quizzes
- Note Making – summarizing written text, oral descriptions or film
- Lectures – for the purpose of disseminating knowledge
- Role Playing – immersion of self into other perspectives
- Independent Study

Student-Directed

- Reading – periodicals, articles, journals, newspapers, and magazines for the purpose of furthering knowledge and identifying local issues to examine
- Researching – use of a variety of sources (written, graphics, empirical data) for the purpose of supporting an inquiry
- Presentation/Report – oral, written, and visual
- Oral-interviews
- Case Study – investigating a real or simulated situation

- Seminars – presentation of an inquiry supported with a variety of presentation tools (film, audio, models, computers)
- Quantitative and qualitative assessment; field work methods of data collection
- Geographical Information Systems (GIS)

Small Group Study

- Cooperative Learning – small group investigation or problem solving
- Poster Making – collective or individual approach to depict a message or promote a cause
- Action-planning and taking action
- Developing appropriate questionnaires to acquire data related to a geographical issue
- Surveys and Presentations
- Guest Speakers – experts in the field
- Mapping – representing physical, demographic, and numerical data through visual forms
- Graphing – visual tool for problem solving
- Diagramming – conceptual visualizations
- Model Building – reproduction of a concept
- Organizers – creation of cells for the purpose of clustering information
- Quantitative Assessment – manipulation of data to prove or disprove an inquiry
- Role Play
- Debate

Assessment & Evaluation of Student Achievement

The following suggestions for assessment and evaluation are aligned with the principles found in the *Program Planning and Assessment, 2000* document.

Seventy per cent of the grade will be based on assessments and evaluations conducted throughout the course. Thirty per cent of the grade will be based on a final evaluation in the form of an examination, performance, essay and/or other methods of evaluation.

70% Course work:

The following aspects of evaluation should be considered in unit and course implementation:

- provide the student with ample opportunity to practise knowledge and skills prior to evaluation. Frequent assessment allows students the opportunity for greater success during evaluation. Feedback to students is an important component of assessment. Assessment feedback should include a variety of opportunities through assessment tools, such as teacher-student conferences, peer-assessment using the same evaluation tool, practice quizzes, etc. Unit 1 models this assessment practice;
- the skills developed, should increase in complexity by the end of the course.

The following chart provides an overview of progressive skill development from unit to unit:

Skill Expectation	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
GIV.01-gather and analyse information & make decisions	✓	✓	✓	✓	✓
GI1.01-use geographic terms and concepts correctly	✓	✓	✓	✓	✓
GI2.01-understand geographic inquiry process			✓		✓
GI2.02-produce and interpret maps, diagrams, charts, models etc., to illustrate concepts		✓		✓	✓
GI2.03-use cartographic conventions correctly		✓		✓	✓
GI2.05-use graphic organizers to clarify, visualize and interpret information	✓	✓	✓	✓	✓

Skill Expectation	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
GI2.06-use a variety of sources to gather information		✓	✓	✓	✓
GI2.07-explain how information from sources may be biased	✓		✓	✓	✓
GI3.02-apply communication skills to influence change and decisions relating to environmental protection...	✓	✓			✓
GIV.02-use a variety of methods & technologies to communicate the results of geographic inquiries	✓	✓	✓	✓	✓
GIV.03-apply geographic knowledge, skills and technology to conduct independent inquiry	✓	✓	✓	✓	✓

To evaluate progression in the development of students' skills, e.g., communication, thinking/inquiry processes, use of the same rubrics is recommended where appropriate. See Appendix 1.5.2 and Appendix 1.5.3 in Unit 1. This will allow students the opportunity to monitor their own growth and set new goals.

All rubrics, generic or task-specific, must be developed using the Achievement Chart. The generic rubrics utilized for Unit 1 (Appendix 1.5.2 and 1.5.3) have come directly from the Achievement Chart. The Achievement Chart criteria has been further clarified for student use.

The Final 30 %:

This Course Profile has been developed with the final 30% having two components:

- the final culminating project (Unit 5)
- a final exam

The format of the exam may or may not be a traditional paper-and-pencil exam. For example, it may be an application where the necessary resources are available during the actual writing. Or, the exam may be an extension of the final culminating project. For example, small groups or the whole class may decide to implement one or several of their action projects. Evaluation, however, must focus on students' individual demonstration of achievement of expectations. Both the project and the exam must encompass the spirit of the enduring learnings.

This Course Profile includes suggestions for evaluating the culminating project appropriately.

Assessments providing student feedback should be made throughout the course. These assessments allow the student to practise the expectations without the assessments counting as part of a mark. The frequency and type of assessment will vary, depending upon the needs of students.

The following chart is a suggested evaluation plan for the course.

**Suggested Summative Evaluation Plan for: The Environment and Resource Management, CGR4E
30% Final Evaluation**

Task	Achievement Categories	Due Date
Action Plan for rehabilitation of a local environment or resource (Unit 5)	Knowledge/Understanding, Thinking/Inquiry, Communication, Application	
Exam		

70% Course Work Evaluation

Unit 1

Task	Achievement Categories	Due Date
Creative Environmental Message	Communication, Application	
Infomercial relating to daily life products	Knowledge/Understanding, Thinking/Inquiry, Communication, Application	

Unit 2

Task	Achievement Categories	Due Date
Test	Knowledge/Understanding, Thinking/Inquiry	
Endangered Species Project	Thinking/Inquiry, Communication, Application	
Recreational Trail Design	Thinking/Inquiry, Communication, Application	

Unit 3

Task	Achievement Categories	Due Date
Industry Case Study	Thinking/Inquiry, Communication, Application	
Environmental Magazine	Knowledge/Understanding, Thinking/Inquiry, Communication, Application	

Unit 4

Task	Achievement Categories	Due Date
Mapping Exercise	Thinking/Inquiry, Communication, Application	
Food, People and Resources: Case Study	Knowledge/Understanding, Thinking/Inquiry, Communication, Application	

Accommodations

The teacher should consult Individual Education Plans (IEPs) for specific direction on accommodation for individual students. Exceptional students, and other students who receive special education programs and/or services require appropriate learning experience. The assessment accommodations as outlined in the IEP must be implemented.

Generally, teachers may find the following accommodations useful in helping students succeed:

- Timelines may have to be adjusted to suit students' needs.
- Provide a variety of similar resources at varying vocabulary levels for a wide variety of reading abilities. (For example, an issue may be written about in different newspapers offering different levels of reading. The same topic may be studied through a cartoon, picture, or TV news report.)
- Provide students with a highlighted version of the reading so they can focus on key learnings.
- Use close-captioned video or TV program to help connect words to meanings.
- When using visual organizers, be consistent with shapes, e.g., with food webs, interdependence with clouds, and impacts with squares (Unit 2).
- Provide checklists and organizers for large tasks (Unit 5).

Accommodations for students with learning or physical challenges may include:

- Providing for flexible timelines regarding the completion of projects and assignments
- Providing a simplified list of terminology prior to the activity
- Allowing students to work in an alternate setting
- Providing opportunities to practice implementing feedback on part of or all of a task
- Adapting tests and exams as recommended in IEP, e.g., time, use of technology, use of a scribe

The classroom teacher should be familiar with The Ontario Curriculum, Grades 9 to 12, English As a Second Language and English Literacy Development 2000 where ESL/ELD students are in attendance.

Teaching learning Strategies for ESL/ELD students may include the following:

- Combining both written and verbal instructions
- Highlighting keywords/phrases to be incorporated into the “students’ dictionary”
- Allowing practice sessions for oral presentations
- Providing sets of reference notes, outlines, or critical information, as well as models of charts, timelines or diagrams
- Unit vocabulary list could be developed

Resources

The URLs for the websites were verified by the writers prior to publication. Given the frequency with which these designations change, teachers should always verify the websites prior to assigning them for student use.

Units in this Course Profile make reference to the use of specific texts, magazines, films, videos, and websites. Teachers need to consult their board policies regarding use of any copyrighted materials. Before reproducing materials for student use from printed publications, teachers need to ensure that their board has a Cancopy licence and that this licence covers the resources they wish to use. Before screening videos/films with their students, teachers need to ensure that their board/school has obtained the appropriate public performance videocassette licence from an authorized distributor, e.g., Audio Cine Films Inc.

Teachers are reminded that much of the material on the Internet is protected by copyright. The copyright is usually owned by the person or organization that created the work. Reproduction of any work or substantial part of any work on the Internet is not allowed without the permission of the owner.

Books

Cowlard, Keith A. *Decision Making in Geography: A Handbook of Method and Practice*. London: Hodder and Stoughton, 1998.

Enquiry based approach, emphasizing the interaction between people and their environment.

Encyclopedia of Environmental Issues Hackensack, N.J: Salem Press, 2000. 3 volumes. Historic and contemporary topics.

Environmental Resource Book: a Directory of Ontario's Environmental Groups and their Resources. Guelph: Ontario Environment Network. Biennial. 2000 – 2001 edition available.

Human Activity and the Environment. Ottawa: Statistics Canada. Published every 5 years. 2000 edition available. Data on population, economy, environment.

Statistics Canada online teacher's kit incorporates text and data tables from the publication.

Lean & Hinrichsen. *Atlas of the Environment*. Helicon Publishing Ltd., 1992.

Opposing Viewpoints. Greenhaven Press.

Series that includes related titles: *Endangered oceans, Endangered species, Pollution, Population, The Environment, Nuclear and Toxic Waste*. Presents a range of viewpoints.

Keating, Michael. *Canada and the State of the Planet: the Social, Economic and Environmental Trends that are Shaping Our Lives*. Toronto: Oxford University Press, 1997.

The state of global environmental change and its effect on Canada.

State of the World. Washington, D.C.: Worldwatch Institute. Annual. 2001 edition shows damage to natural systems by the economic boom of the last decade.

Vital Signs. Washington, D.C.: Worldwatch Institute. Annual.

Excellent companion to State of the World. Includes charts, tables, and graphs showing key social, economic and environmental trends. 2001 edition looks at trends of the last 50 years.

Related Magazines

Canadian: *Alternatives; Canadian Geographic; EnviroZine*: Environment Canada; *Macleans; Nature Matters; Nature Canada; Natural Life, New Internationalist; Report/News magazine; Seasons; Science and the Environment*: Environment Canada.

Other: *Audubon; E Magazine: the Environmental Magazine; International Wildlife; National Geographic; Natural History; Sierra; Whole Earth; Worldwatch*

Videos

News in Review. Canadian Broadcasting Corporation ongoing series.

A subscription series of educational tapes. Links to an index and resource guides with articles, discussion topics, and activities for programs from May 1997 are available online at

– www.cbc.ca/insidecbc/newsinreview.

Internet Resources

Canada's Schoolnet – <http://schoolnet.ca>

See “Learning for a Sustainable Future.” – <http://www.schoolnet.ca/future/content.htm>

Educational Links for Geography Teachers

– http://www.wlu.ca/~wwwgeog/special/vgt/English/help/geog_links.htm

For Grade 9 to 12 geography teachers in Ontario, organized by strands.

Environmental Systems Research Institute. Schools & Libraries – <http://www.esricanada.com/k-12/>
GIS searchable site with geographic data and lessons and tutorials for teachers.

Geosources – <http://www.ccge.org/geosources/default.htm>
Canadian Council for Geographic Education- news, quizzes, lesson plans.
Towards an ecozoic curriculum – <http://collections.ic.gc.ca/environmental/>
Canada’s Digital Collection: educational multimedia material with an environmental focus.

Glossaries & Dictionaries

Dictionary of Ecology – www.alienexplorer.com/ecology/e77.html
EnviroEducation.Com’s links to glossaries – <http://www.enviroeducation.com/glossary/>
Ecological Dictionary – www.planetpals.com/ecodictionary.html

Comprehensive collections of links

Amazing Environmental Organization Web Directory – <http://www.webdirectory.com/>
Cool links. Ontario Conservation Society links – <http://www.lakeheadca.com/hotlinks.htm>
Earthscan Links – <http://www.earthscan.co.uk/links.htm>
EnviroEducation.Com Resources – <http://www.enviroeducation.com/resources/index.html>
Links for conservation organizations include the Audubon Society, Greenpeace, National Wildlife Federation, Sierra Club, the Wildlife Conservation Society and others.
Environment: Internet access to UN information by topic – <http://www.library.yale.edu/un/un3b3.htm>
Friends of the Earth links – http://www.foe.co.uk/pubsinfo/infosyst/other_services.html
Net Resources. Canadian Global Change Program
– http://www.globalcentres.org/cgcp/english/html_documents/resources/resources.html
O Canada – <http://www.ualberta.ca/~bleeck/canada/>
Provides access to information on the Internet on Canada and Canadians. See index for geographical, environmental and atmospheric information, landscape and wildlife.
Yahoo. Environment and Nature Organizations
– http://dir.yahoo.com/Society_and_Culture/environment_and_nature/organizations/

National Government Departments and Agencies

Government of Canada. Departments and Agencies – Canada.gc.ca/depts/major/depind_e.html
Alphabetic index for links to the primary websites including:

- Agriculture and Agri-Food Canada: farming, soils, trade, sustainability.
- Canadian International Development Agency: supports sustainable development activities in countries that are developing or in transition.
- Canadian Wildlife Service
- Department of Foreign Affairs and International Trade: manages Canada’s relations with the governments and peoples of other nations, both bilaterally and within international organizations in which Canada participates.
- Environment Canada’s Green Lane: weather and environmental information. Includes links to sustainable development in Canada monograph series.
- Fisheries and Oceans Canada: ocean issues, activities and programs, fisheries management, conservation of marine and freshwater habitat.
- Natural Resources Canada: mineral, energy and forestry resources.
- Parks Canada: national parks and marine conservation areas.
- Statistics Canada. Includes Environment with links for Forests, Air, Water, Animal and Plant Life, Environmental Practices and Pollution Control.

Provincial Government Websites

National departments usually provide links to their provincial counterparts. In addition see:
CanadianEnvironmental.com Envirolinks – <http://www.canadianenvironmental.com/online/>

Ontario Stewardship – www.ontariostewardship.org/program.htm

Selected Canadian online news media resources

All major daily newspapers can be found online. Additional suggestions include:

Macleans – <http://www.macleans.ca/>

Newsworld (CBC) – <http://www.cbc.ca/newsworld/>

Multimedia coverage of top Canadian and international news stories, and an in-depth articles section with a search for related stories and links to related sites.

Unit 1

Books

Berthold-Bond, Annie. *Better Basics for the Home: Simple Solutions for Less-Toxic Living*. New York: Three Rivers Press, 1999.

Easy and economical formulas with environmental substitutes for synthetic products.

Brower, Michael and Warren Leon. *The Consumer's Guide to Effective Environmental Choices*. Practical advice from the Union of Concerned Scientists. Crown, 1999.

Brown, Lynda. *Organic Living: Simple Solutions for a Better Life*. Dorling Kindersley, 2000. Covers all aspects of life for those wishing to pursue an organic lifestyle.

Elkington, John and Julia Hailes. *Manual 2000*. Key Porter, 1998.

Advice, action plans and contact details for Canadian consumers to make a healthier planet.

Harmony Foundation has for sale many publications with individual and community action tips. For a list see – <http://www.islandnet.com/~harmony/pubs.htm>.

Articles

Lavendel, Brian. "Green house". *Audubon* Mar/April 2000: p.72, (7 pages)

Description of technologies in an environmentally friendly house.

Ross, Nicola. "Treading softly". *Seasons* Winter 2001: 30 – 32.

Ways for Ontarians to alter lifestyles to reduce their ecological footprints.

Videos

An Astronaut's View of the Earth. Chedd-Angier for WGBH Boston, 1992. 60 min. Footage from "The Dream is Alive" and "Blue Planet" productions shot aboard the Space Shuttle allows viewers to see their planet as never before. Nova Series

Blue Planet: An IMAX Space Film – About Earth. Holiday, 1990. 42 min. Includes signs of pollution, ozone depletion, and deforestation as seen from space.

The Lorax. Playhouse Video, 1989. 30 min.

Ecologically minded "Lorax" is out to save a tree needed for the survival of some of the animals. A Dr. Seuss fantasy with the serious theme of environmental conservation.

River of Sand. Kensington Productions, 1998. 49 min. Canadian singer songwriter Bruce Cockburn joins musicians from Mali, West Africa in a discovery of their music and culture, and their battle against the growing threat of desertification. Distributed by Magic Lantern.

Internet Resources

Adbusters – <http://www.adbusters.org/home/>

Vancouver based anti-consumerist magazine.

Center for an American Dream – <http://www.newdream.org/>

Promotes change in the ways Americans consume to improve the quality of life, protect the environment, and advance social justice.

Creating artificial needs: how advertising drives consumption.

– <http://www.consumersinternational.org/rightsday97/chapter3/creating.html>

From Consumers' International, an independent, non-profit organization-linking consumer groups worldwide.

Ecoliving – <http://www.ecolivingsolutions.com.au>

Suggestions for environmentally wise choices relating to diet, food, homes, and gardens.

Ecomall – <http://www.ecomall.com/sustainable.htm>

Includes numerous articles on consumers and sustainability and an extensive list of links to internet sites.

Greenmatters: The Busy Person's Guide to Greener Living – <http://www.greenmatters.com/gm/>

Articles, opinion polls and a keyword search for consumer tips

Green Ontario. Buy Green – <http://www.greenontario.org/buygreen/index.html>

Site hosted by the Conservation Council of Ontario, with information and links on "green" products and services.

How to help. World Wildlife Fund – <http://www.worldwildlife.org/>

Links from home page include conservation action and green tips.

Natural Life – www.life.ca

Ways to simplify your life and assist the environment: food, home, family, health, leisure and livelihood.

Never Enough. Anticonsumerism Campaign – <http://www.enough.org.uk/index.html#cont>

Series of articles that attempts to show the relationship between the consumerist lifestyle and problems of world poverty, environmental destruction and social alienation.

Population and Consumption – <http://www.nwf.org/population/consumption.html>

National Wildlife Federation article arguing that consumption patterns pose major threats to human health, the environment, and wildlife

Selling happiness. Learning for a sustainable future

– <http://schoolnet.ca/future/teacher/classroom/thematic/product/happy/content.htm>

Canada's Schoolnet suggested classroom activity related to advertising and consumer values.

Strategic Marketing of Greener Products – <http://www.greenmarketing.com/articles/JSP1Apr98.html>

Increase your awareness of advertising techniques in this advice from an industry green advertising consultant to corporations on how to attract environmentally conscious consumers.

Universal Declaration of Human Rights. United Nations – <http://www.un.org/Overview/rights.html>

What You Can Do: Down To Earth Choices for Sustainable Living. Environment Canada.

– www.ec.gc.ca/eco/wycd/links_e.htm

Information on community and home environmental activities for groups or individuals.

Unit 2

Books

Andrews, William A. *Investigating Terrestrial Ecosystems*. Scarborough Prentice Hall, 1986.

Teaching resource: ecology, terrestrial ecosystems and biomes of N. America. Practical, hands-on activities.

Ecosystems Set. New York: Facts On File, 1999 – 2000. 4 volumes: Deserts, Wetlands, Temperate Forests, Oceans.

Encyclopedia of the Biosphere: Humans in the World's Ecosystems. Farmington Hills, Ill. Gale, 2000. 11 volumes. Earth's principal ecosystems, with environmental factors, plant and animal ecology, human influences and biosphere reserves.

From Both Sides, an examination of pesticide use can be ordered online from Ontario Agri-Food Education at oafe.org.

Islands of Hope: Ontario's Parks and Wilderness. Willowdale: Firefly Books, 1992.

Essays on the history and nature of the parks system by experts on Ontario's natural heritage.

Kidd, Adrian. *Managing ecosystems*. London: Hodder and Stoughton, 1999.

Teaching resource with text, case studies, diagrams, graphs, student activities. 124 pages.

Searle, Rick. *Phantom Parks: The Struggle to Save Canada's National Parks*. Toronto: Key Porter Books, 2000.

Argues that Canada's national parks are not protecting their wilderness. Includes an appendix of parks and environmental organizations.

Videos

Biodiversity: Expressions of Life. Sonoran Research Center, 1998. 16 min. Broad overview. Human threat to biodiversity, why we care about it, how we can stop mass destruction of species. Dist. by Library Video Co.

Biomes: Our Earth's Major Zones. AGC/United Learning. 1998. 26 min. Describes marine and terrestrial biomes. Stresses interrelationship between abiotic and biotic factors. Manual, worksheets, pretest and posttest. Text of narration.

Blue Planet: an IMAX Space Film – about Earth. Holiday, 1990. 42 min. Includes signs of pollution, ozone depletion, and deforestation as seen from space.

Burns Bog - A Road Runs Through It. National Film Board, 1999. 15 min. Human expansion threatens a unique peat bog on the southern fringes of Vancouver, home to nearly 200 species of mammals and birds and a vital stop for migrating water fowl.

Champions of the Wild. National Film Board series, 1998 – 25 min.each.

Each video features an endangered animal and the Canadian champion dedicated to saving it.

Clayoquot: the Sound of Wonder. TV Ontario, 2000. 60 min. Describes the unique, intact ecosystem and effects of clear-cutting on its biodiversity.

Earth on Edge. 2001 PBS, 2001. Dist. by Films for Humanities.

Recent scientific evidence depicts the scale of human impact on the planet's life-support system, showing that Earth is approaching a key environmental threshold. Accompanying book, "People & ecosystems", and web site <http://www.pbs.org/earthonedge/>

Eco-tourism: The Impact On Wildlife. News in Review. Dec 98. See overview for details.

Footprints in the Delta. National Film Board, 1999. 44 min. Construction of a dam has damaged this delicate wetlands ecosystem in the Peace- Athabasca Delta. Scientists, activists and Aboriginal people describe changes.

Going Home. Bullfrog Films, 1998. 30 min. Human conflict with natural ecosystems, activities to reconnect with the earth.

The Human Factor. Intelcom (Calif), 1996. 30 min. Distributed by Magic Lantern.

Examines the effect of human land use on the various ecosystems, interrelationship of changes in water use, land use, atmosphere, biodiversity and energy consumption.

Natural Connections. Howard Rosen Productions, 2000. (Emmy award winning) 46 min. Case for sustaining biodiversity. Discusses man's ethical responsibilities.

The Nature of Things. Canadian Broadcasting Corporation ongoing series. Selected programs:

Grasslands 1998. Impact of agriculture on N. American grasslands, remaining wildlife.

National parks: forever wild. 1994. The crisis in Canada's national parks as they face competing interests of tourism, ecology and business.

Vanishing wetlands. 1998. Consequences of altering the natural cycle of flooding and industrial development.

Wildlife for sale: Dead or Alive. 1998.

Okimah. National Film Board, 1998. 50 min.

A description of the goose hunt of the Cree people of the James Bay coastal areas illustrates their traditional land management system and its role in transmission of their culture.

Partnership. Waterhen Film Productions, 1998. Home Place series. 30 min. Argues that disappearance of natural habitat is the main reason species become extinct. Industrial agriculture, fishery and forestry practices are examined as culprits, parks and preserves should protect endangered species. Example of attempts to save the Swiss fox in Saskatchewan's Grasslands National Park. Distributed by Bullfrog Films.

Sharing the Land. Pinegrove Productions, 1999. 31 min. Hands-on suggestions for sustaining habitats that meet the food and shelter needs of animals, and the economic, cultural and recreational needs of people. Distributed by Magic Lantern.

Temperate Deciduous Forests. Rainbow Educational Media, 1999. 25 min.

Plant and animal life of the forest, human impact and agricultural history, and a segment on conservation, providing practical reasons for wide usage of such a valuable natural resource.

Web of Life: Producer to Predator. Audio Video Inc, 1996. 28 min. Relationships and processes that occur in all eco systems, with examples of how modern society has altered the balance of life in different ecosystems. Dist. Magic Lantern.

Wetlands: Cradles of Life. CTV, 1995. 23 min. The biodiversity of this unique ecosystem is being preserved by action from land owners, special interest groups and individuals of all ages. Distributed by Magic Lantern.

Internet Resources

Biodiversity Information Network Virtual Library – <http://life.csu.edu.au/bin21/library.html>

Includes an index by topic and by geographic region, as well as a search engine.

Canadian Botanical Conservation Network – <http://www.rbg.ca/cbcn/en/index.html>

Cool links. Ontario Conservation Society links – <http://www.lakeheadca.com/hotlinks.htm>

Canadian Parks and Wilderness Society – <http://www.cpaws.org/>

Canadian Wildlife Service. Environment Canada – <http://www.cws-scf.ec.gc.ca/>

Earthpulse – <http://www.nationalgeographic.com/earthpulse/#>

National Geographic's home for conservation. Related monthly themes to date for 2001: June:

Wildlands; Sept: Humans and habitats; November: Ecosystems.

Ecological Society of America – www.esa.org fact sheets

Explore Ontario's biodiversity – <http://www2.rom.on.ca/ontario/>

Royal Ontario Museum site that includes data on species at risk.

Ontario Parks – <http://www.ontarioparks.com/>

Habitat Stewardship Programme – www.speciesatrisk.gc.ca/species/sar/media/back2_e.htm

Parks Canada: national parks and marine conservation areas

– http://parksCanada.pch.gc.ca/parks/main_e.htm

The sacred balance – <http://www.sacredbalance.com/>

Online accompaniment to book by David Suzuki.

Virtual library of ecology and biodiversity – <http://conbio.net/VL/>

From the Center for Conservation Biology Network.

Yahoo Ecology – <http://www.yahoo.com/Science/Ecology/Ecosystems/>

Unit 3

Books

Canadian Guide to Health and the Environment. Vancouver: Raincoast Books, 1999.

Explores biodiversity, Canada's living resources, major pollutants, global issues.

De Villiers, Marq. *Water: Why We Should Worry*. Toronto: Stoddart, 1999.

Ecological, social, and political ramifications of the changes to world water resources.

Dobson, Clive and Gregor Gilpin Back. *Watersheds: a Practical Handbook for Healthy Water*.

Willowdale, Ontario: Firefly, 1999.

The ecology, biology, and chemistry of watersheds, their management, and political issues.

Elcome, David. *The fragile environment: pollution and abuse*. Cheltenham, U.K: Stanley Thornes, 1999.

Teaching resource with text, case studies, diagrams, graphs, student activities. 96 p.

Godrej, Dinyar. *The No-Nonsense Guide to Climate Change*. Toronto: New Internationalist Publications, 2001.

The impact of climate change, analysis of political negotiations and potential solutions.

Swanson, Peter. *Water: The Drop of Life*. Minnetonka, Minnesota, 2001.

The importance and vulnerability of the world's water supply. An in-depth examination of water's role in agriculture, industry, pollution, religion, transportation and more. Its importance and vulnerability.

Companion to Public Television series. See Internet below.

Tammemagi, Hans. *The Waste Crisis: Landfills, Incinerators and the Search for a Sustainable Future*.

New York: Oxford University Press, 1999.

Tollefson, Chris. *Cleanair.ca: A Citizen's Action Guide*. University of Victoria, 2001.

Threats to clean air, the legal and policy framework for decision making, citizen action. Roots of garbage problems in the population explosion. International case studies.

The Water Crisis: Constructing Solutions to Freshwater Pollution. London: Earthscan, 1998.

Case studies from the Rhine and the Great Lakes in an examination of the roots of fresh water pollution – urbanization, industrialization and intensive farming. Possible solutions.

Articles

Canadian Geographic May/June. Annual environment issue.

“Earth Day 2000: What Humanity Can Do Now to Turn the Tide.” *World Watch* Mar/Apr2000.

Focuses on Earth Day 2000. Thirty-year report card.

“Getting It Right.” *Sierra* Jan/Feb2000: 40, 8p.

Views of environmental visionaries on the future of environment, public attitudes, actions.

“Life in the Greenhouse.” *Time* 04/09/2001: 24, 6p.

Discusses climatic changes and global warming, United Nations report.

Videos

Canadian Way: Global Warming. Canadian Broadcasting Corporation, 1996.

Canadian government breaks 1992 promise re. reducing greenhouse gas emissions. CBC's Fifth Estate.

The National's *The Next Energy Crisis* and *Winds of Change*, 1997 are related.

Envirocareers Canadian Council for Human Resources in the Environment, 2001.

Multimedia Kit provided free to high schools in Canada. Website <http://www.cchrei.ca/ec/>

Healing the Earth. National Geographic, 1995.

Individual and group conservation efforts to heal damage from pollutants.

Modern Marvels: Garbage. History Channel, 1999. 50 min. Garbage throughout history, discussion and debate on modern options.

Planet Neighborhood. WETA-TV, 1997. Bullfrog Films. 3 part series.
Home; Work; Community. Latest in energy saving technology and good design.
Urban Garbage – News in Review, Dec. 2000 - see Overview for details

Internet Resources

For related national and provincial government departments and agencies, see Overview section.
See also United Nations sites listed in Unit 4.

Encyclopedia of the Atmospheric Environment – <http://www.doc.mmu.ac.uk/aric/ae/>
British site with support of related government department. Includes information on the atmosphere, weather and climate, climate change, air pollution, acid rain, ozone depletion, renewable energy and sustainable development.

Canada Environment Network – <http://www.cen-rce.org/>
Non-profit, non-governmental network of environmental groups.

Canadian Trade Directory – <http://ctidirectory.com/index.htm#>
Search by company name or product.

David Suzuki foundation – <http://www.davidsuzuki.org/>
Canadian charity which explores human impacts on the environment, with an emphasis on finding and communicating solutions.

Great Lakes Information Network – <http://www.great-lakes.net/>

Ontario Environmental Business Directory – <http://www.envirodirectory.on.ca/english/index.htm>

Ontario Society for Environmental Education – <http://www.osee.org/>
For environmental educators, students, parents, and others.

Pollution Probe – <http://www.pollutionprobe.org/>
Canadian environmental organization for research, education and advocacy.

Water: the Drop of Life – <http://www.pbs.org/whatson/press/fall/water.html>
Description of 6 part television series that examines the impact of social, economic, cultural, strategic and agricultural factors on drinking water around the world. See book by Swanson of same name.

Worldwatch – www.worldwatch.org
Research on emerging global environmental issues.

Unit 4

Books

Dauncey, Guy and Patrick Mazza. *Stormy Weather: 101 Solutions to Global Climate Change*. Gabriola Island, B.C.; New Society Publishers, 2001.

Filling our energy needs with solar, wind, tidal and bio fuels, “how-to” sections.

Ecoforestry: the Art and Science of Sustainable Forest Use. Gabriola Island, B.C: New Society Publishers, 1997.

Philosophy, goals, policies, and practices of sustainable forest use.

Elcome, David. *Natural Resources: their Use and Abuse*. Cheltenham, U.K: Stanley Thornes, 1998.
Teaching resource with text, case studies, diagrams, graphs, student activities. 89p.

Flinders, Keith and Emma Flinders. *Issues and Debates in Geography*. London: Hodder and Stoughton, 1998.

Teaching resource: in depth real world case studies that allow students to debate and problem solve.

Flint, David. *Managing Resources*. London: Hodder and Stoughton, 1999.

Teaching resource: in depth real world case studies that allow students to debate and problem solve. 118p.

Human Activity and the Environment. Ottawa: Statistics Canada.

Published every 5 years. 2000 edition available. Extensive data on population, economic activities, the environment, relationships between these elements. Includes a CD-ROM. A Statistics Canada online teacher's kit incorporates text and data tables from the publication.

Human Development Report. New York: United Nations Development Programme. Annual. 2001 edition
Analysis of major issues, updated indicators. See www.undp.org/hdro.

McKirby, Alexandra R., (ed.) *Canadian Renewable Energy Guide*. Burnstown: General Store Publishing House, 1999.

North American and international application of renewable energy with case studies that demonstrate domestic, industrial, rural, and urban applications.

Morgan, John *Development, Globalization and Sustainability*. Cheltenham, U.K.: Nelson Thornes, 2001.
Teaching resource with text, case studies, diagrams, graphs, student activities. 96 pages.

Palfrey, Dick and Angela Gray. *Sustainability and the Environment*. London: Hodder and Stoughton, 1998.

Teaching resource - includes natural resources and energy, with focus on issues of sustainability and environmental management. 96 pages.

Shades of Green: Environmental Attitudes in Canada and around the World. Ottawa: Carleton University Press, 1997.

Scholarly work with the results and interpretation of surveys in 22 countries of how the public perceives environmental problems and what they are prepared to do about it.

Witherick, Michael and Sue Warn. *Farming, Food and Famine*. Cheltenham, U.K.: Nelson Thornes, 2001.

Teaching resource with text, case studies, diagrams, graphs, and student activities. 104p.

Articles

De Alessi, Michael. "Entrepreneurs and the Environment." *i* Apr 2001: 52, 6p.

Highlights the role of entrepreneurs in the conservation of natural resources.

Macleans. December 25, 2000. Year-end polls of Canadian public.

Makower, Joel and Pernick, Ron. "The New New Economy." *Whole Earth* Spring 2001: 8, 2p.

Focuses on the clean technology economy.

Scanlan, Lawrence. "Power Switch." *Canadian Geographic* May/Jun2001: 54, 7p.

Challenges in harnessing renewable energy to provide electric power in homes.

Weinstein, Michael M and Steve Charnovitz. "The Greening of the WTO." *Foreign Affairs*

Nov/Dec2001: 147, 10p.

Increasing sensitivity of World Trade Organization (WTO) to environmental issues.

Videos

Global Villagers Series. Villagers Media Productions, 2000. 25 min. each. Distributed by Magic Lantern.
Experiences of Canadian international voluntary workers at development project sites.

Global Warming and the Greenhouse Effect. Educational Video Network, 2001. 20 min.

Greenhouse effect, implications, conservation and activism ideas. Teacher's guide online.

Laxwesa Wa - Strength of the River. National Film Board, 1995. 54 min.

First Nations people traditional fishing practices and efforts to build a sustainable fishery.

The Nature of Things. Canadian Broadcasting Corporation ongoing series. Selected programs:
Fisheries: Beyond the Crisis. 1998. Can we manage fisheries in a sustainable manner?
Good Wood 1998. Sustainable forestry examples in Honduras, Mexico, U.S. and Canada.
The Great Northern Forest 1997. Impact of logging on native people, the Pacific salmon industry, and the atmosphere.
Lost in the suburbs. 1998. Social, economic and environmental impacts of urban sprawl.
News in Review. Canadian Broadcasting Corporation. See Overview for details.
Cutting emissions: new fuels for cars. Feb. 98.
The Quebec Summit. May 2001.
Rising Oil Prices: The New Energy Crisis. April 2000.
Softwood Dispute: Tariffs And Subsidies. May 2001.
World Trade: The Subsidy War. Feb 2000.

The Next Big Thing. Quest Productions and Kikim Media, 2000. 60 min. Describes past technologies and explores developing innovations.

Populations on Earth. Hawkhill Productions, 2001. 19 min. Is population a problem or a success story? Presents both sides of the population debate. Reviews the history of mankind, the growth of agriculture, development of culture and the industrial revolutions of the 19th and 20th centuries. Can humans and their ecosystems continue to evolve and adapt?

Reinventing the World Series. Asterisk Productions, 2001. (30 min. each) 5 part documentary series with innovative solutions to problems with our world. Food; Work and Time; Cities; Economics; Cultivating Change.

The Sustainable Forest and the New Forest Economy. Inside Edge Communications, 2000. 60 min. Looks at selective harvesting of timber, low-impact commercial thinning in a second growth forest and marketing/manufacturing of eco-certified wood products.

Sustaining our environment. Queens University and CRB Foundation Heritage Project, 1997. Simulation. Students study Canada's environmental track record to generate a "report card."

Turning Down the Heat: the New Energy Revolution. National Film Board, 2000. 50 min. Needs for alternative energy sources and international examples of systems in current use.

Using Natural Resources Wisely. Meridian Educational Corporation, 2000. 20 min. Natural resources decisions you can make in all areas of conservation.

Internet Resources

For related national and provincial government departments and agencies, see Overview section.

Note: Statistics Canada – <http://www.statcan.ca/>

Canadian Global Change Program

– http://www.globalcentres.org/cgcp/english/html_documents/eindex.html

Seeks to promote sustainable development through advice on global change. Online articles.

Earthpulse – <http://www.nationalgeographic.com/earthpulse/#>

National Geographic's home for conservation. Related monthly theme to date for 2001: *Population*. July 2001.

EcoNet – <http://www.igc.org/igc/econet/>

Supports ecological sustainability and environmental justice.

Encyclopedia of Sustainable Development – <http://www.doc.mmu.ac.uk/aric/esd/>

Harmony Foundation – <http://www.islandnet.com/~harmony/index.htm>

Environmental education site with emphasis on building sustainable societies
– www.lead.org/leadnet/footprint/intro.htm -measuring your ecological footprint

Patterns of a Conservation Economy – <http://www.conservationeconomy.net/>
Includes links to restorative fisheries programs and organizations.

United Nations Development Program – www.undp.org

UNDP provides funds, helps developing countries attract and use aid effectively, and promotes North-South cooperation while also addressing human rights.

United Nations Framework Convention on Climate Change (UNFCCC) – <http://www.unfccc.de/>

United Nations Sustainable Development Commission – <http://www.un.org/esa/sustdev/csd.htm>
Sustainable development programs and issues within the UN system.

UNEP World Conservation Monitoring Centre – <http://www.unep-wcmc.org/>
Global data for conservation and sustainable use of the world's living resources.

World Bank – <http://www.worldbank.org>

Provides development assistance funds to countries with developing economies.

World Vision Canada – www.wowworldvision.ca/

Christian international relief agency. Online educational resources include “Current Issues in Global Population” an introduction to population issues with a student simulation activity.

Coded Expectations, The Environment and Resource Management, Grade 12, Workplace Preparation, CGR4E

Geographic Foundations: Space and Systems

Overall Expectations

- SSV.01** · explain relationships between the earth's major components: the lithosphere, atmosphere, hydrosphere, and biosphere;
- SSV.02** · explain key ecological processes and their significance for ecosystem health;
- SSV.03** · analyse the spatial distribution of global biomes and explain the natural conditions that shape these patterns.

Specific Expectations

Understanding Concepts

- SS1.01** – demonstrate an understanding of the role played by the atmosphere, the lithosphere, the hydrosphere, and the sun in maintaining life on earth;
- SS1.02** – explain the role played by plants (e.g., phytoplankton, trees) in the growth of other living organisms (e.g., providing food and oxygen);
- SS1.03** – demonstrate an understanding of the role played by producers, consumers, and decomposers in relationships between organisms;
- SS1.04** – describe a generalized food web.

Developing and Practising Skills

- SS2.01** – explain relationships between the living and non-living components of ecosystems;
- SS2.02** – explain how the biosphere, lithosphere, hydrosphere, and atmosphere interact;
- SS2.03** – predict the results when a species is removed from a food web;
- SS2.04** – explain how and why some ecosystems are more fragile than others (e.g., the tundra compared to a tropical rain forest).

Learning Through Application

- SS3.01** – describe their local bioregion and selected ecosystems within it and identify the biome within which it is located;
- SS3.02** – explain how various components of their local bioregion or of their local bioregion and another ecosystem interact with one another (e.g., water, wind, soils, vegetation, people);
- SS3.03** – predict the effects of the destruction of selected natural habitats on biodiversity.

Human-Environment Interactions

Overall Expectations

- HEV.01** · demonstrate an understanding of how humans depend on nature and are an integral part of ecosystems;
- HEV.02** · explain how human use of the earth and its resources has positive and negative impacts on natural and human systems;
- HEV.03** · analyse patterns of resource availability and use.

Specific Expectations

Understanding Concepts

- HE1.01 – demonstrate an understanding of the difference between needs and wants;
- HE1.02 – explain the ways in which people and other living organisms are dependent on the natural environment;
- HE1.03 – demonstrate an understanding of the earth as a finite system;
- HE1.04 – identify the earth’s major resources (e.g., soil, water, minerals, forests, fossil fuels) and classify them according to their renewability.

Developing and Practising Skills

- HE2.01 – analyse the global distribution of selected resources (e.g., agricultural lands, forests, energy sources) and determine patterns of availability;
- HE2.02 – explain how selected human activities alter the natural environment (e.g., effect of depletion of forests on oxygen production, effect of chlorofluorocarbon use on the ozone layer);
- HE2.03 – explain the effects of different kinds of air and water pollution on humans, plants, and materials;
- HE2.04 – explain the impact on the natural environment of selected methods of extracting and transporting resources (e.g., mining, oil, pipelines in the Arctic).

Learning Through Application

- HE3.01 – explain how human use of toxic substances contaminates the food web;
- HE3.02 – analyse the distribution of endangered spaces and endangered species in Canada and account for the patterns observed;
- HE3.03 – use community resources (e.g., planning department, public library) effectively to research and report on local human-environment interactions (e.g., effects of fossil fuel use on the local environment, effects of local urban development on availability of resources such as water).

Global Connections

Overall Expectations

- GCV.01 · demonstrate an understanding of the relationship between increasing global population, increased consumption of resources, and environmental degradation on a global scale;
- GCV.02 · explain how the sustainable use of resources may be achieved through the cooperation of governments, businesses, industries, non-governmental organizations, and citizens around the world, despite their varied perceptions of nature;
- GCV.03 · evaluate the effectiveness of international efforts to deal with global environmental issues.

Specific Expectations

Understanding Concepts

- GC1.01 – explain the concept of stewardship and how it relates to the sustainability of the resources of the global commons (e.g., air, water, soil);
- GC1.02 – demonstrate an understanding of selected factors contributing to global population growth;
- GC1.03 – demonstrate an understanding of transboundary pollution and its implications;
- GC1.04 – explain the need for international cooperation to solve global environmental problems (e.g., ozone layer depletion);
- GC1.05 – identify ways in which people in a traditional culture (e.g., indigenous peoples) interact with the natural environment;
- GC1.06 – explain the purpose of selected international agreements to protect the global environment.

Developing and Practising Skills

GC2.01 – analyse global trends in the consumption of a variety of resources;

GC2.02 – explain the relationship between increasing population and rate of consumption for a selected global resource;

GC2.03 – explain the relationship between increasing rates of consumption of the earth’s resources and environmental degradation;

GC2.04 – evaluate ways (e.g., international conferences, round-table processes, public hearings, environmental laws, voluntary participation) to encourage cooperation between opposing interest groups in finding solutions to environmental and resource management problems.

Learning Through Application

GC3.01 – evaluate Canada’s contribution to the resolution of a selected global environmental or resource management issue;

GC3.02 – analyse the impact of population growth on a selected ecosystem (e.g., tropical rain forest) or resource (e.g., water supply, fishery);

GC3.03 – research and report on an environmental or resource management issue (e.g., ozone layer depletion, global warming, rehabilitation of the Great Lakes) that requires international cooperation for its resolution, and make recommendations for solutions.

Understanding and Managing Change

Overall Expectations

UCV.01 · explain the rights and responsibilities of citizens and consumers with respect to the environment and sustainable resource management;

UCV.02 · evaluate local or provincial government and industry strategies to promote sustainable management of resources;

UCV.03 · demonstrate an understanding of the effect that environmental protection and resource management has had on careers and the workplace.

Specific Expectations

Understanding Concepts

UC1.01 – provide a rationale for the preservation of Canada’s natural resources and wild spaces (e.g., wetlands, forests, natural habitats);

UC1.02 – explain why preserving large spaces and wildlife corridors is necessary if we are to preserve species;

UC1.03 – identify major sources of toxic chemical wastes;

UC1.04 – explain a variety of alternatives for waste management and disposal;

UC1.05 – explain the rights and responsibilities one has as a citizen and consumer with respect to protecting the environment and managing resources sustainably.

Developing and Practising Skills

UC2.01 – analyse the impact of reducing, reusing, and recycling waste on the sustainability of resources and on the environment;

UC2.02 – explain initiatives that individuals, governments, industries, and non-governmental organizations can take to improve the quality of air and water;

UC2.03 – analyse the costs and benefits of using selected alternative sources of energy;

-
- UC2.04** – research and report on technologies that improve the efficiency of resource use or waste management;
- UC2.05** – research and report on jobs and careers that relate to the environment and resource management;
- UC2.06** – evaluate the impact of technology related to the environment and resource management on careers and the workplace.

Learning Through Application

- UC3.01** – produce an action plan for rehabilitating a local environment or managing a local resource in a sustainable way;
- UC3.02** – produce a case study of how a business or industry (e.g., recycling company, organic lawn care company, home renovator, environmental consulting firm, printing company) uses responsible and sustainable resource management;
- UC3.03** – produce recommendations for a recreational trail system in the local community, using existing systems as models (e.g., Rideau Trail, Bruce Trail, Cross-Canada Trail);
- UC3.04** – describe examples of responsible environmental behaviour in aspects of daily life (e.g., transportation, lawn care, water and energy consumption, shopping).

Methods of Geographic Inquiry

Overall Expectations

- GIV.01** · use geographic skills, methods, and technologies to gather and analyse information and make decisions;
- GIV.02** · use a variety of methods and technologies to communicate the results of geographic inquiries in written, oral, and visual forms;
- GIV.03** · apply geographic knowledge, skills, and technologies to conduct an independent inquiry related to sustaining a natural resource or improving the natural environment.

Specific Expectations

Understanding Concepts

- G11.01** – use geographic terms correctly and explain geographic concepts related to the environment and resource management (e.g., *ecosystem, biodiversity, rehabilitation, succession, natural habitat, sustainable development*);
- G11.02** – demonstrate an understanding of how geotechnologies are used by business and industry (e.g., remote sensing, geographic information systems, hypermedia).

Developing and Practising Skills

- G12.01** – demonstrate an understanding of the steps involved in the geographic inquiry process;
- G12.02** – produce and interpret maps, diagrams, charts, and models that illustrate geographic and ecological concepts;
- G12.03** – use cartographic conventions (e.g., scale, legend, direction) correctly;
- G12.04** – apply field research skills (e.g., observation, surveying, interviewing) effectively to collect information and determine attitudes and viewpoints on local environmental and resource management issues;
- G12.05** – use graphic organizers (e.g., timelines, future wheels, Venn diagrams) to clarify, visualize, and interpret geographic information;
- G12.06** – use a variety of print, broadcasting, and electronic sources effectively to gather information;
- G12.07** – explain how information from various sources may be biased.

Learning Through Application

GI3.01 – use reasoned argument to defend a position on a sustainable resource management issue;

GI3.02 – apply communication skills (e.g., letter writing, oral presentations) effectively to influence change and decisions relating to an environmental protection and/or resource management issue;

GI3.03 – produce an action plan, in connection with an independent inquiry on a geographic issue, that includes proposals for ways to sustain or improve the environment in their local community;

GI3.04 – work as part of a team to produce a plan that proposes solutions to a local environmental or resource management concern (e.g., restoration of a local park, woodlot, river, or wetland; reduction of the impact of a local development project on the environment).

Unit 1: Evaluating How We Live

Time: 10 hours

Unit Description

Students examine how their daily lives interact with and depend on the natural environment. Students reflect on their personal and their community's behaviours. In order to identify existing problems, the teaching/learning strategies are linked to an analysis of personal behaviours. The unit summative project has students produce an infomercial informing others of environmentally sound daily practices. Practical skills such as information gathering, analysis and communication are an integral part of this unit. The skills taught in Units 1 and 2 continue to be practised throughout Units 3 and 4. Students will then demonstrate an appropriate level of mastery in Unit 5, (Course Summative which is part of the final 30% evaluation.) (See the Skills Development Chart in the Course Overview under Assessment and Evaluation.)

Unit Synopsis Chart

Activity	Time	Learning Expectations	Assessment	Tasks
1.1 What is a need vs. a want?	1 hour	HE1.01, GI2.07	Knowledge/Understanding Thinking/Inquiry Communication Diagnostic assessment	Ranking student sheet Media analysis Reflective Paragraph
1.2 How do we rely on the natural environment?	1 hour	HE1.01, HEV.02	Thinking/Inquiry Formative Assessment	Cradle-to-Grave analysis of a product using a Flowchart
1.3 What are our rights and responsibilities to our natural environment?	3 hours	UCV.01, GC1.01, UC1.05, GI1.01	Knowledge/Understanding Communication Application Formative Evaluation	Local Environmental issue brainstorm Charting others' environmental action Creative Environmental Message
1.4 How does this relate to my daily life?	5 hours	GI2.04, GIV.02, GI3.03, GIV.01, UC3.04, GI1.01, GI2.05, GI3.02	Knowledge/Understanding Thinking/Inquiry Communication Application Formative Assessment and Unit Summative Evaluation	Developing a survey on a personal product Researching the product Survey and Action Plan to Create an Infomercial

Activity 1.1: What is a Need vs. a Want

Time: 1 hour

Description

The intent of this activity is to have students realize that many of their needs are actually wants. Through their own self-reflection (using a “quiz” sheet) and through media, students start to internalize their needs.

However, the activity is also designed to help the students realize how they are bombarded on a daily basis with advertising telling them what their wants and their needs should be.

Strand(s) & Learning Expectations

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

Overall Expectations

HEV.01 - demonstrate an understanding of how humans depend on nature and are an integral part of ecosystems;

GIV.02 - use a variety of methods and technologies to communicate the results of geographic inquiries in written, oral, and visual forms.

Specific Expectations

HE1.01 - demonstrate an understanding of the difference between needs and wants;

GI2.07 - explain how information from various sources may be biased.

Planning Notes

The teacher should consider the following preparation for the delivery of this activity:

- A resource (media or literature, see Resources) for an environmental message.

Teaching/Learning Strategies

The teacher may wish to start the class with a survivor type of activity. Set a context for students, for example, “You are on a desert island with only the clothes on your back. What will you need?” The goal of the activity is for students to identify key needs in society (shelter, food, water, air).

1. Have the students rank a list of items including needs and wants from a wish list.
(See Appendix 1.1.1) Then have them re-rank the items from other perspectives, such as that of a submariner or an Arctic traveler. (A video clip of these scenarios may help put the students into the appropriate mind-set.) The point of the exercise is to illustrate the difference between needs and wants. While some of us have our wants at the high end of our wish list there are others in the world who would have their needs at the top.
2. Using a piece of media or literature with a needs versus wants theme, have the students analyse the environmental messages within the resource. It is recommended that the resource is geared to younger children, e.g., *The Lorax*, *Giving Tree*, enabling the students to identify the facts and recognize complex ideas easily. Brainstorm these ideas before asking students to reflect on their feelings individually in a written form, e.g., journal entry, web diagram, paragraph. (This would be a good place to do a diagnostic communication assessment – see communication rubric Appendix 1.5.2.)
3. For homework, have students prepare an inventory of media which send them messages “telling” them what they “should” want. For example, one person may watch TV for a half-hour period and keep track of what is being advertised, another may track billboards on a main street, or count the ads in the newspaper that evening. (See worksheet in Appendix 1.1.2; also, use the Record Sheet for Learning Skills in Appendix 1.5.1 for a homework check.)

Assessment & Evaluation of Student Achievement

The teacher and students gather evidence of learning expectations outlined for this activity through:

- Teacher diagnostic assessment of reflective paragraph (Communication Rubric, Appendix 1.5.2)
- Learning skills tracking for homework (Appendix 1.5.1)

Accommodations

- If writing is a concern, students may develop a visual reflection, e.g., a poster illustrating a person being torn by needs (visuals) and wants (visuals).

Resources

Seuss, Dr. *The Lorax*. Playhouse Video, 1989. 30 min. (video or book)

Ecologically minded Lorax is out to save a tree needed for the survival of some of the animals.

A Dr. Seuss fantasy with the serious theme of environmental conservation.

Silverstein, Shel. *The Giving Tree*. Harper Collins, 1986.

LeBox, Annette. *The Princess Who Danced With Cranes*. Toronto: Second Story Press, 1997.

Repchuk, Caroline. *The Snow Tree*. London: Templar Company Inc., 1996.

Adbusters – <http://www.adbusters.org/home/> Vancouver based anti-consumerist magazine.

Creating artificial needs: how advertising drives consumption.

– <http://www.consumersinternational.org/rightsday97/chapter3/creating.html>

From Consumers' International, an independent, non-profit organization linking consumer groups worldwide.

Never Enough. Anticonsumerism Campaign – <http://www.enough.org.uk/index.html#cont>

Series of articles that attempts to show the relationship between the consumerist lifestyle and problems of world poverty, environmental destruction and social alienation.

Selling happiness. Learning for a sustainable future.

– <http://schoolnet.ca/future/teacher/classroom/thematic/product/happy/content.htm>

Canada's Schoolnet suggested classroom activity related to advertising and consumer values.

Appendices

Appendix 1.1.1 – What is My Lifestyle

Appendix 1.1.2 – Advertising Messages

Appendix 1.5.1 – Record Sheet for Learning Skills

Appendix 1.5.2 – Communication Skills Rubric

Activity 1.2: How Do we Rely on the Natural Environment? – From Toast to?

Time: 1 hour

Description

This activity brings a practical approach to the notion of relying on the environment. By having students relate to an everyday piece of toast, they trace the processing of the toast from nature, into bread as food and then back to nature. They must realize that waste, returned to nature, differs from what came from nature, thus creating an imbalance for the natural environment.

Strand(s) & Learning Expectations

Strand(s): Human-Environment Interactions

Overall Expectations

HEV.02 - explain how human use of the earth and its resources has positive and negative impacts on natural and human systems.

Specific Expectations

HE1.02 - explain the ways in which people and other living organisms are dependent on the natural environment.

Prior Knowledge & Skills

To successfully accomplish the activity, students need:

- Some background knowledge of how products are made.

Planning Notes

The teacher should consider the following preparation for the delivery of this activity:

- access to an ingredients label for bread. (The teacher may choose to bring in a loaf of bread and toaster for the class to actually have toast.)
- students should have access to chart paper and markers.

Teaching/Learning Strategies

1. To tie into needs versus wants, this teacher-centred activity starts by looking at an everyday need, food, and deals with bread specifically. Show a bread wrapper and look at the ingredients. What are they? Take the main ingredient (wheat) and do a flow chart, mapping the origin of the bread, to eating the toast, to where it ends up. The lesson title may be: From Toast to Digestive Waste. The concept focus is that bread originally comes from nature and returns to nature in some form. For each stage in the flow chart, students should then place a “+” or “-” where the stage is good or bad for the natural environment. Use blue for “+” and red for “-”.
The level of sophistication in terms of degree of depth in the flow chart and degree of impacts, e.g., transportation, pesticide/herbicide application, irrigation, will depend upon the ability of the students. (The teacher may decide to actually bring in a toaster and make toast for the students!)
2. Independently, or in groups, the students do a flow chart of their own on chart paper, tracing the roots of any product they choose. (For example students make a life cycle of paper, plastics, diamond ring, meat or other food products. Students should choose a product with which they are familiar.) Again, the focus is to have students see that whatever it is, a product both starts and ends with nature. The teacher should also note that there are usually more negatives (“-s”) in terms of the impact of the item on the environment. (Use the learning skills tracking sheet for independent work or teamwork as students work through this task. Appendix 1.5.1)

Assessment & Evaluation of Student Achievement

The teacher and students gather evidence of learning expectations outlined for this activity through:

- The independent work or teamwork learning skills assessment. (Appendix 1.5.1)
- Use this activity as a formative assessment done by the teacher, to check that the work is complete and the concept is understood.
- Peer assessment could also be incorporated by having students explain their analysis to each other. (Use the headings suggested in Accommodations as a checklist.)

Accommodations

Consider the following accommodations, when appropriate, to address the needs of exceptional students:

- A variety of products may be used, from simple to complex to adjust to different learning needs, e.g., enrichment students will need a more complex product to analyse.
- Develop a checklist with areas to consider when developing the flow chart for students who require a structured approach to organizing information (suggested headings: Item, Made From, Material Source, Needs at Source, How Item Used, Where Does it Go To, How Does it End Up...)

Activity 1.3: What are our rights and responsibilities to the natural environment?

Time: 3 hours

Description

In this activity, students recall the concept of rights and responsibilities from Grade 10 Civics and apply them to their own school setting. They identify environmental issues addressed by various people through a variety of media including music, magazines, newspapers, etc. The focus is to identify environmental action other people have demonstrated. Students then relate this to individual responsibilities as a Canadian citizen. The students conclude this activity with a creative message, e.g., poster, power point, cartoon, illustrating environmental rights and responsibilities on a personal level for a local issue. The message should include the concept of stewardship. This will lead into the unit summative evaluation which is part of the 70% course work.

Strand(s) & Learning Expectations

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

Overall Expectations

GIV.02 - use a variety of methods and technologies to communicate the results of geographic inquiries in written, oral, and visual forms.

Specific Expectations

UCV01 - explain the rights and responsibilities of citizens and consumers with respect to the environment and sustainable resource management;

UC1.05 - explain the rights and responsibilities one has as a citizen and consumer with respect to protecting the environment and managing resources sustainably;

GC1.01 - explain the concept of stewardship and how it relates to the sustainability of the resources of the global commons (e.g., air, water, soil);

GI1.01 - use geographic terms correctly and explain geographic concepts related to the environment and resource management (e.g., ecosystem, biodiversity, rehabilitation, succession, natural habitat, sustainable development).

Prior Knowledge & Skills

To successfully accomplish the activity, students need:

- to draw on information studied in Grade 10 Civics dealing with rights and responsibilities;
- the material covered in the first two activities of this unit.

Planning Notes

The teacher should consider the following preparation for the delivery of this activity:

- This segment of the unit requires students to interpret information related to environmental issues. The activity begins with a very teacher-centred approach and ends with a student creative application.
- Materials required depend greatly on the teacher, current local issues and on the availability of particular resource information, e.g., use of pesticides on public property, global warming caused by vehicles idling, and personal music collection.
- Cross-curricular connections may include Media Studies, English and Civics.

Teaching/Learning Strategies

Day 1 – 60 minutes

1. Through teacher-led discussion, students clarify and define the terms: sustainability, stewardship, right and responsibility as they pertain to their immediate environment. Issues such as school cleanliness, graffiti, and lockers may be included in the discussion. What rights do students have within the school? What responsibilities go with the rights that students enjoy? (The school's code of behaviour indicating rights may be found in the school handbook or student day timer.)
2. Once the class has a clear notion about their environmental rights and responsibilities in their immediate area, introduce them to various issues related to these concepts. The first example should be done by the entire group to get the idea. The rest is completed by small class discussion groups. (For example, articles related to smoking and its effects could be used in this segment of the unit.) The activity could centre around the development of a chart similar to the one below. The learning skills tracking sheet could be used to track teamwork see Appendix 1.5.1.

School Environmental Rights and Responsibilities

Issue	Right	Responsibilities
Teen Smoking	Clean Air Quality	
Litter	Clean cafeteria/hallways	- school population

Day 2 – 60 minutes

1. In groups of three or four, students identify global environmental rights. (The teacher may choose to use the environmentally related rights from the United Nations Declaration of the Charter of Human Rights.) Topics for discussion that may be addressed could include clean water, clean air, neighbourhood pets and waste, solid waste, pesticide, and fertilizer on lawns, etc.
2. As a class, brainstorm how people have taken action (responsibility) for a particular environmental issue. A chart such as the one below may be used to record ideas. To illustrate action, music may be used as an example. (See Resources, or have students brainstorm current musical artists.) A clip from a Hollywood film on the topic of action (e.g., *Erin Brockovich*, *The Insider*) might be discussed effectively here. The material will also suggest role models for people that have taken on environmental issues. Material to help students identify issues related to environmental rights should be in various forms to test students' understanding of the concepts and to allow for various learning styles, e.g., written articles, pictures, cartoons, video clips, slide presentations.

Issues/Problems	What action did people take?	Who took on the responsibility
Deforestation	Tied themselves to trees	“Raging Grannies”
General Environmental Destruction	Writing a song	Michael Jackson

Day 3 – 60 minutes

3. Using the examples discussed on Day 2, students develop their own local environmental message. The class brainstorms local environmental issues. Each student then identifies rights and responsibilities for one of these issues. They develop a creative product, e.g., a cartoon, poem, song, poster, video clip, electronic slide presentation, a captioned picture, or newspaper article, communicating an environmental message including:

- What is the environmental resource issue? (e.g., air pollution)
- What human rights are associated with this issue? (e.g., everyone is entitled to clean air)
- What is the individual responsibility related to this issue? (e.g., plant trees, walk–don't drive)

The intent of this assignment is to have students internalize the issue and see themselves as part of the solution. Although students will be given class time to work on this assignment, they may need to complete their final product on their own time. Use the communication rubric, Appendix 1.5.2 to evaluate the message. Be sure to discuss this with students at the onset of the assignment.

Assessment & Evaluation of Student Achievement

The teacher and students gather evidence of learning expectations outlined for this activity through:

- Ongoing learning skills assessment during the chart building and group discussion, on Days 1 and 2. See the learning skills tracking sheet in Appendix 1.5.1.
- A formative teacher evaluation (part of the 70% course work,) using the Communication Skills Rubric in Appendix 1.5.2. for the final creative product.
- The Knowledge/Understanding component of the final creative product can also be formatively evaluated using the following: (discuss with students what the different levels will look like, e.g., clarity, examples)

Knowledge/Understanding	Level 1	Level 2	Level 3	Level 4	Comments
- the environmental issue is identified					
- the individual responsibility is addressed					

- Optional: A peer assessment using the Communication Skills Rubric, Appendix 1.5.2 prior to the teacher evaluation. This gives students the opportunity to improve on their work before handing it in.

Accommodations

Consider the following accommodations, when appropriate to address the needs of particular students in your class:

- The complexity of the message may be adapted depending on student ability and possible enrichment needs.

Resources

Various songs written on the environment.

Big Yellow Taxi – Joni Mitchell

I'm a Stranger Here – Five man Electrical Band

Man in the Mirror – Michael Jackson

Films – *Erin Brockovich*, *China Syndrome*, *The Insider*, *Silkwood*, *Soylent Green*, *Silent Running*

Population and Consumption – <http://www.nwf.org/population/consumption.html>

National Wildlife Federation article arguing that consumption patterns pose major threats to human health, the environment, and wildlife

Universal Declaration of Human Rights. United Nations – <http://www.un.org/Overview/rights.html>

Appendices

Appendix 1.5.2 – Communication Skills Rubric, for the message

Appendix 1.5.1 – Learning Skills Tracking Sheet

Activity 1.4: How Does This All Relate to My Daily Life?

Time: 5 hours

Description

This activity gives students the opportunity to evaluate the relationship between the identified environmental issues and the products students and their community consume in aspects of their daily lives. The concept introduced in activity 1.3 (ownership/stewardship) is built upon in this activity. In this three- part activity, students research, analyse, make and test a home-made environmentally friendly product. Using this information, they produce an infomercial to inform and influence the community on environmentally sound daily life practices. This activity builds on the idea of stewardship.

Strand(s) & Learning Expectations

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

Overall Expectations

GIV.01 - use geographic skills, methods and technologies to gather and analyse information and make decisions;

GIV.02 - use a variety of methods and technologies to communicate the results of geographic inquiries in written, oral, and visual forms.

Specific Expectations

UC3.04 - describe examples of responsible environmental behaviour in aspects of daily life (e.g., transportation, lawn care, water and energy consumption, shopping);

GI1.01 - use geographic terms correctly and explain geographic concepts related to the environment and resource management (e.g., ecosystem, biodiversity, rehabilitation, succession, natural habitat, sustainable development.);

GI2.04 - apply field research skills (e.g., observation, surveying, interviewing) effectively to collect information and determine attitudes and viewpoints on local environmental and resource management issues;

GI2.05 - use geographic organizers (e.g., timelines, future wheels, Venn diagrams) to clarify, visualize and interpret geographic information;

GI3.02 - apply communication skills (e.g., letter writing, oral presentation) effectively to influence change and decisions relating to an environmental protection and/or resource management issue;

GI3.03 - produce an action plan in connection with an independent inquiry on a geographic issue, that includes proposals for ways to sustain or improve the environment in their local community.

Prior Knowledge & Skills

To successfully accomplish the activity, the students need:

- Critical thinking skills
- Writing and reporting skills
- Communication skills

Planning Notes

The teacher should consider the following preparation for the delivery of this activity:

- Parts of this activity may be conducted in small groups. Due to the inevitable time constraints, portions of the activity may move more swiftly with greater emphasis on teacher-centred activities or setting limitations on the nature of the survey and labs.
- Students will learn to differentiate between open and closed survey questions.
- The nature of the “community” that will be used in the survey will have to be determined, e.g., all Grade 12 students in the school, all geography students, a cross-section of the school, etc. If the school community is being used, colleagues and administration should be advised or consulted. If the larger community is being surveyed appropriate permission is required, e.g., mall management.
- The teacher can decide to run one lab on the infomercial product (see below) for all students or a variety of labs for small groups of students.
- It is important to have access to water if personal hygiene products are being developed.
- Caution must be used when working with any products that are to be used on the student’s skin. Food allergies and skin sensitivities must be a consideration.
- Size of infomercial groups should be kept to a maximum of 3 students allowing for full individual participation and reasonable shared workloads.
- Video equipment/data projectors and computer labs may be made available for the infomercial, if possible, however they are not critical.
- Due to the complexity of the process, the teacher will need to closely monitor the progression of student work through Parts A, B, and C.

Teaching/Learning Strategies

Note: This Assignment is written as a student worksheet in Appendix 1.4.1

Part A – The Survey (2 hours)

1. Through a discussion, students identify and list environmental issues associated with their personal daily life, e.g., shampoo with phosphates, household cleansers that display a hazardous materials symbol, cosmetics that have been tested on (or contain) animal products, or products with excess packaging.
2. Lead a class discussion that addresses the personal, daily life environmental issues that are common to groups of students within the class. Have the class predict whether or not larger communities deal with these same issues. Discussion should include questions about why baking soda and vinegar are not heavily marketed as cleaning products but fancy, high-priced and toxic ones are. This draws in issues of economics and image that are essential to understanding some of the root causes of environmental problems and how they are addressed or not addressed.
3. Students develop a survey to determine why people buy a product and what they like about it. The survey will help students determine the public’s needs and wants, which will be communicated through an infomercial in Part C.

In small groups of three or four have students brainstorm questions about a particular product, e.g., shampoo, cleaners, cosmetics, packages, that will be used in a community survey and infomercial. It is critical that students determine what information it is that they are interested in gathering before designing the survey. (See Appendix 1.4.2)

- Questions must work to elicit information, attitudes and viewpoints on personal environmental responsibilities. (The difference between closed and open-ended questions will have to be taught.)
- Each survey should be no longer than 10 questions.

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- To get a useful data set, surveys should be completed by a minimum of 30 respondents. How to gather valid data should be discussed, e.g., not just survey their friends.
 - In some cases a tally sheet could be used rather than individual surveys.
4. Students are required to construct tally sheets to organize the information they gather. (See Appendix 1.4.3)
 5. Students then conduct the survey. This can be completed outside of class time. The teacher sets parameters for the community to be surveyed and reviews appropriate survey techniques.
 6. Survey results are tallied in small groups or as a class. Results are graphed using appropriate technology. These graphs will help students visualize their data and support analysis. Students will analyse their tallied survey results/graphs by answering questions similar to those found in Appendix 1.4.3. These graphs may also be used as visuals in the infomercial (Part C of this activity.)

Part B – Testing the “Infomercial” Product (1 hour)

7. Students now test a recipe for a “Green” home-made environmentally friendly alternative to a commercially produced product. See Resources for recipes for a variety of labs. It is this Green product that will be used in the infomercial to influence change and decisions relating to a local environmental protection. Suggested labs include Basic skin cream (tested on the back of the hand), window cleaners, shampoo (best on untreated hair), or improved packaging.
8. Once the lab is completed, students need to record their findings and evaluate the success of the product they have made and tested. Analysis must include how they might promote the use of environmentally sound products to their community. The analysis might show their product is inferior to the commercial equivalent. If this is so, discuss ways that the commercial product could be used in a more environmentally sensitive manner. (See Appendix 1.4.4)

Part C – The “Infomercial” (2 hours)

9. The goal of an infomercial is to provide background information on a given topic, clearly identify the issue/problem, promote a product that addresses the issue/problem, and finally explain how it is a solution. The teacher leads a discussion about these goals and possibly show a specific infomercial, which can be viewed to identify these necessary components, e.g., shopping channel.
10. Using the product tested, students develop an infomercial. If a student had unsatisfactory test results or did not like his/her product, the student may choose to run another test or work with another student’s data. This information is then communicated through visual and oral communication. In their groups, students write and produce a 5-minute live or taped infomercial which is designed to influence change and decision-making relating to environmental protection on a personal level. The infomercial needs to educate the intended audience and make specific proposals for ways to sustain or improve the environment in the local community. The notion that each individual must “act locally” for benefit of the global environment must be evident in the infomercial.

The workload could be divided into individual tasks such as:

- provide background information on topic, clearly identify the issue/problem in the larger/community-context (survey findings)
- promote the new “green” environmentally friendly product (that addresses the issue/problem),
- explain how it is a solution and articulate the advantages of this solution

Each student will be evaluated individually for his or her part in the development of the infomercial. (See infomercial checklist in Appendix 1.4.1 and Communication Rubric in Appendix 1.5.2)

Assessment & Evaluation of Student Achievement

The teacher and students gather evidence of learning expectations outlined for this activity through:

- The Learning Skills, e.g., working independently, initiative and teamwork, should be tracked in all parts of this activity. See Appendix 1.5.1

Part A

- Formative assessment: teacher and/or peer conferencing will determine that appropriate questions are included on the survey and the tally sheets reflect the survey questions
- Formative Evaluation (as part of the 70%): graphs of the survey results. See Communication Rubric (Appendix 1.5.2.)
- Formative assessment: analysis of the survey results. See Thinking Inquiry Rubric (Appendix 1.5.3)

Part B – Testing the Infomercial Product

- Formative assessment for completion of Appendix 1.4.4

Part C – The Infomercial

- Unit Summative Evaluation: Adapt the more generic Communication Rubric (Appendix 1.5.2) as well as the Thinking/Inquiry Rubric (Appendix 1.5.3) addressed in Part A for this purpose. The cells suggested below address other components of the achievement chart.

Criteria	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)	Comments
Knowledge - background factual information on the environmental issue	- limited knowledge of facts of the environmental issue	- some knowledge of facts of the environmental issue	- considerable knowledge of facts of the environmental issue	- thorough knowledge of facts of the environmental issue	
Thinking/ Inquiry - new product is linked to the environmental issue	- the product is limitedly linked to the environmental issue	- the product is somewhat linked to the environmental issue	- the product is considerably linked to the environmental issue	- the product is strongly linked to the environmental issue	
Application - solution provides a logical course of action to address the environmental issue	- solution is limited in effectiveness in addressing the issue	- solution is moderately effective in addressing the issue	- solution is considerably effective in addressing the issue	- solution is highly effective in addressing the issue	

Accommodations

Consider the following accommodations, when appropriate, to address the needs of exceptional students:

- Provide survey but have students conduct and analyse it.
- Reduce the survey size needed.
- Provide checklist of key points to be covered in infomercial.
- If oral presentation is a concern, the scope of the presentation could be adjusted, and another medium, e.g., poster, may be used.
- Enrichment students may wish to study a “line” of products, e.g., cleaners, cosmetics, etc.

Resources

Part A – Survey Writing – <http://www.statpac.com/surveys/> A tutorial designed to teach the development of quality surveys.

Part B – Testing the Infomercial Product

Websites

CNEWS – http://www.canoe.ca/TechArchive/981117_recipes.html

Lists websites that have homemade products suitable for this activity and the cautions necessary before undertaking these kinds of labs.

Frugal Moms – <http://www.frugal-moms.com/cleaning/homemadecleaners.shtml>

Frugal Moms lists recipes for household cleaning products

Eartheasy – http://www.eartheasy.com/live_nontoxic_solutions.htm

A good selection of recipes for homemade cleaning products

Make-Stuff.com - A variety of recipes

Planet Repair – <http://www.planetrepair.org/water/water004.html>

Planet repair.org lists fully developed labs including analysis questions for students to answer.

Ecoliving – <http://www.ecolivingsolutions.com.au>

Suggestions for environmentally wise choices relating to diet, food, homes and gardens.

Ecomall – <http://www.ecomall.com/sustainable.htm>

Includes numerous articles on consumers and sustainability and an extensive list of links to Internet sites.

Greenmatters: The Busy Person's Guide to Greener Living – <http://www.greenmatters.com/gm/>

Articles, opinion polls and A keyword search for consumer tips

Green Ontario. Buy Green – <http://www.greenontario.org/buygreen/index.html>

Site hosted by the Conservation Council of Ontario, with information and links on “green” products and services.

Strategic Marketing of Greener Products – <http://www.greenmarketing.com/articles/JSP1Apr98.html>

Increase your awareness of advertising techniques in this advice from an industry green advertising consultant to corporations on how to attract environmentally conscious consumers.

Resources For Unit 1

Books

Berthold-Bond, Annie. *Better Basics for the Home: Simple Solutions for Less-Toxic Living*. New York: Three Rivers Press, 1999.

Easy and economical formulas with environmental substitutes for synthetic products.

Brower, Michael and Warren Leon. *The Consumer's Guide to Effective Environmental Choices*.

Practical advice from the Union of Concerned Scientists. Crown, 1999.

Brown, Lynda. *Organic Living: Simple Solutions for a Better Life*. Dorling Kindersley, 2000.

Covers all aspects of life for those wishing to pursue an organic lifestyle.

Elkington, John and Julia Hailes. *Manual 2000*. Key Porter, 1998.

Advice, action plans and contact details for Canadian consumers to make a healthier planet.

Harmony Foundation has for sale many publications with individual and community action tips

For a list see <http://www.islandnet.com/~harmony/pubs.htm>.

Videos

Going Home. Bullfrog Films, 1998. 30 min. Human conflict with natural ecosystems, activities to reconnect with the earth.

Healing the Earth. National Geographic, 1995.

Individual and group conservation efforts to heal damage from pollutants.

The Lorax. Playhouse Video, 1989. 30 min. Ecologically minded “Lorax” is out to save a tree needed for the survival of some of the animals. A Dr. Seuss fantasy with the serious theme of environmental conservation.

Planet Neighborhood. WETA-TV, 1997. Bullfrog Films. 3 part series.

Home; Work; Community. Latest in energy saving technology and good design.

Reinventing the World Series. Asterisk Productions, 2001. 30 min. ea. 5 part documentary series with solutions to problems with our world. Food; Work and Time; Cities; Economics; Cultivating Change.

Using Natural Resources Wisely. Meridian Educational Corporation, 2000. 20 min. Natural resources decisions you can make in all areas of conservation.

Internet Resources

Adbusters – <http://www.adbusters.org/home/> Vancouver based anti-consumerist magazine.

Center for an American Dream – <http://www.newdream.org/>

Promotes change in the ways Americans consume to improve the quality of life, protect the environment, and advance social justice.

Creating artificial needs: how advertising drives consumption

– <http://www.consumersinternational.org/rightsday97/chapter3/creating.html>

From Consumers’ International, an independent, non-profit organization linking consumer groups worldwide.

How to help. World Wildlife Fund – <http://www.worldwildlife.org/>

Links from home page include conservation action and green tips.

Natural Life – www.life.ca

Ways to simplify your life and assist the environment: food, home, family, health, leisure and livelihood.

Never Enough. Anti-consumerism Campaign – <http://www.enough.org.uk/index.html#cont>

Series of articles that attempts to show the relationship between the consumerist lifestyle and problems of world poverty, environmental destruction and social alienation.

Population and Consumption – <http://www.nwf.org/population/consumption.html>

National Wildlife Federation article arguing that consumption patterns pose major threats to human health, the environment, and wildlife

Selling happiness. Learning for a sustainable future

– <http://schoolnet.ca/future/teacher/classroom/thematic/product/happy/content.htm>

Canada’s Schoolnet suggested classroom activity related to advertising and consumer values.

Strategic Marketing of Greener Products – <http://www.greenmarketing.com/articles/JSP1Apr98.html>

Increase your awareness of advertising techniques in this advice from an industry green advertising consultant to corporations on how to attract environmentally conscious consumers.

Universal Declaration of Human Rights. United Nations – <http://www.un.org/Overview/rights.html>

What You Can Do: Down To Earth Choices for Sustainable Living. Environment Canada

– www.ec.gc.ca/eco/wycd/links_e.htm

Information on community and home environmental activities for groups or individuals.

Articles

Lavendel, Brian. “Green house.” *Audubon* Mar/April 2000, p. 72–79

Description of technologies in an environmentally friendly house.

Ross, Nicola. “Treading softly.” *Seasons* Winter 2001, p. 30 – 32.

Ways for Ontarians to alter lifestyles to reduce their ecological footprints.

Appendix 1.1.1

What Is My Lifestyle?

- Consider the following list as a “wish list.”
Rank the following items in the order you wish to receive them.
(#1 being top priority and #10 for being least wished.)

My Ranking		submariner's Ranking	Arctic Traveller's Ranking
___	car	___	___
___	trip to a theme park	___	___
___	trip to a nature reserve	___	___
___	CD player	___	___
___	bed	___	___
___	bread	___	___
___	clean drinking water	___	___
___	Roots sweatshirt	___	___
___	underwear	___	___
___	shoes	___	___

- Try to imagine being a sub mariner or an arctic traveller. (Re-rank the above wish-list accordingly.)
- Is there a difference between the three lists in your ranking? Why or why not?

Appendix 1.1.2

Advertisement Messages

Advertising Medium I Am Tracking: _____
(e.g., billboards, newspaper ads, TV ads, radio,...)

Where/Time of Tracking _____

List the items being advertised:

What is being advertised?	How is it depicted?	Feelings evoked?
Vehicle – SUV	Only vehicle on a wide road, climbing a steep cliff	Freedom in the wilderness

Reflect on these as needs or wants:

Do these ads make you feel manipulated? Explain your answer.

What do you think the companies who are advertising would have to say about needs versus wants?

Appendix 1.4.1

How Does This all Relate to My Daily Life?

What you need to do to get it done! Use the following checklist to ensure that you have completed each step of this activity.

Part A – The Survey

Design the survey

- Brainstorm questions that will be used in your survey. Use the worksheet How to Develop a Survey (Appendix 1.4.2) to guide this process
- Review your survey. Does your survey have an appropriate number and type of questions?
- Develop a tally sheet which matches your survey (see the worksheet Tally Sheet and Analysis, Appendix 1.4.3)

Conduct the survey

- Have the appropriate number and type of respondents completed your survey?
- Tabulate and analyse the data collected from your survey. (See the Tally Sheet and Analysis worksheet Appendix 1.4.3.)

For the evaluation of the tally sheets (do they match the type of data being collected during the survey) and the graph of the survey results, see the Thinking/Inquiry Rubric, Appendix 1.5.3.

Note: Students must be instructed to accept “no comment” as a valid answer to any questions, and to respect that people may choose not to respond at all.

Part B – Testing the Product

Test an environmentally friendly product

- Based on your survey results, test a home-made environmentally friendly product which could be marketed as an alternative to a product normally purchased in a store.
- Check these web sites for possible alternative product tests.
 - Frugal Moms – <http://www.frugal-moms.com/cleaning/homemadecleaners.shtml>
(lists recipes for household cleaning products)
 - Eartheasy – http://www.eartheasy.com/live_nontoxic_solutions.htm
(A good selection of recipes for homemade cleaning products)
 - Make-Stuff.com (A variety of recipes)
 - Planet Repair – <http://www.planetrepair.org/water/water004.html>
(Planet repair.org lists fully developed labs including analysis questions for students to answer.)
- It is this product that will be used in the infomercial to influence change and decision-making
- Record your lab findings and evaluate the success of the product you have made and tested. Analysis must include how the use of environmentally sound products might be promoted. Use the worksheet Product evaluation to record this information (Appendix 1.4.4).
For the evaluation of the analysis of lab results, see the Thinking/Inquiry Rubric, Appendix 1.5.3.

Appendix 1.4.1 (Continued)

Part C – The Infomercial

Produce a 5-minute live or taped infomercial that educates the intended audience and makes specific proposals for ways to promote environmentally sound daily practices.

The infomercial:

- ___ provides background information on topic,
- ___ clearly identifies the issue/problem in the larger/community,
- ___ promotes the “green” environmentally friendly product you tested as a “solution” to issue/problem,
- ___ explains how it is a solution and communicates the advantages of this solution,
- ___ acknowledges and justifies the drawbacks of your product.

For the evaluation of your infomercial, see the Communication Skills Rubric, Appendix 1.5.2.

Summary of Assessment and Evaluation

Part A – The survey: use the Thinking/Inquiry Rubric Appendix 1.5.3

- Tally sheets– will/do they match the type of data being collected during the survey? (T/I)
- Graph of survey results (T/I)

Part B – Testing the Infomercial Product: use the Thinking/Inquiry Rubric, Appendix 1.5.3

- Analysis of lab results (T/I)

Part C – The Infomercial

- Presentation of the Infomercial: use the Communication Skills Rubric, Appendix 1.5.2

Appendix 1.4.2

How to Develop a Survey

Be sure to have clear instructions for the respondents.

Note: Students must be instructed to accept “no comment” as a valid answer to any questions, and to respect that people may choose not to respond at all.

Circle the answer that best reflects your actions, opinions, and viewpoints for each of the following questions.

Surveys could include questions similar to:

If shampoo is selected, sample questions include:

1. How often do you wash your hair each week? (circle the best answer)
Once a week Twice a week Daily Often more than once a day
2. What is most important to you in a shampoo? (circle only one answer)
Cost Lather Scent Other (list) _____
3. Would you be willing to try a shampoo that is promoted as an environmentally friendly alternative?
Yes No
4. Would you be willing to modify your personal hair-washing habits in order to have less impact on the environment?
Yes No

If packaging is selected, sample questions include:

1. How many times a week, on average, do you eat at “fast-food” restaurants?
Once Twice Four times Five times More than five times
2. Do you usually think about the packaging on products before purchasing?
Yes No
3. How often do you reuse/refill packaging (bags, boxes, etc.)?
Always Sometimes Rarely Never
4. Most products have too much packaging. Select the answer that best reflects your opinion of this statement.
Strongly disagree Disagree Agree Strongly Agree

If a household cleaner is selected, sample questions include:

1. Are you aware of the content of the household cleaning products in your home?
Yes, I know what is in all of them.
No, I don't know about any of them.
I know about the contents of some of them.
2. How often do you use household cleaning products?
Daily Twice a week Once a week Rarely Never
3. Have you ever used environmentally friendly/“green” alternatives?
Yes No
4. Would you use environmentally friendly/“green” alternatives, if available?
Yes No It depends on _____

Appendix 1.4.3

Tally sheet and analysis

Construct a chart that allows quick and easy recording of the answers to the survey questions
e.g., If packaging, sample chart could include:

Question from Survey	Possible answers					
How many times a week, on average, do you eat at “fast-food” restaurants?	Once	Twice	Three times	Four times	Five times	More than five times
Number of Responses						
If recycling is available in public places, do you use it?	YES			NO		
Responses						

Now, in the space below, or on the back of this sheet, develop a tally sheet that reflects your survey questions.

What patterns emerge?

-
-
-

How similar are the community issues to those you have identified in your own daily life?

-
-

What attitudes expressed in the survey do you think can be modified to become more environmentally sound?

Using the information from this sheet, brainstorm ideas for an infomercial informing others of this environmentally sound daily practice.

Appendix 1.4.4

Product Evaluation

Name/type of product developed: _____

- Summarize the main steps taken to make product
- Record your observations about the product prior to actual testing.
 - What does it look like?
 - Is it appealing?
 - What was the cost involved in making this product? Compare this price to the cost of purchasing a similar product.
 - Will it be better (less damaging) for the environment? How?
- Record your observations made after testing the product.
 - Was this an easy product to make and use? Explain.
 - Did it work well? (Describe the advantages of this product.)
 - What are the disadvantages of the product?
 - Speculate as to why the product is not being used by a lot of people.
 - How could other people be encouraged to make and use a product like this?

Appendix 1.5.2

The following breakdown of the rubric components is intended to assist teachers in evaluation of student achievement.

Communication Skills Rubric: An Achievement Chart Approach*

Communication Criteria	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)	Next Steps
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Note: all cells may not apply to each assignment

What does communication with clarity look like?

- Correct use of language (grammar, punctuation, etc.)
- Logical development of ideas
- Correct use of terms
- Appropriate use of knowledge

Criteria	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)	Next Steps
Communicates information and ideas	- communicates information and ideas with limited clarity	- communicates information and ideas with some clarity	- communicates information and ideas with considerable clarity	- communicates information and ideas with a high degree of clarity, and with confidence	

What does effective use of symbols and visuals look like?

- Appropriate visuals, graphics for the message (add to the product, not detract)
- Media technology appropriate
- Media technology set up ahead of time and student has knowledge of how to use it
- Maps are: accurate and include appropriate title, legend, direction, scale, and border

Criteria	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)	Next Steps
Uses symbols and visuals, including technology	- uses symbols and visuals with limited accuracy and effectiveness	- uses symbols and visuals with some accuracy and effectiveness	- uses symbols and visuals with considerable accuracy and effectiveness	- uses symbols and visuals with a high degree of accuracy and effectiveness	

What does audience purpose and effectiveness look like in written, oral, or visual work?

- appropriate depth of vocabulary/images
- an appropriate degree of formality to the product
- format appropriate

Also consider the following for oral presentations:

- voice projected and has variance in tone
- body language is appropriate
- eye contact made with audience
- pacing of material

Appendix 1.5.2 (Continued)

Criteria	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)	Next Steps
Communicates for different audiences and purposes (oral/written/visual)	- communicates for different audiences and purposes with limited effectiveness	- communicates for different audiences and purposes with some effectiveness	- communicates for different audiences and purposes with considerable effectiveness	- communicates for different audiences and purposes with a high degree effectiveness	

Note: A student whose achievement is below level one (50%) has not met the expectations for this assignment.

* This rubric was developed directly from the Canadian and World Studies Achievement Chart.

The following course expectations: GIV.02, GI1.01, GI2.02, GI2.03, GI2.05, GI2.06, GI2.07, GI3.01, GI3.02, GI3.03, may be assessed and/or evaluated using this rubric.

It may also be used elsewhere throughout the course, where Communication skills are assessed and/or evaluated.

Appendix 1.5.3

Thinking/Inquiry Skills Rubric: An Achievement Chart Approach*

Thinking/ Inquiry Criteria	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)	Next Steps

Note: all cells may not apply to each assignments

What do inquiry skills look like?

- Appropriate focus question(s) are developed (level of sophistication)
- Research material of appropriate quality
- An appropriate amount of research
- A variety of sources indicated through bibliography
- Research organized by an appropriate organizer (e.g., charts/coding/numbering)

Criteria	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)	Next Steps
Questions, organizes, and implements research skills (inquiry skills)	- applies few of the skills involved in an inquiry process	- applies some of the skills involved in an inquiry process	- applies most of the skills involved in an inquiry process	- applies all or almost all of the skills involved in an inquiry process	

Appendix 1.5.3 (Continued)

What do effective critical thinking skills look like?

- Appropriate use of data and evidence
- Analysis is supported by research
- Statistics support analysis
- Source bias is identified

Criteria	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)	Next Steps
Analyses points of view and bias (critical thinking skills)	- uses critical thinking skills with limited clarity and effectiveness	- uses critical thinking skills with moderate clarity and effectiveness	- uses critical thinking skills with considerable clarity and effectiveness	- uses critical thinking skills with a high degree of clarity and effectiveness	

What do effective creative thinking skills look like?

- Extraction and manipulation of appropriate data is present
- A degree of insight evident beyond the obvious connections
- Alternative perspectives are provided
- Appropriate solutions and summary statements given

Criteria	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)	Next Steps
Problem solves using multiple perspectives (creative thinking skills)	- applies creative thinking skills with limited effectiveness	- applies creative thinking skills with moderate effectiveness	- applies creative thinking skills with considerable effectiveness	- applies creative thinking skills with a high degree of effectiveness	

A student whose achievement is below level one (50%) has not met the expectations for this assignment.

*This rubric was developed directly from the Canadian and World Studies Achievement Chart.

The following course expectations: GIV.01, GIV.02, GIV.03, GI2.01, GI2.02, GI2.04, GI2.05, GI2.06, GI2.07, GI3.01, GI3.02, GI3.03, may be assessed and/or evaluated using this rubric.

It may also be used elsewhere throughout the course, where Thinking/Inquiry skills are assessed and/or evaluated.