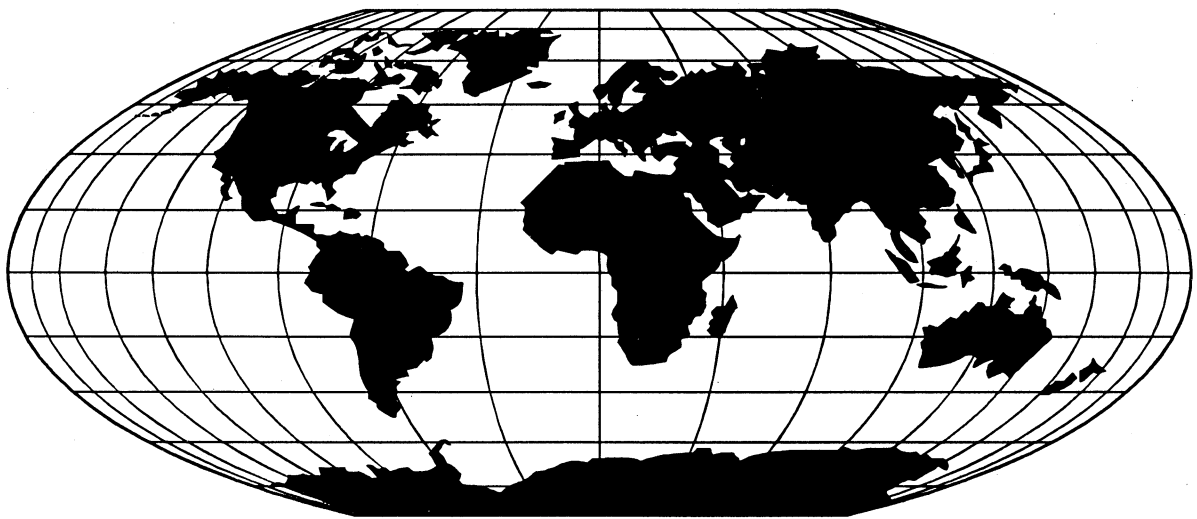

Grade 12

GG12

GLOBAL GEOGRAPHY



Global Geography 12

Global Geography 12

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Introduction

Course Description

Global Geography is a grade 12 course that may be used to satisfy the Global Studies requirement for successful completion of the high school program. It features **eight compulsory units** that are based upon the standard themes and skills of the discipline of geography. In order of their appearance in this curriculum guide, they are

- Unit 1: Our Fragile Planet: A Geographical Perspective
- Unit 2: Perilous Processes: Our Planet at Risk
- Unit 3: The Peopled Planet: Standing Room Only?
- Unit 4: Feeding the Planet: Food for Thought
- Unit 5: Global Resources: The Good Earth
- Unit 6: Global Factory: For Whose Benefit?
- Unit 7: Urbanization: A Mixed Blessing
- Unit 8: The Future Planet: Under New Management

Each unit is based upon a theme that is fundamental to an understanding of our contemporary planetary condition. In combination, the study of these units should help students to offer answers to the key question upon which the course is built: **“How did the world arrive at its current state at the close of the 20th century?”**

Rationale

Humanity has reached a most challenging moment in its occupation of planet Earth. The challenge originates in knowledge, and that knowledge originates in technologies most fully developed in the last five or six decades.

In 1957, with the launch of the Soviet Union’s Sputnik I, we began to use a communications technology that would soon link almost every nation and region on Earth. By 1962 an American communications satellite, Telstar, was beaming live television signals to Europe. A variety of others, including Canada’s Anik series, would rapidly make events in one part of the world instantly viewable in homes continents away. The “global village” was about to be born.

In 1962 the United States initiated the Apollo program. Its purpose was to put a man on the moon before the end of the decade. The program succeeded, as we all know, and its pictures of our blue planet, hanging in a jet-black sky, have become as common and unnoticed as discarded popsicle sticks.

But it was those first pictures of “the home planet,” and the thousands that followed, that helped to revise humanity’s thinking about theirs, the third planet from the sun. It is a transformation that proved Fred Hoyle’s 1948 statement to be prophetic: “Once a photograph of the Earth, taken from the outside, is available ... a new idea as powerful as any in history will be let loose.” Over two hundred and fifty women and men, from over twenty nations, have now taken such photographs.

Also making strides during these same years were the physical sciences and their ability to probe the secrets, conditions, and problems of our immediate world. They too utilized the new space age technology. Over 20 satellites, with names like Radarsat, Landsat, and Upper Atmosphere Research Satellite, now probe the planet's atmosphere and surface features. They are adding constantly to our knowledge of the continents, the oceans, the forces and life forms within them, the surrounding blanket of gases that nurtures and protects, and the impact of human activity upon them all.

Growth in knowledge and understanding has led us to acknowledge that ours is an interdependent world wherein the forces of nature and humanity are inextricably linked. The unit themes of this course have been chosen because they affect humanity globally, and because their study will allow students to examine linkages which render our world interdependent. By carrying out this examination from a geographic perspective, our students should achieve a new sense of global responsibility, both to their fellow humans, wherever they may be, and to Earth's environments, large and small, local and distant.

Aims and Goals

Most of the students who enrol in Global Geography will be in their thirteenth year of schooling. They will be called upon, in all their courses, to use a wide range of skills and to fall back upon a broad general knowledge, that has been developing during their years at school. This Global Geography course has been developed with those learnings in mind. This results in a set of expectations that will require students to pursue goals of geographic education that will constantly be integrated with the more general aims of public education.

General Aims: Public Education, Social Studies

Social studies education reflects the aims of Nova Scotia's Public School Program by helping students to become lifelong learners. This is done by providing the learners with purposeful, active learning experiences, inside and outside the classroom, that will enable students to

- develop the ability to think clearly
- communicate effectively
- make sound judgments
- discriminate among values
- acquire a sound basic knowledge of humanity and its interaction with the natural environment
- develop the skills reflective of the social science disciplines

General Aims: Global Studies

There are different interpretations of the term "global studies." For instance, in the United States, world geography means organizing a program which "takes students" to regions and nations around the globe. In the United Kingdom, a more prevalent term is global education, one which focusses upon cultural responses to the human/environment dynamic. Nova Scotia's global studies courses, Global History and Global Geography, focus upon a limited number of key constructs or concepts whose discipline-based study allows students to

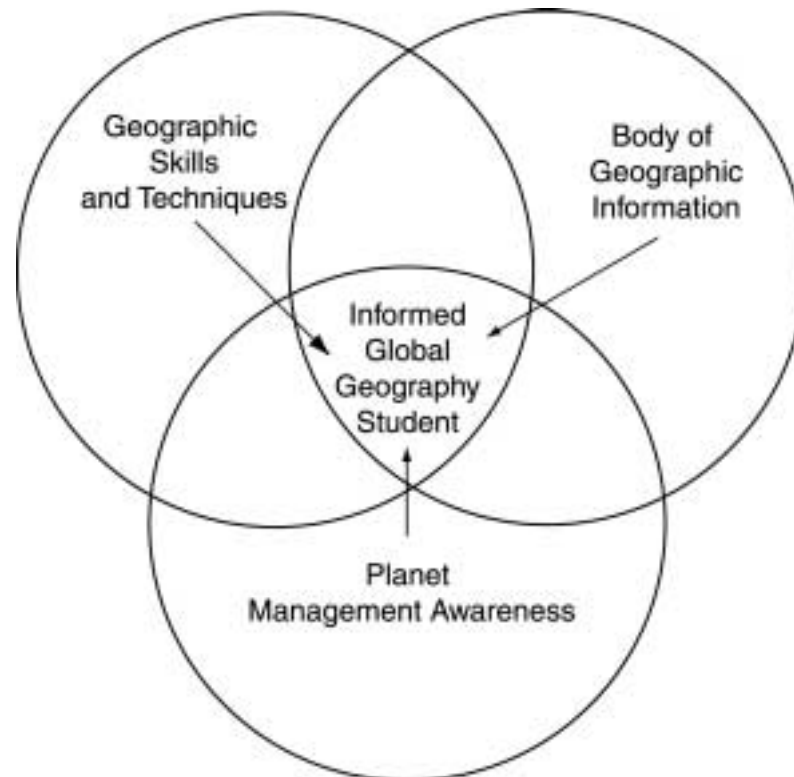
- develop an understanding of the interdependence of nations, in time and in space
- develop frameworks within which to consider global conditions and global issues
- find answers to the question: "How did the world arrive at its current state at the close of the 20th century?"

Specific Goals: Global Geography

The learnings generated by the eight units of this global geography course should enable students to

- develop both an individual and a shared responsibility for the well-being of the planet, its life forms, its resources, and its peoples
- acknowledge that individually and collectively each person makes choices that have an impact upon the natural environment, locally and globally
- acquire a working knowledge of geographic methods, techniques, and skills whereby they are better able to study and understand the world around them
- explain and illustrate the interrelationships among, and the interdependence of, global mechanisms and systems
- recognize, examine, and explain changing world conditions, and to identify and discuss emerging global trends
- recognize, appreciate, and describe the great geographic diversity within and among the nations and regions of the world
- respect diversity among the world cultures and to acknowledge various perspectives on human and natural environments, and on global affairs and issues, that are generated by cultural diversity

The pursuit of these goals will help teachers to facilitate the development of global geography students who can continue to learn geographic information, who can process and analyse that information, and who can therefore continue to develop a strong awareness of the need to share and care for the planet's limited resources.



Program Goals: Global Geography in a Grade 10–12 Sequence

The sequence of three courses makes it possible for students to benefit from a geography program at the senior high level. Grade 10 features a physical geography course that examines the planet and the forces that continue to shape it. Grade 11 features a (proposed) settlement geography course that, in effect, puts people on the planet. It examines pattern and reason in human settlement. Grade 12 global geography completes the program by combining the themes of the first two courses in an examination, on a global scale, of the two-way interaction between the natural world and its human inhabitants.

Related Goals: Environmental and Sustainable Development Education and Global Education

It is not the intention of the Department of Education to limit environmental and sustainable development education and global education to a particular course or discipline. As with other long-term goals such as multiculturalism and anti-racist education, environmental and sustainable development education are interdisciplinary and must be vital, continuing elements of a student's learning from grade primary onwards. Global Geography then, is only one of a number of courses that serve to develop further students' knowledge and understanding of the natural and social world around them.

The following list of aims of global education was developed by the Nova Scotia Global Education Project (1990).

To enable students to develop

- perspectives consciousness: the recognition or awareness that
 - one's world view is not universally shared
 - one's world view has been and continues to be shaped by influences that often escape detection
 - others have world views profoundly different from one's own
- "state of the planet awareness"
 - of prevailing world conditions and developments including emergent global trends
- cross-cultural awareness
 - of the diversity of ideas and practices to be found in human societies around the world
 - of how such ideas and practices compare
 - of how one's own society might be viewed from other vantage points
- knowledge of global dynamics including
 - a comprehension of key traits and mechanisms of the world system
 - consciousness of global change
- awareness for human choices, especially the problem of choice confronting individuals, nations, and the human species as consciousness and knowledge of the global system expands

The Nature of Geographic Studies

Two questions seem to shadow the promoters of geographic education. The first, “What is it?”, is difficult to answer, not because there isn’t a definition, but because there are many. In the most simple terms, geography is the study of planet Earth as the home of humankind. But because this study can be approached from different perspectives, it is possible to study the subject as physical geography, environmental geography, economic geography, political geography, cultural geography, global geography, and so on.

The other question is, “Of what use is it?” This one is much easier to answer. There was a time when the geography of public schooling focussed primarily upon place names and the things that people did in different locales. This “capes and bays geography” relied considerably upon memorization, and focussed little on skills and attitude development. That is no longer the case. Current geographic education more fully reflects the discipline of geography. It is founded upon a number of key concepts (themes), uses a number of specific skills, and seeks to develop the values and attitudes of the learner. These components, integrated as they are with other knowledge, skills, and attitudes developed through the public school program, contribute significantly to the education of students as lifelong learners.

Key Concepts (Themes)

Geography is a tool for understanding Earth and is not simply an inventory or description of its contents. This viewpoint rests on a number of fundamental, interlocking concepts. These geographic concepts are reference points and guides in our inquiry into the nature of our world. The key concepts or themes that emerge from the various traditions of the discipline are: *location, region, pattern, spatial interaction, human/environment interaction, and culture*. Because these key concepts have guided the development of this global geography course, they are described here with examples from the content of the eight units.

It should be noted that these themes occur naturally and are integral to the course. To help teachers realize the full potential of unit lesson plans, the themes are identified in the sub-sections of the detailed course outline.

1. Location

At an instant everyone and everything occupies a place on Earth. Each localized phenomenon can be described in reference to the global grid (absolute location) and in reference to other phenomena (relative location). “Where is it?” is an important geographic question, one that takes skill and knowledge to answer properly.

Through the analysis and interpretation of data the geographer also seeks to answer such locational questions as “Why is it there?”, “What is the significance of its being there?”, and “Would it have been better placed elsewhere?” This global geography course should enhance the students’ ability to determine and describe location, and to understand the significance of location.

For example, no matter where one looks, most of the world’s major urban centres are located along coastal areas or on other waterways. The reasons for this go back in time when water best served humanity’s need for travel, trade, and transportation. The significance of trade and commerce in the growth and development of these major cities can be inferred from this geographic observation. Exceptions to this pattern can be found in Beijing and Mexico City and as such offer interesting studies into the factors of location.

Two other factors that have historically influenced location are resource availability and defence. An interesting exercise for global geography students would be to examine the areas of greatest urban growth in the last four decades and to see if traditional factors are at play, or new ones such as air travel, or easily imported energy.

2. Region

A region is a distinctive part of Earth defined according to some particular criterion or set of criteria. As such, the concept of region is a device geographers use to comprehend similarities and differences on the planet's surface. The distinctive character of a region may, for instance, be based on uniformity within its physical landscape (rainforests), or its resource base (corn belt), or its political structure (Eastern Bloc). Students in global geography should be encouraged to search for broad patterns of similarities and differences that in turn will provide manageable and meaningful subdivisions for focussed inquiry.

For example, one of the most important regions of the world is the ecosystem we know as the rainforest. These ever-moist and every-growing jungles are unique in many ways. They have an incredibly rich storehouse of plant and animal species, and it may take over 400 years for the surviving myriad life forms of certain rainforests to reassemble themselves after the trees have been cut down.

The global geography classroom will no doubt test the definition and scale of this term region. For instance, does the division of the world into the "north" and "south" reflect new criteria for defining region, such as economic well-being or technological expertise?

3. Pattern

Pattern refers to a detectable organization of physical or human phenomena on Earth. For example, the organization of land for agricultural purposes is seldom haphazard or random. Market gardening and dairy farms are usually closer to urban markets than beef operations. Pattern is strongly related to location because patterns are essentially sets of phenomena. Considered together individual phenomena often exhibit a characteristic pattern of distribution. Mapping, so essential to geographic inquiry, can be viewed as the geographer's attempt to illustrate graphically the existence of patterns in the physical and human environment. Global geography students should be involved in the processes of describing and explaining these patterns and in searching for the multiple causes found among physical and human factors. They should come to recognize that distributions are not static but constantly changing.

For example, Isotherm maps for July and January, with temperature readings compiled at thousands of weather stations, illustrate a pattern of average summer and winter temperatures. Careful study of the distribution of temperatures reveals the impact of such factors as latitudinal position, proximity to a large body of water, prevailing winds, elevation, and ocean currents.

Pattern is also found in human geography; the sites of the world's major cities cited above illustrate this. Other examples can be found in the relationship between settlement and elevation, and between settlement and fertile, arable land.

Patterns may also emerge when a number of variables is analysed such as the prevalence of spoiled water supplies, level of education attained, and economic vitality.

4. Spatial Interaction

Interaction among places and regions on the surface of Earth is evident in the flow of people, energy, goods, information, and money. It can be on a relatively small scale such as that between the forests and the pulp and paper mill town. On the other hand it can be between the oil producing nations and energy-dependent consumers thousands of kilometres away. This interaction reflects the high level of interdependence that results from specialization. A region harvesting a resource has many connections with centres producing the manufactured product. The patterns of movements and linkages change over time as a result of factors such as advances in technology, changing resource use, and shifts in government policy. Geography students should attempt to discern the interactions within and between various regions. Further they should seek to understand the nature of these flows and their impact on the human and physical environment.

For example, looking at the manufacture of automobiles in the world today reveals a complex set of interactions between many regions of the world. Investment flows from the established manufacturing nations to countries with attractive labour costs. Parts from around the world are transported by container ships to factories in market regions. Increasingly automation is changing the process of car assembly and hence the demands of the workforce.

Students who begin to examine the role of spatial interaction in global geography will no doubt soon realize that key concepts are interrelated. Useful critical thinking exercises will compel students to explain, for instance, the interrelationship of location, pattern, and spatial interaction, and then to apply this combination to other phenomena.

5. Human/Environment Interaction

In its broadest sense the environment refers to the total milieu of physical and biotic phenomena on, within, and surrounding the planet. Humans both live in and form part of Earth's environment. Humans act upon and change the environment as they use it. Similarly, the environment exerts real influence on humans and their activity. The effects of interactions between humans and their environment, and responsible planet management, are fundamental foci that run throughout the global studies course.

For example, the industrial build-up in the Great Lakes Lowlands has produced much wealth for the region. The Lakes have met industrial and urban demands for power, for transportation, for coolants and for waste disposal. The region now bears grim signs that the environment has been harmed by human actions. International agreements on the use of the Lakes have been a part of the rewriting of this story.

As in spatial interaction, scale also plays a role in this concept. The Great Lakes example above is relatively small scale when one considers the impact human activity worldwide has had on the atmosphere, as demonstrated by the depletion of the ozone layer and the build-up of the so-called greenhouse gases.

6. Culture

Each society in each era perceives and interprets its surroundings, including its physical setting, through the prism of its own way of life (culture). The nature of a "resource" reflects this fact. What one culture views as a valuable resource another culture views quite differently. As the interpretation of the environment and the manner in which it is exploited depends upon human circumstance, it is important for geography students to be aware of cultural differences. As we come to appreciate people's culture, we come to understand their particular human responses to the environment.

For example, an indigenous tribe in the remote reaches of the Amazon rainforest view the land as the giver of life as an integral part of their cultural heritage. The Brazilian government looks to the forests as a source of land for poverty-stricken urban dwellers. A multinational corporation hopes to use the region's warm humid climate to grow trees for a pulp and paper industry.

A critical process will be under way when Nova Scotia students are asked to assess the impact of their own environmental practices in relation to any number of issues, e.g., rainforest destruction, decline in world fish stocks, growth of acid rain.

Because most of their wants and needs are either culturally driven or culturally met, the students of this global geography course should be given the opportunity to examine their culture and lifestyles, and to assess critically the opportunities and responsibilities that lie in front of them to make a substantial contribution to improve the well-being of the planet and its inhabitants.

These six interrelated key concepts provide useful ways of looking at our complex planet. They will become more meaningful as teachers and students use them throughout the units of this global geography course.

Geographic Literacy

The yet-to-be written histories on the late twentieth century will no doubt focus, in part, on changes in the role of the individual. Among them will be the role of the individual as a citizen of the "global village" and as a steward of the environment.

These two changes were decades long in the making and were generated by a number of interrelated factors. But the record will no doubt show that the general complacency that met isolated environmental crises, such as the systemic pollution of Lake Erie in the 1970s, gave way to a strong international concern. It was a concern not only for localized examples of environmental degradation, such as the tragedy of Asia's Aral Sea region, but for the very well-being of the planet as whole.

Perhaps, then, for the first time in human history, it has become necessary for the educated person to be "environmentally literate." Geography, and related geographic and physical sciences, can make very substantial contributions to this emergent literacy. The following statements illuminate the nature of geographic studies, and point to the role that they can play in the education of the environmentally literate citizen.

- Geography, while one of the social sciences, is nonetheless concerned with, and benefits from, a number of areas of study.
- The nature of geographic study is engaging and one that is supported by specialized methods and resources. These contribute to the growth of knowledge and skills, and enable learners to assess diverse values and attitudes.
- There are concepts, principles, and theories that together create a framework within which geographic studies are undertaken.
- The conclusions of geographic research can be clearly communicated through language, mathematics, maps and graphs, photographic media, oral presentations, and drama.
- Skills of data collection, interpretation, presentation and an appreciation of the geographer's perspective, are useful in addressing everyday issues.
- A broad and growing knowledge and involvement in geographic issues enriches public and private life.

Conclusion

With its key concepts, specific skills, and its own unique literacy, geographic study has the potential to contribute to the development of young people as lifelong learners and participating, thoughtful citizens in the world of the twenty-first century. This global geography course, founded as it is upon these primary characteristics, is designed to be a partner in that development.

Suggestions for Implementation: Managing a Year-Long Study

Content Outline

On the following two pages is a brief outline of the Grade 12 Global Geography course. An almost identical outline is found in Appendix D. This is provided so that teachers may make photocopies to give to their students at the beginning of the year or semester. A detailed content outline begins on p. 23. It is recommended that one copy of this outline be available to students in their global geography classroom.

Unit 1: Our Fragile Planet: A Geographical Perspective

- 1.1 Earth in Space: A Fragile Miracle
- 1.2 A Geographer's Perspective
- 1.3 The Critical Stage: A Planet in Peril

Unit 2: Perilous Processes: Our Planet at Risk

- 2.1 The Dynamic Planet: Potential Peril
- 2.2 Peril and Threat: Natural Processes
- 2.3 Peril and Threat: Human Processes
- 2.4 The Growing Concern: Some Heartening Signs

Unit 3: The Peopled Planet: Standing Room Only?

- 3.1 Spatial Patterns
- 3.2 The Numbers Game
- 3.3 The Global Support Question

Unit 4: Feeding the Planet: Food for Thought

- 4.1 The Land/Ocean Potential
- 4.2 The Harvester: Humanity's Quest for Nourishment
- 4.3 The Land/Ocean Crisis
- 4.4 Land/Ocean Management

Unit 5: Global Resources: The Good Earth

- 5.1 Resource Potential and Utilization
- 5.2 Resource Crisis
- 5.3 Resource Management

Unit 6: Global Factory: For Whose Benefit?

- 6.1 General Background to Industrial Development
- 6.2 Evolving Patterns of Industrial Development
- 6.3 Globalizing the Marketplace: Winners and Losers

Unit 7: Urbanization: A Mixed Blessing

- 7.1 The Drift to the City
- 7.2 Eopolis to Necropolis: Growth and Decline of Cities
- 7.3 Planned Cityhood

Unit 8: The Future Planet: Under New Management

- 8.1 Prelude to Action: Science, Education, and Guidelines
- 8.2 Action: Dimensions of Planetary Stewardship

Eight Units: The Complete Course

This global geography course will realize its full potential only when students have the opportunity to deal with all eight units. While it may take teachers a number of year-long experiences to master the course, a balanced mixture of independent research assignments, co-operative learning experiences, teacher-centred instruction, effective use of computer software, audio-visual, printed, and other resources—these and other teaching/learning options must allow students access to all units. A guiding principle is that teachers should always strive to achieve the stated unit objective. The detail that follows those statements supports them, but it is recognized that teachers, through methods, resources, and content adjustment, will fashion the delivery and content of the course as they deem appropriate to the goals of the program.

Planning a Year of Study: Choosing a Sequence of Units

While there are sound reasons for the order in which these units appear, that order is not intended to be entirely prescriptive. Units 1 to 7 may be sequenced according to teacher preference and professional judgement. **Unit 8 must be the final focus of the school year.** It provides teachers with the opportunity to bring all previous units together and to give cohesion to the structure of the course. Some possibilities are:

Example 1

- Unit 1: Our Fragile Planet: A Geographical Perspective
- Unit 2: Perilous Processes: Our Planet at Risk
- Unit 3: The Peopled Planet: Standing Room Only?
- Unit 4: Feeding the Planet: Food for Thought
- Unit 5: Global Resources: The Good Earth
- Unit 6: Global Factory: For Whose Benefit?
- Unit 7: Urbanization: A Mixed Blessing
- Unit 8: The Future Planet: Under New Management

This arrangement, the one used in this guide, is based upon the connectiveness of Units 3 to 7. Unit 3 puts people on the planet. These people utilize technology and resources of the planet to feed themselves (Unit 4). The people also look at other resources to satisfy their needs and wants (Unit 5). This use of resources leads to industrial development (primary, secondary, tertiary) (Unit 6). Industrial activity and growth leads to urbanization as people migrate in search of employment and prosperity (Unit 7).

Example 2

Unit 1: Our Fragile Planet: A Geographical Perspective

Unit 2: Perilous Processes: Our Planet at Risk

Unit 3: The Peopled Planet: Standing Room Only?

Unit 7: Urbanization: A Mixed Blessing

Unit 4: Feeding the Planet: Food for Thought

Unit 5: Global Resources: The Good Earth

Unit 6: Global Factory: For Whose Benefit?

Unit 8: The Future Planet: Under New Management

This arrangement simply relocates the urbanization unit next to the population unit. The reason behind this is that urbanization involves population movement and growth. Because this phenomenon drains the population of the rural areas where most food production occurs, Units 3 and 7 can be used to lay the groundwork for Unit 4 that deals with food production.

Example 3

Unit 1: Our Fragile Planet: A Geographical Perspective

Unit 2: Perilous Processes: Our Planet at Risk

Unit 3: The Peopled Planet: Standing Room Only?

Unit 6: Global Factory: For Whose Benefit?

Unit 7: Urbanization: A Mixed Blessing

Unit 4: Feeding the Planet: Food for Thought

Unit 5: Global Resources: The Good Earth

Unit 8: The Future Planet: Under New Management

Here the perils theme focussed upon in Unit 2 is reinforced by Units 3, 6, and 7, each of which can be looked at from a problem, or threat, or peril perspective. These units are followed by the two resource units, and they are followed by Unit 8, which considers future use and management of the planet's limited resources.

Example 4

A slightly different approach would take advantage of common themes and would pair units. For instance

Unit 1: The Fragile Earth is paired with an overview treatment of Unit 8. This would allow long range targets to be identified.

Unit 6: Global Factory is paired with Unit 2: Perilous Processes. Unit 6 serving as a lead into Unit 2.

Unit 3: The Peopled Planet is paired with Unit 7: Urbanization, the former being a major contributing factor to the latter.

Unit 4: Feeding the Planet and Unit 5: Global Resources, are paired with Unit 8. Sustainable development would be the linking concept and would allow Unit 8 to conclude the year of study.

Planning a Year of Study: Choosing Case Studies

A number of points must be kept in mind when choosing, and allowing students to choose which case studies to embark upon.

1. **Resources:** A most significant contributing factor to the quality of a case study is the number, variety, and quality of resource materials. In preparation for any resource-based teaching/learning practice, teachers must determine the availability and accessibility of such materials and must inform the students accordingly. In the school this means that well ahead of time, teachers must collaborate closely with library personnel to assure that the required resources are identified and their location known. With current technology, these resources could include audio-visual and computer software, electronic network linkages, print and pictorial material, speakers lists, artifacts, and so on.
2. **Spatial Distribution:** It is important that regionalism be avoided in choosing case studies. It is conceivable that North American examples, be they local, national, or continental, could address the needs of all eight units. Were this done, however, students would be denied the opportunity of learning about geographic realities elsewhere on the globe. It would be efficient if a master grid was provided for each global geography class on which the distribution of case studies could be monitored.
3. **Multiple Application:** Unit 1 (1.3.3) suggests case studies to illustrate warning signs that human activity is putting the planet under stress. One of the suggestions is Mexico City. Unit 7, Urbanization, also deals with “cities in crisis” (7.2.2). Teachers should govern the choice of case studies so as to capitalize upon this type of duplication. Thorough familiarity with the detailed course outline will allow teachers and students to optimize this year-long planning strategy.
4. **Student Evaluation:** It is hoped that individual or co-operative independent study will be used to carry out many of the case studies. For instance, it is possible, using the urbanization example above, that in Unit 1 a student could conduct preliminary research to provide an overview of the Mexico City situation. Perhaps it would be based upon a statistical review. Having had this work evaluated, a student could then use it as a departure point for a full-fledged research project. This would be due towards the end of the course and could make up the larger percentage of the student’s evaluation scheme.
5. **Interdependence:** All case studies can contribute to the development of the concept of interdependence. Unit 8 provides a focal point for a detailed treatment of this concept. Each of the preceding units, however, is designed to add to the students’ understanding and appreciation of this complex, multi-faceted concept.
6. **Scale:** An attempt should be made to have each student deal with case studies of various “proportions.” On the one hand, there are case studies that are relatively isolated but which contribute to a larger pattern or condition. The depletion of North Atlantic fish stocks is an isolated case study that illustrates a worldwide reality—the need to manage resources better. On the other hand, there are case studies that deal with truly global phenomena, such as the depletion of the ozone layer and the increase of greenhouse gases in the atmosphere.

While the preceding points are focussed on content management, it should also be noted that classroom practice can be managed as well. Early assignment of case studies allows teachers and students to plan for and work towards later-in-the-year events. These could include a series of formal oral presentations, seminar and defence sessions, video production/presentations, and illustrated (e.g., slide) presentations. Case studies could also be used as the themes for major projects such as model United Nations Assemblies, model Commonwealth Conferences, mock trials at the International Court of Justice, and student-designed/organized, district-wide Environmental Conferences (e.g., in recognition of Earth Day).

Planning a Year of Study: Themes, Skills, and Geographic Literacy

It is essential that their year of study will allow students to develop a keener understanding of geography's key concepts (themes), to practice skills that reflect the discipline of geography, and to experience growth in geographic literacy. The management plan that is adopted for the year, and the various methods, strategies and resources that are employed, must be chosen so as to promote growth in these three areas.

Detailed Content Outline

Unit 1: Our Fragile Planet: A Geographical Perspective

Unit Objective: To create an awareness in students that Earth is a unique ecosystem that has reached a critical stage in its development, and that geography can contribute to a more holistic understanding of our planet.

Suggested Time: 2–3 Weeks

1.1 Earth in Space: A Fragile Miracle

Objective

- To familiarize students with the characteristics that make Earth unique.
- To nurture in students an appreciation for the fact that Earth has an environment that is unique in the solar system, one whose whole is far greater than the sum of its parts.

Earth occupies a position in the solar system whereby its temperature range and mix of gases have created a unique environment supporting many diverse life forms. As a closed system the biosphere is in delicate balance and disturbances within the system may have dramatic and far-reaching effects. Humans, by way of their intellect and numbers, have sole responsibility for the planet's guardianship.

1.1.1 Planetary Position and Parameters for Life

Primary Theme: location

- a) Position within the solar system
- b) Chemistry of Earth's atmosphere
- c) Importance and unique qualities of water

1.1.2 Earth as a Closed System

Primary Themes: human/environment interaction (implied)

- a) Closed and open systems
- b) Incoming/outgoing energy
- c) Carbon, nitrogen, oxygen, and water cycles

1.1.3 The Gaia Hypothesis

Primary Themes: human/environment interaction, culture (implied)

- a) The hypothesis
- b) The peril of humankind's action

1.1.4 Humankind as Part of the Miracle

Primary Theme: human/environment interaction

- a) Relatively recent arrival
- b) The dominating species
- c) Capacity to care and the role of variables: knowledge and reasoning, socio-economic factors, culture, female/male perspective, etc.

1.2 A Geographer's Perspective

Objective

- To have students gain an appreciation of geography as a discipline and how it can enable a student to gain a better understanding of planetary patterns.

Geography occupies a pivotal position from which a holistic study of the planet can be met. At the crossroads of many disciplines, geography draws on a variety of physical and social sciences thereby enabling students to gain a better understanding of planetary patterns in both space and time.

1.2.1 Geographic Themes and Traditions

See this guide, pp. 9–13

1.2.2 Geographic Methods and Techniques

- a) Data sources of geographic information—graphs, statistics, maps, and images
- b) Geographic information systems—data manipulation
- c) Processing geographical knowledge—interpretation, correlation, and analysis
- d) Evaluating geographic information—critical thinking, problem-solving, and decision-making processes

1.3 The Critical Stage: A Planet in Peril

Objective

- To have students appreciate the potential of critical situations facing the planet.

Throughout the evolution of the planet, the pace of its development has been accelerating. Each new wave of change builds up to trigger the next in a series of quantum leaps. In the last few years human technology has changed the face of the planet in ways both beneficial and detrimental. The detrimental effects could be irreparable.

Note: *Before designing their lessons for this sub-section, teachers should carefully examine all of Unit 2, Unit 4 (4.3), and Unit 7 (7.2.2).*

1.3.1 Accelerated Rates of Change

Primary Themes: pattern, spatial interaction, region, human/environment interaction

- a) Population growth and plant/animal species decline
- b) Technology—information, energy, and mobility

1.3.2 Warning Signs

Primary Theme: human/environment interaction

- a) Signs of crisis in the atmosphere
- b) Signs of crisis in the ocean
- c) Signs of crisis on the land

1.3.3 Selected Case Studies

Primary Themes: potentially all, with human/environment interaction predominant

Teachers may develop or choose from many topical/regional examples such as

- Deforestation and the “Hamburger Connection”
- Mexico City: A City in Crisis
- Encroaching Desert and the Sahel
- Land Use Perspectives: The Cree and Hydro Quebec
- Local Environmental Issues

Unit 2: Perilous Processes: Our Planet at Risk

Unit Objective: To show that process and peril are part of the planet’s evolution; both natural and human processes can seriously disturb the delicate ecological balance of the planet; perilous human processes are a measure of our failure to organize for a more harmonizing human presence in the biosphere.

Suggested Time: 3–4 Weeks

2.1 The Dynamic Planet: Potential Peril

Objective

- To make students aware that both on its surface and within, Earth is a planet in constant motion.

In many ways the planet exhibits its dynamic nature. Circulation within the asthenosphere powers the slow movement of crustal plates. Earthquakes and volcanoes are violent consequences of this motion and they can have far-reaching consequences for Earth’s living organisms and physical environments. This is also true of shifts in the broad general patterns of circulation in the oceans and the atmosphere.

2.1.1 Global Plate Tectonics

Primary Themes: location, region, pattern

- a) The structure of the Earth (core, mantle, crust)
- b) Action along plate boundaries
- c) The continents in motion

2.1.2 Temperature Changes in the Life Layer

Primary Theme: pattern

- a) Global circulation of winds and water
- b) Earth’s radiation balance

2.2 Peril and Threat: Natural Processes

Objective

- To search for the relationships between human settlement and response, and natural perils and their occurrence.

The distribution of natural perils can be mapped. The volcanic “ring of fire” is a widely known one. The effects of such perils are often quite localized and these can also be mapped. Seismologists do so with Earthquakes. Others such as plant blight may have destructive consequences over a much wider area. We are most aware of natural perils as they impact directly on our own health and safety. Geographers, therefore, look at the relationships between human settlement and natural perils. They study the ways human decisions influence the level of risk and vulnerability.

2.2.1 Global Distribution of Natural Perils

Primary Themes: location, region, pattern

- a) Geological perils: earthquakes, volcanoes, mudslides
- b) Atmospheric perils: droughts, tornadoes, hurricanes, rain, and melt-induced floods
- c) Biotic perils: locusts, diseases

2.2.2 Human Settlement and Natural Perils: The Relationships

Primary Themes: human/environment interaction, location, region, pattern, culture

- a) Natural perils and high density population regions
- b) Natural perils and developing countries
- c) Human responses: prediction and preparation

2.2.3 Selected Case Studies

Primary Themes: potentially all, with human/environment and culture predominant

- a) Flooding in Bangladesh
- b) An Earthquake in Armenia
- c) River Blindness in West Africa
- d) Hurricane Andrew in Florida
- e) The Eruption of Mount Pino Tubo in the Philippines

2.3 Peril and Threat: Human Processes

Objective

- To have students recognize human-made perils and that these create problems that threaten the capability of our planet to sustain life.

Many environmental problems today are of such a scale and of such a nature as to be global. These problems know no boundaries. These are the problems that threaten the capability of our planet to sustain life. (See Units 1.3, 4.3, and 7.2)

2.3.1 When are Peril and Threat Global?

Primary Themes: human/environment interaction, pattern

- a) Impacting on a life-sustaining system
- b) Affecting Earth's radiation balance

2.3.2 Examining Global Peril and Threat

Primary Themes: potentially all, with human/environment interaction, and culture predominant

- a) The greenhouse effect
- b) Depletion of the ozone layer
- c) Genetic erosion
- d) Space debris/junk
- e) Acid rain
- f) The nuclear hazard

2.4 The Growing Concern: Some Heartening Signs

Objective

- To have students examine humanity's efforts to address perils that threaten the planet.

There appears to be a growing awareness and concern on the part of politicians, the scientific community and many other members of the public that the planet is endangered. The public press reflects and helps foster this increased sensitivity and sensibility. These are heartening signs (see Units 4.4, 7.3, 8.2).

2.4.1 The Changing Political Climate

Primary Themes: human/environment interaction and culture (implied)

2.4.2 Co-operative Responses from the Scientific Community

Primary Themes: human/environment interaction and culture (implied)

2.4.3 Case Studies

Primary Theme: potentially all

- a) Montreal Protocols
- b) United Nations Conference on the Law of the Sea (UNCLOS)
- c) International Conventions for the Prevention of Pollution from Ships (MARPOL)
- d) International Red Cross
- e) Canadian International Development Agency (CIDA)
- f) World Council of Indigenous Peoples

Unit 3: The Peopled Planet: Standing Room Only?

Unit Objective

- To examine population distribution, density, and rates of growth with a view to ascertaining the planet's capability to support and sustain life.

Suggested Time: 4 Weeks

3.1 Spatial Patterns

Objective

- To make the students aware of the unequal distribution of human population and resources on Earth's surface.

The world's population is disproportionately distributed and much of the increase is occurring in the developing countries of limited wealth and resource development.

3.1.1 Population Distributions and Densities

Primary Themes: pattern, human/environment interaction, region, location, culture (implied)

- a) World population density and distribution maps
- b) Physical environment—opportunities and constraints in the world's barren and productive regions, and mineral rich regions

3.1.2 Comparative Case Studies of Cultural/Human Response

Primary Themes: potentially all, with culture predominant

Teachers are free to develop or choose case studies. For example

- Bangladesh and the Netherlands
- Brazil and Canada, e.g., Indigenous Peoples
- China and the United States
- Japan and Indonesia

3.2 The Numbers Game

Objective

- To make students aware of current rapid population growth and its affects on the quality of life.

The total number of people in the world and the accelerating rate at which this number is increasing are facts of great importance to the future of humankind and the global environment. More people require more food, more energy and more minerals. Since 1900, more people have been added to the world's population than have lived in all the preceding thousands of years of recorded history.

3.2.1 The Cultural Context

Primary Theme: culture

- a) Patriarchy, matriarchy
- b) Human sexuality as a cultural expression
- c) Family size, preferred gender
- d) The gift perspective: birth and death

3.2.2 The Role of Women

3.2.3 Demographic Statistics

Primary Theme: pattern

- a) The population's explosion
- b) Vital rates, e.g., birth/death rates, fertility rates, age structure pyramids
- c) Demographic models of growth (Malthusian model versus demographic transition model)

3.2.4 Quality of Life: A Comparative Analysis

Primary Themes: culture, pattern

- a) Population and development: developed and developing countries
- b) Measurements of quality: GNP rates, physical quality of life rates (life expectancy, maternal morbidity, child mortality, literacy), sickness and stress, unemployment/underemployment

3.3 The Global Support Question

Objective

- To have students understand the relationships between world population growth and the quality of life.

In many developing countries the human population explosion is undermining the social and economic programs designed to improve the welfare of their citizens. Hunger, worklessness, disease, refugees' problems, poverty and social neglect affect hundreds of millions of people. Inequities of supply and the geographic mismatch between people and resources has wasted human potential.

3.3.1 Is There a Limit to Growth?

Primary Theme: all

- a) Human needs/wants
- b) Evidence of needs not being met—underemployment, sickness and health, world debt and inflation, world aid, maldistribution of resources, world refugee problems (e.g., women and children as refugees)

3.3.2 Managing The Numbers

Primary Theme: culture

- a) The politics of control, e.g., China's one baby policy
- b) The economics of control, e.g., the role of multinationals
- c) The cultural perspective, e.g., Fetocide in India
- d) The rights perspective, e.g., the right of women to decide
- e) Case studies, e.g.,
 - By Nation: China, Kenya, Romania
 - By Culture: The "West," India
 - Through Technology: Sterilization, Biological Control, Genetic Engineering

Unit 4: Feeding the Planet: Food for Thought

Unit Objective: To consider those factors that will maintain the planet’s ability to sustain all life forms and especially those factors that have a direct bearing on humanity’s efforts to feed itself.

Suggested Time: 3–4 Weeks

4.1 The Land/Ocean Potential

Objective

- To explore the potential of land and sea environments to provide food.

Earth’s surface is composed of land and water and these two components in consort with the atmosphere make up the Earth’s biosphere. From the land and sea we harvest our food. We must, therefore, be very careful to protect the biosphere. This section looks at the potential of these land and sea environments.

4.1.1 The Green Potential

Primary Themes: region, location, pattern

- a) Soil distribution
- b) Distribution biomes
- c) Interaction of forests and environment

4.1.2 The Blue Potential

Primary Themes: region, location, pattern

- a) As a life source
- b) As a climate factor
- c) As a food source

4.2 The Harvester: Humanity’s Quest for Nourishment

Objective

- To examine the nature and distribution of humanity’s effort to harvest the land and sea in order to feed itself.

Humans have a much greater influence on the land and ocean in their quest for food than any other life form. As the life form that has developed major technologies to harvest food, we have had both a positive and negative effect on the environment. As harvesters we must find methods that have a greater positive impact on the environment and still provide food both now and in the future for all life forms.

4.2.1 The Culture Factor

Primary Theme: culture

Note: It is critical that students appreciate the role of culture in humanity's search for food. There are many influences—religion, history, gender roles, land/human interaction, etc., that combine to create cultural perspectives that govern the quest for nourishment (see also 4.2.4, 4.2.5)

- a) Land/ocean within cultural settings
- b) Cultural landscaping: irrigation, terracing, damming, breakwaters, etc.
- c) Harvester roles: women and men, children
- d) Tastebuds: the cultural menu

4.2.2 Crops and Grazing Land

Primary Theme: all

- a) Type of area
- b) Distribution

4.2.3 Ocean Shoals

Primary Themes: location, region, pattern

- a) Distribution
- b) Importance of oceans as a protein source

4.2.4 Production for the Global Larder

Primary Themes: culture, human/environment interaction, region

- a) Various types of harvesting methods
 - Hunter/gatherer
 - Slash and burn
 - Labour intensive agriculture
 - Capital intensive agriculture

4.2.5 Distribution and Consumption Leading to Hunger and Glut

Primary Themes: culture, pattern, region, spatial interaction, location

- a) Eating to live and living to eat
- b) Haves versus have-nots
- c) Agribusiness (cash crops versus local use)
- d) Related health problems
- e) Political problems

4.3 The Land/Ocean Crisis

Objective

- To research and analyse crisis facing lands and oceans today.

Throughout world history the Earth has gone through various crises. A wide-spread event such as the Pleistocene Ice Age, which affected North America, does not appear to have had the same catastrophic impact on the Earth's population as a short-term event such as drought in Africa in the latter part of the twentieth century. What are the crises facing the land and oceans today? (see Units 1.3, 2.3, and 7.2.)

4.3.1 Disappearing Soils

Primary Themes: culture, human/environment interaction, region, location, pattern

- a) Types and distribution of soils relating to crops and soil
- b) Farming methods and their effects on soil
- c) Erosion: soil depletion and increased chemicals
- d) Global distribution of soil depletion

4.3.2 Shrinking Forests

Primary Themes: human/environment interaction, culture, region, location

- a) Types of forests
- b) Importance of forests to all life forms
- c) Deforestation
 - a Canadian problem
 - a global problem
 - a political problem
 - a long-term problem

4.3.3 *Encroaching Deserts*

Primary Themes: region, pattern, human/environment interaction, culture

- a) Global distribution of desertification
- b) Reasons: natural, human
- c) Global impact in human terms

4.3.4 *Declining Fish Stocks*

Primary Theme: all

- a) Local
- b) National
- c) International problem

4.3.5 *Genetic Erosion*

Primary Themes: human/environment interaction, culture

- a) Animals: disappearing species (reasons)
- b) Plants: disappearing species (reasons)
- c) Relationships: animal, plant, and human
- d) Genetic engineering: a mixed blessing and who decides?
 - livestock productivity
 - wild and domestic: the urge to improve or tamper?

4.4 Land/Ocean Management

Objective

- To identify and appreciate the development and use of manageable solutions to land/ocean crises.

This section is very important as the students will have a chance to explore various ways to manage the land and ocean for the future. (See Units 2.4, 5.3, 8.2)

Primary Theme: potentially all

- a) Forest regeneration
- b) Green revolution
- c) Towards a new agriculture
- d) Conservation organization and methods
- e) Laws of the sea, international co-operation
- f) Antarctica: international co-operation or co-existence
- g) Desertification

Unit 5: Global Resources: The Good Earth

Unit Objective: To study the increasing exploitation of the world's resources and to examine methods and strategies that will preserve/conserves the planet's resources for future generations.

Suggested Time: 4 Weeks

5.1 Resource Potential and Utilization

Objective

- To re-examine the concept resource from a local, national (continental), and global perspective.
- To analyse maps, graphs, tables, etc., for economic and social patterns arising from the location, production, and consumption of resources.

The Earth is our pantry, the storehouse of resources. It supplies us with food, warmth and protection. It supplies our factories, provides us with transportation and indeed governs our lifestyles. The wealth is there, so we think, but who has it? The oil (energy) crisis of the early and mid 1970s brought us to the realization that some resources are not there just for the taking and that proper utilization and management is of the utmost importance.

5.1.1 The Nature of a Resource

Primary Themes: culture, location, region

- a) What is a resource? A matter of perception
- b) Definitions of: renewable and non-renewable resources (traditional: fish, soils, forests, water, minerals; non-traditional: the atmosphere, water quality, wildlife habitat); human resources; capital resources
- c) From recognition to exploitation: the emergence of resources. Selected case study:
 - Lobster/Crab Industry in Nova Scotia
 - Forests as a Genetic Pool

5.1.2 Patterns of Production and Consumption

Primary Themes: location, region, pattern

- a) World maps showing distribution of resources
- b) Statistical analyses of producers and consumers
- c) Inequalities: causes and consequences
 - education and literacy
 - technology: communication, transportation, robotics, etc.
 - culture, politics, economics: gender roles, government subsidization, resident expertise, and traditional ways, etc.

5.2 Resource Crisis

Objective

- To help students evaluate use of the term resource crisis by examining human consumption, the natural storehouse, and the influence of one upon the other.

The good Earth has, so far, provided this planet with the sustenance required to maintain life and meet evolving needs. It appears that we may have pushed Earth to the breaking point, however, because many of the resources that we require are squandered, and because we have distressed and despoiled natural systems that provide or generate them (see Units 1.3, 2.3, and 4.3).

5.2.1 Population Growth and Resource Consumption

Primary Theme: pattern

5.2.2 The Elemental Crisis: Selected Case Studies

Primary Themes: human/environment interaction, region, location

- a) genetic crisis, e.g., Amazon forest
- b) water crisis, e.g., southwest U.S. aquifer
- c) energy crisis, e.g., oil

5.3 Resource Management

Objective

- To examine methods of managing consumption that enhance the conservation and preservation of renewable and non-renewable resources.

There is a growing realization globally that government, industry, and the individual must work together to manage the resources that all of us rely upon to meet our needs and satisfy our wants. Scientific and industrial communities must work hand in hand to explore technology and policy alternatives. All must accept proper management and efficient use of resources as being of the utmost importance for both present and future generations (see Units 2.4, 4.4, and 8.2.)

5.3.1 Resource Management: Options

Primary Theme: culture (implied)

- a) preservation
- b) conservation
- c) sustainable development
- d) research and development
- e) the role of policy

5.3.2 Sharing and Managing Global Resources: Selected Case Studies

- a) the atmosphere
- b) the oceans
- c) Antarctica
- d) space

Unit 6: Global Factory: For Whose Benefit?

Unit Objective: To explain the evolving patterns of industrialization, global inequalities of production, consumption, and wealth, and their combined impact on the environment.

Suggested Time: 3–4 Weeks

Note: This is but one unit of a course on Global Geography and is intended to take 3–4 weeks. Topics in this unit provide a necessary overview, but are not intended to be explored in depth within this course.

A comprehensive strategy for this unit might be to provide, through lectures and audio-visual materials, a survey of the topic. Students could then be led through the unit doing assignments in class/at home individually or they could be given independent study assignments that focus on the analysis of pairs of countries, one developed, the other developing. Seminar sessions would be used to construct a profile of such countries and to identify challenges created by the contrast.

6.1 General Background to Industrial Development

Objective

- To enable students to identify and explain the characteristics of developed and developing countries.

The most recent era of humankind is known as the Industrial Age. Due to various factors, industrial growth has been and is uneven across the planet creating great discrepancies in wealth and living standards. Loosely divided into developed and developing countries, the nations of the planet compete to maintain or increase their share of industrial wealth. This Global Factory has had and is having a significant effect on our treatment of the planet and on its future.

6.1.1 Developed and Developing Countries

Primary Themes: culture, region, pattern, spatial interaction

- Criteria for comparison, e.g., GNP
- North-South relationship (heartland-hinterland)
- The Culture/Human factor: needs/wants/fulfilment

6.1.2 Spatial Distribution of Industry

Primary Themes: spatial interaction, pattern, human/environment interaction, culture

- Spatial location of industry; globally, regionally
- Factors favouring the growth of industry

6.1.3 Economic Systems

Primary Theme: culture (implied)

Note: Here again it is important that students be given the opportunity to see the role of culture (micro and macro) in economic systems. In some specific instances, such as rural-agrarian subsistence economies in developing countries, the cultural role of women and men is a key factor in understanding the economic profile.

- a) Subsistence economy (rural-agrarian)
- b) Market economy
- c) Command economy
- d) Sectors of the economy

6.2 Evolving Patterns of Industrial Development

Objective

- To analyse the effects of uneven development.

Industrial development as a recent historic phenomenon, can be investigated by the study of the stages of industrial growth. This pattern of industrial development can then be applied to the developed and developing countries and their relationships in order to understand the emerging global factory.

6.2.1 Phases of Industrial Development

Primary Theme: culture (implied)

- a) Stages of economic growth
- b) The role of capital and its acquisition
- c) Case study of a post-industrial (e.g., Britain), industrial (e.g., Japan), or an industrializing (e.g., South Korea) nation

6.2.2 Growth of Manufacturing in Developing Nations

Primary Themes: culture, location, spatial interaction

- a) Location
- b) Labour intensive versus capital intensive manufacturing
- c) “Cheap labour”—the total concept

6.2.3 Post-Industrial Patterns in Developed Nations

Primary Themes: culture, spatial interaction, pattern

- a) De-industrialization
- b) Role of technology
- c) Impact of changing industrial patterns

6.3 Globalizing the Marketplace: Winners and Losers

Objective

- To investigate the relationship between developed and developing countries and its impact on the human and natural environment.

The interdependent, integrated world market is a fact of modern life. In such a market the flow of capital and technology can and does determine those societies whose standards of living improve and those whose standards decline. In this drive to industrialize and diversify their economies, developing nations appear to be ignoring the example of the developed nations regarding environmental abuse. Considering approximately two-thirds of the planet's population live in these developing nations, the potential for environmental disaster is significant, unless serious attention is paid to management of their environments.

6.3.1 Flow of Goods, Money, and Technology

Primary Themes: spatial interaction, pattern

- a) Patterns of flow
- b) Role of multinationals
- c) Global division (specialization) of labour

6.3.2 The Gap: Closing or Widening?

Primary Theme: pattern

- a) Criteria
- b) Role of debt and capital in development
- c) Foreign aid

6.3.3 The Environmental Costs to the Planet

Primary Theme: human/environment interaction

- a) Problems worldwide facing industrialized nations for example, toxic chemical wastes, air pollution, job-related diseases, e.g., asbestos, induced infertility
- b) Case study of a specific world-wide industrial environmental problem, (e.g., Minimata Disease)
- c) Case study of a specific positive response to a worldwide industrial environmental problem, e.g., the need to curb C.F.C. production and use

Unit 7: Urbanization: A Mixed Blessing

Unit Objective: To examine the worldwide phenomenon of urbanization leading to cities as the chosen habitat for much of the planet's population.

Suggested Time: 4 Weeks

7.1 The Drift to the City

Objective

- To examine and explain the location and pattern of urbanization in the world today and how the process is evolving in less developed areas.

In the wake of the Industrial Revolution, the urban environment became the habitat of the majority of the people in the western world. The move to urban centres now characterises the less industrialized areas. It is important to understand the location and pattern of urbanization in the world today and how the process is evolving in less developed areas.

7.1.1 The Location of Cities

Primary Themes: location, pattern, spatial interaction, culture

- a) The degree of urbanization before the Industrial Revolution and how and where it changed after the revolution
- b) The degree of urbanization throughout the world today
- c) Location of the world's largest urban centres and what factors they have in common
- d) Role of culture and technology in the growth of urbanization

7.1.2 The Composition of Cities

- a) Land use
- b) Urban, suburban, rural
- c) Components: urban core, downtown business district, residential district, industrial parks, etc.

7.1.3 Rural to Urban Migration Patterns

Primary Themes: pattern, culture

- a) Why people move to cities: families, women, men, workers, students, etc.
- b) Emigration in the west from the city, and in the Third World, immigration to the city, (rural non-farm populations)
- c) Urban sprawl

7.2 Eopolis to Necropolis: Growth and Decline of Cities

Objective

- To enable students to identify and explain stages of growth and decline through which cities evolve.

Before the Industrial Revolution and specialization of labour there were very few large cities needed. Most of the time, trade and other minor needs of the individual were met in the hamlet or village while the larger cities were mainly religious, political, or trading centres. With the change to the agricultural sector caused by the impact of technology, people now looked to the city as a place to work and live and not just as a place to trade their goods.

7.2.1 Stages of City Growth

Primary Themes: location, region, pattern, spatial interaction

- a) Specialization, surplus, and the requirements for a central place for trade and employment
- b) Cities, conurbations to megalopolis

7.2.2 Cities in Crisis (case study)

Primary Theme: potentially all

- a) Overpopulation and the quality of life in a city
- b) Ghettos and favela (shanty town)
- c) Pollution from industry, cars, and people
- d) Central city congestion and decay

7.3 Planned Cityhood

Objective

- To enhance student awareness that strategies are being used to support sustained growth in some urban centres.

The cities of the Industrial Revolution were built around the industry that employed the people. As the process of urbanization continued, cities began to expand rapidly and without any planning. In the past 50 years, the automobile has put further strain on the land use of a city. As congestion and pollution increase, the need for planning the land use in a city has become very important and is necessary to maintain a reasonable quality of life.

7.3.1 *Controlled Growth Strategies*

Primary Themes: culture, human/environment interaction, location

- a) Control migration and relocate industry
- b) City planning for public transit, green space, adequate housing, and waste management
- c) Role of the individual
- d) Case studies of urban management in developed and developing countries

Unit 8: The Future Planet: Under New Management

Unit Objective: To place before the students the challenge of individual and societal commitment to the effective stewardship of the planet.

Suggested Time: 3 Weeks

Note: As the conclusion to the Global Geography course this unit has an especially important role to play. For indeed, what the conclusion and the course itself call for is new beginnings.

In working through preceding units, students have examined and manipulated data, evaluated observations, pondered and debated conclusions, all of which point to two realities. On the one hand Earth and its busy human population have reached a critical point in their relationship: danger is flirting with both of them. On the other hand thoughtful humans have clearly demonstrated that critical and creative thinking and action can perceive, address, and eliminate problems. Global Geography teachers are required to challenge their students to accept a commitment to stewardship. Action, be it individual or group, small or large, close at hand or at a distance should, if circumstances allow, be undertaken by the students and be part of the strategy for evaluation.

This unit, then, is fundamental to the purpose and desired outcome of the course. As suggested in the introduction to this outline, it will be most effective if students see learnings in each of the preceding units as building blocks for this one.

8.1 Prelude to Action: Science, Education, and Guidelines

Objective

- To reflect upon previous learnings in this and other courses in order to identify resources and processes that help us to understand the biosphere, humanity's role as part of it, and our responsibility to protect it.

8.1.1 Science: Posing Questions and Searching for Answers

8.1.2 Education: A Change Agent

- a) knowledge, skills, and attitudes
- b) guidelines for responsible and effective action

8.2 Action: Dimensions of Planetary Stewardship

Objective

- To facilitate student commitment to personal action based upon an understanding of various dimensions and perspectives of planetary stewardship.

Let us all, sharing insights and informing one another's choices, work together in broadening the options for the present generation and keeping open the options for future generations.

8.2.1 Stewardship Perspectives

8.2.2 Me as Steward: The One Dimension

8.2.3 Communities as Stewards: A Larger Dimension

8.2.4 Planetary Stewards: Citizens of the Global Village

- a) Global initiatives: "Professionals" in Action, e.g.,
 - Canada: CIDA
 - The international community: WHO
 - NGO's, e.g., Greenpeace
- b) Global Initiatives: "Amateurs" in Action, e.g.,
 - School-based
 - Home-based
 - Community-based

Suggestions for Implementation

Teaching/Learning Activities and Resources

This section provides curriculum guidelines and offers suggestions for teaching Global Geography. Hopefully these suggestions will be helpful and will join and stimulate other creative learning activities for Global Geography. The suggestions include classroom practices that are learner-centred and are designed to facilitate individual, group, and whole class learning opportunities. Also included are out-of-the-classroom experiences involving other school resources (including the library) and those of the community. Finally, it suggests a variety of student and teacher resources including, among others, atlases, texts, magazines, videos, and computer software.

All of these suggestions are based upon Principles of Learning, Common Essential Learnings, and Learner-Centred Instruction.

Principles of Learning

The results of classroom practices and educational research indicate clearly that there are conditions under which students learn better. These conditions are often referred to as “Principles of Learning.” The following lists some of the conditions and how they may be interpreted in the teaching/learning activities of global geography.

Students learn better when

- **Learning is meaningful and purposeful**

Dealing with humanity’s “Capacity to Care” (1.1.4 c), becomes more *meaningful* for global geography students when they examine the Nova Scotia Power Corporation’s osprey relocation program. The meaning can deepen with the degree of comparison of this local initiative with other conservation efforts around the world.

When students undertake this exercise as preparation for a topic to be studied later on in the year (such as “Science: Posing Questions and Searching for Answers” (8.1.1) the exercise becomes more *purposeful* for them.

- **Learning is active and experiential**

The students in Cumberland County who interview local blueberry producers in their efforts to determine Cumberland County’s international trading links “Flow of Goods, Money, and Technology” (6.3.1), are *actively* involved in their global studies, and are *experiencing* one of the legitimate techniques used in social science research.

- **Learning is experimental and requires risk-taking**

First time experiences are often experimental for those making the attempt, and definitely invite or involve the taking of risk(s). For some students, the production of, or participation in a thematic Model United Nations Assembly as with “Sharing and Managing Global Resources” (5.3.2) involves *experimentation* and *risk-taking*. When such a project is opened up to students from other school boards, then the degree of experimentation and risk-taking may, for some participants, increase.

- **Learning is social and collaborative**

Students who worked together for long hours to organize and host a provincial student environment conference “The Growing Concern: Some Heartening Signs” (2.4) enjoyed, grew, and learned from a very *collaborative* and *social* learning experience.

The same is true for students who work together on classroom/library-based case studies, where each member of the group is responsible for specific components, such as identifying human resources, making overhead transparencies, and delivering a joint oral/visual presentation.

- **Learning is facilitated by the use of language**

Students who wrote speeches for assemblies and conferences, or who participated in the Social Studies Teachers Association’s essay writing contests, or who wrote the script for an illustrated slide presentation, or who chose the affirmative in a debate on humankind as “The Dominating Species” (1.1.4 b): all of these students have added to their learning by *the use of language*, be it through speaking, listening, reading, writing, or viewing.

- **Learning is based upon prior knowledge and experience**

Choosing to undertake a case study in September on a land crisis topic (1.3.2 c) that will facilitate a look at Resource Crisis (5.2.2) several months later, is a strategy that *integrates prior knowledge and experience*. Similarly, the teacher who recalls in the classroom, or in her lesson/unit plans, some of the issues or the issues methodology of the grade 9 Maritime Studies course (e.g., in preparation for waste management issues in “Controlled Growth Strategies,” (7.3.1) is utilizing both the students’ and her own prior knowledge and experiences.

- **Learning is integrated**

Being able to relate or incorporate the learning in one discipline with learnings in other disciplines is helpful, efficient, encouraging, and constructive. French Immersion students who do geography projects in their second language, are very much aware of this *integration* and the benefits that it provides.

Art students have long benefited from an *integrated* approach to learning as they create works of art that augment their social studies courses.

Students who apply computer software technology (e.g., PC Globe, SimEarth) to their global geography studies (such as Demographic Statistics, (3.2.3)) are also benefiting from an *integrated* learning experience.

- **Learning is enhanced by good models**

Students who watch and help their teacher *organize* a long-term project; students who witness and join in *the hard work* their teachers do in preparation for the annual drama productions; students who observe and get involved in the *creative* use of co-operative learning strategies in the new Global Geography course: these examples illustrate some of the attitudes and practices that serve as *models* that enhance the learning experience.

- **Learning is supported by ongoing, positive, and constructive feedback**

Feedback of this nature can be of two types. On the one hand teachers can make a concerted effort to return evaluated material to students as soon as possible. Remarks generated by the evaluation can emphasize the progress a student or group has made, and can stress the additional progress that will be made as the students and teachers work together to tackle difficulties. Supportive feedback does not only come from the teacher. A “Well done!” from the principal and vice-principal is always welcomed, as is the opportunity to have individual, classroom, and school efforts highlighted by photographs and articles in the local media.

- **Learning is lifelong**

Teachers of Halifax County who involved students of all ages in the region’s landfill issue; students in industrial Cape Breton who used the Tar Ponds as an example of a long-term environmental issue that has had effects on generations of Cape Bretoners; students in Cumberland County who examined arguments about the long-term environmental impact of a fixed link to Prince Edward Island: methods, resources, case studies—all have the ability to influence students to regard their learning as a process that goes well beyond their school and current grade, that it is in fact *lifelong*; that situations will inevitably arise in their later lives that will require them to fall back on knowledge and skills learned at an earlier time.

Common Essential Learnings

The preceding Principles of Learning the aims, goals, and skills of global geography within the public school program context, and the suggested teaching and learning activities that follow—all of these embrace learnings that are widely accepted as being common to all subject areas. They are also held to be essential because they will support students as they work effectively towards becoming capable, self-motivated, lifelong learners.

The following is a brief description of these learnings. It is not intended to be comprehensive, but to be used as one starting point for preparing teaching and learning activities.

Communication

To develop effective language skills and processes and the ability to communicate clearly, competently, and confidently for a variety of purposes and through a variety of means and media. **Activity example:** research paper, oral presentation, debate.

Mathematical Literacy

To understand, appreciate, and utilize mathematical patterns, relationships, and concepts. **Activity example:** statistical analysis, constructing graphs.

Critical and Creative Thinking

To develop reflective and imaginative thinking. **Activity example:** the issues approach, model parliaments, mock trials.

Technological Literacy

To use technology to solve problems and to encourage individuals to make connections among technology, society, and the environment. **Activity example:** PC Globe, video production, technology case studies.

Problem Solving

To identify problems and effectively apply problem-solving strategies to a wide variety of situations. **Activity example:** simulation of environmental action plan development, the issues approach.

Personal and Social Skills

To develop positive self-esteem and respect for others, the ability to use and apply ethical reasoning and accept responsibility for one's actions, and the ability to work collaboratively. **Activity example:** jigsaw grouping method, interviews, model United Nations assemblies.

Independent Learning

To enable students to reflect on their learning, make responsible decisions associated with their own learning, become proficient in finding, evaluating, and using information effectively and become an independent, lifelong learner.

Learner-Centred Instruction

There are many definitions and interpretations for the term “learner-centred.” Common to most are two points: a) the student is given a wide range of opportunities to use their talents, abilities, and interests in order to learn; and b) much of what the teacher does is governed by the individual needs of the learners. At the heart of learner-centred instruction is the notion of striking a balance: on the one hand teachers teach students, and on the other they allow students to learn independently when knowledge, skills, and attitudes allow. This balance is very similar to the one suggested in comparing “product-oriented” and “process-oriented” classrooms.

The following table highlights some of the points featured in the above comparisons.

Learner-Centred

1. The teacher acts as a facilitator, creating an atmosphere and situations wherein students share the responsibility for their learning experiences.
2. Students are given opportunities to develop as resourceful, decisive, self-sufficient persons, and are enabled to make use of other resources, human and material, when they recognize the need to do so.
3. Lesson and unit plans, and classroom practices, have flexible time frames; the teacher anticipates the need to respond to individual and group needs.
4. The teacher anticipates that the objectives of a lesson or unit may need adjustment as a result of student input and student evaluation.
5. Students are given learning situations where both independent and co-operative, individual, and group learning strategies are developed.
6. The teaching focus encompasses the acquisition of knowledge, the development of skills, the examination of values, and the development of positive attitudes. The teacher also helps the student to work through a process in which knowledge (learning) is actively manipulated and restructured to reach insight.
7. The teacher imparts knowledge, and helps students to learn and use processes and skills to acquire knowledge independently and collaboratively.
8. The teacher is concerned with what the student has learned, with understanding how the student learned, and with helping the student to understand the process of learning how their learning took place.
9. There is a flexible balance between formative and summative student evaluation; mistakes are seen as stepping stones in continuous learning.
10. Student evaluation tools are numerous and varied, assessing the progress of students on a number of fronts (e.g., facts, skills, etc.) and as individual and collaborative learners. In so doing, the teacher evaluates the processes and the products of learning.

Unit 1
Our Fragile Planet: A Geographical Perspective

Unit 1: Our Fragile Planet: A Geographical Perspective

Unit Objective: To create an awareness in students that Earth is a unique ecosystem that has reached a critical stage in its development, and that geography can contribute to a more holistic understanding of their planet.

Suggested Time: 2–3 weeks

Note: *Unit 1 is intended to be an introduction to this global geography course. Most sub-topics within it, e.g., Parameters for Life: Water, are more thoroughly dealt with elsewhere in the program, e.g., the role of water in food production in Unit 6: Feeding the Planet: Food for Thought.*

Teachers should also consult the grade 10 physical geography curriculum guide where some of this unit’s subject matter is covered.

1.1 Earth in Space: A Fragile Miracle

Objective

- To familiarize students with the characteristics that make Earth unique.
- To nurture in students an appreciation for the fact that Earth has an environment that is unique in the solar system, one whose whole is far greater than the sum of its parts.

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
1.1.1 Planetary position <ul style="list-style-type: none"> • in the universe • in the solar system 	Using a vivid audio-visual resource, an illustrated/animated lecture, a guest speaker, an inspired reading—introduce students to their planet and its miraculous characteristics. Use of these resources should be interactive.	Communication Participation	<i>Miracle Planet</i> , Part 1; PBS Video

1.1 Earth in Space: A Fragile Miracle *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>1.1.1 <i>(continued)</i> Parameters for life</p> <ul style="list-style-type: none"> • distance from sun • rotation/revolution • gravity/magnetic fields • air pressure • complex atmosphere • water • solar radiation, its effects • temperature, range 	<p>Having presented students with the list opposite, divide the class into five groups, and, using the jigsaw home/expert group strategy, carry out a research report activity that determines the role of each parameter for life. Students present their findings orally to the class. A teacher guided summary should clarify and conclude the exercise.</p> <p>Having presented students with details of the list opposite, assign an illustrated research report exercise that reveals why other planets in our solar system are incapable of supporting life as we know it. The absence/presence of each factor in the list must be addressed. This should be an independent study exercise.</p> <p>Invite a member of the science department to speak about the planet's evolving ability to sustain life and how this sustainability changed over time. Students could prepare for this by brainstorming for questions to ask the guest, and then posing the questions on the day of the visit.</p>	<p>Process Participation Communication</p> <p>Process Inquiry</p> <p>Process Communication Participation</p>	<p>National Geographic Society Kit, <i>The Universe: Frontiers of Discovery Series, Part 1: The Solar System</i> (1984)</p> <p><i>GAIA: An Atlas of Planet Management</i>, pp. 12–13 (Hereafter GAIA will be used to identify this resource)</p> <p>Grade 10 Physical Geography Texts, e.g., <i>The Physical Environment, Inch and Stone</i>, Ch. 1, “The Earth in Space,” McGraw-Hill Ryerson</p> <p><i>One World</i>, Chapter 2, “Planet Earth”; Reidmore Publishing (1989)</p>

1.1 Earth in Space: A Fragile Miracle *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>1.1.2 Earth as a closed system</p> <ul style="list-style-type: none"> • systems <ul style="list-style-type: none"> – open – closed • energy <ul style="list-style-type: none"> – incoming – outgoing • cycles <ul style="list-style-type: none"> – water – oxygen – nitrogen – carbon 	<p>All students will be engaged in a brainstorm exercise to reach an understanding of the concept of a system. This collaborative exercise is followed by an illustrated lecture on Earth as both an open (e.g., heat) and closed (e.g., finite amounts of matter) system in which the role of the sun as Earth's solar engine is carefully developed. A brief overview of the greenhouse effect could be used to illustrate these concepts.</p> <p>All students will convert a written description of a cycle into a diagram, or vice-versa. This exercise can be illustrated by the teacher using the water cycle.</p>	<p>Process Communication Participation</p> <p>Process Communication</p>	<p><i>GAIA</i>, pp. 12–13</p> <p><i>Canada in a Changing World</i>, pp. 6–7, Harcourt Brace and Jovanovich</p> <p>Grade 10 Physical Geography texts</p> <p>Stanford, Quentin. <i>The Global Challenge</i>. pp. 279–84. Oxford, 1990</p> <p>Durrell, Lee. <i>State of the Ark</i>. pp. 24–25, Doubleday (1986)</p> <p>Molyneux and MacKenzie. <i>World Prospects</i>, 2nd Edition. pp. 399–402, Prentice-Hall, 1987</p>

1.1 Earth in Space: A Fragile Miracle *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>1.1.3 The Gaia Hypothesis</p> <ul style="list-style-type: none"> the hypothesis <ul style="list-style-type: none"> the peril of humankind's action 	<p>All students will brainstorm in an effort to appreciate the nature of an hypothesis. This can then be followed by a lecture/demonstration on the Gaia Hypothesis to illustrate the interrelationships of systems and cycles.</p> <p>Teachers could present students with articles on examples of humanity/nature relationships, e.g., the North American Indian/European—Working with Nature/Mastery of Nature, and analyse the examples to see if they reflect this hypothesis. Findings would be delivered and discussed in class.</p> <p>Pre-assign a newswatch of popular print media. Have students generate a list of actions that risk the planet. Through guided discussion, search for patterns in these actions.</p> <p>Assign specific readings that deal comprehensively with these actions. Choose a small number of students to report on each reading. Through guided discussion, search for patterns in these actions.</p>	<p>Process Participation</p> <p>Process Communication Participation</p> <p>Process Communication Participation</p> <p>Process Communication Participation</p>	<p><i>GAIA</i>, pp. 12–21</p> <p><i>Canada and the World Magazine</i>, January 13, 1991</p> <p><i>State of the Ark</i>, p. 23</p> <p><i>New Perspectives</i>, September 1991 “Chief Seattle’s Address”</p> <p><i>Omni Magazine</i>, October 1991</p> <p><i>GAIA</i>, video: Nova Productions</p> <p><i>Time Magazine</i>, January 2, 1989, “The Endangered Earth”</p> <p><i>National Geographic Magazine</i>, December 1988, “Can Man Save This Fragile Earth?”</p> <p><i>Scientific American</i>, September, 1989, “Managing Planet Earth”</p>

1.1 Earth in Space: A Fragile Miracle *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>1.1.4 Humankind as part of the miracle</p> <ul style="list-style-type: none"> • latecomers to Earth's evolution • the dominating species <ul style="list-style-type: none"> • capacity to care and the role of variables 	<p>All students may examine or construct a timeline to introduce or reinforce the idea of humans as latecomers in Earth's evolution.</p> <p>Students will be directed to a textbook case study that illustrates this concept, e.g., "Frog's Legs," in <i>Canada in a Changing World</i> (p. 14). A focussing question might be: "Do humans really dominate?" This question could be tackled in the fashion of an informal debate.</p> <p>Students will be assigned a number of readings or a research project dealing with the concept of humans as the dominating species. From brief oral presentations, the class will identify common elements of their findings.</p> <p>All students will assess case studies for elements that support or refute humanity's capacity to care. Political, economic and cultural variables, such as gender, should be considered.</p>	<p>Communication</p> <p>Process Inquiry Communication Participation</p> <p>Process Inquiry Communication Participation</p> <p>Process Communication</p>	<p><i>GAIA</i>, pp. 14–17</p> <p><i>GAIA</i>, pp. 18–19</p> <p><i>GAIA</i>, pp. 20–21</p>

1.2 A Geographer's Perspective

Objective

- To have students gain an appreciation of geography as a discipline and how it can enable a student to gain a better understanding of planetary patterns.

Note: Geography occupies a pivotal position from which a holistic study of the planet can be undertaken. At the crossroads of many disciplines, geography draws on a variety of physical and social sciences thereby enabling students to gain a better understanding of planetary patterns in both space and time.

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
1.2.1 Geographic themes and traditions <ul style="list-style-type: none"> location region pattern spatial interaction human/environment interaction culture 	<p>With atlases available to all students, the teachers will model each of these key concepts using local, national, and worldwide examples. As an extension students should then apply each of these concepts to specific examples of their own.</p> <p>Organize a field trip to a local industry whose products go to an international market, e.g., gypsum to the southern United States. Discuss the nature of the trade link, the purpose being to illustrate spatial interaction on a large scale.</p>	Process Inquiry Process Participation	<i>Global Geography</i> , pp. 14–17 Grade 10 Physical Geography text

1.3 The Critical Stage: A Planet in Peril

Objective

- To have students appreciate the potential of critical situations facing the planet.

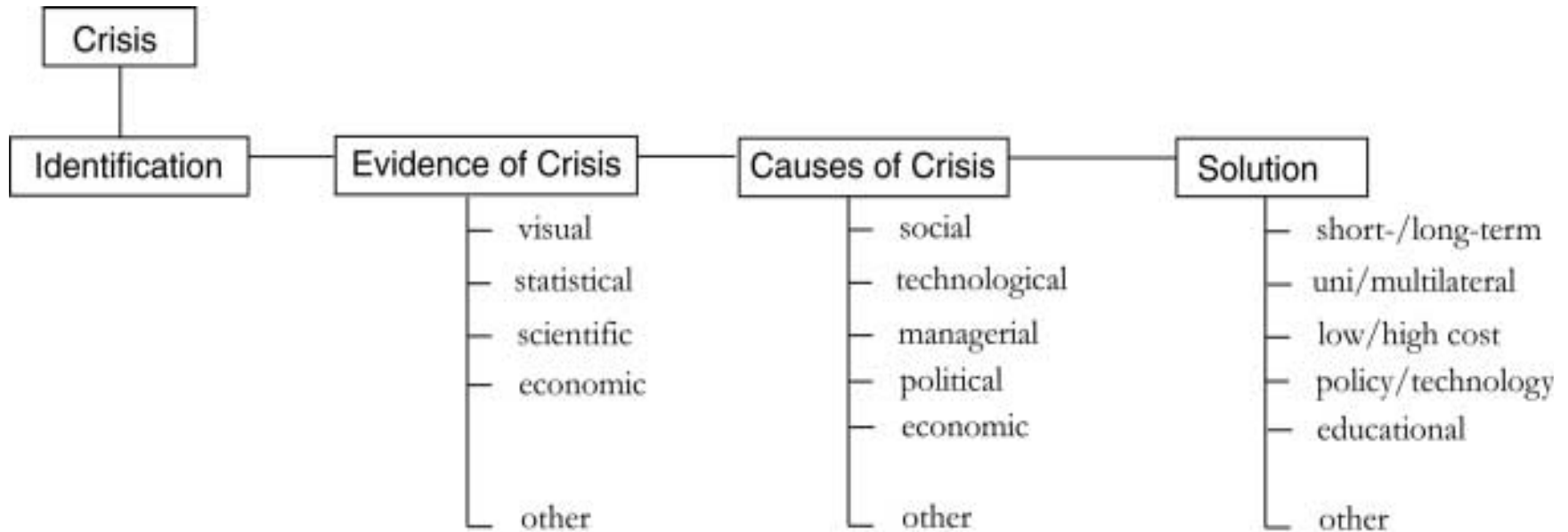
Note: *Throughout the evolution of our planet, the pace of its development has been accelerating. Each new wave of change builds up to trigger the next in a series of quantum leaps. In the last few years human technology has changed the face of the planet in ways both beneficial and detrimental. The detrimental effects could be irreparable.*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>1.3.1 Accelerated rates of change</p> <ul style="list-style-type: none"> • population growth • species decline <ul style="list-style-type: none"> – plants – animals • technology <ul style="list-style-type: none"> – information – energy – mobility 	<p>Interpreting provided graphs, call upon students to speculate upon the reasons behind growth and decline. (Note: population is the theme of Unit 3.)</p> <p>“Our world is getting smaller yet physically it is the same size.” Discuss—technology, its impact on the globe.</p>	<p>Process Participation</p> <p>Communication Participation</p>	<p><i>GAIA</i>, pp. 157–159, 180–181, 16–19</p> <p><i>Canada in a Changing World</i>, pp. 19–20</p> <p><i>Canada in a Changing World</i>, “The Global Village,” pp. 2–6</p>
<p>1.3.2 Warning signs</p> <ul style="list-style-type: none"> • crises <ul style="list-style-type: none"> – atmosphere – ocean – land 	<p>(See the following page as well.) Divide the class into three groups, each group researches one warning sign topic. Each group makes a 10-minute presentation. An overview and summary is then conducted with the entire class. (N.B. teachers should look ahead to sub-unit 2.3, 4.3, and 5.2 either to avoid duplication or to “kill two birds with one stone.”)</p>	<p>Process Communication Participation</p>	<p><i>GAIA</i>, pp. 82–89 ocean, pp. 44–491 and, atmosphere, pp. 116–120</p> <p>Grade 10 Physical Geography Text</p>

1.3 The Critical Stage: A Planet in Peril *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>1.3.3 Selected case studies</p> <p>For example</p> <ul style="list-style-type: none"> • Deforestation and the Hamburger Connection* • Mexico City • Encroaching Desert • Land Use Perspectives: The Cree and Hydro Quebec <p>Local environmental issues</p> <ul style="list-style-type: none"> • North Atlantic East Coast Fish Stocks • Pollution: Halifax Harbour and Boat Harbour • Waste Disposal: Sanitary Landfills, Incineration, etc. 	<p>Have students select one case study* from e.g., <i>Atlas of the Environment</i> and through group work gain an appreciation of the components of a crisis.</p> <p>Provide students with a compact case study and a focus question. Having completed a homework reading assignment have a student panel discuss their findings, using the model on the following page. All students must submit a written account of their conclusions.</p> <p>Assign students an independent research paper on one case study*. Present findings in seminar sessions that identify the web-like nature of these kinds of crises.</p> <p>*Note: Case studies on environmental crisis are suggested here (1.3.3), in Unit 4 (4.3.1–5), and in Unit 5 (5.2.2). It makes sense to prepare for the later units by assigning case studies that designated students could deliver in the future. This is a particularly appropriate opportunity for teachers of the preparatory course to assign a serious year-long study as a major component of their evaluation scheme. On the following page there is a model for examining an environmental crisis.</p>	<p>Process Inquiry Communication</p> <p>Process Inquiry Communication</p> <p>Process Inquiry Communication</p>	<p>* <i>Canada in a Changing World</i>, p. 12</p> <p><i>GAIA</i></p> <p>Periodicals, e.g., <i>TIME Magazine</i>, April 29, 1991: “China: The Poisoned Earth”</p> <p><i>Atlas of the Environment</i>, e.g., <i>Deserts and Desertification</i>, pp. 53–56</p> <p><i>World Resources</i></p> <p><i>Earth Matters</i></p>

Environmental Crises: An Examination Approach



Unit 2
Perilous Processes: Our Planet at Risk

Unit 2: Perilous Processes: Our Planet at Risk

Unit Objective: To show that process and peril are part of the planet's evolution; both natural and human processes can seriously disturb the delicate ecological balance of the planet; perilous human processes are a measure of our failure to organize for a more harmonizing human presence in the biosphere.

Suggested Time: 3–4 weeks

2.1 Dynamic Planet: Potential Peril

Objective

- To make students aware that both on its surface and within, Earth is a planet in constant motion.

Note: In many ways our planet exhibits its dynamic nature. Circulation within the asthenosphere powers the slow movement of crustal plates. Earthquakes and volcanoes are violent consequences of this motion (see section 2.1.1). Teachers should check to see how and to what extent this topic was dealt with at the grade 10 level. The administration of a pre-test may be appropriate particularly if students come from a mixed geographic background.

2.1 Dynamic Planet: Potential Peril *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>2.1.1 Global plate tectonics</p> <ul style="list-style-type: none"> • structure of Earth • plate movement • action along the plates <ul style="list-style-type: none"> – earthquakes – volcanoes 	<p>The purpose of this part of the topic is simply to provide basic information, e.g., location of plates and plate boundaries. Audio-visual aids are most useful for this, e.g., overhead transparencies, videos, films, filmstrips, illustrated atlases, etc.</p>		<p>Grade 10 Physical Geography Text, e.g., <i>Inch and Stone</i></p> <p><i>Canada and the World: An Atlas Resource</i> (see the Teacher's Guide for this atlas for student activities, pp. 17–18 (Hereafter called <i>Canada and the World</i>)</p> <p><i>Born of Fire</i>; National Geographic, video</p> <p><i>Powers of Nature</i>, National Geographic Kit</p> <p><i>Miracle Planet</i> series, “And Below The Ground”</p>

2.2 Peril And Threat: Natural Processes

Objective: To search for the relationships between human settlement and response, and natural perils and their occurrence.

Note: *The distribution of natural perils can be mapped. Many, such as earthquakes, are localized. Others such as plant blight may have destructive consequences over a much wider area. We are most aware of natural perils as they impact directly on our own health and safety. Geographers, therefore, look at the relationships between human settlement and natural perils. They study the ways human decisions influence the level of risk and vulnerability.*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>2.2.1 Global distribution</p> <ul style="list-style-type: none"> • geological perils For example <ul style="list-style-type: none"> – earthquakes – volcanoes – mud slides • atmospheric perils For example <ul style="list-style-type: none"> – floods – droughts – hurricanes – tornadoes • biotic perils For example <ul style="list-style-type: none"> – locusts – diseases 	<p>Give each student a black outline map of the world. Using a number of resources, e.g., <i>Atlas of the Environment</i>, <i>The Canadian Oxford School Atlas</i>, <i>Canada and the World</i>, have each construct a “Natural Perils Map” of the globe. Using evidence provided by their work, they should determine and describe the location of those places that are most prone to these perils.</p>	<p>Process Communication</p>	<p><i>Atlas of the Environment</i>, pp. 109–115</p>

2.2 Peril And Threat: Natural Processes *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>2.2.2 Human settlement and natural perils: the relationships</p> <ul style="list-style-type: none"> • perils and high population <ul style="list-style-type: none"> – developing countries – developed countries – population distribution – distribution of hazards • preparing for perils: developing and developed countries <ul style="list-style-type: none"> – understanding the consequences – prediction – preparation 	<p>Ask students to plot the 40 largest cities (population) on the same global map. Then ask them to correlate relationships between perils and population centres.</p> <p>As a librarian/student/teacher collaborative effort, and build a vertical file on perils, natural and human.</p> <p>Students analyse disasters to see what is required to understand, predict, and prepare for a natural disaster. Then they must assess which country is better able to do so—a developed or a developing country.</p>	<p>Process</p> <p>Process Participation</p> <p>Process Inquiry</p>	<p><i>Oxford Atlas</i></p> <p><i>Atlas of the Environment</i>, pp. 22–23</p>

2.2 Peril And Threat: Natural Processes *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>2.2.3 Selected case studies comparing developed and developing countries reaction to perils</p> <p>For example</p> <ul style="list-style-type: none"> • earthquakes in California and Mexico • floods in Mississippi and Bangladesh • river blindness in West Africa 	<p>In teacher/librarian assisted case studies, students must compare and contrast the responses of a developed and underdeveloped country to a disaster.</p> <p>In groups or as individuals have students prepare a newspaper in which they research the responses of a developed and underdeveloped nation to a specific peril. Include factual account, editorial, feature story (individual), cartoon.</p> <p>Students study and compare the responses to the Black Death and AIDS from particular perspectives, e.g., the Church.</p>	<p>Process</p> <p>Process Communication Participation</p> <p>Process</p>	<p>Periodicals—topic specific—to support case studies, e.g., <i>TIME</i>, <i>Newsweek</i>, <i>Scientific American</i></p> <p>Local Emergency Measures Organization Personnel</p> <p>Grade 10 history text</p> <p><i>Atlas of the Environment</i>, pp. 34–35</p> <p><i>Jackdaw</i> on Black Death, etc.</p>

2.3 Peril and Threat: Human Processes

Objective

- To have students recognize human-made perils, and that these create problems that threaten the capability of our planet to sustain life.

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>2.3.1 When are peril and threat global?</p> <ul style="list-style-type: none"> impacting on Earth's life sustaining systems 	<p>Through brainstorm, panel and class discussion, ask students to develop the concept of when a peril and threat are global. This exercise could be initiated by asking: "Are they global when examples of it are distributed worldwide, or when a certain condition affects the globe as a whole?" Is it either or both?</p>	<p>Participation Process Communication</p>	<p><i>Atlas of the Environment</i>, pp. 119–122</p> <p><i>Canada and the Changing World</i>, p. 9</p> <p><i>Modern Perspectives</i>, Grade 11, history text</p> <p>Public Health Officer</p>

2.3 Peril and Threat: Human Processes *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>2.3.2</p> <ul style="list-style-type: none"> • examining global perils and threats <p>For example</p> <ul style="list-style-type: none"> – greenhouse effect – depletion of the ozone layer – genetic erosion – space debris/junk – acid rain – the nuclear hazard – waste disposal – disease (AIDS) 	<p>Teachers may use a case study, e.g., Chernoble: a nuclear accident. This case study may result in a written or oral report or a group discussion with the presentation of conclusions.</p> <p>Using the jigsaw collaborative learning strategy, have students select (5) different case studies of global perils and threats. Having done their research, they would then present their findings to an assembly of students and possibly to the general public at an evening presentation.</p> <p>Select a number of video resources on several of these global perils and threats. During viewing have students analyse each crisis according, as much as possible, to the crisis chart at the end of Unit 1. Students should submit their findings on paper and (perhaps) compare their conclusions in class.</p>	<p>Process Communication Participation</p> <p>Process Communication Participation</p> <p>Process Communication Participation</p>	<p><i>Canada and the Changing World</i>, p. 258</p> <p><i>Atlas of the Environment</i>, pp. 33–36</p> <p>International Education Centre (Saint Mary’s University), phone (902) 420-5525</p> <p><i>World Resources</i></p>

2.4 The Growing Concern: Some Heartening Signs

Objective

- To have students examine humanity's efforts to address perils that threaten the planet.

Note: There appears to be a growing awareness on the part of politicians, the scientific community and many other members of the public that the planet is endangered. The public press reflects and helps foster this increased sensitivity and sensibility. These are heartening signs. This sub-topic overlaps with 5.3 and Unit 8.

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>2.4.1 The changing political climate</p> <ul style="list-style-type: none"> the green movement advertisement politics industry laws awareness groups 	<p>Assign students a newswatch of a local environmental issue, e.g., Halifax County landfill site (1992). Students must submit a report that identifies the issue, the environmental concerns, the participants in the debate and whom they represent, the state of the issue at the time of reporting and why it was at that state.</p> <p>The same assignment as above but with actual contact with parties involved, e.g., attendance at public meetings, personal interviews, invitations to address the school, etc.</p> <p>Assign a research task where students focus on formal political involvement in "greening," e.g., Canada's Green Plan, Germany's Green Party, the United States Environmental Protection Agency, etc.</p>	<p>Process Communication</p> <p>Process</p>	<p><i>World Resources</i>, Chapter 14, "Policies and Institutions: Nongovernmental Organizations"</p> <p><i>GAIA</i>, "Management," p. 232 ff</p> <p><i>Earth Matters</i>, Chapter 13, "Finding Solutions"</p>

2.4 The Growing Concern: Some Heartening Signs *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>2.4.2 Co-operative responses from the scientific community</p> <ul style="list-style-type: none"> • alternative sources of energy <ul style="list-style-type: none"> – research – education – application 	<p>In preparation for 5.3.2, Sharing and Managing Global Resources, and Unit 8: The Future Planet: Under New Management, teachers, library staff, and students should collaborate on a choice of case studies that would serve the short- and long-term. The “product” at this stage should perhaps be an overview of the case study particulars, and then an action plan for the more long-term objective.</p> <p>Organize a field trip to a university or other research facility, e.g., Bedford Institute of Oceanography to learn about scientific efforts that further our knowledge and understanding of the environment, and of other efforts that enhance our ability to deal with threats to the environment.</p>	<p>Process</p>	<p><i>Atlas of the Environment</i>, “Major Conservation efforts,” pp. 141–144</p> <p><i>Challenge for Change, Part Six: “Interdependence, Co-operation, and Conflict”</i></p> <p><i>The Global Focus</i>, pp. 39–53</p> <p><i>Global Issues</i>, Chapter 10, “Development and Underdevelopment”</p>

2.4 The Growing Concern: Some Heartening Signs *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>2.4.3 Case Studies For example</p> <ul style="list-style-type: none"> • Montréal Protocols • UNCLOS • MARPOL • International Red Cross • CIDA • UNCED • Rio Conference of NGOs • World Council of Indigenous Peoples 		<p>Process Participation</p>	<p><i>Dynamic Canada</i>, Chapter 17, “Foreign Aid”</p> <p><i>Canada in a Changing World</i>, Chapter 8, “Global Solutions”</p> <p><i>World Resources</i>, e.g., Chapter 14, Chapter 25</p> <p><i>GALA</i>, e.g., “Laws of the Sea,” p. 96, “Clean Water for All,” p. 134, “Laws and Conventions,” p. 166</p> <p><i>Earth Matters</i>, Chapter 13, “Finding Solutions”</p>

Unit 3
The Peopled Planet: Standing Room Only?

Unit 3: The Peopled Planet: Standing Room Only?

Unit Objective: To examine population distribution, density and rates of growth with a view to ascertaining the planet's capability to support and sustain life.

Suggested Time: 4 weeks

Note: There is reason to the order of the main topics in this unit. 3.1 puts people on the planet, shows where they live, how closely they live to one another, why they live where they do, and how they live in their particular settings. 3.2 examines how geographers (demographers) study populations and the quality of life different populations enjoy. 3.3 takes the first two themes into consideration as it looks at the ability of humanity to maintain population growth and quality of life.

3.1 Spatial Patterns

Objective

- To make pupils aware of the unequal distribution of the human population and natural resources on Earth's surface.

3.1 Spatial Patterns *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>3.1.1 Population distribution Population density</p> <p>Physical environment</p> <ul style="list-style-type: none"> • opportunities and constraints • barren regions, e.g., tundra • productive regions, e.g., river valleys • mineral rich region, e.g., Canadian Shield • accessibility, e.g., water bodies 	<p>These two terms should not be new to the students: they were introduced in Junior High with a particularly explicit treatment in Grade 9 Maritime Studies (e.g., see <i>The Maritimes, Tradition, Challenge and Change</i>, p. 25). The emphasis here, then, should be to apply, after a review, the terms to the global situation. This can be done by having the students analyse specific maps, e.g., p. 47, <i>Canada in a Changing World</i>, and writing out their interpretations. Guiding questions, and atlases at the elbows, are useful, e.g., Where is the population most dense? Pupils must give you their answers according to a) nations, b) major physical features. Describe how these populations are distributed on the surface of the globe, e.g., between latitudes, by continent, or by some location criterion, etc.</p> <p>Have students individually compare a number of maps that would allow them to examine the relationship between population density/distribution and any number of factors. Have them prepare one question that they will then exchange with another student. Some questions might be:</p> <p>Is there a relationship among population distribution, transportation routes, and urbanization? What is the relationship between population distribution and regional terrain, e.g., the Andes? Is global population distribution related, e.g., to water? temperature?</p> <p>As a summary activity all students would share their conclusions with the class as a whole.</p>	<p>Process Communication</p> <p>Process Communication Participation</p>	<p>Global databases, e.g., PC Globe</p> <p><i>World Prospects</i>, statistical table 1</p> <p>Any text, e.g., <i>Canada in a Changing World</i> (density p. 19; distribution, p. 47)</p> <p><i>Connections</i>, “Countries, Areas, and Densities” tables, p. 92</p> <p><i>Atlas of the Environment</i>, pp. 21–24</p> <p><i>Canada in a Changing World</i> (world population density map, p. 47)</p> <p>Themes: <i>Atlas of the Environment</i>, <i>Oxford Atlas</i>, etc.</p> <p><i>GAIA</i> (map index p. 259 ff)</p>

3.1 Spatial Patterns *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>3.1.2 Comparative case studies of cultural/human responses For example</p> <ul style="list-style-type: none"> • Bangladesh and Netherlands • Brazil and Canada, e.g., indigenous peoples • China and USA • Japan and Indonesia 	<p>The aim of these case studies is to provide students with the opportunity to compare the physical attributes of two nations and the cultural human responses to the physical environments. They must come to some conclusions as to why the responses have been different.</p> <p>Criteria for the comparison might include, among others, physical characteristics, climate, population density and distribution, economy, religion</p>	<p>Process Inquiry</p>	<p><i>World Resources</i></p> <p>Global databases, PC Globe 5</p> <p><i>World Prospects</i>, statistical table 1</p>

3.2 The Numbers Game

Objective

- To make students aware of the current rapid population growth and its affects on the quality of life.

Note: *Most recent global geography books have a chapter or major section devoted to the global population topic. Two very focussed pupil/teacher resources are available at very reasonable costs from Washington, D.C.: Earth Matters: Studies for Our Global Future (Chapter 1: "Population Dynamics," pp. 1–25) available from ZPG (Zero Population Growth), 1400 Sixteenth Street, N.W., Suite 320, Washington, D.C., 20036, Tel. (202) 332-2200. (They have a host of other materials that are put forth in a small catalogue.); CONNECTIONS: Linking Population and The Environment (a kit with pupil and teacher's booklets, and two wall posters), The Population Reference Bureau Inc., 1875 Connecticut Avenue, N.W., Suite 520, Washington, D.C., 20009, Tel. (202) 483-1100.*

3.2 The Numbers Game *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>3.2.1 The Culture Context</p> <ul style="list-style-type: none"> • Patriarchy • Matriarchy • Sexuality and culture • Family size; preferred baby gender <ul style="list-style-type: none"> • The gift perspective, birth and death 	<p>Note: <i>The birth of children and population growth cannot be viewed simply as the outcome of human sexual behaviour. Global geography students must be given the opportunity to examine and understand the very deep cultural and economic forces that contextualize human sexuality and resultant practical matters such as family size.</i></p> <p>Using a variety of print, audio-visual and photographic/graphic resources, ask students or groups of students to research the cultural and economic context of population studies, using the three headings opposite. Focus questions are useful, e.g., How does the pattern of economic life in your case study influence family size? Illustrated oral presentations should follow.</p> <p>Invite a guest speaker, e.g., the Red Cross, to talk about the contrasts between safe birthing in Canada and birthing in other circumstances worldwide that threaten the life of mothers and babies and pose life-threatening challenges for individuals, families, and groups.</p>	<p>Process Communication Participation</p>	

3.2 The Numbers Game *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>3.2.2 The role of women</p>	<p>Note: <i>Research is revealing more and more the very critical role that women have played and are playing in the economic, social, and cultural life and transformation of many of the world's developing nations. It is most important that global geography students become thoroughly familiarized with this aspect of the course. It is addressed in Unit 5 under the sub-topic, Human Resources.</i></p> <p>Using a variety of print, audio-visual, and graphic resources, have students research the role of women in various countries (developed and developing) around the world. Have each of them write a vignette that gives an overview of the lives of each of these women that highlights the cultural and economic conditions that are primary determining/shaping factors in their lives.</p>	<p>Process Communication Participation</p>	<p><i>Earth Matters</i>, Chapter 12, "The World's Women"</p> <p><i>World Resources</i>, p. 86, "The Role of Women"</p> <p><i>GALA</i>, "The Voice of Women," pp. 192–193</p> <p>(For a good example of the use of vignettes, see <i>Connections</i>, "The Challenge of Our Times," Part 2, "Child 5, Billion Case Studies")</p> <p><i>The World's Women, 1970–1990, Trends and Statistics</i>, United Nations, 1991, ISBN 92-1-161313-2, United Nations Publications, Sales No. E.90.XVII.3, (1992 Price: \$19.95 US)</p>

3.2 The Numbers Game *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>3.2.3 Demographic statistics</p> <ul style="list-style-type: none"> the population explosion 	<p>Distribute global population numbers for the past, e.g., 2000 years, with time line dates. Have the students design graphs (bar, line, etc.) to represent these numbers.</p> <p>Brainstorm for factors that might account for increases in global population figures over the millenia (this would include factors that held increases down). Apply the same questions to the last 50 years. The latter question could be augmented by inviting a member of the medical or research professions to come to class to discuss this complex issue.</p>	<p>Process Communication</p> <p>Process Communication Participation</p>	<p><i>Earth Matters</i>, the data p. 7, <i>Canada in a Changing World</i>, the graph, p. 20</p> <p><i>Connections</i>, graphs pp. 6–7</p> <p><i>World Resources</i>, p. 76, tables</p> <p><i>GAIA</i>, pp.18–19, graphs</p> <p><i>Canada and the World: An Atlas Resource</i>, pp. 119–120</p> <p>Thomas Matthews, e.g., <i>World Prospects</i>, p. 32</p>

3.2 The Numbers Game *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>3.2.4 Quality of life</p> <ul style="list-style-type: none"> • Population and development <ul style="list-style-type: none"> – developed – developing 	<p>In a collaborative exercise have students review a number of resources—texts, atlases, magazines, videos—with a view to sharing their findings to determine what are the criteria, or variations in criteria, behind the terms “developed” and “developing” countries. As an extension, students could research the origin of the terms “third world countries,” “The North” and “The South.”</p> <p>Organize a student debate on the resolution: “Resolved that there is no such thing as a developed or developing country because the terms are culturally relative.”</p> <p>Have students process the information from maps and tables using some or all of the following techniques: plot findings on outline maps, represent findings by graphs, write conclusions from the analysis of statistics and maps. The focus question is: Is there a demonstrable connection between population growth and development status?</p>	<p>Process Communication Participation</p> <p>Process</p>	<p><i>Atlas of the Environment</i> “Industrialization and Development,” pp. 45–48</p> <p><i>World Resources</i>, Chapter 6, “Population and Human Development,” p. 75</p> <p><i>Earth Matters</i>, Chapter 10, “Rich and Poor,” Chapter 11, “Population and Economics”</p>

3.2 The Numbers Game *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>3.2.4 <i>(continued)</i> Quality of life</p> <ul style="list-style-type: none"> • Measurements of Quality <ul style="list-style-type: none"> – GNP rates – life expectancy – infant mortality – literacy – sickness and stress – unemployment and under employment 	<p>Note: <i>These three words are more than a phrase. Quality of life refers to the success humans have in meeting their wants and needs. A tool that helps social scientists to quantify quality of life is the PQLI—The Physical Quality of Life Index. This index, and its indicators, is described in geography texts, e.g., Canada in a Changing World, pp. 62–64. (Caution: as the text’s opening paragraph states, there are other criteria that are used to determine standards of living. These are not in the index but may underlie the indicators.)</i></p> <p>Assemble a panel of persons who are able to comment upon the question, “What is quality of life, and what factors contribute to it?” The panel should represent ranges in, e.g., age, education, income, ethnicity, gender, etc. The same search for opinion could be done by student interview, making sure that the same ranges are covered. In a concluding activity, students would share their findings and attempt to come to a consensus. Then, scanning atlases, texts, e.g., the PQLI noted above, articles, etc., the students could compare their list to the “professional one.”</p>	<p>Process Communication Participation</p>	<p><i>Canada in a Changing World</i>, pp. 62–64</p> <p><i>Earth Matters</i></p> <p><i>Connections</i></p>

3.3 The Global Support Question

Objective

- To have students understand the relationships between world population growth and the quality of life.

Note: See Units 1.3, 2.3, and 5.2 for closely-related items.

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>3.3.1 Is there a limit to growth?</p> <ul style="list-style-type: none"> human needs/wants evidence of Earth's capacity to carry 	<p>Note: <i>Two questions exist here: a) Is there a limit to the number of people that earth, with its resources, can support? b) Is there a limit to the number of people that earth, with its resources, can support at a universally healthy and dignified standard of living? Answers to both of these questions must be sought from the global perspective (see the content of Unit 4: Feeding The Planet).</i></p> <p>Step 1: This could be a review exercise for most students. Students should brainstorm and then strive for consensus on a list of human needs. They may wish to discuss the distinction between needs and wants.</p> <p>Step 2: Using the list of needs as a guide, students must survey relevant material (e.g., <i>Earth Matters</i>, "Population Dynamics—The People Connection," p. 3 ff) to determine in summary form what research has said about the capacity of earth to carry its exploding population.</p>	<p>Process Communication Participation</p>	<p><i>Canada in a Changing World</i>, pp. 58–61, 62–74</p> <p><i>GAIA</i>, pp. 18–19</p> <p><i>Earth Matters</i>, p. 13</p>

3.3 The Global Support Question *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
3.3.1 <i>(continued)</i>	<p>Step 3: Based on their summaries, students must draw up a list of policy and behavioural changes that will be required if all of humanity is to enjoy a healthy, dignified standard of living.</p> <p>Step 4: The global dicotomy: illustrate the challenges of helping Earth to support human population by having the students prepare comparisons of have and have not countries: e.g., Canada vs. any third world country, and their ability to meet their peoples' needs (This step will overlap with suggestions in Unit 4).</p>	<p>Process Inquiry Participation</p> <p>Communication</p>	<p>e.g., <i>Connections</i>, Section V, "World Citizens Must Change Their Ways," p. 75</p>
<p>3.3.2</p> <p>Managing the numbers</p> <ul style="list-style-type: none"> • the politics of control • the economics of control • the cultural perspective • the rights perspective • case studies 	<p>Seminar approach: assign students in groups to do research on countries with different population policies and ideologies. Groups will then come together to discuss the different policies and come to conclusions.</p> <p>In assigned groups, the class will research the population policies/ideologies of the selected nations and report to the class. Then a teacher-guided discussion would help students to arrive at conclusions.</p>	<p>Process Inquiry Participation Communication</p>	<p><i>World Prospects</i>, pp. 39–62</p> <p><i>Canada in a Changing World</i>, pp. 36–38, 42–46</p> <p><i>GAIA</i>, pp. 190–191</p> <p>Software: PC Globe</p> <p><i>Connections</i>, "Kenya: From Birth Control to Population Management," p. 31</p>

Unit 4
Feeding the Planet: Food for Thought

Unit 4: Feeding the Planet: Food for Thought

Unit Objective: To consider those factors that will maintain the planet’s ability to sustain all life forms and especially those factors that have a direct bearing on humanity’s efforts to feed itself.

Suggested Time: 3–4 weeks

Note: To deal with the complex theme of feeding the planet’s population, the unit has been ordered in the following way: 4.1—the potential for food production; 4.2—taking advantage of that potential; 4.3—jeopardizing that potential; 4.4—protecting and enhancing that potential. In practice teachers are encouraged to integrate sub-topics where they so desire, e.g., 4.1 with 4.2. OR, they may wish to use a case study that shows the integration of cause and effect, 4.1 through to 4.4.

Methods of food production, types of food, land ownership, work roles: all of these factors are outcomes of cultural growth and development. In dealing with the four sub-sections every effort should be made to have students recognize and appreciate that culture is very much at play in the global food supply question.

4.1 The Land/Ocean Potential

Objective

- To explore the potential of land and sea environments to provide food.

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
4.1.1 Green potential	Students should engage in a discussion about the nature of the term potential. Using the adjectives maximum, optimum and natural will help to keep the discussion focussed.	Inquiry Participation	Grade 10 Physical Geography Text Any atlas

4.1 The Land/Ocean Potential *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
4.1.1 <i>(continued)</i> Green potential	<p>Invite a speaker from Nova Scotia’s or Canada’s Department of Agriculture to discuss the nature of soil, soil types, biomes, and relate these terms to the potential to grow food. The discussion should include the influence of climate, e.g., growing periods, etc. To make such visits most productive, students should, well ahead of time, be asked to submit questions for the guest speaker to consider (Note: <i>The focus here is potential, not actual production.</i>)</p> <p>Select a number of graphic, cartographic, audio-visual, and print resources that describe the distribution of the planet’s potentially productive soils and biomes. Students should record the results of their research on a world outline map and describe them on paper in point or paragraph form.</p>	Inquiry Communication Process Communication	<p><i>Atlas of the Environment</i>, “Major Biomes, Climatic Regions and Land Use”, pp. 11–16, “Food Production and Consumption,” pp. 25–28</p> <p><i>World Prospects</i> (outline on p. 408)</p> <p>Any atlas</p> <p><i>GAIA</i>, pp. 24–31</p>
4.1.2 Blue potential	<p>As above with soils, ask a member of Nova Scotia’s or Canada’s Department of Fisheries to explain how the oceans team with life, and how some of that life in certain locations is a tremendous source of food for humans. In addition to marine food chains, the discussion should also involve the role of climate. As above, questions should be identified in advance of the visit.</p> <p>Again, as with soils, survey a number and range of resources to determine the extent of “the blue potential.” Results of the students research should be recorded on a world map and in writing.</p>	Inquiry Communication Process Communication	<p>Grade 10 Physical Geography Text</p> <p><i>GAIA</i>, pp. 70–81</p> <p><i>Challenge for Change</i>, pp. 186–207</p> <p><i>Atlas of the Environment</i>, “Food Production and Consumption,” pp. 25–28, “The World’s Fisheries,” pp. 157–160</p>

4.1 The Land/Ocean Potential *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
4.2.1 <i>(continued)</i>	<p>As a concluding activity, a teacher-guided discussion should be used to draw the information together and to reach possible conclusions about the planet's ability to provide food for its human population.</p> <p>As an extension question, the class should be asked to consider the question: "Can the question of the ability of the planet to feed its human population be asked in isolation of other factors, e.g., apart from its ability to feed its wildlife, or indeed to have a wildlife population, period?"</p>	Process Participation	

4.2 The Harvester: Humanity’s Quest for Nourishment

Objective

- To examine the nature and distribution of humanity’s efforts to harvest the land and sea in order to feed itself.

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>4.2.1 The Culture Factor</p> <ul style="list-style-type: none"> Land/ocean within cultural settings Cultural landscapes Harvester Roles Tastebuds 	<p><i>Note: As in the population unit it is essential that humanity’s quest for nourishment, and the techniques used in that quest, be put into a cultural context. Many influences combine to create cultural settings for food, food production, and food processing.</i></p> <p>Have students return to their grade 7 social studies to review how geography and technology determined the diets of Canada’s Native Peoples.</p> <p>Assign individual one-night homework assignments that require students to report orally on landscapes that have been altered to allow for or enhance food production. Students must explain their alteration and its purpose in detail.</p> <p>Present an illustrated (statistical) lecture that reveals gender roles in food production. Follow this by a video that presents a case study on gender roles in food production, e.g., <i>With These Hands: How Women Feed Africa</i>.</p> <p>After presenting students with examples of cultural food practices, e.g., fish for Catholic Europe, assign minor research assignments that either examine stereotypes, e.g., Asians and rice, or reveal new culture/food relationships.</p>	<p>Process Communication</p>	<p>Grade 7 textbooks, e.g., <i>Origins, Discovering Canada Book I</i>, etc.</p> <p><i>National Geographic Magazine</i></p> <p><i>Equinox</i></p> <p><i>The Forgotten Farmers</i>, video, I.E.C.</p> <p><i>With These Hands: How Women Feed Africa</i>, video, I.E.C.</p>

4.2 The Harvester: Humanity's Quest for Nourishment *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>4.2.2 Crops and grazing lands</p>	<p>Students should examine graphic/map/print material that describes current land use and food production, e.g., <i>Atlas of the Environment</i> pp. 25–28; <i>World Resources</i> 1992–93, pp. 93–98; <i>Canada in a Changing World</i>, pp. 76–79; etc. Students should then record on a map or in writing the world's food producing lands.</p>	<p>Process Communication</p>	<p><i>Atlas of the Environment</i></p> <p><i>GAIA</i>, pp. 32–39</p> <p><i>Challenge for Change</i>, pp. 80–104</p> <p><i>GAIA</i>, pp. 76–77</p> <p><i>Challenge for Change</i>, Chapter 6</p>
<p>4.2.3 Ocean shoals</p>	<p>Repeat the previous activity with the survey of materials focussing on the world fishery, e.g., <i>World Resources 1992–93</i>, Chapter 12, etc.</p>		
<p>4.2.4 Production for the global larder</p> <ul style="list-style-type: none"> • hunter/gatherer • slash and burn • agribusiness • inshore/offshore • aquaculture • local/global • labour intensive • capital intensive 	<p>Divide the class into 2 large groups, one to focus on the land harvests, the other on the sea harvests. Have members of each group research methods of harvesting the land and sea around the world. As far as possible, the students should relate these methods to the following factors: culture, climate, technology, and economics. The issue of micro versus macro harvesting techniques should be addressed as well. Students should present brief vignettes to reveal the range of harvesting practices. (Note: <i>As this research goes on, students should record the adverse effects of these practices, in preparation for 4.3 below.</i>)</p>	<p>Process Participation Communication</p>	

4.2 The Harvester: Humanity’s Quest for Nourishment *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>4.2.5 Distribution and consumption</p> <ul style="list-style-type: none"> • eating to live • haves versus have nots • related health problems • political problems 	<p>Students map global pattern of caloric intake. Relate this map to previous maps to develop understanding of relationship between food production and consumption and consequences of inequitable distribution.</p> <p>Students should be encouraged to generate hypotheses to explain unequal distribution.</p> <p>Divide the class up into groups and conduct a case study into a country that has a rich land or sea potential, but has problems feeding its people, e.g., El Salvador, Philippines, Peru, Bangladesh, Kenya. Other case studies could focus on countries that produce more food than they can consume: how is this so, and what happens to the surplus production?</p>	<p>Process</p> <p>Process</p> <p>Process Participation</p>	<p><i>World Prospects</i>, pp. 70–82</p> <p><i>Atlas of the Environment</i>, pp. 25–28</p> <p><i>Canada in a Changing World</i>, pp. 76–82, 90–95</p> <p><i>World Prospects</i>, pp. 109–116, pp. 55–62</p> <p><i>Global Challenge</i>, pp. 162–177</p> <p><i>Challenge for Change</i>, pp. 101–104</p> <p>Software: PC Globe</p>

4.3 The Land/Ocean Crisis

Objective

- To research and analyse crises facing lands and oceans today.

Note: Please refer back to p. 58 for one model to follow in examining and analysing an environmental crisis.

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>4.3.1 Disappearing soils</p> <p>4.3.2 Shrinking forests</p> <p>4.3.3 Encroaching deserts</p> <p>4.3.4 Declining fish stocks</p> <p>4.3.5 Genetic erosion</p>	<p>Divide the class up into five groups. Using the detailed outlines from this guide, pp. 39–40 (The Land/Ocean Crisis) have each group research and analyse one of the crises opposite. Each group should present a written and illustrated oral presentation.</p> <p>Have the students view a video on two or more of the crisis opposite. Have then take notes on the video and afterwards, in class discussion, organize the causes and consequences that have brought about the crisis.</p> <p>Have a certain number of students research and analyse as a group, a local example of a food production related environmental crisis, e.g., the North Atlantic cod fishery. Report their findings in an oral presentation to the class. Following this up with a panel of interested parties could provide the students with an insight into the complex nature of some of these crises.</p>	<p>Process Communication Participation</p> <p>Process Participation</p> <p>Process Communication Participation</p>	<ul style="list-style-type: none"> <i>GAIA</i>, e.g., pp. 40–41, 156–158 <i>World Resources</i> 1992–93, pp. 114–115 <i>Earth Matters</i>, “Deforestation,” p. 61 <i>World Resources</i>, “Forests and Rangelands,” p. 111 <i>Atlas of the Environment</i>, “Resorts and Desertification,” p. 53 <i>Connections</i>, “Survival in the Sahee,” p. 26 <i>Atlas of the Environment</i>, “The World’s Fisheries,” p. 157 ff <i>World Resources</i>, see index <i>GAIA</i>, pp. 156–158 <i>Atlas of the Environment</i>, “Biological Diversity and Genetic Resources,” pp. 127–132

4.4 Land/Ocean Management *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>4.4 Land/ocean management</p> <ul style="list-style-type: none"> • Forest regeneration • Green revolution • New agriculture • Conservation strategies • Laws of the sea • Antarctica • Desertification • The role of women 	<p>Assign individual independent research projects on management solutions such as those opposite. Reports must include a detailed description of the challenge and its origins, and the solution—its origins, participants, costs, and forecasts for success.</p> <p>Using the following or other methods, develop a case study on one of the management solutions opposite.</p> <ul style="list-style-type: none"> • Guest speakers • Class debate • Simulated public hearing with students taking roles such as local politicians, industrialists, labour unions, environmental groups to investigate issues such as monoculture (forestry). 	<p>Process Communication</p> <p>Process Participation</p>	<p><i>Atlas of the Environment</i>, “Major Conservation Efforts,” pp. 141–144</p> <p><i>Earth Matters</i>, “Finding Solutions,” pp. 159–171</p> <p><i>World Resources</i>, e.g., See Part 1, which is dedicated to sustainable development</p> <p><i>GAIA</i>, e.g., “Managing The Land,” pp. 50–67, “Managing The Ocean,” pp. 90–99, “The Management Potential,” pp. 234–241</p>

Unit 5
Global Resources: The Good Earth

Unit 5: Global Resources: The Good Earth

Unit Objective: To study the increasing exploitation of the world's resources and to examine methods and strategies that will preserve/conservate the planet's resources for future generations.

Suggested Time: 4 weeks

5.1 Resource Potential and Utilization

Objective

- To re-examine the concept resource from a local, national (continental), and global perspective; to examine management and consumption of natural resources from the sustainable development perspective
- To analyse maps, graphs, tables, etc., for economic and social patterns arising from the location, production, and consumption of resources.

The world of resources is first approached in the elementary grades. Primary, secondary, and tertiary industry, for instance, is explicit in the grade 6 curriculum. Teachers, therefore, particularly those in schools with a strong geography program, should determine their pupils' readiness before developing their strategies for this sub-unit.

The unit is divided into 3 components in order to help teachers understand the content potential. In practice there will be overlapping. In fact, if an appropriate resource were chosen, teachers could collapse most of the unit into one detailed case study, e.g., oil, fish, etc. (See *The Global Focus*, details below, Chapter 2, "Water as a Natural Resource," Chapter 3, "Energy as a Natural Resource.")

Teachers should familiarize themselves with the themes and content in this unit that are similar to those of the concluding Unit 8.

5.1 Resource Potential and Utilization *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources																
<p>5.1.1 Natural Resources</p> <ul style="list-style-type: none"> • perception • recognition • exploitation 	<p>Have students identify natural phenomena that exist between their homes and the school. Have them change these into resources by adding a single adjective that reveals valuing, e.g., air, clean air; water, drinking water; land, building lot land; etc. Divide the class into groups, each responsible for one resource. Using the grid below as a model, have students identify, where possible, local, national (continental) and global examples of where this resource appears to be valued (+), under- or not valued (–), or is a source of concern (c).</p> <p style="text-align: center;">Clean Water</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Local</th> <th>Continental</th> <th>Global</th> </tr> </thead> <tbody> <tr> <td>+ Note</td> <td></td> <td></td> <td></td> </tr> <tr> <td>– Note</td> <td></td> <td></td> <td></td> </tr> <tr> <td>C Note</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Use class discussion to draw conclusions about the perception, recognition and exploitation of resources.</p>		Local	Continental	Global	+ Note				– Note				C Note				<p>Process Inquiry Participation Communication</p>	<p><i>The Global Focus</i>, Bonnor et al., Jacaranda Press, 1989, ISBN 0-7016-2405-1, Chapter 1, pp. 2–53, “Global Patterns of Biophysical Resources” (a very thorough treatment of this topic)</p> <p><i>Dynamic Canada: The Environment and the Economy</i>, Fagan and Lloyd, McGraw-Hill Ryerson, 1992, Part A: “Environmental Systems and Resource Management”</p> <p><i>World Resources</i></p> <p><i>Atlas of the Environment</i></p> <p><i>Canada in a Changing World</i>, chapter 5, pp. 112–157</p>
	Local	Continental	Global																
+ Note																			
– Note																			
C Note																			

5.1 Resource Potential and Utilization *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>5.1.1 <i>(continued)</i> Natural Resources</p> <ul style="list-style-type: none"> • perception • recognition • exploitation 	<p>Have students examine a list of resources (e.g., <i>World Prospects</i>, Table of Contents, Chapter 5, for pp. 195–212: “Future Energy Sources”), and explain the role of knowledge, technology, economics, and culture in the perception and identification of resources.</p> <p>Having arrived, by whatever means, at the definition of resource, have students define and give examples of a global resource (e.g., oil around the globe, or an unpolluted upper atmosphere, (no greenhouse affect).</p>	<p>Process Inquiry</p> <p>Process Inquiry</p>	<p><i>GAIA</i></p> <ul style="list-style-type: none"> • “The Land Potential,” pp. 24–39 • “The Ocean Potential,” pp. 70–81 • “The Elemental Potential,” pp. 102–111 • “The Evolutionary Potential,” pp. 140–181 • “The Human Potential,” pp. 172–179 <p><i>Challenge for Change</i>, Part 4, pp. 151</p> <p><i>World Prospects</i>, “Resource Depletion,” p. 157</p>

5.1 Resource Potential and Utilization *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
5.1.1 (continued) Human resources <ul style="list-style-type: none"> • women • men • children 	<p>Present students with character sketches on life/job profiles of males/females of all ages in different cultures/nations. Analyse these profiles with a view to determining the scope and definition of the term “human resources.”</p> <p>View a video such as “African Market Women” (NFB/Morag Productions) and analyse its content for the cultural side to the terms human resources.</p> <p>Conduct a case study in which students analyse the role of women in the economic life of a developed and developing country. Our knowledge and understanding of the role of women in third world countries is only now revealing the magnitude of their place in such (cultural) economies.</p>	Process Process	<p><i>World Issues</i>, Wiley, “Women in Today’s World,” p. 48, “Child Labour,” p. 55</p> <p><i>Planet under Stress</i>, Oxford, pp. 233–234</p> <p><i>Earth Matters</i>: Chapter XII: “The World’s Women,” p. 149 ff</p> <p><i>The Forgotten Farmers</i>, Video, 1986, IEC, St. Mary’s University</p> <p><i>With These Hands: How Women Feed Africa</i>, Video, 1987, IEC, St. Mary’s University</p> <p><i>The World’s Women, 1970–1990: Trends and Statistics</i>, United Nations, 1991, ISBN 92-1-161313-2, United Nations Publications Sales No. E.90.XVII.3 (1992, price: \$19.95 US)</p>

5.1 Resource Potential and Utilization *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>5.1.2 Patterns</p> <ul style="list-style-type: none"> • location • production • consumption • distribution of benefits 	<p><i>Note: Teachers should be careful not to confuse objectives of this sub-unit with those of Unit 6: Global Factory: For Whose Benefit? The central focus here is to look for patterns and relationships.</i></p> <p>Conduct student map studies, for patterns:</p> <p>e.g.,</p> <ul style="list-style-type: none"> • Interpret in writing a single resource map, e.g., Atlas of the Environment, Drinking Water, pp. 30–31 • Record in writing conclusions from the comparison of two or more maps, e.g., Food Production and Consumption (pp. 26–27) with Per Capita GNP (pp. 42–43), <i>Atlas of the Environment</i>. 	<p>Process Communication</p>	<p><i>Canada and the World: World Statistics</i>, pp. 179–186</p> <p><i>Atlas of the Environment</i></p> <p><i>World Resources</i></p> <p><i>GAIA</i></p>

5.1 Resource Potential and Utilization *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>5.1.2 <i>(continued)</i> Patterns</p>	<p>Divide students into groups of 3 or 4 and have them research statistics on related items, e.g., oil reserves, oil production, oil consumption from selected developed and developing countries. Construct bar graphs and analyse them for patterns.</p> <p>Carry out the same exercise as above, adding at least one social statistic. Have students search for patterns of inequalities between developed and developing nations that may be related to location, production and consumption of resources.</p> <p>Have students engage in activities described in a text resource, e.g., <i>Canada in a Changing World</i>, chapter 5, p. 156, question 3: “Some countries have abundant natural resources but nevertheless are less developed nations. Give reasons why this is so.” See another example(s) in <i>Challenge for Change</i>, pp. 136–137, 314–316).</p>	<p>Process Participation Communication</p> <p>Process Participation</p> <p>Process</p>	<p><i>World Prospects</i>, Appendix 3, Statistical Data, p. 409 ff</p> <p><i>Challenge for Change</i>, Appendix, p. 558 ff (tables)</p> <p><i>Challenge for Change</i>, e.g., Chapter 15 “Analysing Resource and Environmental issues,” p. 314 ff</p>

5.2 Resource Crisis

Objective

- To help students evaluate use of the term resource crisis by examining human consumption, the natural storehouse and the influence of one upon the other.

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
5.2.1 Population growth	<p><i>Note: The purpose of examining population growth in this Unit 5 is to tie it in directly with an increased demand for resources. A useful (review?) exercise here might be to list and discuss the various graphic devices used to show past, present, and predicted population growth.</i></p>		<p><i>Canada and a Changing World</i>, Chapter 2, pp. 18–54</p> <p><i>World Prospects</i>, Chapter 2</p> <p><i>Atlas of the Environment</i>, pp. 17–21</p> <p><i>GAIA</i>, pp. 18–19, 180–181</p> <p><i>Global Issues: Viewpoints in General Studies</i>, Hall and Scott, Jacaranda Press, 1987, ISBN 0-7016-2046-3, Chapter 2 “The Environment”</p> <p><i>Canada and the World (Atlas)</i>, pp. 119–120</p> <p><i>Challenge for Change</i>, Chapter 2, pp. 13–30</p> <p><i>World Resources 1990–1991</i>, pp. 49–64</p>

5.2 Resource Crisis *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>5.2.1 <i>(continued)</i> Resource consumption</p>	<p>Using headings from 5.1.1 above or from resources like those listed opposite, divide the class into groups. Each group will investigate the history and the predictions of the consumption of one resource. Each group should construct on a large sheet of paper or on an overhead transparency, the results of their research. Each group should make a presentation and the class should together synthesize the conclusions.</p> <p>Note: <i>Out of the preceding exercise may naturally arise points that will apply to 5.3 below, Resource Management, e.g., India between 1965–1984 transformed itself from a food receiver to a food provider.</i></p> <p>Through video, e.g., <i>New World Below</i>, or guest speaker, e.g., Fisheries and Oceans, or lecture/discussion, establish factors that determine resource availability as population growth increases demand, e.g., accelerated exploration, technological advances, improving distribution, etc.</p> <p>Have students conduct research into a specific technology designed to increase production to address consumption needs, e.g., offshore oil exploration/production technology; use of agrochemicals—fertilizers, pesticides, herbicides; irrigation technology.</p>	<p>Process Participation Communication</p> <p>Process</p> <p>Process</p>	<p><i>World Prospects</i>, pp. 179–189 (Energy)</p> <p><i>Canada in a Changing World</i>, p. 97, (Arable Land)</p> <p><i>GAIA</i>, pp. 82–83 (Fish)</p> <p><i>Atlas of the Environment</i>, pp. 22–23 population, pp. 90–91, (Clean Air)</p> <p><i>World Resources 1990–1991</i>, pp. 159–174, (Fresh Water)</p> <p>A very useful kit devoted to population and resources is <i>Connections: Linking Population and the Environment</i>. See introduction to Unit 3, 3.2, p. 25</p>

5.2 Resource Crisis *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>5.2.2 Elemental crises</p> <ul style="list-style-type: none"> • genetic • water • metals • energy, e.g., oil • systemic 	<p>Note: <i>Mention of these crises has already been made in Unit 1 (1.3.3), Unit 2 (2.3.2), and Unit 4 (4.3.1–5). They may be local, e.g., fish stocks, continental, e.g., United States/Canada Acid Rain, or global, e.g., world shortage of oil. Each case study undertaken to examine a crisis must have to do with a resource, its finite or renewable nature, and/or a distressed or despoiled system that generates a resource, e.g., salination of arable land. A model for this kind of study is found in Unit 1. Some texts also provide different, but related models, e.g., World Prospects, pp. 6–10.</i></p> <p>Other approaches might be</p> <ul style="list-style-type: none"> • Analysis of selected video resources. • Student debate on the reality. • Co-operative learning exercise on a crisis where components are assigned to specific groups. • Analysis of the global distribution of environmental crises and their relationship to e.g., developed, developing countries, etc. 	<p>Process Inquiry Participation</p>	<p><i>GAIA</i></p> <ul style="list-style-type: none"> • “The Land Crisis,” pp. 40–49 • “The Ocean Crisis,” pp. 82–89 • “The Elements Crisis,” pp. 112–125 • “Evolution in Crisis,” pp. 152–159 <p><i>World Resources 1990–91</i> “Endangered Resources,” pp. 2–8 (Part of Chapter 1, “World Environmental Outlook”)</p> <p><i>Canada and the World</i>, magazine, <i>Backgrounder: Our Threatened Planet</i>, p. 49, “Sustainable Development”</p> <p><i>Atlas of the Environment</i></p> <ul style="list-style-type: none"> • “Deserts and Desertification,” pp. 53–56 • “The Fuelwood Crisis,” pp. 73–76 <p><i>World Resources 1990–91</i>, Chapter 6, “Focus on Sub-Saharan Africa: A Region in Crisis”</p> <p><i>The State of the Earth Atlas</i>, Jani Seager Ed., Simon and Schuster, 1990, ISBN 0-671-70524-5</p>

5.3 Resource Management *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
5.3.1 <i>(continued)</i>	Select a local, national, or international conservation issue for examination. The point here is to have students come to an understanding of complexities of such issues, e.g., Atlantic salmon: what is the issue, who are the parties, what and why are their positions, are their positions backed by valid information and reasoning, what are possible solutions, what would be the impact of one choice, how would the choice be implemented, how would the outcomes of the choice be monitored/managed?	Process Inquiry	<p><i>GAIA (continued)</i></p> <ul style="list-style-type: none"> • “Managing The Elements,” pp. 125–137 • “Evolution in Management,” pp. 160–169 <p><i>Challenge for Change</i>, Chapter 15 “Analysing Resource and Environmental Issues,” pp. 314–332</p> <p><i>The Maritimes: Tradition, Challenge and Change</i>, Chapter 6, Issues and Inquiry in p. 240, Chapter 7, “Managing Our Resources,” p. 264</p> <p><i>Global Issues</i>, p. 88, “Making Decisions on Conservation Issues.”</p> <p><i>World Prospects</i>, Chapter 1, p. 6, “Issues and Environment,” p. 7, “Issues Analysis”</p>

5.3 Resource Management *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>5.3.1 <i>(continued)</i> Sustainable development</p>	<p>Note: <i>Teachers should read several resources to familiarize themselves with this concept and its elusive definition. A summary of the Bruntland report, Our Common Future, should be one of them.</i></p> <p>Present a number of definitions of sustainable development to the students, and through discussion come up with a list of common elements. Then have them write a paragraph which captures the essence of those elements.</p> <p>Then take a local, national, and global resource and construct the business operation that would exploit that resource under sustainable development principles.</p> <p>Compare their model with one portrayed in one of the print resources mentioned earlier.</p> <p>Invite representatives of government, industry, and the university community to be on a panel in your school to discuss the challenges of the sustainable development model.</p> <p>Organize a field trip to a local industrial or residential site where activity has challenged the local environment, e.g., Annapolis River Tidal Power project, or where industry has been pro-active in protecting the environment.</p>	<p>Process Participation Communication Inquiry</p> <p>Communication Participation</p>	<p><i>World Resources: Part I, Sustainable Development</i>, pp. 1–56</p> <p><i>Dynamic Canada</i>, p. 112</p> <p><i>The Global Focus</i>, p. 51, etc.</p> <p><i>Challenge for Change</i>, p. 596 (Glossary), p. 552 (Schematic and caption)</p> <p><i>Sustainable Development Strategy for Nova Scotia, (A Draft)</i>, The Nova Scotia Round Table on Environment and Economy, Tel. 1-800-665-9961</p> <p><i>Sustainable Development</i> (a newsletter produced by Environment Canada, E. Neville Ward, Co-ordinator, Sustainable Development, Environment Canada, Ottawa, Canada, K1A 0H3)</p>

5.3 Resource Management *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>5.3.1 <i>(continued)</i> Research and Development</p> <p>The role of policy</p>	<p>Using video, guest speakers, article research, etc., examine research and development projects aimed at resource management issues, e.g., alternative energy sources—wind, tide, garbage gases; genetic engineering; cleaner fuels and cleaner combustion; water management</p> <p>Note: <i>This concept is very much a part of 5.3.3.</i></p> <p>Using the panel format suggested above, have students explore the methods by which policies are defined and implemented. Nova Scotia’s own process in discussing the environment and the economy could be used here, or Canada’s policy for managing the fishstocks, or Canada’s bureaucratic response to the Bruntland Report and its own <i>Green Plan</i>.</p>	<p>Process</p> <p>Process Communication Participation</p>	<p><i>Canada in a Changing World</i>, p. 104, “New Food Sources”</p> <p><i>World Prospects</i>, p. 195, “Future Energy Sources”</p> <p><i>GAIA</i>, pp. 196, 226</p> <p><i>Clean Water Nova Scotia: New Directions for Water Resource Management</i>, June 1991, NS Department of the Environment</p> <p><i>Canada’s Green Plan</i>, c/o Environment Canada, Ottawa, Canada, K1A 0H3</p>
<p>5.3.2 Sharing and managing Global Resources: Case Studies</p> <ul style="list-style-type: none"> • the atmosphere • the oceans • Antarctica • space 	<p>Conduct classroom/library research of efforts that have been and are being made to share and manage global resources. (See Units 2.4.3, 4.4, and 8.3.4 below)</p> <p>Conduct seminar presentations on research generated by Unit. 2.4.3</p>	<p>Process</p> <p>Process Communication Participation</p>	

Unit 6
Global Factory: For Whose Benefit?

Unit 6: Global Factory: For Whose Benefit?

Unit Objective: To explain the evolving patterns of industrialization, global inequalities of production, consumption, and wealth and their combined impact on the environment.

Suggested Time: 3–4 weeks

*Note: This unit is intended to take 3–4 weeks. The topics outlined provide a necessary overview, but are **not intended to be explored in depth** within this course.*

A comprehensive strategy for this unit might be to provide, through lectures and audio-visual materials, a survey of the topic. Students could then proceed through the unit doing assignments in class/at home individually and in groups. Or, students could assume independent study assignments that focus on the analysis of pairs of countries, one developed, the other developing. Seminar sessions would be used to construct a profile of such countries and to identify challenges created by the contrast.

6.1 General Background to Industrial Development

Objective

- To enable students to identify and explain the characteristics of developed and developing countries.

6.1 General Background to Industrial Development (continued)

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>6.1.1 Developed and developing countries</p> <ul style="list-style-type: none"> • criteria • relationship • cultural/human factor 	<p>Before beginning the unit, each student should prepare a list of needs that must be met in order for them to live their life comfortably. These lists should be collected by the teacher and returned for discussion at the end of this section. (Note: <i>This list may already be available if Unit 3.3.1 has been done.</i>)</p> <p>Divide the class into groups and working with selected resources. Have the students draw up a list of selected characteristics. Then in a reporting session have the class develop a master list. Then present each student with several profiles and have them declare independently “on paper” whether the examples are of developing or developed countries, and why they decided as they did.</p> <p>By analysing an appropriate video resource(s) expose the students to the relationship between developed and developing countries. The focus could be international debt, or resource exploration or an historical look at the post-colonial state.</p> <p>Have students examine the profile of a man/woman/child of the 3rd world with that of an equivalent person in a developed country. This can be done through video resources or printed materials such as <i>Earth Matters</i> or <i>Connections</i>. Having done this students should write a 2-sided role-play focussing on a common feature, e.g., a drink of water. The roles can be acted out in the classroom.</p>	<p>Process</p> <p>Process Participate Communication</p> <p>Process Participation</p> <p>Process Communication</p>	<p><i>Canada in a Changing World</i>, pp. 56–75</p> <p><i>Challenge for Change</i>, pp. 389–421</p> <p><i>World Prospects</i>, pp. 127–139</p> <p><i>GAIA</i>, pp. 218–221</p> <p><i>Atlas of the Environment</i>, pp. 29–48</p> <p><i>CIDA Development Map</i> (annual updates available)</p> <p>Software: PC Globe</p>

6.1 General Background to Industrial Development *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>6.1.2 Spatial distribution of industry</p>	<p>On a world map, students should locate the major industrialized regions.</p> <p>Through class discussion and thematic map comparisons students must identify the relationship between industrialization and factors that might influence industrial development (e.g., climate, transportation, labour, capital).</p>	<p>Process Communication Participation</p>	<p><i>Atlas of the Environment</i>, “Industrialization and Development,” pp. 45–48</p>
<p>6.1.3 Economic systems</p> <ul style="list-style-type: none"> • subsistence economy • market economy • Canadian economy • sectors of the economy 	<p>Invite the economics teacher to come to class to outline the characteristics of economic systems and sectors within economies. A complimentary exercise would be to give students country profiles as before and have them identify each.</p> <p>Selected video resources could then be viewed to illustrate these economic systems.</p> <p>Have students view selected video resources labelled as examples of these economic systems. As a class effort have then identify the characteristics of each and then compare them with a list provided by a text or economics teacher.</p>	<p>Process Participation</p>	<p>High school economics text</p>

6.2 Evolving Patterns of Industrial Development

Objective

- To analyse the effects of uneven development.

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>6.2.1 Phases of industrial development</p> <ul style="list-style-type: none"> stages of economic growth role of capital and its acquisition case study 	<p>From data supplied by the teacher, have students prepare a time line to reveal patterns in industrial development (past 2000 years).</p> <p>Through lecture/discussion briefly examine five methods whereby capital can be generated.</p> <p>From selected profiles of a post-industrial, industrial, and industrializing nation, have students identify and to which level they belong.</p> <p>Have students prepare a paper to justify describing Canada's position as a post-industrial, industrial, or an industrializing country.</p>	<p>Communication</p> <p>Process</p> <p>Process</p>	<p><i>World Prospects</i>, pp. 150–152</p> <p><i>Challenge for Change</i>, pp. 330–342</p> <p><i>Canada in a Changing World</i>, pp. 176–195</p> <p><i>World Prospects</i>, pp. 173–177</p> <p><i>Canada in a Changing World</i>, pp. 184–190</p> <p><i>Challenge for Change</i>, pp. 424–448</p> <p>Periodicals</p> <p><i>Atlas of the Environment</i>, p. 45</p>

6.2 Evolving Patterns of Industrial Development *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>6.2.2 Growth of manufacturing in developing nations</p> <ul style="list-style-type: none"> • location • labour intensive, capital intensive • cheap labour 	<p>Have students analyse a map that shows the distribution of developing nations.</p> <p>Using material from profiles in 6.2.1, have students compare and contrast an industrial nation with an industrializing country to investigate factors of location, labour intensity and “cheap labour.”</p> <p>Have students examine Canada’s/America’s economic relationship with Mexico (the proposed NAFTA package). Does Mexico, and nations like it, have some advantages in being less industrialized than its northern neighbours?</p>	<p>Process</p> <p>Process</p> <p>Process</p>	<p>See 6.1.1, 6.2.1</p>
<p>6.2.3 Post-industrial patterns in developed nations</p> <ul style="list-style-type: none"> • De-industrialization • Role of technology • Impact of changing industrial patterns 	<p>Working in groups, each investigates a significant issue regarding post-industrial patterns.</p> <p>e.g.,</p> <ul style="list-style-type: none"> • technology and job creation—new opportunities • sign: financing of research and development • new information economy—reality or fantasy? • artificial intelligence—progress or regression? • impact of technology on primary, secondary and tertiary industries • social impacts, e.g., leisure time <p>Each group will report to the whole class. Active discussion among groups should be encouraged.</p>	<p>Process</p> <p>Communication</p> <p>Participation</p>	<p><i>Challenge for Change</i>, pp. 350–373</p> <p><i>Canada and the World</i>, pp. 113–114</p> <p><i>Canada in a Changing World</i>, pp. 158–204</p> <p><i>The Third Wave</i>, Alvin Toffler</p> <p>Computer-Related Studies Text/Teacher</p>

6.3 Globalizing the Marketplace: Winners and Losers

Objective

- To investigate the relationship between developed and developing countries and its impact on the human and natural environment.

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>6.3.1 Flow of goods, money, and technology</p> <ul style="list-style-type: none"> Patterns of flow Role of multinationals Global division of labour 	<p>Using maps created in 5.1.2, and maps in <i>GAIA</i> and <i>Atlas of the Environment</i> correlate type of exports to level of development. Note: <i>Compare labour intensive versus capital intensive manufacturing. Having done this, the class should examine and discuss the flow of wealth.</i></p> <p>Define multinational corporation and through video examine the role of these corporations a) in the global economy, and b) in individual locales, e.g., mid-east oil; Dole (pineapples) in the Philippines.</p> <p>Closely examine case that had severe human consequences, e.g., Union Carbide in Bhopal, India; Nestles “dumping” of milk substitutes in 3rd world countries, to reveal the negative role of multinational corporations in the global economy.</p> <p>Illustrate global division of labour through analysis of the sites of manufacture of component parts of a familiar product (e.g., automobile, computer, TV set). Optional extension: If time permits, prepare a debate on multinational investment as a development strategy.</p>	<p>Process Participation</p> <p>Process</p> <p>Process</p> <p>Process Communication Participation</p>	<p><i>Canada and the World</i>, pp. 111–112</p> <p><i>GAIA</i>, pp. 200–211</p> <p><i>Atlas of the Environment</i>, pp. 41–48</p> <p><i>World Bank Atlas</i> (yearly updates)</p> <p><i>World Prospects</i>, pp. 133–136</p> <p><i>Challenge for Change</i>, pp. 374–388</p>

6.3 Globalizing the Marketplace: Winners and Losers *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>6.3.2 The gap: closing or widening?</p> <ul style="list-style-type: none"> • Criteria • Role of debt and capital in development • Foreign aid 	<p>Refer back to Unit 3 for standards of living indicators. By examining selected accounts have students ask, “Are the rich getting richer and the poor getting poorer?” and ask them to justify their answers.</p> <p>Investigate the role of debt and capital in development with an emphasis on the potential impact of debt on nations themselves and the world economy. (See suggestion for 6.1.1)</p> <p>Prepare a debate of the advantages and disadvantages of foreign aid. Have as a judge a member of, e.g., St. Mary’s International Education Centre or Canada’s CIDA to discuss their perception of the students’ arguments, e.g., valid/invalid, complete/incomplete.</p>	<p>Process</p> <p>Process</p> <p>Process Communication Participation</p>	<p><i>GAIA</i>, p. 218</p> <p><i>Challenge for Change</i>, pp. 389–421, pp. 482–497</p> <p><i>Atlas of the Environment</i>, pp. 41–44</p> <p><i>Canada in a Changing World</i>, pp. 250–273</p> <p><i>GAIA</i>, pp. 216–221</p> <p><i>World Prospects</i>, pp. 353–365</p> <p><i>Canada and the World</i>, p. 112 ff</p>

6.3 Globalizing the Marketplace: Winners and Losers *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>6.3.3 The environmental costs to the planet</p> <ul style="list-style-type: none"> • Worldwide problems • Case study 	<p>Investigate a world environmental problem that is not directly linked to the site of industrial development: (e.g., Ozone depletion in Antarctic, increasing contamination in Arctic).</p> <p>Investigate the relationship between industrialization and acid rain in the Northern Hemisphere.</p>	<p>Process</p> <p>Process</p>	<p><i>Atlas of the Environment</i>, “Acid Rain,” pp. 85–88</p> <p><i>Atlas of the Environment</i>, “The Ozone Layer,” pp. 97–100; “The Greenhouse Effect,” pp. 93–96</p> <p><i>Challenge for Change</i>, pp. 208–248</p>

Unit 7
Urbanization: A Mixed Blessing

Unit 7: Urbanization: A Mixed Blessing

Unit Objective: To examine the worldwide phenomenon of urbanization leading to cities as the chosen habitat for much of the planet's population.

Suggested Time: 4 weeks

Note: 1) For students who have already taken the settlement geography course, teachers will have to do a pre-test and reorganize this unit accordingly. 2) After having introduced key concepts in urbanization, new students to urban geography could choose a major city or a major urbanization topic, e.g., waste disposal and conduct a case study that they would present in seminar or orally. Teachers should attempt to have student selection achieve a global distribution of case studies. 3) All students should finish this unit understanding that urbanization is truly a global phenomenon presenting challenges to developed and developing countries alike.

7.1 The Drift to the City

Objective

- To examine and explain the location and pattern of urbanization in the world today and how the process is evolving in less developed areas.

7.1 The Drift to the City *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>7.1.1 The location of cities</p> <ul style="list-style-type: none"> • Degree of urbanization before industrial revolution • Examine the degree of urbanization • Location of large urban centres <ul style="list-style-type: none"> • Role of culture and technology 	<p>Step 1: Have students use atlases to see where the capital cities for a continental region are located, e.g., <i>Macmillan School Atlas</i> (1982); Canada, p. 40; Europe, p. 96; etc. As a full class exercise, determine what characteristics these sites have in common.</p> <p>Step 2: Have students use a thematic map of the world to determine the location of the major urban centres, e.g., <i>Atlas of the Environment</i>, pp. 22–23; <i>Canada and the World</i> (Atlas), pp. 117–118. Then have the students refer to other thematic maps to see if there are any correlations between urban centre sites and these other factors.</p> <p>Step 3: Have the students determine if these correlations are shared by all, most, or some of the urban centres.</p> <p>Step 1: Ask the students to brainstorm for reasons a) why cities exist and b) why they continue to grow as they do.</p> <p>Step 2: Using graphic illustrations present an interactive historical lecture on the growth of cities, e.g., <i>GAlA</i>, pp. 202–203; <i>Atlas of the Environment</i>, pp. 22–23; <i>Canada in a Changing World</i>, pp. 208–209. Incorporate within the lecture the role of organization and technology.</p>	<p>Process Participation</p> <p>Process Participation</p> <p>Inquiry Participation</p>	<p><i>Challenge for Change</i>, pp. 47–68</p> <p><i>Canada in a Changing World</i>, Chapter 7, “Urbanization,” pp. 204–249</p> <p><i>Canada and Environment</i>, pp. 21–24, 80–89</p> <p><i>GAlA</i>, “Civilization,” pp. 200–230</p> <p><i>World Prospects</i>, pp. 305–321</p> <p><i>Atlas of the Environment</i>, “The Urban Revolution,” pp. 21–24</p>

7.1 The Drift to the City *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>7.1.2 The Composition of Cities</p> <ul style="list-style-type: none"> • Land use • Urban, suburban, rural • Components, e.g., urban core 	<p>Present a lesson that summarizes the composition of cities. The presentation should focus both on the pattern of this composition, worldwide, and also point to unique components, e.g., favela</p>		
<p>7.1.3 Rural to urban migration patterns</p> <ul style="list-style-type: none"> • Why people move to cities • Emigration in the west • Urban sprawl 	<p>In pairs, one half of class will prepare a poster, newspaper, or television advertisement that promotes migration to the city and the other half migration to the rural areas. Pairs in each half will then convene, summarize their results, and choose a student to make a sales pitch in class.</p> <p>Have students analyse an urban growth graph, e.g., <i>Atlas of the Environment</i>, p. 23, to see where the world's urban growth is taking place and if there is any quantifiable difference between the growth in developed and developing countries.</p> <p>Have students read selected resources, e.g., <i>Canada in a Changing World</i>, "Urbanization in The Third World," pp. 213 ff; <i>World Resources</i>, "Industrialization and Urbanization," p. 87, to see if the authors agree on any generalizations about urban growth in the Third World.</p>	<p>Process Communication Participation</p> <p>Process</p> <p>Process Inquiry</p>	<p><i>Atlas of the Environment</i>, "Rural/Urban Population, by Continent," p. 22</p> <p><i>Canada in a Changing World</i>, "Rural-Urban Migration," pp. 209–210</p>

7.2 Eopolis to Necropolis: Growth and Decline of Cities

Objective

- To enable students to identify and explain stages of growth and decline through which cities evolve.

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>7.2.1 Stages of city growth</p> <ul style="list-style-type: none"> Specialization, supplies and their requirements Cities: conurbations to megalopolis 	<p>Step 1: Use an illustrated (diagrams) lecture to inform the students of urban growth stages.</p> <ul style="list-style-type: none"> individual farming hamlet village town city conurbation megalopolis eopolis and necropolis <p>Step 2: Show a recent video on urban growth in the third world and, with the students, see if urban growth stages can be identified.</p> <p>Have students personalize a city and in drama “have it grow up” through the stages of urban growth. Music styles could be used to compliment stages of growth and decline.</p>		<p><i>Urban Dynamics</i>, (Oxford, 1991, ISBN 0-19-540715-6) is a text that uses case studies of cities around the world. Chapter 1 “Urbanization” and Chapter 2, “Functions of Cities,” deal with content items a and b.</p> <p><i>Challenge for Change</i>, Chapter 4</p> <p><i>Canada in a Changing World</i>, “The Growth of Cities,” p. 208 ff</p> <p><i>Urban Studies</i>, “Growth Alternatives,” pp. 151–157</p>

7.3 Planned Cityhood

Objective

- To enhance student awareness that strategies are being used to support sustained growth in some urban centres.

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>7.3.1 Controlled growth strategies</p> <ul style="list-style-type: none"> Control migration and relocate industry City planning Role of the individual Case studies of urban management 	<p>Using Tokyo, Vancouver, Halifax (or other local urban centre), research various controlled growth strategies in each. Identify similarities and differences.</p> <p>Invite a city of metropolitan authority officer to come to class to present the local community planning strategy. A question and answer period should follow.</p>	<p>Process Communication Participation</p>	<p><i>Canada in a Changing World</i>, pp. 231–238</p> <p><i>World Resources</i>, “Traffic and Transport Management,” p. 204</p> <p><i>Urban Dynamics</i>, Chapter 11, “Planning Challenges,” pp. 198–229 (Singapore and Brasilia featured)</p> <p><i>Global Challenge</i>, “Case Study: Urban Waste Disposal,” p. 295</p> <p><i>Urban Studies</i> (see index, e.g., Urban Renewal)</p> <p><i>Understanding Our Environment</i>, (Oxford), ISBN 0-19-540770-9, Chapter 13, “Urban Management,” p. 200 ff</p>

Unit 8
The Future Planet: Under New Management

Unit 8: The Future Planet: Under New Management

Unit Objective: To place before the students the challenge of individual and societal commitment to the effective stewardship of the planet.

Suggested Time: 2–3 weeks

Note: As the conclusion to the Global Geography course this unit has an especially important role to play. For indeed, what the conclusion and the course itself call for is new beginnings.

In working through preceding units, students have examined and manipulated data, evaluated observations, pondered and debated conclusions, all of which point to two realities. On the one hand Earth and its busy human population have reached a critical point in their relationship: danger is flirting with both of them. On the other hand thoughtful humans have clearly demonstrated that critical and creative thinking and action can perceive, address, and eliminate problems. Global Geography teachers are required to challenge their students to accept a commitment to stewardship. Action, be it individual or group, small or large, close at hand or at a distance should, if circumstances allow, be undertaken by the students and be part of the strategy for evaluation.

This unit, then, is fundamental to the purpose and desired outcome of the course. As suggested in the introduction to this outline, it will be most effective if students see learnings in each of the preceding units as building blocks for this one.

8.1 Prelude to Action: Science, Education, and Guidelines

Objective

- To reflect upon previous learnings in this and other courses in order to identify resources and processes that help us to understand the biosphere, humanity's role as part of it, and our responsibility to protect it.

8.1 Prelude to Action: Science, Education, and Guidelines *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>8.1.1 Science</p> <ul style="list-style-type: none"> • knowledge • process (research) • STS (Science Technology and Society) 	<p>Revisit:</p> <ol style="list-style-type: none"> 1) a case study in which the role of science was particularly clear, e.g., Local: landfill site issue—public opinion as opposed to the physics, biology, and chemistry of landfill operations; international: study of the ozone layer and its condition relative to human activity. 2) a case study that involves debate about scientific inquiry, e.g., the greenhouse effect. 3) a case study where scientists embarked upon research to tackle a particular problem, e.g., emulsifiers for oil spills and a program/cure for river blindness. 4) a case study where the distinction can easily be made between science and technology and the negative or positive outcome of the use of both (STS), e.g., negative—the Aral Sea; positive—food production in India. 	<p>Process Communication</p>	<p><i>World Prospects</i>: “Principles of Ecology,” pp. 395–406</p> <p><i>Challenge for Change</i>, “Our Finite Planet,” pp. 2–12</p> <p><i>World Resources 1990–91</i>, e.g., Chapter 2 “Climate Change: A Global Concern,” pp. 11–32</p> <p><i>The Global Focus</i>, e.g., “The Atmosphere as a Resource,” pp. 22–25.</p> <p><i>Dynamic Canada</i>: Chapter 1, “Environmental Processes and Problems,” pp. 3–35.</p> <p><i>Global Issues</i>, Chapter 2, “Technology and Society,” pp. 15–48.</p> <p><i>World Prospects</i>, e.g., “Future Energy Sources,” pp. 195–213.</p>

8.1 Prelude to Action: Science, Education, and Guidelines *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>8.1.2 Education</p> <ul style="list-style-type: none"> • knowledge • skills • attitudes 	<p><i>Note: This sub-unit considers two perspectives, a) the use of education to improve social/environmental problems, and b) using education to bring about a positive change in attitudes towards stewardship of the environment.</i></p> <p>Re-examine a social-environmental issue and map the process, including the role of education, which led to its improvement or resolution, e.g., forest management practices—sustainable yield; clean water; use of DDT; recycling, etc.</p> <p>Nova Scotia is developing an environment and sustainable development education policy. It is also developing policies to enhance the economy/environment relationship. Invite guest speakers from government, industry and education to discuss the process.</p> <p>Have students present a brief “success story” from education/environment case studies.</p> <p>Invite a bookstore proprietor or librarian to class to comment upon and share examples of the increased volume in environment-friendly materials—magazines, “how to” books, videos, etc.</p> <p>Assemble a panel of speakers—an elementary teacher, an environmental activist, a government policy maker, etc.—to address through presentation and question and answer, the issue of attitudes and the methods/challenges of changing them.</p>	<p>Process</p> <p>Communication Participation</p> <p>Communication</p> <p>Communication Participation</p> <p>Communication Participation</p>	<p><i>Drinking Water: The Global Focus</i> “Water as a Natural Resource,” p. 54 ff</p> <p><i>GAIA</i>, “Managing Water,” “Clean Water for All,” pp. 132–136</p> <p><i>World Resources 1992–93</i>, Chapter 11, “Freshwater,” pp. 159–174, Chapter 22 “Freshwater” (World Resources Data Tables), pp. 327–334.</p> <p><i>Atlas of the Environment</i>, “Drinking Water and Sanitation,” pp. 29–32, “Freshwater: Abundance and Scarcity,” pp. 57–60, “Freshwater Pollution,” pp. 61–64.</p> <p><i>Dynamic Canada</i>, “Water and Sanitation,” pp. 458–461.</p>

8.1 Prelude to Action: Science, Education, and Guidelines (continued)

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>8.1.2 (continued) Education</p> <ul style="list-style-type: none"> Guidelines for action 	<p>Brainstorm on the question: “What conditions must be considered before undertaking personal and/or collaborative action?” Answers will possibly include organizational skills, level of interest, ability to commit time and effort, communication and interpersonal skills, self-confidence, material, capital, and human resources, clarity of purpose.</p> <p>Examine a video resource, e.g., <i>Spaceship Earth</i>, interview a local activist or activist organization, e.g., Native Rights activist, Ecology Action Centre and/or examine media coverage of an action, e.g., Cree opposition to Hydro Quebec, to see what guidelines or conditions for effective action might have been at play.</p> <p>Present students with a set of guidelines and principles such as those on the following page or those found in any number of publications, e.g., <i>Preserving Our World</i> and discuss how these might influence and guide their choices for action.</p>	<p>Process</p> <p>Process Inquiry</p> <p>Communication Participation</p>	<p><i>Challenge for Change</i>, Chapter 10, “Issues of Freshwater Supply,” pp. 161–185</p> <p><i>Preserving Our World</i>, Warner Troyer, Warglen International Communications Inc., 1990, Chapter 12, “Preserving Our World,” Chapter 13, “What We Can Do: The Challenge of the Brundtland Report”</p> <p><i>The Canadian Junior Green Guide: How You Can Help Save Our World</i>, Teri Degler and Pollution Probe, McClelland and Stewart, 1990</p> <p><i>Earthcycles and Ecosystems</i>, Beth Savan, Kids Can Press Ltd., 1991, e.g., “Raise a Ruckus,” p. 88</p>

8.1 Prelude to Action: Science, Education, and Guidelines *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
8.1.2 <i>(continued)</i>			<p><i>50 Simple Things Kids Can Do to Save the Earth</i>, The Earthworks Group, Andrews and McMeel, 1990, e.g., “Spreading The Word,” p. 124</p> <p><i>Take Action: World Wildlife Fund</i>, Ann Love and Jane Drake, Kids Can Press Ltd., 1992, e.g., “How to Take Action,” p. 78</p> <p><i>2 Minutes a Day for a Greener Planet: Quick and Simple Things You Can Do to Save the Earth</i>, Marjorie Lamb, Harper Collins, 1990, e.g., Chapter 16, “Put Your Money Where Your Mouth Is” (List of international and national organizations to whom donations can be made)</p>

8.2 Action: Dimensions of Planetary Stewardship *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
8.2.2 Me as steward	<p>Brainstorm for a list of personal behaviours that suggest negative consequences, direct and indirect, for the environment. Then use one or more webbing models to construct a picture of how those behaviours in fact bring negative consequences to the environment, e.g., litter, to harbor pollution, to “the hamburger connection.”</p> <p>Trace (analyse) one personal behaviour, e.g., driving the car, so as to reveal the true complexity of “Me as steward.” Details might include social, political, and economic perspectives, direct and indirect consequences, paradigm shifts, etc.</p> <p style="text-align: center;">Either</p> <p>Analyse a local environmental problem for (individual) actions that contributed to the difficulty, and how such actions would have to be changed in order to end the difficulty.</p> <p style="text-align: center;">Or</p> <p>From 8.1.2, select a number of suggestions for individual action to protect the environment. Dividing the class into a number of groups equal to the number of selections, analyse the demands or changes (e.g., skills, time, money, behaviour-habits) that each asks of the individual.</p>	Process Process Inquiry Process Inquiry Process Participation	

8.2 Action: Dimensions of Planetary Stewardship *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
8.2.2 (continued)	<p>Note: Two perspectives are involved in the two preceding suggestions: a) taking responsibility for one's own personal behaviour, e.g., composting, and b) initiating or supporting larger initiatives, e.g., mobilizing support for protection of the rainforests.</p> <p>Having done one of these analyses, ask students to commit themselves to individual actions. Their names and action plans should be registered and the role of their project in their evaluation must be made clear.</p>		

8.2 Action: Dimensions of Planetary Stewardship *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
<p>8.2.3 Communities as stewards</p>	<p style="text-align: center;">Either</p> <p>Analyse a local community effort to protect the environment, e.g., The Tusket River/Rio Algom Tin Mine Controversy; responses to the fixed link crossing to Prince Edward Island; Halifax County area response to landfill sites.</p> <p style="text-align: center;">Or</p> <p>Invite a representative from a local “environmental group” or agency to discuss the logistics/attitudes/challenges involved in their operations, e.g., Ecology Action Centre and the Harbour Clean-up.</p> <p style="text-align: center;">Or</p> <p>Research and present findings on a particularly clear concerted action to protect the environment, e.g., The Innu of Labrador against NATO jet overflights.</p> <p>Having done one or more of these activities ask students to commit themselves to an action and to submit an action plan. Register names and the action plans. Make clear the role of evaluation in this undertaking.</p>	<p>Process</p> <p>Communication Participation</p>	

8.2.4	Part I	Process	<i>World Prospects</i> , Chapter 8,
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8.2 Action: Dimensions of Planetary Stewardship *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
Planetary Stewards Global initiatives: “professionals”	<p>Revisit examples from previous units that illustrate the dimensions and perspectives of “professional” action on a global scale.</p> <ul style="list-style-type: none">• Governments, e.g., Canada’s CIDA• Organizations, e.g., UN-World Health Organization• Non-Government Organization, e.g., Greenpeace, World Wildlife Federation, The International Red Cross Oxfam Project• Specific, e.g., Law of The Sea, Antarctica, Ozone Layer <p>Examine a video resource that reveals the priority setting dilemma, e.g., <i>Your Ocean and Mine</i>. Perhaps assisted by an issue resolution model, have the class present the priority setting exercise in diagram form. This should include a time line and could include accompanying webbing diagrams, e.g., of economic factors, political factors, etc.</p>	<p>Participation</p> <p>Participation Communication Process</p>	<p>“Geopolitics” (This chapter looks at some of the philosophical and political barriers among nations that might impair globally co-operative undertakings.)</p> <p><i>World Resources 1990–91</i>, e.g., Part 1, Chapter 2, “Climate Change: A Global Concern,” includes “Policy Options Available to Address Global Warming,” pp. 11–32. Part IV, “World Resources Data Tables,” Chapter 25, “Policies and Institutions”</p> <p><i>Global Issues</i>, Chapter 11, “International and Regional Institutions,” pp. 288–312</p> <p><i>Dynamic Canada</i>, Part D, “Canada’s International Interdependence,” pp. 385–486</p>
8.2.4 <i>(continued)</i>			<i>Canada in a Changing World</i> ,

8.2 Action: Dimensions of Planetary Stewardship *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
8.2.4 <i>(continued)</i>			<p>Chapter 8, “Global Solutions” (This chapter has a socio-political focus, and looks at helping people through food and medical aid.), Chapter 4, p. 96, “Solutions to the Problems of World Food Supply” (This material has a different focus—technological and other solutions for the food question.)</p> <p><i>Challenge for Change</i>, Part Six, “Interdependence, Cooperation, Conflict,” e.g., Chapter 25: “Role of the United Nations in Resolving World Issues,” pp. 518–530, Chapter 26, “Analysing Interdependence, Cooperation, and Conflict”</p> <p><i>GAIA</i>, many chapter sub-topics deal with these matters, e.g., “Laws of The Sea,” p. 96 in “Managing The Ocean”; Growing Interdependence,”</p>

8.2 Action: Dimensions of Planetary Stewardship *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
			p. 228 in “Managing Our Civilization,” p. 256, “Safeguarding the Fragile Miracle,” and many more.
<p>8.2.5</p> <ul style="list-style-type: none"> Global initiatives: “amateurs” 	<p>Part II</p> <p>Have students commit themselves to school-based, home-based, or community-based action that has a global dimension.</p> <p>School-based, e.g.,</p> <ul style="list-style-type: none"> A school (library) display, e.g., Global Interdependence: Problems and Solutions A school theme week: The Global Village, featuring audio-visual displays, mock assemblies/councils, guest panel presentations, kick-offs for environmental action, etc. Conduct a Model United Nations General Assembly in which a global environmental issue, real or contrived, is being debated, in the context of, “what are our priorities here ...” Copies of a “how to” guide can be obtained from United Nations Association (Canada), 63 Sparks Street, 8th Floor, Ottawa, Ontario, K1P 5A6, Attention: Information Officer, or telephone (613) 232-5751. 	<p>Process Communication Participation</p>	

8.2.5 <i>(continued)</i>	Use such events to have all students undertake a personal commitment		
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8.2 Action: Dimensions of Planetary Stewardship *(continued)*

Conceptual Knowledge	Suggested Teaching/Learning Strategies and Activities	Primary Skills	Suggested Pupil/Teacher Resources
	<p>to a global action, like twinning with another school or community, e.g., Nova Scotia's Gambia Project, or by starting an annual fund-raising project for a global organization, e.g., World Wildlife Fund.</p> <p>Home-based, e.g.,</p> <p>Students will enlist the members of their families to engage co-operatively in the support of an international effort, e.g., Help Save the Rainforest, or of an international organization, e.g., Foster Parents Plan</p> <p>Community-based, e.g.,</p> <p>Students will approach their Venturers group, or the local Lions Club, or the municipal council to adopt an action plan for the support of a distant fellow citizen of the global village through assistance to victims of a natural disaster, e.g., hurricane victims in the Caribbean, medical relief to a region, e.g., Somalia, assistance with a special project, e.g., fresh water in rural Mexico. Global Geography students would act as officers within the committee that conducted the action project.</p>	<p>Process Communication Participation</p>	

Appendices

Appendix A: Educating for the Respect and Dignity of All Persons

In their quest for answers to the question, “How did the world arrive at its current state at the close of the twentieth century?”, Global Geography students must deal with the influence of culture on the world’s natural and human environments. To do so will involve examining values that their own culture has made them uphold. They will also have to scrutinize the values of cultures very distant and different from their own.

Global Geography, then, becomes a very legitimate vehicle for the study of perspective, the role of gender, anti-racism and multicultural education, and assumptions about quality of life. Dealing actively with these topics will contribute to the students’ understanding of the broad scope of interdependence, and of their roles as partners accountable for the protection, promotion, and growth of the respect for and the dignity of all persons.

The Role of Perspective

Seeing the natural world as a storehouse of resources is common to all cultures. How the natural world is seen and how its properties are used to satisfy needs and wants is a matter of culture. Who does the seeing and who does the using are, likewise, creatures of culture:

The issue of perspective reveals itself in every unit of the Global Geography course. Be it in their analysis of fertility rates (Unit 3), the plight of the women farmers of the third world (Unit 4), or the role of transnational corporations in international economic development (Unit 6), Global Geography students native to Nova Scotia will come face to face with living conditions and lifestyles that may, in many instances, bear little resemblance to what they are accustomed to. Many will see natural and human landscapes that are foreign to them and they will filter these images through their cultural lenses. Global Geography, therefore, becomes a very powerful tool in helping young adults to become aware of the role of perspective in our lives, and how perceptions add to or detract from the respect and dignity that all persons seek to enjoy.

The Role of Gender

Most grade 12 students, either through public schooling, media coverage, or family and friends, have some awareness of the great changes that are underway in the western world regarding the role of women. Parenting roles, equality in the workplace, sexual harassment, debates related to childbearing and child care: these are but some of the issues to which high school students have been exposed.

Global Geography must be used as a vehicle to challenge students who are complacent about gender issues, to give legitimate opportunity to examine basic needs and rights of the world’s female populations, and to develop an understanding of factors that threaten those needs and rights.

The Role of Race, Ethnicity, and Cultural Diversity

The visual image will be a frequently used resource in Global Geography. Daily lessons, minor and major case studies, will constantly take students to the four corners of the globe. In so doing, their exposure to humanity's kaleidoscope of skin tones, physical characteristics, and cultural expressions will be greatly magnified.

Stereotypes, misinformation, faulty conclusions, and a lack of knowledge all contribute to the values and attitudes that underlie racism and cultural prejudices. The identification of needs, wants, and rights that are common to all humanity, the examination of inventive and creative responses that all cultures bring to the accommodation and solution of problems, the recognition of leadership, initiative, and the willingness to take risks that characterize the human spirit worldwide, and the analysis of errors in action and judgment that confound and hinder all societies: these are the kinds of processes that will help Global Geography students to deal more effectively with racism, ethnocentrism, and cultural domination in their own lives. With personal growth and continuing purposeful classroom practice, questions like "Why don't they just grow more food?", or "Why don't they stop having so many babies?"—which are often asked without reflection—will give way to a body of knowledge, a repertoire of skills and a deeper respect and appreciation with which to understand the cultures of other people. These will help students to reconsider values and attitudes towards all of humanity with whom, fundamentally, they share more similarities than they do differences.

Quality of Life

Rethinking the roles of women is not the only cultural revolution currently reshaping our world. Societies around the globe are coming to see Earth as something considerably more than a shopping centre stocked to meet the needs and wants of disparate economies. They see ours as "the fragile planet," "the home planet," "our island home," "our spaceship earth."

As on a spaceship, we, Earth's crew, are interdependent. No longer can societies separated by distance and culture be seen as islands unto themselves. There are numerous indicators that testify to this interdependence, one being the state of the global environment, and another being the growth of a truly international economic system.

These indicators are examined by students of Global Geography. Inevitably there will come before them the prices that have to be paid for short-sighted development practices: a "have" and "have not" world, acidified lakes and rivers, shanty towns, undernourished populations, toxic drinking water, high infant mortality rates. This in turn will lead to the examination of those cultural/economic values that provide some with high standards of living at the considerable expense of others.

The challenge, therefore, will be for the student to confront the unexamined, perhaps even unrecognized consequences of western lifestyles and expectations. This should allow them to see the very real connection between their material comforts and the diminished human dignity that is the daily reality for hundreds of millions of people worldwide.

Conclusion

Educating for the respect and dignity of all persons is an aim of Nova Scotia's Public School Program. No one course bears the full responsibility for achieving this aim. Rather, every opportunity from primary to grade 12, and in all subjects, must be used to achieve it. Global geography is a very real part of this overall integration strategy.

Appendix B: Teaching/Learning Activities for Global Geography

There are well over 30 different activities among the suggestions offered in the implementation section of this guide. The range and variety within them hints at the opportunities for global geographic education to be a powerful, engaging, and meaningful experience.

Collectively, the activities reflect: specific aims of geographic education, general aims of Nova Scotia's public school program, a balance between teacher-centred and student-centred classroom practice, principles of learning, and common essential learnings. They also reflect the fact that most global geography students are in the last year of their 13 years at school. Full advantage has been taken of the knowledge and skills they bring to grade 12. Many suggestions put students in charge of activities and learnings. A positive, constructive experience in global geography should continue to develop those skills and attitudes that equip students to be independent lifelong learners.

The selected elaborations that follow are not “the final word.” They are here simply to shed light on the breadth of purpose and opportunity that individual activities may offer. In reading them, one should keep in mind how each might contribute to the development of the five broad skills articulated by the (American) Committee on Geographic Education:

- asking geographic questions
- acquiring geographic information
- presenting geographic information
- analysing geographic information
- developing and testing geographic generalizations

Selected Teaching/Learning Activities

- | | |
|--------------------------------------|----------------------------------|
| 1. Case study/issues approach | 10. Interviews/guest speakers |
| 2. Debate | 11. Video analysis |
| 3. Seminar | 12. Document analysis |
| 4. Role-play/simulation | 13. Map/statistical analysis |
| 5. Crisis analysis | 14. Field trips |
| 6. Oral reports | 15. Brainstorming |
| 7. Newswatch/vertical file | 16. Group work |
| 8. Vignettes | 17. Individual/independent study |
| 9. Model U.N. Assemblies/parliaments | 18. Technology-assisted learning |

1. Case Study

Unit 2.2.3

In teacher/librarian assisted case studies, students must compare and contrast the responses of a developed and underdeveloped country to a disaster.

Unit 5.3.2

Select a local, national, or international conservation issue for examination. The point here is to have students come to an understanding of complexities of such issues, e.g., Atlantic salmon: What is the issue?, Who are the parties?, What and why are their positions?, Are their positions backed by valid information and reasoning?, What are possible solutions?, What would be the impact of one choice?, How would the choice be implemented?, How would the outcomes of the choice be monitored/managed?

The term case study has a number of meanings, some of which are quite specialized when applied to individual disciplines such as chemistry, law, and business education. In such instances, students apply a structure or model to a problem or situation.

In this guide the term can be paralleled to the phrase “by way of illustration” or “a case in point.” And so, when students are asked “to do a case study” on population control, they set about finding and choosing an example to illustrate the topic, for example, China’s one baby policy. The guiding principle is that the case study contributes directly to the development of the main theme.

In this guide, the case studies are both open and structured. An example of the latter is the environmental crisis model found on page 58. The obvious advantages are that (1) it provides students with direction for their research and (2) when oral reports are presented, the listening students can themselves be directed by the components of the model.

Another model for structuring case studies is the issues approach that students have the opportunity to use in Maritime Studies.

- A. Identify the divergent viewpoints.
 - Environmental versus Industrial
 - Technological Innovations versus Traditional Status Quo approach
- B. Identify the rationale for the divergent viewpoints.
 - Religious influences
 - Economic influences
 - Cultural influences
 - Political influences

The questions to be asked are

- Why do they believe that?
 - Why do they see the world that way?
- C. Identify the potential consequences of each of the solutions.
 - What trade-off is each of the groups asking us to make?
 - D. Identify the ethical implications of each solution.
 - Is one group benefiting at the expense of another?
 - Should we consider the greatest good to the greatest number or should everyone benefit and share burdens equally?
 - Are we promoting one world-view over another?
 - E. Identify your own set of values and priorities.
 - Consider your own religious, cultural, political, and economic influences and values.

F. Discussion with others

G. Personal reflection

H. Arrive at your own solution

2. Debate

Unit 6.3.2

Prepare a debate on the advantages and disadvantages of foreign aid. Have as a judge, e.g., a member of St. Mary's International Education Centre or Canada's CIDA to discuss their perception of the students' arguments, e.g., valid/invalid, complete/incomplete.

Basically, a debate is simply an oral version of the issues approach. The advantages are that more students become involved, collaboration is essential, oral and presentation skills take centre stage alongside research and reasoning skills. There can also be enrichments such as opening the debate to the public, recording the debate on videotape, and having guest (expert) judges whose geographic expertise can be used to throw further light on the topic. They can also help students evaluate the processes that influenced the debate and its conclusions.

3. Seminar

Unit 3.3.2

Seminar approach: assign students in groups to do research on countries with different population policies and ideologies. Groups will then come together to present the different policies, discuss them, and come to conclusions.

There can be three processes in the seminar method: 1) research, 2) presentation and 3) interactive response. In some ways the spectators are similar to those in a debate. The individual or group conducts geographic research and assembles the results in full knowledge that in the interactive responses they will be held accountable for their conclusions. They must be prepared for such questions as "What was your source for the #4 bar graph you constructed?", "How old were the population data you relied upon?", "Don't you think that the Environmental Impact Study you referred to is biased to the extreme?", "How can you come to that conclusion when you totally ignored the cultural status of women?"

The interactive response stage is a powerful tool a) for governing the research task and b) for honing the listening, reasoning, observing, and critical thinking skills of the participants.

4. Role-Play/Simulation

Unit 4.4

Simulate a public hearing with students taking roles such as local politicians, industrialists, labour unions, environmental groups to investigate issues such as monoculture (forestry).

Unit 6.1.1

Have students examine the profile of a man/woman/child of the Third World with that of an equivalent person in a developed country. This can be done through video resources or printed materials such as *Earth Matters* or *Connections*. Having done this, students should write a two-sided role-play focussing on a common feature, e.g., a drink of water. The roles can be acted out in the classroom.

The following explanation on role-playing appears in the Grade 10 Integrated Science Curriculum Guide. It presents roles in a simulated judicial hearing.

Role-playing activities can be used to simulate the decision-making processes in democratic societies. Focussed on an issue such as “Should we continue to build coal-burning power plants to produce electricity in Nova Scotia?”, students take on the roles of people in their community.

For example, a teacher could present scenarios such as two companies wanting to operate a uranium mine five kilometres from the student’s community or wanting to build large-scale tidal power dams in the Bay of Fundy. Students could then participate in a simulated judicial hearing dealing with an application to build these projects.

If studying the tidal power issue, small groups of students are assigned the roles of judges, ecologists, financial agencies, alternative energy groups, Nova Scotia Tidal Power Corporation executives, labour unions, engineering consultants, Department of Fisheries researchers, Department of Energy managers, and recreational land owners. Students conduct research and, where possible, interview members of the community with knowledge of the issue. Students could meet, for example, with a structural engineer to discuss the design of a dam, or with a fisheries officer to discuss effects of dams on fish stocks. Interviews provide opportunities for students to meet community leaders and to appreciate a wider range of career possibilities.

Students then communicate their research findings through a mock judicial inquiry. Because of the different values of individuals within each role, students see the importance of evaluating conflicting data, constructing logical and rational arguments, and applying critical thinking skills to the resolution of contentious issues.

Role-playing can also be used to stimulate critical thinking among the audience. Profiles of women in cultural/economic settings around the globe can be presented to the class who in turn must analyse the roles to determine the influence of (cultural/economic) causes and effects.

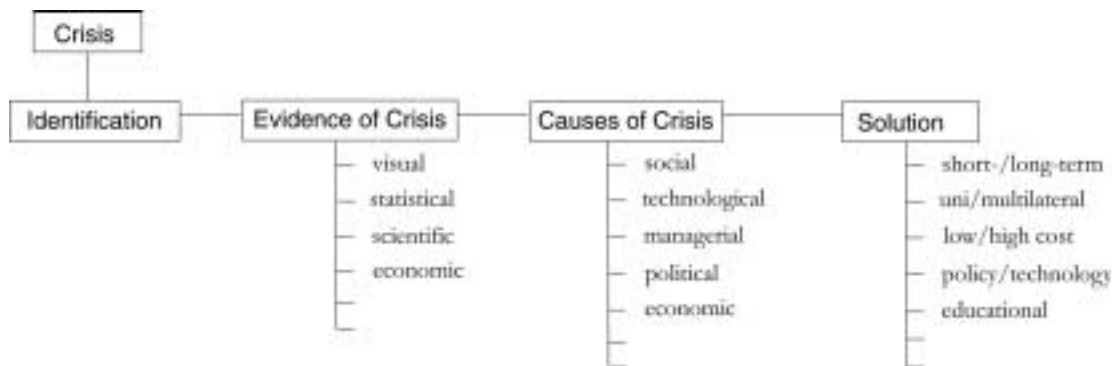
Whatever motives are behind the use of this method, the underlying reality is that the roles played are only as strong and meaningful and useful as the research and thought that went into creating them.

5. Crisis Analysis

Unit 4.3.4

Have a certain number of students research and analyse, as a group, a local example of a food production related environmental crisis, e.g., the north Atlantic cod fishery. Report their findings in an oral presentation to the class. Following this up with a panel of interested parties could provide the students with insight into the complex nature of some of these crises.

Cause and effect, and their interrelationship are central to much social science research. The analysis of crises in global geography becomes more disciplined if a structure for research is applied. Such a structure is offered on the following page.



Application of this or similar models should free students from the trap of too readily accepting someone else's conclusions. It should also result in a much clearer understanding and appreciation of the components and complexities of any given crisis, thereby steering students away from a too simplistic view of their geographic studies.

6. Oral Reports

Unit 5.3.1

Have students do a brief research and oral report assignment on significant reports dealing with conservation, e.g., The Club of Rome's *Limits to Growth*, (1972); The United Nations, *The World Conservation Strategy* (1980), *Our Common Future (The Brundtland Report)*, 1987, the World Commission on Environment and Development.

Active participation in the democratic process will usually require public speaking, either spontaneous or prepared. Delivering an oral report, debating, conducting a seminar, role-playing: all of these activities help students to develop their oral communication skills.

Oral reports are similar to seminars except that the interactive response component may be somewhat less demanding. Simply, an oral report is the audible version of a written report. Differences may occur with the integration of large-scale visual aids (e.g., overhead transparencies), the opportunity to make spontaneous anecdotal or additional remarks, and the fielding of questions, observations, and other responses. A major difference of course also lies in the fact that probably only one person will read the written report, whereas the listening audience can be much, much larger, and naturally, very immediate in its reaction!

Note: Most oral reports are accompanied by a full written version, or by a written detailed outline or summary.

7. Newswatch/Vertical File

Unit 1.1.3

Pre-assign a newswatch of popular print media. Have students generate a list of actions that risk the planet. Through guided discussion, search for patterns in these actions.

Unit 2.2.2

As a librarian/student/teacher collaborative effort, build a vertical file on hazards, natural and human.

A tremendous asset to the global geography course is the volume of pertinent material that appears regularly in public media. Access to it frees classroom practice from reliance on textbook resources and the teacher's

“private collection,” both of which may be dated. Setting students the task of watching and harvesting the media can have several targets: thematic/annotated scrapbooks, analysis exercises on perspective or on fact and opinion, bulletin board displays, vertical file collections for the classroom and/or library.

Senior high activities of this nature must have a manipulative component: it cannot simply be a matter of cut and paste. A conventional requirement is that the harvested material be reorganized into categories and that these categories be accompanied by student remarks based upon skills of process and inquiry.

Vertical file collections are obviously organized by theme. Their contents are made much more useful if there is a readily accessible table of contents accompanied by a list of brief annotations on each item. These annotations are the responsibility of the students and should include details such as geographic theme, focus, source, date, evidence of bias, role of perspective, part of a series, and so on.

8. Vignettes

Unit 3.2.2

Using a variety of print, audio-visual, and graphic resources, have students research the role of women in various countries (developed and developing) around the world. Have each of them write a vignette that gives an overview of the lives of each of these women and explains what will influence/determine the number of children these women will bear and subsequently care for, and for how long, e.g., education, access to birth control information, medical services, economic status, marital status, religion, culture, etc. They should support their written work with appropriate tables and graphs. On a designated “Women of the World Day” selected vignettes will be presented to the class.

Vignettes are short descriptions or character sketches. Although they often apply to people, vignettes can be used to describe places, events, and situations and may deal with the past, present, or future.

The real strength of the vignette is that writers are forced to deliver their images well in a restricted amount of time. This should encourage students to be very critical and creative in their writing process and should highlight the need for accuracy and completeness in their research process.

Vignettes in tandem can be a very effective classroom method. Half a dozen rapid-fire presentations can bring a time line to life, flesh out the related components of a theme, or beautifully illustrate conflicting points of view. Depending upon the topics and the methods of presentation, there are obviously many opportunities to marry the vignette with other methods such as role-playing.

9. Model U.N. Assemblies/Parliaments

Unit 8.2.5

Conduct a model United Nations general assembly in which a global environmental issue, real or contrived, is being debated, in the context of, “What are our priorities here ...”

Basically, model assemblies, parliaments, and councils are large scale settings for role-playing and debating. “Large scale” refers to a number of things including the months of preparation, the dozens of students that can be involved, the actual members debating the issues, the physical setting for the event, and the several days needed to stage it. As with the role-playing and debating, the success of the large scale events will be in direct proportion to the intellectual and physical efforts put into its preparation and production.

Various materials to aid teachers in the establishment of student model United Nations Activities are available through the United Nations Association in Canada and its branches. In particular, teachers would find the UNAC catalogue and the publication Sourcebook of Model United Nations Activities of value. Contact

The Information Officer of the UNAC at
808-63 Sparks Street,
Ottawa, Ontario
K1P 5A6
Telephone: (613) 232-5751
Fax: (613) 563-2455

Information on model parliaments can be obtained from

The Nova Scotia Debating Society
56 Lorne Avenue
Dartmouth, Nova Scotia
B2Y 3E7
Fax: (902) 463-4168

10. Interviews/Guest Speakers

Unit 3.2.4

Assemble a panel of persons who are able to comment upon the questions, “What is quality of life, and what factors contribute to it?” The panel should represent ranges in, e.g., age, education, income, ethnicity, gender, etc. The same search for opinion could be done by student interview, making sure that the same ranges are covered. In a concluding activity, students would share their findings and attempt to come to a consensus. Then, scanning atlases, texts, e.g., the PQLI noted above, articles, etc., the students could compare their list to the “professional one.”

In Nova Scotia, the university communities, the three levels of government, and non-governmental agencies have human resources of which interview and guest speaker methods can make very profitable use.

At the senior high school level, the interview must be taken as a legitimate form of geographic research. As such, a significant amount of preparation is required. On the one hand, the interviewer must have researched the topic thoroughly enough to allow the second step, the formulation of the questions, to be meaningful, efficient, and effective. The third step, the actual interview, should be conducted at such a time and place as to give the interviewee the optimum conditions for response. This is particularly true if the carefully prepared questions are given to the person(s) ahead of time. The fourth step is to “fit” the responses into the research project, both as they were given and as research material handled and interpreted by the student. The same standards apply to the use of guest speakers. Carefully selected, armed with a clear idea of the topic (and perspective) the class has been dealing with, and equipped with questions that either the talk or subsequent question period should zero in on: these steps will ensure a meaningful and effective visit.

11. Video Analysis

Unit 8.2.4

Examine a video resource that reveals the priority setting dilemma, e.g., *Your Ocean and Mine*. Perhaps assisted by an issue resolution model, have the class present the priority setting exercise in diagram form. This should include a time line and could include accompanying webbing diagrams, e.g., of economic factors, political factors, etc.

Like books, reports, and magazine articles, video resources are produced to tell us something from a particular point of view. As research material, they often lose their purpose and potential when students simply view them, as opposed to study them. The former can work, but only when preceding events in the classroom have prepared the way. A study, of course, takes more time but with video technology becoming commonplace in the home, it behoves the teacher to help students gain the skills to examine these pervasive “audio-visual documents.” Many video resources have been evaluated and identified for global geography. With sufficient planning and co-operation with the library, a school can build up its video holdings. With these resources, teachers can assign research tasks in exactly the same way that they do with the printed word, specifying analysis, or interpretation or evaluation, etc., as being particularly important.

12. Document Analysis

Unit 5.3.1

Have students do a brief research and oral report assignment on significant reports dealing with conservation, e.g., *The Club of Rome’s Limits to Growth*, (1972); *The United Nations, The World Conservation Strategy* (1980).

Unit 8.1.1

A case study that involves debate about scientific inquiry, e.g., the greenhouse effect.

Because global geography deals with so many topics that generate points of view, e.g., sustainable development, population control, “haves” versus “have-nots,” healthy environments versus healthy job markets, the materials that attack or defend them must be used carefully. As in history, perspective plays a very critical role in geography. Students must, therefore, be given repeated opportunities to work intelligently with documents that may (or may not) espouse one point of view or course of action, for example, Greenpeace and its fight to save the whales, or, the scientific arguments for and against global warming theories, or, European versus Canadian explanations for the depletion of the northern cod stocks. The ability to analyse documents for a central idea, point of view, statistical support, etc., is one shared by many disciplines and one that will serve learners well in their after-school years.

13. Maps/Statistical Analysis

Unit 1.2.2

In groups, using texts or atlases, students find examples of data sources, and will then manipulate, process, and evaluate information, e.g., look for relationships—economic well-being/education levels/mortality rates.

Unit 2.1.2

Have students examine global ocean current and wind maps, e.g., *GALA*: currents—70–71, winds 106–107, *Canadian Oxford School Atlas, 5th Edition*, pp. 110–111, and ask the students to correlate the two, looking for patterns.

Using a global temperature map (e.g., *Canadian Oxford School Atlas, 6th Edition*) have students use longitudinal sections, from the Arctic to Antarctica, and to search for patterns in the variation of temperatures at specific latitudes within the sections, for example, 90–80, 70–60, 50–40, etc. Students should construct graphs to illustrate their work. Selected students should present their conclusions to the class.

A geography course cannot be complete without map and graph work. As stated in the first section of this guide, a major theme of geographic study is pattern. And so one objective of map and statistical analysis would be to search for pattern. This can be done by studying one thematic map, e.g., GNP distribution by nation or by combining a series of maps, e.g., GNP distribution by nation, attainment levels in education by nation, and birth/death rates by nation. With statistical data available on software, e.g., PC Globe, geographic print resources, e.g., *World Resources 1992–93*, and geographic texts, e.g., *World Prospects*, thematic map analysis can be readily and easily integrated with statistical analysis (tables, charts) to provide students with challenging geographic assignments. These kinds of tasks are particularly productive methods for addressing the five broad skills of geographic education restated on p. 149.

Teachers and students will run up against map and statistical material that has been assembled to support a particular point of view. This kind of material can be found in *GAIA, An Atlas of Planet Management, Earth Matters* produced by Zero Population Growth Inc., the new *State of the World Atlas*, and so on. In such cases, the challenge simply expands to include the role of perspective and manipulation in the preparation and presentation of statistical data.

14. Field Trips

Unit 1.2.1

Organize a field trip to a local industrial or residential site where activity has challenged the local environment, e.g., Annapolis River Tidal Power project, or where industry has been pro-active in protecting the environment.

Unit 2.4.2

Organize a field trip to a university or other research facility, e.g., Bedford Institute of Oceanography to learn about scientific efforts that further our knowledge and understanding of the environment, and of other efforts that enhance our ability to deal with threats to the environment.

There is a number of opportunities throughout Nova Scotia to explore geographic and topical themes by embarking upon field trips. Many have to do with spatial interaction: ambulances from Yarmouth County being shipped to the Middle East, tuna from St. Margaret's Bay purchased by Japanese buyers, pulpwood from various sites sold as mine props in Morocco, rail-cars from Trenton destined for Africa. Well-planned excursions to such sites can help students build their case for or against the concept of an interdependent world.

Visits to coal fired electrical generating stations, coal mines, the tidal power plant at Annapolis, the pulp and paper mill at Abercrombie—all can be used to study the major geographic theme of human/environment interaction and the environment/economic concept of sustainable development.

As with the use of video resources, site resources are only as useful as the preparation that goes into them. If students arrive with no background and little in the way of expectations and responsibilities, then the value of the outing is in jeopardy. Tasks such as photographing, note-taking, interviewing, resource collection (pamphlets), and audio-taping not only give focus and purpose to the visit, they also point to back-in-class processes that will “up the yield” of the field trip.

15. Brainstorming

Unit 2.3.1

Through brainstorm, panel, and class discussion, ask students to develop the concept of when a hazard is global. This exercise could be initiated by asking: “Is a hazard global when examples of it are distributed worldwide, or when a certain condition affects the globe as a whole? Is it either, or both? ...”

Brainstorming is a group or whole class activity during which students are asked to generate responses to an idea or a problem without reflecting. Investigating questions such as, “How can we reduce energy consumption in Nova Scotia?”, “When is a hazard global?”, and “What are personal behaviours that threaten the environment?” should begin with students brainstorming for ideas.

Because brainstorming is an enabling strategy, it needs to be used in conjunction with some other strategy such as group discussion or article analysis. There is no educational purpose to brainstorming without follow-up.

There are four stages to brainstorming. They are

- 1) Teacher presents question.
- 2) Students make suggestions. All suggestions are to be recorded without comment or judgment.
- 3) After an initial flurry of suggestions, the teacher should pose questions that stimulate the students to generate more ideas. Some additional comments might start with “Can you think of an unusual idea to ...?” or “Can you combine two or three of these ideas to ...?”
- 4) After all the ideas have been generated, they need to be grouped or classified. In the discussions that follow, these ideas will be critically analysed and evaluated.

16. Group Work**Unit 1.1.2**

Parameters for life

- distance from sun
- rotation/revolution
- gravity/magnetic fields
- air pressure
- complex atmosphere
- water
- solar radiation, its effects
- temperature, range

Having presented students with the list opposite, divide the class into five groups, and, using the jigsaw home/expert group strategy, carry out a research/report activity that determines the role of each parameter for life. Students present their findings orally to the class. A teacher-guided summary should clarify and conclude the exercise.

Group work consists of students working together in groups of usually two to six. For group work to be effective, each member must participate in the assigned task, although it is not necessary for each member to do the same work.

One of the most important characteristics of group work is that students are responsible for some of their own learning. Although students are accountable to the teacher, and this is reflected in the evaluation of the completed task, students are free to make decisions about how best to achieve their goals. Students help each other by sharing ideas or resources, explaining concepts, or planning tasks.

Group work is an effective strategy for conceptual learning, creative problem solving and for the development of social and communication skills. It is also efficient in that a) it can ease the workload by dividing it up and b) it can broaden the knowledge base of a topic by allowing a greater number of representative or related topics to be explored.

There is a variety of methods to carry out group work. A popular one is the jigsaw method. In it the class is divided up into groups known as “home groups.” Each member is given a number (e.g., 1, 2, 3, 4, 5) and a specialized assignment, all of which are interrelated. All those with specialized assignment #1 break off from the home group to form an “expert group” to deal with #1. The 2s do the same, and so on. When all expert groups complete their assignment, everyone returns to the home group to report. In this way (in this case) each home group is informed, through presentation and discussion, about 5 interrelated topics. The class should then be regrouped and a synthesis of the topic achieved through sharing. It bears repeating that for group work to be effective, each member must participate in and contribute to the assigned task. Thus, in the expert groups above, someone could be a recorder, someone else a chairperson, someone else an illustrator (e.g., flip charts, overheads) and so on.

During group work, the teacher’s role is that of a manager. Sometimes it is necessary for the teacher to ask probing questions to get the group started or to keep them focussed on the task at hand. Many students have not encountered group work before and may act inappropriately. The teacher may coach students on how to handle problems. It is not the teacher’s job to mediate each dispute but, rather, to encourage students to develop strategies for dealing with each other when conflicts arise. In this way, the students become responsible for their behaviour and the behaviour of their group. In other words, the teacher helps students learn how to do things for themselves.

Much evidence indicates that heterogeneous grouping is more effective than homogeneous grouping for most learning activities. Students with differing abilities often complement one another and are very successful in accomplishing group tasks. Having students select their own groups based on friendship cliques is seldom useful. If students are to select their own groups, they should do it on the basis of preference for work on a particular topic. Teachers should usually select groups and assign specific roles for individuals within these groups.

A wide variety of instruments is available to teachers to evaluate learning with groups. An evaluation should include a blending of self-, peer and teacher evaluations. Refer to *Together We Learn*, Prentice-Hall, 1990, (*Authorized Learning Resources*) for a variety of group evaluation instruments appropriate to science instruction.

17. Technology-Assisted Learning

Mention is made in different units of the pupil/teacher resource, PC Globe. This is a software package that offers students endless opportunities to manipulate data in creative and thoughtful ways.

Recent advances in electronics, machines, and software programs offer teachers and students the potential to diversify classroom practices that can be tailored for individual and group activity. Students in Nova Scotia are using electronic networks that link them to terminals around the world. Students are also working with SimEarth and SimCity, programs that allow them to explore cause and consequence as they manipulate

human activities within a range of (urban) development variables. PC Globe, mentioned above, allows students to manipulate data as they search for relationships and patterns.

Computers will become a more widely used learning tool in the near future. Because of the emphasis in global geography on students collecting and studying data, computers can assist by helping students to classify data, graph variables, store and retrieve data, construct and calculate quantitative problems, create data tables, and find relationships and patterns. Computers become a tool to process information quickly. They allow students to focus on the creative aspects of learning and the conceptual components of a discipline.

Having said that, computers and other technology should only be used where they are genuinely the best resource and when they facilitate learning that is meaningful.

18. Individual/Independent Study

Unit 1.1.1

Having presented students with details of the list opposite, assign an illustrated research/report exercise that reveals why other planets in our solar system are incapable of supporting life as we know it. The absence/presence of each factor in the list must be addressed. This should be an independent study exercise.

It seems appropriate that grade 12 students be given the opportunity individually and independently to use knowledge and skills to complete a major research assignment. Individual means that they are not going to tackle the task with someone else. Independently means that the task will be completed with a minimum of teacher direction and supervision. Once details such as the topic, format, and due date are agreed upon, the student assumes the responsibility to work through and complete the assignment.

In some cases, student ability and interest will allow for an Independent Study Contract. This usually, though not always, means that the student is away from the classroom for extended periods of time conducting their learnings through many activities, some of which have been cited in this series of classroom practices. Independent study is a most serious undertaking and should be formalized on paper like any other meaningful contract.

Appendix C: Evaluating Student Progress and Achievement

Aims of Evaluation

In Global Geography, as in all courses in the social studies, key aims of student evaluation are to

- assess the progress of students in acquiring, understanding, and using knowledge (facts, concepts)
For example:
 - defining terms like ecosystem, urbanization
 - explaining the concept of sustainable development, interdependence
 - using “facts and figures” to identify disparity and the need for change

- assess the progress of students in acquiring, developing, and using a range of general and specific (geographic) **skills**
For example:
 - recognizing patterns in a series of maps
 - converting numerical data into graphs
 - identifying the key issue in a debate

- assess student understanding and appreciation of the role of values and attitudes in human behaviour, and to assess student progress in adopting values appropriate to their (geographic) studies
For example:
 - understanding third world perspectives
 - behaving constructively in group work
 - displaying through behaviour attitudes supportive of environmental stewardship

- help students develop positive attitudes towards lifelong learning, to explore future opportunities for learning and employment, and to set realistic life goals

- assess the integration of major components of Nova Scotia’s public school program including principles of learning and learner-centred instruction, common essential learnings, and anti-racist, multicultural, and anti-sexist education

- assess the implementation of the curriculum, and the strategies, methods, and resources used in classroom practice

Types of Evaluation

Diagnostic Evaluation

Diagnostic evaluation is usually conducted before the beginning of a sub-topic, topic, or unit. The purpose is to determine variously students' prior knowledge, skills, and values/attitudes. This form of evaluation is particularly important to global geography because of the role of concepts, themes, and skills peculiar to the discipline of geography, and because the course aims specifically at the development of positive values and attitudes to peoples, cultures, the natural environment, and the future of the planet.

Diagnostic evaluation can involve simple recall such as the placing of names on an outline map. Presenting students with a pie and bar graph on population components and growth will enable teachers to assess skills of graph interpretation and synthesis of related ideas. If the interpretation is to be written down, the evaluation also allows for assessment of writing skills. Collecting scribbles after the first two weeks of school will shed light on organizational skills that are essential to the global geography student.

The critical feature of diagnostic evaluation is that it is designed to prevent confusion and discouragement that often result from students getting lost at the outset of a new undertaking. The findings of such evaluation only become valuable when they are used to modify practices and resources utilized in the classroom.

Diagnostic evaluation instruments include

- focussed quiz, oral or written
- focussed test
- teacher presentation and class discussion
- video presentation and comprehension test
- focussed skills application
- reading exercise and comprehension test
- reading exercise and note-taking assignment
- homework assignment
- co-operative learning exercise and assessment

Formative Evaluation

Formative evaluation is an integral component of teaching. It provides teachers, students and parents with feedback on recent student performance—progress and achievement—as well as the effectiveness of instruction. Formative evaluation therefore has a diagnostic function—it provides the information required for a teacher to improve student performance through improving curriculum delivery, redefining goals, setting new standards, choosing alternative resources, or designing remediation strategies. This type of evaluation helps “form” student learning. Much of formative evaluation focusses on what the student does not or cannot do, what is known, and what is felt, and provides the data to teacher, student, and parent on what remediation is required.

The nature of formative evaluation is that it is meant to be solely between teachers, students, and parents.

Formative evaluation instruments include

- tests on a portion of a unit or on one unit
- quizzes
- projects (usually short)
- focussed homework

- problem solving and skills application
- data collection and presentation
- oral presentations and seminars
- journal, scribbler, and file checks
- group work

Summative Evaluation

Summative evaluation is a summing up of a student's achievement and usually occurs at the end of a unit, term or year. The summative grades may be public and can be sent to post-secondary institutions or employers upon request. These grades are judgments and are used in evaluating choices available to students. If diagnostic evaluation occurs *before* teaching and formative evaluation occurs *during* teaching, then summative evaluation occurs *after* teaching.

Summative evaluation instruments include

- independent research projects (term and year-end)
- seminar projects
- oral presentations
- problem solving based on using knowledge and skills from several units
- assessment of student-kept files
- tests on two or more units
- examinations

Elements of Evaluation

Learning Objectives

Bloom's taxonomy is a familiar hierarchical organization of learning objectives. With a number of subordinate ones, he identified six major categories: knowledge, comprehension, application, analysis, synthesis, and evaluation. Detailed descriptions of these objectives are found in a large number of teacher resource materials. One, *Making the Grade* by Prentice-Hall, is included in the Department of Education's *Authorized Learning Resources*. Chapter Two, "Learning Objectives and Student Evaluation" is a useful description and with the taxonomy for the cognitive domain lists examples of verbs that teachers might use when developing learning objectives and the evaluation instruments used to measure student progress and achievement.

Performance Modes

Student attainment in work done apart from others is the focus of *individual performance* evaluation. There is a wide range of tasks that geography students must be able to perform without the help of their fellow students. These tasks include data collection and presentation, interpretation of thematic maps, graphed data, etc., managing the components of a term-long project, identifying main points in an issue or debate, explaining standard themes of (the discipline of) geography.

Evaluating *independent performance* measures the ability of students to work without assistance, usually that of the teacher. Such evaluation applies to individual and/or groups of students who have assumed or been given a defined task. It most often involves project work including the environment stewardship project called for in Unit 8. For these a plan of action is required, a timetable must be followed, resources have to be identified, evaluated, and utilized, and a presentation must be made (written, oral, visual, and multimedia).

Process

Just as important as the products of student learning and labour are the processes that create them. Products are the research essay, the model United Nations Assembly, the population pyramid, the action plan and so on. Process refers to the sequence of actions that combined to produce the outcome: using the library's vertical file, taking notes and writing summaries, producing drafts leading to the final version, conducting experiments, designing, developing, managing, and assessing an environmental stewardship project. It also takes into account behavioural elements such as punctuality, thoroughness, and consistency (in effort) and attitudes like willingness and conscientiousness.

Process is a vital part of learning and the development of effective and efficient procedures is a key component to developing problem-solvers, decision makers, and independent lifelong learners. It is specifically important to Global Geography because of the way in which the first 7 units lead to Unit 8, because individual sub-topics relate to future ones, and because students must organize and prepare early in the year for presentations later on. For these reasons process must be a core element in evaluation of Global Geography students.

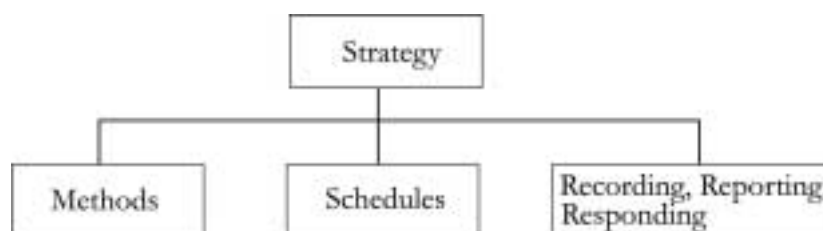
Strategies, Methods, and Instruments of Evaluation

The preceding pages of this appendix, the content outlines, the pages devoted to the nature of geographic studies, and the stated goals, aims, and objectives together define what Global Geography is. Explicit and implicit therein are the criteria upon which Global Geography students must be evaluated. Those criteria are

- knowledge of the discipline of geography
- knowledge focussed upon in this Global Geography course
- skills specific to the discipline of geography
- skills common to geography and other areas of study
- attitudes specific to geographic studies
- attitudes specific to Global Geography
- attitudes common to geography and other areas of study

Strategies, methods, and instruments for student evaluation must reflect these criteria.

Strategy

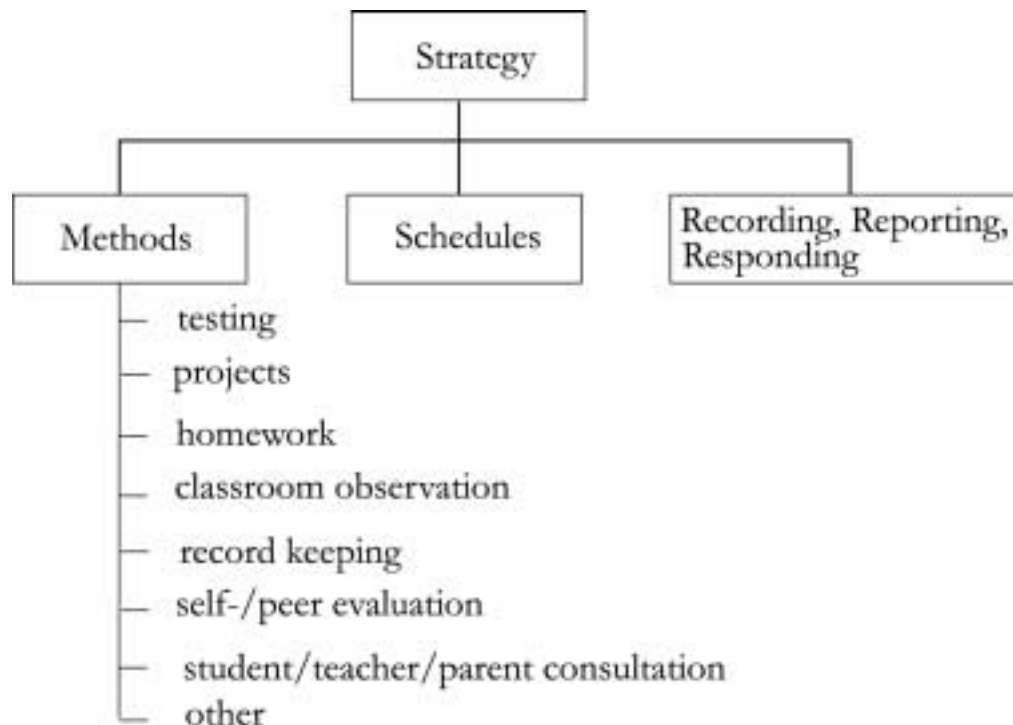


Strategy refers to the overall plan for evaluating student progress and achievement. Strategies must embrace the aims, types, and elements of evaluation. Guiding questions in defining an evaluation strategy might include

- Will there be examinations?
- What role will independent research projects play?
- How and to what degree will co-operative learning practices be evaluated?
- Will the evaluation of process be based upon class work, homework, long-term projects?
- Can peer evaluation be used safely?
- How will examinations, tests, and projects be scheduled?
- To what degree will technology-assisted instruction be part of evaluation?
- What evaluation components are peculiar to this course and which can be efficiently and effectively shared with others?

Methods and Instruments

Evaluation methods provide many of the answers to the question, “How will student progress and achievement be evaluated?” Evaluation instruments are the tools employed by the various evaluation methods. The checklist is an instrument for the method of classroom observation. The detailed project assignment sheet is an instrument for the method of unit, term, or year-long projects. The multiple-choice test is an instrument for the method of testing.



Adoption of evaluation methods and instruments is subject to a number of variables. They may include school board, school, and department policy, student readiness, resource availability/accessibility, class size, teacher readiness and so on. In the final analysis, however, it is in the range of evaluation methods and instruments that students are given the opportunity to display all their talents, to capitalize upon their interests, to make allowances for personal circumstances such as learning styles, personality, and domestic conditions.

Testing

Testing options conventionally include quizzes, tests, and examinations. The two most common media are written and oral, each of which may be used to address both the focus of evaluation and the individual needs of the learner. Within each option there is variety. The examination, for instance, can be open book, take-home, or process. Each has its own role and value. By way of example, the process exam might centre around problem-solving exercises designed to use the data and visuals available on PC Globe. The combination of option, format, and medium makes testing a very flexible and accommodating tool for evaluation.

Projects

Among other factors the use of a multitude of resources and the role of case studies in Global Geography make the project an invaluable evaluation method. The value stems from at least three features: a) projects give students greater freedom of choice; b) they give teachers the clear opportunity to evaluate the ability of students to work independently; c) they do not consume as much class time as most testing methods do.

Independent student work will call upon a wide range of skills, will allow for students to work with a range of resources and to use a range of media in their reports and presentations, and allows for individual and group assessment. For example, a major research report and presentation on the role of resource management in the Maritimes fishery could use interviews, overhead transparencies, videotapes, and text. This range allows students and teachers to achieve a broad focus in evaluation.

Homework Assignments

This tool is particularly useful because it usually involves a very focussed task that consumes relatively little time, can be done independently and individually, and should allow the teacher to give the students feedback in a relatively short time. Homework is particularly useful for diagnostic and formative evaluation and can address a number of issues. It can help students to prepare, reinforce, and review, and is an excellent method for assessing skills associated with organization and management.

Classroom Observation

There are educational objectives that can best be assessed through listening and seeing. This is particularly true when evaluation concerns attentiveness and other concentration skills, courtesy, and other interpersonal behaviours, and attitudes such as being positive or negative, enthusiastic or apathetic, optimistic, or pessimistic. Learner-centred instruction encourages active participation that can be in the form of listening, speaking, conferring, and so on. Global Geography students should have opportunity to listen to and question panels and individual guest speakers, to present and respond in seminars, to participate in co-operative group activities, and to work co-operatively with microcomputers and CD-ROMs. All of these may be partially evaluated by classroom observation.

Peer Assessment

As with classroom observation, there are some learning objectives that are best assessed by including peer evaluation. Hosting a panel discussion, conducting a seminar, presenting a term project, making an illustrated presentation, carrying out designated and general tasks in group work: all of these have components that can be effectively and validly evaluated by students' peers. The essential ingredient of course is that the criteria for performance and evaluation are clearly established and understood by all concerned. Once again the methods and resources suggested for use in the Global Geography classroom make well-defined peer evaluation a suitable and valuable tool.

Record Keeping

The nature of the Global Geography courses makes it advantageous to have students keep records. The course will use a large number of resources other than the authorized materials: newspaper and magazine articles, television programs, videotapes, pamphlets, trade books, and software. In addition, there is a great deal of cross-referencing among the units that will be most effective (and not confusing) if students maintain records through files and journals. In some cases these records will be raw material for year-end or near year-end projects.

These records will give teachers important insights into students' organizational skills both by topic and over time. Including them within the formative evaluation process will help equip students with skills that are indispensable to life outside and beyond the high school classroom.

Student/Teacher/Home Consultation

There is a number of circumstances where a consultative approach to evaluation is useful. Special needs students, for instance, can benefit from this option. Students who enter into contract learning fit into this category. Under contract conditions there is a number of tasks that are done at home or with the parents'/guardians' knowledge and assistance such as library use.

Project evaluation is another area where consultation may be very appropriate. In the areas of effort, time on task, and keeping to schedule, fairness in evaluation may be well served by communication and consultation with the home.

Resources

Making the Grade and *Together We Learn*, cited earlier, contain examples and guidelines for evaluation methods and instruments. The following list is a guide to them.

Making the Grade

Tests and Examinations

- "Tests and Examinations: Written and Oral," p. 109 ff, also pp. 230–234
- "Essay-Style Questions," p. 119 ff
- "Objective-Style Questions," p. 155 ff

Projects

- “Projects,” p. 95 ff, also pp. 238–243

Classroom Observation

- “Observation,” p. 59 ff

Self-/Peer Evaluation

- “Student Self-Evaluation,” p. 9
- “Student Peer Evaluation,” p. 9
- “Peer Evaluation of Essays,” p. 153

*Together We Learn***Classroom Observation**

- “Observing Students to Generate New Understandings,” p. 21

Self-/Peer Evaluation

- “Individual Self-Evaluation Form,” p. 105
- “Individual Group Evaluation Form,” p. 106
- “Group Evaluation Forms,” (4) pp. 107–110
- “Involving Students in Planning and Carrying Out Evaluation,” pp. 156–160
- “Evaluating Group Interaction (Formative Evaluation),” pp. 166–168
- “Evaluating Group Interaction (Summative Evaluation).” pp. 174–176
- “Two Case Studies in Evaluation, p. 183 ff
 - Overview Plans and Evaluation Forms, pp. 188–95
 - “Project Checklist”
 - “Weekly Progress Report”
 - “Teacher Observation Form”
 - “Individual Responsibilities Form”
 - “How We Worked Together”
 - “What I Learned in This Project”
 - “Group Evaluation of Our Project”

Appendix D: Course Outline—Student Copy

Grade 12 Global Geography

Dear Student:

Welcome to your Grade 12 Global Geography class. Listed below are the eight units that make up the course. While the order of these units can vary, and while the amount of time spent on each can vary, all of them will be dealt with in the months ahead.

Unit 1: Our Fragile Planet: A Geographical Perspective

- 1.1 Earth in Space: A Fragile Miracle
- 1.2 A Geographer's Perspective
- 1.3 The Critical Stage: A Planet in Peril

Unit 2: Perilous Processes: Our Planet at Risk

- 2.1 The Dynamic Planet: Potential Peril
- 2.2 Peril and Threat: Natural Processes
- 2.3 Peril and Threat: Human Processes
- 2.4 The Growing Concern: Some Heartening Signs

Unit 3: The Peopled Planet: Standing Room Only?

- 3.1 Spatial Patterns
- 3.2 The Numbers Game
- 3.3 The Global Support Question

Unit 4: Feeding the Planet: Food for Thought

- 4.1 The Land/Ocean Potential
- 4.2 The Harvester: Humanity's Quest for Nourishment
- 4.3 The Land/Ocean Crisis
- 4.4 Land/Ocean Management

Unit 5: Global Resources: The Good Earth

- 5.1 Resource Potential and Utilization
- 5.2 Resource Crisis
- 5.3 Resource Management

Unit 6: Global Factory: For Whose Benefit?

- 6.1 General Background to Industrial Development
- 6.2 Evolving Patterns
- 6.3 Globalizing the Marketplace: Winners and Losers

Unit 7: Urbanization: A Mixed Blessing

- 7.1 The Drift to the City
- 7.2 Eopolis to Necropolis: Growth and Decline of Cities
- 7.3 Planned Cityhood

Unit 8: The Future Planet: Under New Management

- 8.1 Prelude to Action: Science, Education, and Guidelines
- 8.2 Action: Dimensions of Planetary Stewardship