

Social Studies

World Geography 3200/3202



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Section 1: Program Overview and Rationale

Program Overview

At the primary, elementary and intermediate levels of schooling, geographic knowledge, skills, and values are integrated into the social studies program. At the senior high level, students have the opportunity to subscribe to (1) a two-credit course in Canadian geography as part of the required two-credit stream in Canadian studies, and (2) a two-credit course in world geography to fulfil the required two-credit stream in world studies. World Geography 3202 is one of the options for acquiring an honours-level world studies credit. World Geography 3200 is a more general steam course designed for students who require a world studies credit, but who would find an honours social studies credit very challenging.

World Geography 3200/3202 promotes an understanding and appreciation of how major physical, climatic, biotic, and cultural features of the earth are inter-connected. These courses examine the relationship between humans and the environment and how this relationship finds expression in activities that are spatially organized. Students who enrol in World Geography 3200/3202 bring with them a broad range of understandings and competencies as a result of their prior experiences in social studies programs. Their emotional and intellectual maturity now allows them to build on this knowledge and develop a more sophisticated and comprehensive investigation of the world around them.

To examine how the physical earth and human activity are inter-connected, organizational themes from three sub-fields within the discipline of geography provide the basic structure for World Geography 3200/3202; namely, physical (landforms, climatology, and ecosystems), economic (primary, secondary, and tertiary activity), and population and urban (refer to page 19).

Physical Geography

Units 1, 2, and 3 provide an overview of basic components of the physical earth. Surface features, climate and ecosystems are interrelated and, at the same time, provide a range of possibilities for humans to satisfy their needs and wants.

Economic Geography

Unit 4 examines the range of primary economic activities in which humans engage as they extract resources from the land and oceans to satisfy their needs and wants. Unit 5 explores how humans

process the raw materials extracted from the land and oceans into semi-finished and finished products, and how the provision of specialized services form an integral part of the economy.

Population and Urban Geography

Unit 6 and 7 focus on changing populations and the human imprint on the land as evidenced by where people live and how they organize and distribute themselves on the earth's surface. Students will select **one** of units 6 and 7 for study.

These geographical themes, presented on page 18 as a set of seven knowledge-based general curriculum outcomes (GCOs), determine the content of World Geography 3200/3202. The skills-based and attitudinal GCOs shape the instructional and learning context in which students acquire the content. Each knowledge-based GCO is developed through a set of specific curriculum outcomes (SCOs) with an accompanying set of delineations. Teachers may choose from a variety of strategies for teaching/learning and student assessment to support the specific curriculum outcomes that are selected for the study. The skills- and values-based GCOs are incorporated, where appropriate, into the delineations and the strategies for teaching/learning and assessment.

It should be noted that although the geographical themes are organized separately for purposes of presentation and analysis, they are interconnected. The interconnectedness is deliberately promoted in World Geography 3200/3202. For example, each of landforms and water forms, climate, and ecosystems ends with an SCO that examines how they influence human activity. Teachers are encouraged to help students to draw upon the links throughout the whole course in order see the “big picture” of how natural phenomena and human activity relate to each other.

Each theme provides opportunities for students to engage in research activities that introduce and/or reinforce geographic research methods and skills, engage students in active learning, and meet the learning objectives for the topic. At appropriate points, comparisons are drawn between geographic phenomena and current circumstances. Students are challenged to consider that perspectives on events from the past change over time and often differ from the values and perspectives at the time of the event.

Since research is an important part of this course, students will use both primary and secondary sources and will draw upon traditional sources of information including reference books, documents, newspapers, field studies, and case studies as well as appropriate sites on the world wide web.

The program clearly supports resource-based and inquiry-learning approaches to teaching and learning. Cooperative learning strategies, project-base learning, and the use of technology are considered good examples of instructional strategies. Various resources have been identified to support each topic and activity. As well the student resource will provide a foundation for each topic.

Program Rationale

Geography as a Discipline

Late in the nineteenth century, due to Darwinian influences, geography focused primarily on the study of how the environment determined how humans organized themselves and went about to meet their needs and wants.

In time, the environmental determinist notions were regarded as too extreme and simplistic in their explanation of the underlying causes of human activity. At the turn of the twentieth century, French geographers began to examine how human culture is a major influence that helps humans to be active rather than passive agents in determining how they live.

For much of the first half of the twentieth century, British and American geographers attempted to synthesize elements of environmental determinism and possibilism to explain a real differentiation. According to the possibilist school of thought, the environment provides a range of possible choices about how needs and wants can be met. On a global scale, for example, elements of climate and vegetation may be associated to delineate natural regions. Within each region, the landscape becomes altered and developed by the activities of successive generations of people. Traditional regional studies consisted of such elements as physical features, climate, vegetation, farming, and industries.

Geographical inquiry during the last half of the twentieth century shifted somewhat from the regional paradigm for two major reasons. Regional approaches often result in a weary description of natural and human phenomena. Second, the assumption that the whole of the earth's surface can be divided into distinct regions is open to question. Recently, geographers approach the discipline more as a social science that searches for patterns or law-like statements that "capture" the spatial arrangement of significant features on the surface of the earth.

In the latter half of the twentieth century, professional geographers and educators examined how academic geography and school geography are related. In 1982, a consortium of professional geographers and teachers in the United States collaborated to develop five fundamental and inter-related themes to lend

structure to the study of geography in American schools (Joint Committee for Geographic Education, 1984). These themes are outlined below.

Location

Geographic education helps the learner to know how to determine and describe the absolute location (e.g., grid coordinates, street location) and relative location (e.g., the location of a stock exchange in a city's central business district). Equally as important, the individual is encouraged to discover factors or conditions that account for the location of phenomena.

Place

A location takes on the character of place when meaning is given to natural and human phenomena occurring there. Each place has a character that is expressed by such features as patterns, differences, similarities, sequence, and connections. Geographers are concerned both with identifying these features and the processes underlying them. For example, a dominant feature of the cultural landscape along the St. Lawrence River is the long-lot survey system. The examination of place in this context would have to account for the combined influence of landforms, political structures, and economic activities during the French colonial period.

Interaction

This theme attempts to reconcile environmental determinism and possibilism. Basically, it holds that the environment helps shape human activity since it provides a range of possibilities for humans to satisfy needs and wants. The choices made are also a function of such influences as cultural preferences, political structures, and historical antecedents. This principle is illustrated when one examines how human activity on Asian grasslands contrasts with that on North American grasslands.

At the same time, interaction is felt in the opposite direction. Human activity leaves its impact on the land. This feature is currently the basis for geographical inquiry that examines the impact of resource utilization upon ecosystems.

Movement

Natural and human systems are fluid rather than static. A given place is what it is as a result of the movement of energy, goods, services, ideas, and people to and from other places. Geographers are interested in finding patterns that help describe this exchange and factors that cause them.

Region

In geographic terms, a region is an area in which significant characteristics relate to each other (i.e., areal association) to make it unique and definable from other areas (i.e., areal differentiation). These characteristics may be natural (i.e., geomorphic, climatic, or biotic) or human (e.g., economic, political, or cultural). A natural region may be described as formal, and a human-made region as informal.

The American Geography Education Standards Project revisited the nature and purpose of geographic education and in its 1994 report delineated the scope of geographic literacy. The geographically literate person is one who knows and understands:

The World in Spatial Terms

- How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.
- How to use mental maps to organize information about people, places, and environments in a spatial context.
- How to analyze the spatial organization of people, places, and environments on earth's surface.

Places and Regions

- The physical and human characteristics of places.
- That people create regions to interpret earth's complexity.
- How culture and experience influence people's perceptions of places and regions.

Physical Systems

- The physical processes that shape the patterns of earth's surface.
- The characteristics and spatial distribution of ecosystems on earth's surface.

Human Systems

- The characteristics, distribution, and migration of human populations on earth's surface.
- The characteristics, distribution, and complexity of earth's cultural mosaics.
- The patterns and networks of economic interdependence on earth's surface.
- The processes, patterns, and functions of human settlement.
- How the forces of cooperation and conflict among people influence the division and control of earth's surface.

Contribution of Geography to Social Studies Education

Environment and Society

- How human actions modify the physical environment.
- How physical systems affect human systems.
- The changes that occur in the meaning, use, distribution, and importance of resources.

The Uses of Geography

- How to apply geography to interpret the past.
- How to apply geography to interpret the present and plan for the future.

According to the Foundation for the Atlantic Canada Social Studies Curriculum Guide, social studies is intended to enable and encourage students to examine issues, respond critically and creatively, and make informed decisions as individuals and as citizens of Canada and of an increasingly interdependent world.

Social studies is a program area that derives its content and methods of inquiry primarily from the social sciences in order to explore issues affecting their lives from personal, academic, pluralistic, and global perspectives. At the personal level, students reflect upon the implications of issues and events for them individually, and for their families and communities. The academic perspective is promoted as students apply concepts and processes afforded by the social science disciplines. Students develop a more pluralistic stance as they incorporate a diversity of identities, beliefs, and practices into their study of events and issues. Students build a global perspective as they explore equitable, sustainable and peaceful solutions to perplexing global problems.

Social studies, then, provides learning situations that predispose the individual to engage in desirable forms of participatory citizenship in issues of local, national, or international importance. Geography makes its contribution as it equips the individual with the understandings, dispositions, and competencies vital for such a role. Geography is not deemed to be worthwhile solely in terms of its intrinsic worth but in terms of its instrumental value in the long-term goal of developing the person-citizen.

First, geographic education provides unique opportunities for the student to develop conceptual frameworks or perspectives on the contemporary world. These frameworks relate to the earth environment, human use of it, similarities and differences in the earth environment, differences in human capacity to use the environment, and human interactions at a variety of scales - community, regional, national, continental, and global. The

emphasis is on a perspective of the earth as a vast interacting system of non-human and human activity. The geographically literate person is one who seeks to understand this interacting system in terms of

- spatial patterns of phenomena;
- the concept of place and region;
- physical systems;
- ways in which people interact with physical systems;
- patterns in the movement of people, goods, services, and information;
- historical, cultural, economic, and political characteristics of global regions;
- geographic factors that have impacted on the development of Canada and other countries; and
- consequences of human activity for the total ecosystem.

Second, students are encouraged to use selected competencies to formulate meaningful and relevant conceptual frameworks from these understandings. Since our modern society is characterized by rapid change, low-order information quickly becomes dated; higher-order knowledge and conceptual frameworks, however, have greater transferability to new situations. Geographic education today recognizes the need for a balance between knowing about a geographical content and using it to analyze contemporary issues. Accordingly, case studies can be used to facilitate problem-solving and decision-making, analyzing how local, national, and global trends affect real individuals or groups, and examining issues from alternative perspectives. In this approach, the learner not only becomes knowledgeable about a geographical phenomenon or issue, but also asks what can be done about it to make the world a better place.

The Instructional Environment

A Context for Effective Teaching

The most effective instructional approach is one that is eclectic in nature. The classroom teacher employs those instructional strategies deemed most appropriate given the needs of the learner, the learning outcomes, and the resources available. One cannot be prescriptive in favour of any single teaching method in World Geography 3200/3202 since (1) students differ in interest and ability, and (2) components of the course differ in terms of intent, level of conceptual difficulty, and the relative emphasis on knowledge, skills, and values. Therefore, the discerning teacher will use a variety of methods in response to a variety of instructional situations.

The history of geographic instruction in schools reflects a strong transmission orientation. Content was heavily factual and descriptive, and instruction relied upon (1) direct instructional methods such as lecture, didactic questions, and drill, and (2) independent study methods such as homework and assigned questions. Curriculum developers see the need for transactional and transformational orientations in instruction. These approaches deliberately engage the learner through the use of (1) experiential methods such as field trips, simulations, games, and surveys, (2) indirect instructional strategies such as problem-solving, case studies, and concept formation, and (3) interactive strategies such as debates, brainstorming, discussion, and interviewing.

A Balanced Approach

A balance of transmissional, transactional, and transformational approaches rests on the following assumptions:

- As we move into the 21st century, knowledge deemed to be of most worth rests less on the memorization of facts and more on the process of knowing.
- The process of knowing relies largely upon accessing and organizing information, detecting patterns in it, and arriving at generalizations suggested by the patterns.
- Transformational and transactional approaches bring high motivational value to the classroom.
- Transactional and transformational approaches allows for the active participation of students as they evaluate the relevance of what they are learning, bring their perspectives and prior knowledge to the process, and are involved in decisions about what they are learning.

In spite of the merits of transactional and transformational orientations, transmission still has a place in World Geography 3200/3202. The content of these courses has a defined structure as indicated by the outcome goals, specific curriculum outcomes, and learning outcomes. Within this structure, all three orientations may be utilized in the achievement of the outcomes.

To illustrate some of the principles of effective teaching and a balanced approach to instruction, Appendix 2 provides several instructional approaches that are particularly relevant to the teaching of World Geography 3200/3202.

Assessment and Evaluation

Introduction

The evaluation of student learning is an integral part of the planned instructional cycle. Its intent is to determine if the intended outcomes have been achieved, judge the effectiveness of the course and learning environment in meeting the needs of the learner, and assist in designing future learning situations.

Broadly defined, evaluation is the process of systematically collecting data (i.e., assessment), detecting patterns in the data, forming judgements about possible responses to these patterns, and making decisions about future actions.

The quality of assessment and evaluation has a profound and well-established link to student performance. Regular monitoring and feedback are essential to improving student learning. What is assessed and evaluated, how it is assessed and evaluated, and how the results are communicated send clear messages to students and other stakeholders about what is really valued – what is worth learning, how it should be learned, what elements of quality are considered most important, and how well students are expected to perform.

To determine how well students are learning, assessment strategies have to be designed to systematically gather information on the achievement of the curriculum outcomes. In planning assessments, teachers should use a broad range of strategies, appropriately balanced, to give students multiple opportunities to demonstrate their knowledge, skills, and attitudes. Many types of assessment strategies can be used to gather such information including, but not limited to

- formal and informal observations
- work samples
- anecdotal records
- conferences
- teacher-made and other tests
- portfolios
- learning journals
- questions
- performance assessments
- peer-assessments and self-assessments
- case studies
- interviews
- essay writing
- oral and multimedia presentations
- research

Evaluation

Evaluation is a continuous, comprehensive, and systematic process. It brings interpretation, judgements and decisions to the data collected during the assessment phase to address key educational issues. More specifically, how valid and reliable is the data gathered? What does the data suggest in terms of student achievement of course outcomes? Does student performance confirm instructional practice or indicate the need for change? Are students ready to move on to the next phase of the course?

Teacher-developed assessments and evaluations have a wide variety of uses, such as:

- providing feedback to improve student learning;
- determining if curriculum outcomes have been achieved;
- certifying that students have achieved certain levels of performance;
- setting goals for future student learning;
- communicating with parents about their children's learning;
- providing information to teachers on the effectiveness of their teaching, the program, and the learning environment;
- meeting goals of guidance and administrative personnel.

Evaluation is conducted within the context of the outcomes, which should be clearly understood by learners before teaching and evaluation take place. Students must understand the basis on which they will be evaluated and what teachers expect of them. The evaluation of a student's progress may be classified as pre-instructional, formative, or summative, depending on the purpose.

Pre-instructional assessment is conducted before the introduction of unfamiliar subject matter or when learners are experiencing difficulty. It gives an indication of *where students are* and is not a measure of what they are capable of doing. The purpose is to analyze the student's progress to date in order to determine the type and depth of instruction needed. This type of assessment is mostly conducted informally and continually.

Formative assessment is conducted throughout the process of instruction. Its primary purpose is to improve instruction and learning. It is an indication of *how things are going*. It identifies a student's strengths or weaknesses with respect to specific curriculum outcomes so that necessary adaptations can be made. Formative assessment may be conducted by the teacher, or by the students themselves as they assess their own learning.

Summative evaluation occurs at the end of a designated period of learning. It is used, along with data collected during the formative stage, to determine learner achievement. This assessment is used to report *the degree to which curriculum outcomes have been achieved*.

Instruction and evaluation are centred on outcomes. Not only are outcomes used in providing structure for teaching and learning, but they also provide a framework for assessment and evaluation. However, in any social studies classroom there should be a balanced approach to assessment ensuring that emphasis is given to the learning process as well as the products of learning.

Process outcomes identify the skills that students develop as they come to know, to value, and to be able to do. The emphasis in teaching shifts from a passing on of '*the what*' to '*the how*' - the process by which it is acquired and utilized. Students are taught to find information, to become autonomous thinkers, and to use knowledge to solve new problems and make decisions for themselves.

The product can be thought of as '*the what*' of learning. The *what* is that which students should know and value. The *what* is spelled out in outcomes, which are the base for a program, a course, or a theme of study.

The process is also designed to develop the affective outcomes where students can begin to consider their own personal values, and teachers can help them develop the capabilities and processes they need in order to clarify those values. In fact, the process of having students experience activities and clarify their own values might be the product the teacher is trying to achieve.

Guiding Principles

In order to provide accurate, useful information about the achievement and instructional needs of students, certain guiding principles for the development, administration, and use of assessments must be followed. *Principles for Fair Student Assessment Practices for Education in Canada* (Centre for Research in Applied Measurement and Evaluation, 1993) articulates five basic assessment principles:

- Assessment strategies should be appropriate for and compatible with the purpose and context of the assessment.
- Students should be provided with sufficient opportunity to demonstrate the knowledge, skills, attitudes, or behaviours being assessed.
- Procedures for judging or scoring student performance should be appropriate for the assessment of strategy used and consistently applied and monitored.
- Procedures for summarizing and interpreting assessment results should yield accurate and informative representations of a student's performance in relation to the curriculum outcomes for the reporting period.

- Assessment reports should be clear, accurate, and of practical value to the audience for whom they are intended.

These principles highlight the need for assessment that ensures that

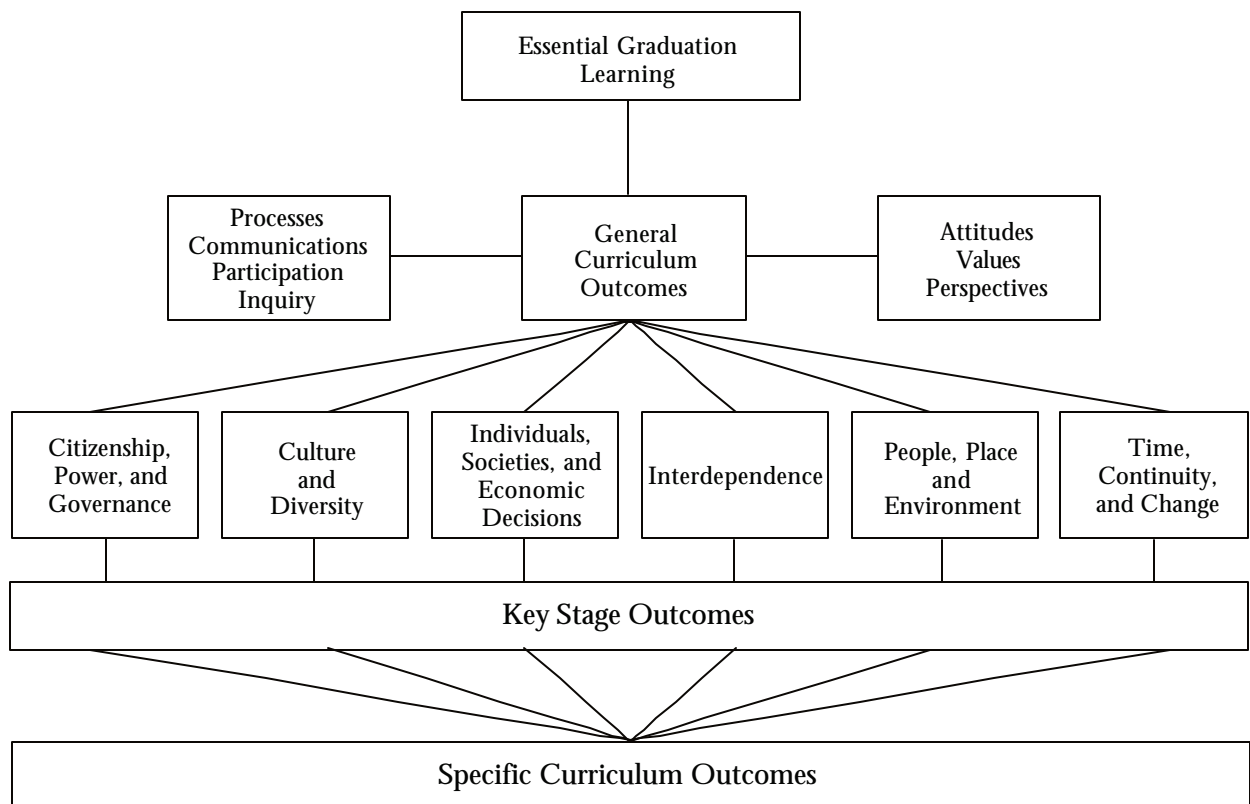
- the best interests of the student are paramount.
- assessment informs teaching and promotes learning
- assessment is an integral and ongoing part of the learning process and is clearly related to the curriculum outcomes
- assessment is fair and equitable to all students and involves multiple sources of information

While assessments may be used for different purposes and audiences, all assessments must give each student optimal opportunity to demonstrate what he/she knows and can do.

Section 2: Curriculum Design and Components

Overview

The *World Geography 3200/3202 Curriculum Guide* is based on the *Foundation for the Atlantic Canada Social Studies Curriculum* document. All components of the Foundation Document guided the development of the outcomes for this curriculum guide. The curriculum guide identifies the major themes and organizational structure of the course. It provides examples of how the course contributes to the attainment of the essential graduation learnings, articulates the general outcomes for geography, and states the specific curriculum outcomes for World Geography 3200/3202.



Essential Graduation Learnings

Essential Graduation Learnings (EGLs) serve as a framework for the curriculum development process and describe the knowledge, skills, and attitudes expected of all students who graduate from high school. Achievement of the EGLs will prepare students for life-long learning. These learnings describe expectations, not in terms of individual school subjects, but in terms of knowledge, skills, and attitudes developed throughout the curriculum. They confirm that students need to make connections and develop abilities across subject boundaries if they are to be ready to meet the shifting and ongoing demands of life, work, and study today and in the future. EGLs are cross-curricular, and curriculum in all subject areas is deliberately focused to enable students to achieve these learnings.

Aesthetic Expression

Graduates will be expected to respond with critical awareness to various forms of the arts and be able to express themselves through the arts.

Geography can provide opportunities for students to realize outcomes related to aesthetic expression. In geography classes, students can be encouraged to express their views on geographic issues in ways other than the traditional written format. In addition, aesthetic forms of expression provide sources of information that may be analyzed from a geographic perspective. Students can also develop an appreciation of the role the arts play in providing economic opportunities and in interpreting their world and the world of others.

Students in World Geography 3200/3202 will have the opportunity, for example, to

- express a preference for the appeal of selected landforms and water forms (1.6.4)
- argue a preference for the aesthetic appeal of selected climatic conditions (2.8.3)
- reflect upon quality of life preferences in an urban area (7.7.5)

Citizenship

Graduates will be expected to assess social, cultural, economic, and environmental interdependence in a local and global context.

Geography plays a prominent role in enabling students to develop as responsible citizens. By its very nature, world geography can help students to develop a more pluralistic stance as they examine global issues. The perspectives that are gained, in turn, can be used as a lens through which to examine national and local events and issues.

Students in World Geography 3200/3202 will have the opportunity, for example, to

- analyze value positions taken on environmental issues (3.5.4)
- support a position taken on an issue related to immigration (6.5.5)
- develop strategies to improve the quality of life in a city (7.7.4)

Communication

Graduates will be expected to use the listening, viewing, speaking, reading, and writing modes of language(s), as well as mathematical and scientific concepts and symbols, to think, learn, and communicate effectively.

The study of geography requires the student to listen critically to others; to evaluate and respond to others' arguments; to read for comprehension so as to understand, for example, cause and effect; to heighten their visual literacy through viewing pictures, slides, and videos; to distinguish between the relevant and the irrelevant; and to identify perceptions and bias. Students are required to take positions on past and current issues and to defend those positions in writing, discussions, and through presentations using various mediums.

Communication is implicit in geography as students are asked to engage in speaking and listening, reading and viewing, and writing and other ways of representing.

Students in World Geography 3200/3202 will have the opportunity, for example, to

- draw a scattergraph to illustrate the relationship between temperature and latitude (learning strategy in support of 2.2.2)
- write an editorial about placing controls on immigration to Canada (assessment strategy in support of 6.5.5)
- draw simple sketches and briefly describe the four types of linear settlements (learning strategy in support of 7.2.1)

Personal Development

Graduates will be expected to continue to learn and to pursue an active, healthy lifestyle.

Personal development requires that individuals first know who they are, that they have a sense of identity, and that they know where they fit in the local, provincial, national and international scheme of things. Geographical themes contribute to the development of these concepts. As students explore immediate and expanding environments, they learn about themselves in the context of the world around them. Many of the ethical issues that

confront today's students must be examined from the critical perspective provided through geography. An appreciation of the changing nature of the world is implicit in this study.

Students in World Geography 3200/3202 will have the opportunity, for example, to

- compare their own values to those of others on an environmental issue (assessment strategy in support of 3.5.4)
- reflect upon selected social/moral issues associated with manufacturing operations (5.4.4)
- assess one's quality of life preferences in large cities (7.7.5)

Problem Solving

Graduates will be expected to use the strategies and processes needed to solve a wide variety of problems, including those requiring language, mathematical, and scientific concepts.

Geography provides a context in which to explore the possible consequences of various policies in response to particular problems. Through this process a frame of reference is developed that enables students to analyze contemporary problems. An examination of such problems requires that students analyze their assumptions, recognize the variety of perspectives that have to be considered in developing an acceptable solution, separate relevant from irrelevant information and bias from fact, as well as frame and test hypotheses.

Geography helps students to respond as citizens to contemporary global problems with reference to their historical, social, economic, political, and geographic context. Thus, students will be able to act as empowered citizens, making the necessary decisions and solving problems in a critical and creative manner.

Students in World Geography 3200/3202 will have the opportunity, for example, to

- propose a solution to a threat posed by selected landforms and water forms (1.6.5)
- develop strategies for a sustainable fishery (4.7.6)
- justify the choice of location for a settlement (7.3.5)

Technological Competence

Graduates will be expected to use a variety of technologies, demonstrate an understanding of technological applications, and apply appropriate technologies for solving problems.

Geography provides opportunities for students to explore and employ various technological sources and tools. As students use word processing, CD-ROMs, the Internet and various multimedia

resources to discover the world past and present, they will be experiencing the role of technology in today's society and weighing the relative merits of this technology. The means by which they explore various social studies topics will illustrate the critical role that technology plays today, and has played through history.

Geography is replete with opportunities to study the effect technological development has on society. Students are required to analyze the social and economic consequences of technological innovation from the influence of the wheel, and the impact of gunpowder to the implications of genetic engineering. Recognizing the complex issues raised by old and new technologies is critical to achieving technological competence.

Students in World Geography 3200/3202 will have the opportunity, for example, to

- develop a web page containing text and photos of landforms and water forms to attract visitors to the local area (assessment strategy in support of 1.6.3)
- use a website to access a series of climographs (learning strategy in support of 2.5.2 and 2.5.5)
- establish an e-mail contact for a farmer and seek a response to a question about his or her operation (assessment strategy in support of 4.4.5 and 4.4.6)

General Curriculum Outcomes for Geography

General Curriculum Outcomes (GCOs) are broad statements that describe the knowledge, skills, and attitudes students are expected to demonstrate as a result of their cumulative learning experiences in geography. Through the achievement of these curriculum outcomes, students will demonstrate progress in the achievement of the following essential graduation learnings: aesthetic expression, citizenship, communication, personal development, problem solving, technological competence and spiritual and moral development.

Geography, as part of social studies, provides diverse opportunities to further refine critical and creative thinking, literacy and develop the EGLs. The following gives a rationale and examples of delineations that accompany the Specific Curriculum Outcomes (SCOs), learning strategies and assessment strategies to demonstrate the close links among the essential graduation learnings, social studies, and World Geography 3200/3202.

One of the following pages are the GCOs for geography. These form the conceptual structure for World Geography 3200/3202

Knowledge

Students will be expected to demonstrate an understanding of:

- forces that created the major land and water forms.
- causal effects of climate and how they produce climatic patterns.
- connections among given elements of an ecosystem and interrelationships among world ecosystems.
- processes that account for patterns in selected primary activities on the land and ocean and how these activities create the need for wise resource management.
- processes that explain patterns in secondary, tertiary and quaternary activity.
- causes and consequences of population distribution and growth.
- dynamics and problems associated with settlement and urbanization.

Skills

Students will be expected to demonstrate competencies in:

- developing rational positions and decisions about geographic issues.
- engaging in literal, interpretive, applied, and critical thinking.
- deriving spatial and temporal patterns from geographic phenomena.
- participating in group processes in a way that positively contributes to the quality of the learning task.
- retrieving information from a variety of information-access tools, such as maps, globes, data bases, websites, newspapers, periodicals, videotapes, and graphics.
- gathering primary geographic data through use of appropriate techniques such as interviews, field observation, sampling, and enumerating.
- organizing information according to an acceptable organizer.
- communicating findings using appropriate verbal and written formats.

Attitudes

Students will be expected to demonstrate an appreciation for:

- the role of informed and rational discussion in arriving at decisions and generalizations.
- the importance of gathering, organizing, and presenting reliable information in ways appropriate to an assigned task.
- the importance of mutual respect, tolerance, empathy, justice, and other procedural values in resolving geographical issues.

- the complex and delicate web of interrelationships among nonliving and living systems on the earth.
- the need to temper individual and societal aspirations in terms of the ability of the earth to meet basic needs and wants.
- the importance of utilizing the environment according to sound principles of stewardship.
- the impact and complexity of global interdependence.
- the contribution of geography to the development of a relevant and integrated perspective on the world.

Program Design

In planning and organizing this course, the General Curriculum Outcomes provide the broad framework; these create the "big picture" of how the physical earth and human activity are interconnected. The SCOs and accompanying delineations are organized, in Section 3, for study according to the major themes or fields within the discipline of geography; students are required to complete six curriculum units.

Geographic Theme	Curriculum Unit	Number of Units
Physical	1. Landforms and Water Form	1
	2. World Climate Patterns	1
	3. Ecosystems	1
Economic	4. Primary Resource Activities	1
	5. Secondary and Tertiary Activities	1
Population and Urban	6. Population Distribution and Growth	1
	OR 7. Secondary and Urbanization	1

The delineations to be completed are differentiated by World Geography 3200 and World Geography 3202. More specifically, the delineations formatted in bold print are designed to challenge **ONLY** those students enrolled in World Geography 3202 and are **NOT** intended for World Geography 3200 students.

Nonetheless, teachers still have the discretion to selectively assign the delineations formatted in bold print should they deem them to be meaningful learning experiences for World Geography 3200 students.

The second column presents a number of sample learning strategies that can be used or adapted along with activities designed by teachers and students. Teachers should consider these as examples they may modify to suit the particular needs of their

students. Column three also presents a number of sample assessment strategies to assist teachers in classroom-based evaluation.

In the fourth column, the guide provides background teacher notes and a listing of resources that are available to supplement the course, including a number of on-line resources. The use of these and other resources is essential to the resource-based and student-centred approach on which this course is designed.

Table of Specifications

Students enrolled in World Geography 3202, unlike students in World Geography 3200, are required to write a provincially prescribed examination after completion of the course. It is critical, then, that there is a strong correlation between instruction and evaluation. This congruence must be evidenced at two levels:

- The scope of the course in terms of general curriculum outcomes must be reflected on the assessment instrument.
- The relative emphasis upon thinking skills (i.e., knowing, applying, and integrating) during the instructional phase must be reflected in the assessment instrument.

To help achieve this correlation, the Table of Specifications on the following page is provided for the teacher of World Geography 3202. From the Table of Specifications, the examination format may be derived. Teachers of World Geography 3200 also may wish to follow it in the development of a teacher-constructed end-of-year examination.

An analysis of the Table of Specifications provides some parameters for ensuring that there is a match between instruction and the assessment instrument; some are drawn for the consideration of the teacher. The three required units that make up the physical geography component constitute just over one-third of the course content (36%). Therefore, about one-third of the instructional time should be devoted to this part of the course. The two required units in the economic geography component constitute 44%. Since both units are equally weighted, instructional time should obviously be divided equally across “Primary Resource Activities” and “Secondary and Tertiary Activities.” About 20% of instructional time should be devoted to the population and urban geography theme (it should be noted that students are required to complete one of two units in this theme).

Table of Specifications

Geographic Theme		Unit	Thinking Competencies (%)			Total (%)
			Knowing	Applying	Integrating	
Physical Geography		1. Land and Water Forms	6%	5%	3%	14%
		2. World Climate Patterns	6%	5%	3%	14%
		3. Ecosystems	2%	4%	2%	8%
Economic Geography		4. Primary Resource Activities	6%	12%	4%	22%
		5. Secondary and Tertiary Activities	6%	12%	4%	22%
One of	Population Geography	6. Population Distribution and Growth	6%	10%	4%	20%
	Urban Geography	7. Settlement and Urbanization	6%	10%	4%	20%
Total Weighting			32%	48%	20%	100%

The emphasis on “knowing” level thinking skills is 32%; on “applying” level thinking skills, 48%; and on “integrating” level thinking skills, 20%. The teacher should attempt to reflect this emphasis across the thinking skill levels in their instruction. A teaching-learning environment that mainly emphasizes rote memorization in World Geography 3200/3202 would not fulfill the aims of the course. The cognitive level weightings should also be reflected in the pencil-and-paper component of the evaluation program. The end of year examination, items written at the “knowing” level will have a total value of 32%; items at the “applying” level, 48%; and items at the “integrating” level, 20%.

Section 3: Specific Curriculum Outcomes

Overview

Specific Curriculum Outcomes (SCOs) are a further breakdown of the General Curriculum Outcomes for geography. The SCOs and accompanying subset, i.e., delineations, which appear in column 1 of the curriculum guide, are designed to give clear direction to teachers with respect to World Geography 3200/3202. They set out what students are expected to know and be able to do as a result of their learning experiences in the course and assist educators in determining the most efficient resources and methodology available to meet the needs of the student.

The skills and attitudes articulated in the General Curriculum Outcomes are integrated throughout the SCOs and related sample teaching/learning and assessment strategies. Each delineation is classified on a three-level hierarchy of thinking skills - from acquiring basic knowledge (knowing), to using this knowledge in new situations and analyzing relationships (applying), and to reflecting upon and judging this knowledge (integrating). The range of suggested teaching and learning strategies in column 2 are used to achieve the outcomes articulated by the SCOs and delineations in column 1.

The SCOs and their delineations represent required learnings and it is expected that all SCOs will be addressed within each unit. Advance planning for the course and units should include consideration of the SCOs and their delineations and how they will be addressed and integrated within units and with other specific curriculum outcomes.

Physical Geography

Unit 1 - Land and Water Forms

Unit 1 introduces students to the first of three components that make up the physical earth – land and water forms, climate, and ecosystems. The unit will help students to examine the constituent parts of the physical environment, forces that created them, patterns in their distribution, and how they influence, and are influenced by, selected human activities.

Unit 1: Land and Water Forms

Outcomes

SCO 1.1: The student will be expected to demonstrate an understanding that the earth's surface is shaped by building-up forces resulting from tectonic activity, including the following delineations:

- 1.1.1 Explain how compressional forces are caused. (k)
- 1.1.2 Explain how tensional forces are caused. (k)
- 1.1.3 Relate selected plate movements to compressional and tensional forces. (a)
- 1.1.4 Explain how compressional forces create fold mountains. (k)
- 1.1.5 Differentiate between the terms anticline and syncline. (k)
- 1.1.6 Explain how tensional forces create a normal fault. (k)
- 1.1.7 Explain how compressional forces create reverse and overthrust faults. (k)
- 1.1.8 Explain what causes a volcano to erupt. (k)
- 1.1.9 Describe the characteristics of an ash-and-cinder cone, a shield cone, and a composite cone. (k)
- 1.1.10 Conclude how the location of active volcanoes is related to places where plates meet. (a)
- 1.1.11 Describe global patterns in the location of landforms. (k)

Sample Learning/Teaching Strategies

Teachers can have students

- use block diagrams to illustrate how compressional forces cause folding to occur.
- use block diagrams to illustrate how tensional forces cause faulting to occur.
- provide students with a map showing world plates and their direction of movement. Ask them to identify areas where tensional forces exist and areas where compressional forces exist.
- use photos or diagrams to identify examples of an anticline and examples of a syncline.
- use diagrams to illustrate examples of a reverse fault and an overthrust fault.
- label a diagram to identify an ash-and-cinder cone, a shield cone, and a composite cone.
- use a landform map to compare the pattern of mountains and plains in North America with that in South America (see teacher note 1).

Unit 1: Land and Water Forms

Sample Assessment Strategies

Students could, for example:

- select a mountain system (e.g., the Himalayas) and use a world plates map to determine whether it resulted from tensional forces or from compressional forces.
- identify an anticline and a syncline on a cross-section illustrating a folded region.
- on a series of diagrams showing examples of reverse faults and overthrust faults, correctly label them (see teacher note 2).
- using a world relief map, describe the pattern of landforms.
- on an outline map of the world, indicate the approximate locations of volcanic eruptions for the past decade and describe their location relative to mountain ranges.
- select a flight path over a continent and briefly describe the landforms flown over.

Teacher Notes

- References are made to exercises in the student text (ST) and to the teacher's resource (TR).
- As an introduction to SCO 1.1, it may be helpful to review students' prior knowledge of simple terminology, such as topography, hill, plateau, and plain.
- Refer to "plate Tectonics and Continental Drift" (particularly the moving images of continental drift) in the Geography World website
<http://members.aol.com/bowermanb/101.html>
- "Earthquakes and Volcanoes" in Geography World website features such items as Earthquake of the Day, extensive pictures of Mount St. Helens, a map of the Pacific "ring of fire", and maps of plate tectonics
- The Internet Geography website (<http://www.geography.learnontheinternet.co.uk>) has an excellent illustrated section on volcanoes.
- Refer to ST, exercise 6, page 7. (1)
- Refer to ST, exercise 13, page 14. (2)

Unit 1: Land and Water Forms

Outcomes

SCO 1.2: The student will be expected to demonstrate an understanding of how the process of weathering helps wear down the land, including the following delineations:

- 1.2.1 Distinguish between the terms physical weathering and chemical weathering. (k)
- 1.2.2 Describe the mechanical processes by which physical weathering occurs. (k)
- 1.2.3 Describe the main interactions that result in chemical weathering. (k)
- 1.2.4 Infer how the relationship between environmental conditions and the rate of physical and chemical weathering. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- use a series of photographs to illustrate examples of physical and chemical weathering.
- take photos of examples of physical and chemical weathering in the local area. Use a computer applications program (e.g., a photo scanner and PowerPoint) to develop a classroom presentation.
- use examples to explain that physical weathering is accelerated in moist regions with a wide temperature range.
- use examples to explain that chemical weathering is accelerated in hot, moist regions.

Unit 1: Land and Water Forms

Sample Assessment Strategies

Students can, for example:

- given a list of weathering events, classify each one as either physical weathering or as chemical weathering.
- given a graph showing moisture and temperature conditions, identify a point where physical weathering would be most pronounced.
- given a graph showing moisture and temperature conditions, identify a point where chemical weathering would be most pronounced.

Teacher Notes

- Explain to students that physical weathering is sometimes referred to as mechanical weathering.
- The University of Guelph has an excellent site that provides diagrams to depict processes of physical and chemical weathering; refer to <http://www.uoguelph.ca/~sadura/wearef/wea0.html>

Unit 1: Land and Water Forms

Outcomes

SCO 1.3: The student will be expected to demonstrate an understanding of how running water acts as an agent of erosion and deposition, including the following delineations:

- 1.3.1 Describe the three stages in the life cycle of a river. (k)
- 1.3.2 State two ways in which water erosion occurs. (k)
- 1.3.3 Examine evidence to determine the life cycle stage of a river. (a)
- 1.3.4 Explain how deltas are formed. (k)
- 1.3.5 Contrast the terms arcuate delta, digitate delta, and estuarine delta. (k)

Sample Learning/Teaching Strategies

Teachers can have students

- use photographs to identify characteristics of each stage in the life cycle of a river.
- given an air photograph or topographic map, identify a point where lateral erosion would be pronounced; a point where vertical erosion would be pronounced.
- describe the life cycle stage of a local river.
- draw a diagram to illustrate the features of an arcuate delta, digitate delta, or an estuarine delta.

Unit 1: Land and Water Forms

Sample Assessment Strategies

Students could, for example:

- given a photograph and/or a topographic map, have students identify the life cycle stage of a river and explain their decision.
- given a contour map of a river, describe a river in terms of its slope, width, straightness of channel, and life cycle stage (see teacher note 1).
- identify an arcuate delta, digitate delta, or an estuarine delta on a topographic map.

Teacher Notes

- A contour map is available in ST, Figure 2.6, page 27. (1)
- The Internet Geography website has a short section on rivers.
- Explain to students that a digitate delta is sometimes referred to as a birds-foot delta.

Unit 1: Land and Water Forms

Outcomes

SCO 1.4: The student will be expected to demonstrate an understanding of how moving ice acts as an agent of erosion and deposition, including the following delineations:

- 1.4.1 Define the terms outwash plain, terminal moraine, erratic, drumlin, and esker. (k)
- 1.4.2 Examine evidence for the direction of movement of a continental glacier. (a)
- 1.4.3 Define the terms cirque, arête, hanging valley, lateral moraine, and terminal moraine. (k)
- 1.4.4 Define the term fiord. (k)

Sample Learning/Teaching Strategies

Teachers can have students

- use a block diagram to describe the features of continental glaciation.
- use a block diagram to describe the features of alpine glaciation.

Unit 1: Land and Water Forms

Sample Assessment Strategies

Students could, for example:

- identify lateral and terminal moraines from air photos of an alpine region.
- read a literary piece about a hiker or mountain climber and identify features of alpine or continental glaciation.

Teacher Notes

- SCO 1.4 assumes student prior knowledge of glaciers and their movement (e.g., advancing, retreating, remaining stationary).
- Refer to “The Earth’s Land, Water, and Erosion” in the Geography World website.

Unit 1: Land and Water Forms

Outcomes

SCO 1.5: The student will be expected to demonstrate an understanding that ocean waves and currents change coastlines, including the following delineations:

- 1.5.1 Define the term spit. (k)
- 1.5.2 Define the terms sea cave, sea arch, and stack. (k)
- 1.5.3 Explain how sea caves, sea arches and stacks are formed. (a)
- 1.5.4 Analyze the processes that result in the “straightening out” of an irregular coastline. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- use an air photo and sketch a spit and indicate the direction of the dominant and secondary waves.
- sketch examples of coastal features and describe how they were formed.

Unit 1: Land and Water Forms

Sample Assessment Strategies

Students could, for example:

- analyze photographs or diagrams of a coastline to identify a spit, sea cave, sea arch, and stack.
- given four depictions of the same stretch of coastline, arrange them in their correct order to reflect the correct sequence in the development of selected coastal features (see teacher note 1).

Teacher Notes

- Briefly overview the three processes by which wave action erodes coastlines.
- Refer to the “Waves” section of the Internet Geography website for some basic explanations and animations of coastal erosion.
- Refer to ST, Figure 3.11, pages 48-49. (1)

Unit 1: Land and Water Forms

Outcomes

SCO 1.6: The student will be expected to demonstrate an understanding of how landforms and water forms influence human activity, including the following delineations:

- 1.6.1 Examine how human activity adapts to landforms and water forms. (a)
- 1.6.2 Examine how humans respond to hazards posed by selected landforms and water forms. (a)
- 1.6.3 Develop a proposal for the economic use of selected landforms or water forms. (i)
- 1.6.4 Justify a preference for the aesthetic appeal of selected landforms and water forms. (i)
- 1.6.5 Propose a solution to a threat posed by selected landforms and water forms. (i)

Sample Learning/Teaching Strategies

Teachers can have students

- given a topographic map with two points identified, determine the best route for a highway to link the two locations. Identify building-up and wearing down processes that helped to create this route..
- develop a research project to assess the importance of land and water forms and related processes to economic activity. For example, farming became established in certain areas due to the presence of volcanic soils; tourism resulted from distinctive features created by moving ice; the life cycle of a given river led to the establishment of hydroelectric generation. The project should be supported by related statistical and illustrative material.
- assume the role of a regional planner and examine information (e.g., maps, photos, written descriptions, statistics) for an area. Suggest strategies to develop economic activity that would take advantage of the land and water forms.
- reflect upon their preferences in terms of land and water forms. Assuming that they were to relocate to another area, determine which type of land and water forms would influence their decision. Defend the position.
- analyze a case study about a natural disaster to decide whether a given event may be categorized as a cause, effect, or a human response. The analysis may be charted:

Disaster-Related Event	Cause	Effect	Human Response

Unit 1: Land and Water Forms

Sample Assessment Strategies

Students can, for example:

- analyze a series of photos depicting different types of land use in a variety of physical settings. The photos used could relate to the use of terraces for farming in mountains; grain farming on a prairie ecosystem; a hydro-electric generating station on a river site; sports fishing on a river; a beach scene showing sunbathers and swimmers; tourists at a site such as the Grand Canyon. Complete the following chart to show that primary activity is shaped to a large extent by the nature of the physical environment.

Photo	Landscape Feature	Land Use	How Landscape Affected Human Activity

- select a poem in which the poet treats some aspect of the natural environment. Write a short paragraph to describe the feelings that the poem evokes and the techniques (e.g., imagery, figurative language, and sound devices) used.
- analyze a case study to examine a threat that the environment is posing; e.g., a possible mass movement of the earth, earthquake, flooding, or coastal erosion. Describe the nature and cause of the threat and develop a plan outlining actions that may be taken to eliminate or reduce the threat.
- develop a web page containing text and photos of landforms and water forms to attract visitors to your local area.

Teacher Notes

- The delineations for SCO 1.7 focus on the upper levels of Bloom's taxonomy of thinking skills. More specifically, the student is expected to engage in analysis, synthesis, and evaluation as they express preferences, develop positions, take a stand for the strategy/activity given.
- SCO 1.7 requires the student to work at the upper levels of Bloom's taxonomy, but also moves students into the affective domain as they make personal judgements or express personal preferences; the shift toward the affective domain can be quite motivating for many students.
- The World Geography website has excellent material on natural disasters, e.g., volcanoes, tsunamis, and earthquakes.
- Refer to the "Fund Raiser" suggestion, TR, page 12.

Physical Geography

Unit 2 - World Climate Patterns

Unit 2 provides an opportunity for students to examine some of the basic forces that produce our weather and climate, how they produce climate patterns on the earth's surface, and relate to human activity. These patterns are strongly affected by the distribution of landforms and water forms.

Unit 2: World Climate Patterns

Outcomes

SCO 2.1: The student will be expected to demonstrate an understanding of how the earth's movement in space causes the occurrence of and the conditions related to day and night and the seasons, including the following delineations:

- 2.1.1 Distinguish between the terms rotation and revolution. (k)
- 2.1.2 Explain how cloud cover influences the range of temperatures from day to night. (k)
- 2.1.3 Define the terms equinox and solstice. (k)
- 2.1.4 Explain how changes in the seasons, in the northern hemisphere and southern hemisphere, relate to the earth's revolution around the sun. (k)
- 2.1.5 Describe the factors that account for differences in length of day as seasons change. (k)
- 2.1.6 Describe the factors that account for differences in temperature as seasons change. (k)

Sample Learning/Teaching Strategies

Teachers can have students

- using a model of the planetary system, relate the occurrence of day and night to the earth's rotation.
- using a model of the planetary system, describe how the march of the seasons relates to the earth's revolution around the sun.

Unit 2: World Climate Patterns

Sample Assessment Strategies

Students could, for example:

- given a diagram of the earth's revolution around the sun, identify the season associated with a given position of the earth on its orbital path (see teacher note 1).
- use sentence completion exercise to test student knowledge of reasons for seasonal changes in length of day and night (see teacher note 2).

Teacher Notes

- Refer to the website <http://www.physicalgeography.net/fundamentals/6h.html> for excellent explanations, diagrams and animations (earth-revolution animation, winter solstice animation, and equinox animation) that support SCO 2.2. (1)
- Assign TR Worksheet 4.1. (2)

Unit 2: World Climate Patterns

Outcomes

SCO 2.2: The student will be expected to detect patterns in the distribution of temperatures on the earth's surface, including the following delineations:

- 2.2.1 Explain how the greenhouse effect moderates climate. (k)
- 2.2.2 Generalize that temperatures *tend* to decrease from low to high latitudes. (a)
- 2.2.3 Explain how the earth's shape causes temperatures to decrease from low to high latitudes. (k)
- 2.2.4 Given selected data, assess the accuracy of temperature descriptions. (i)

Sample Learning/Teaching Strategies

Teachers can have students

- with the aid of a diagram, describe how the earth's shape causes temperatures to decrease from the low to the high latitudes.
- for mean annual temperature data given, draw a scattergraph to show the relationship between temperature and latitude.
- given a world map of temperatures in July and a world map of temperatures in January, determine the validity of such statements about temperature conditions as (see teacher note 2):
 - west coast temperatures for North America and Eurasia are colder than inland temperatures on the same latitude
 - in the southern hemisphere, January is the cooler period

Unit 2: World Climate Patterns

Sample Assessment Strategies

Students can, for example:

- with the aid of a table of temperatures for selected stations in the Northern Hemisphere, describe the general pattern of temperatures from the low to the high latitudes (see teacher note 1).
- given a world map of temperatures in July and a world map of temperatures in January, determine the validity of such statements about temperature conditions as (see teacher note 2):
 - low latitude temperatures are always hot
 - in the high latitudes there is a great difference summer and winter temperatures
- analyze a climograph for a station in the middle or high latitudes of the Northern Hemisphere and one for a station on the same latitude in the Southern Hemisphere. Explain why they are different.

Teacher Notes

- In teaching Delineation 2.2.2, review the use of scattergrams as a tool to illustrate the positive and negative correlation between two variables.
- Refer students to the scattergraph before they write their conclusion. See Exercise 13, pages 58-59. (1)
- Refer to ST, Figure 4.7, page 60. (2)

Unit 2: World Climate Patterns

Outcomes

SCO 2.3: The student will be expected to demonstrate an understanding of the cause of winds and how winds affect climate, including the following delineations:

- 2.3.1 Define the term prevailing winds. (k)
- 2.3.2 Describe conditions that result in land breezes and sea breezes. (k)
- 2.3.3 State the impact of the coriolis effect on wind direction. (k)
- 2.3.4 Infer how wind systems relate to major pressure belts. (a)
- 2.3.5 Explain how wind systems and temperature are related. (k)
- 2.3.6 Define the terms windward, leeward, and rain shadow. (k)
- 2.3.7 Examine how the type of rainfall (i.e., orographic, frontal, and convectional) is related to the nature of location. (a)
- 2.3.8 Explain how wind systems and precipitation are related. (k)

Sample Learning/Teaching Strategies

Teachers can have students

- given air temperatures above the sea and above the land for a specific time during the day (or night), identify the wind direction.
- given a diagram, describe the influence of the Coriolis force on the direction of winds (see teacher note 1).
- on a world map, identify the major winds systems and relate them to the major pressure belts.
- with the aid of a diagram, describe how frontal rainfall occurs.
- with the aid of a diagram, describe how convectional rainfall occurs.
- with the aid of a diagram, describe how orographic rainfall occurs.
- given a world temperature map, cite an example of how a prevailing wind system influences temperature.

Unit 2: World Climate Patterns

Sample Assessment Strategies

Students could, for example:

- with the aid of a diagram, write a paragraph to describe how orographic rainfall occurs.
- write each of the terms orographic rainfall, frontal rainfall, and convectional rainfall on the correct diagram.
- given annual rainfall data for places near the ocean and places farther inland, write a statement about the influence of winds on precipitation.
- write a brief paragraph to explain how land and sea breezes are caused (see teacher note 2).
- given a world map showing major ocean currents, shade the coastal areas that may experience
 - cool temperatures in summer
 - warm temperatures in winter.

Teacher Notes

- Relate Delineation 2.3.7 to 2.6.3.
- To introduce the notion of convection currents, refer to TR, “Explaining Convection Currents ...”, page 42.
- Refer to the Danish Wind Turbine Manufacturers Association website for text and animation on the coriolis effect. (1)
<http://www.windpower.org/en/tour/wres/coriolis.htm>
- The Danish Wind Turbine Manufacturers Association has a website containing text and animation for sea breezes. (2)
<http://www.windpower.org/en/tour/wres/localwin.htm>

Unit 2: World Climate Patterns

Outcomes

SCO 2.4: The student will be expected to demonstrate an understanding of how ocean currents affect climate, including the following delineations:

- 2.4.1 Define the term ocean current. (k)
- 2.4.2 Analyze how ocean currents can create different climatic conditions for two coastal locations on the same latitude. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- using a world map of ocean currents, identify cold currents and warm currents.
- given a world map of ocean currents and temperature data for two locations on the same latitude, one near a cold current and one near a warm current, write a statement to describe the difference in temperature.

Unit 2: World Climate Patterns

Sample Assessment Strategies

Students could, for example:

- given the map of ocean currents, describe the difference in temperature and why they occur for such locations as:
 - Callao and Salvador
 - Prince Rupert and Rigolet (see teacher note 1)
- given a world map of ocean currents, explain why palm trees grow in Land's End, England.

Teacher Notes

- Ask students first to search the Internet for climate statistics for each of these places before they attempt to account for the differences. (1)

Unit 2: World Climate Patterns

Outcomes

SCO 2.5: The student will be expected to demonstrate an understanding of how distance from the ocean affects climate, including the following delineations:

- 2.5.1 Define the term temperature range. (k)
- 2.5.2 Analyze the relationship between range in temperature and distance from the ocean. (a)
- 2.5.3 Define the term monsoon. (k)
- 2.5.4 Explain why winter and summer monsoons occur. (k)
- 2.5.5 Describe the relationship between seasonal level of precipitation and distance from the ocean. (k)

Sample Learning/Teaching Strategies

Teachers can have students

- provide a map showing a coastal location and an inland location on the same latitude. Ask students to determine if there is a significant difference in mean annual temperature and, if so, to explain why.
- explain why the seasonal winds of the winter and summer monsoons occur.
- given a set of climate statistics for selected stations and describe the seasonal pattern in temperature and precipitation.

Unit 2: World Climate Patterns

Sample Assessment Strategies

Students could, for example:

- using a table giving average January and July temperatures for selected stations (on generally the same latitude in either North America or Eurasia) and their distance from the sea, construct a scattergraph to show the relationship between the annual range of temperature and distance from the coast. Write a statement to describe the relationship (see teacher note1).

Teacher Notes

- The National Drought Mitigation Centre website provides climographs for 30 U.S. cities.
<http://www.drought.unl.edu/index.htm>
- Refer to ST, Exercise 33, page 69. (1)

Unit 2: World Climate Patterns

Outcomes

SCO 2.6: The student will be expected to demonstrate an understanding of the relationship between elevation and climate, including the following delineations:

- 2.6.1 Define the term elevation. (k)
- 2.6.2 Describe the relationship between the elevation of a point and its temperature and precipitation. (k)
- 2.6.3 Analyze the relationship between temperature and precipitation of a point and its location relative to a mountain system. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- given a table showing the temperature for locations on generally the same latitude but at different elevations, write a statement about how elevation affects temperature.
- through use of a diagram, describe how prevailing onshore westerly winds and mountains together affect rainfall conditions of west coast areas of North America and South America.

Unit 2: World Climate Patterns

Sample Assessment Strategies

Students can, for example:

- given a set of rainfall statistics for a location on the windward side of a mountain system (Rocky Mountains or Andes Mountains) and a location on the leeward side, write a sentence to compare the rainfall conditions (see teacher note 1).

Teacher Notes

- Relate Delineations 2.6.3 and 2.3.7.
- Refer to ST, Exercise 38b, page 71. (1)

Unit 2: World Climate Patterns

Outcomes

SCO 2.7: The student will be expected to demonstrate an understanding of the combined effect of climatic conditions and the zones they produce, including the following delineations:

- 2.7.1 Given relevant information, determine climatic conditions within selected zones. (a)
- 2.7.2 Draw conclusions about patterns in the distribution of climatic zones. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- given a world climates map, write a statement describing how distance from the equator affects temperature.
- given (1) a world climate map showing the location of selected cities and (2) climographs for these cities, determine which city each climograph represents.
- analyze a world climate map and describe the climatic conditions that exist at a specific location and some of the factors that account for these conditions.
- examine information about prevailing winds and proximity to the ocean and explain why Western Europe experiences a mild and rainy climate.
- draw a chart to describe the factors that most influence the climate of your area:
 - location
 - nearness to the sea
 - elevation

Unit 2: World Climate Patterns

Sample Assessment Strategies

Students can, for example:

- given a world climates map, identify:
 - the most widespread climatic zone in the low latitudes
 - two climatic zones with dry conditions for most of the year
 - the type of climate that is most widespread in North Africa
 - the continents which do not experience continental climates
 - the climate of the local area (see teacher note 1)
- analyze a set of climate statistics for several different sites and read a series of statements describing climatic conditions. Match each statement with the correct location (see teacher note 2).
- select from a series of statements the one that best describes the climate represented by a given climograph.
- in a small group, arrive at a consensus about which factors have the greatest influence on the climate of the local area (see teacher note 3).

Teacher Notes

- For delineation 2.8.2, ensure that very simple examples are provided for World Geography 3200 students. With these activities you may wish to use an illustrated atlas where photos are used to illustrate each climatic zone (e.g., a desert scene for arid zones). It would suffice if these students can draw very simple conclusions; for example, warm moist areas tend to be located near the equator. (1)
- Refer to ST, Exercise 40a, page 72. (2)
- The cooperative learning structure, Think-Pair-Share, would be a useful strategy for this task. (3)
- For a culminating activity, refer to TR Worksheet 4.5.

Unit 2: World Climate Patterns

Outcomes

SCO 2.8: The student will be expected to demonstrate an understanding of how climate conditions may affect human activity, including the following delineations:

- 2.8.1 Illustrate how human activity is influenced by climatic conditions. (a)
- 2.8.2 Examine how human activity affects climatic conditions (e.g., greenhouse effect, ozone depletion, global warming). (a)
- 2.8.3 Argue a preference for the appeal of selected climatic conditions. (i)
- 2.8.4 Examine how selected climatic phenomena (e.g., El Nino, lake effect, hurricanes) affect human activity. (i)

Sample Learning/Teaching Strategies

Teachers can have students

- research and write a brief report to describe how the latitudinal arrangement of temperatures and the reversal of the seasons have economic implications (e.g., the availability of produce in a supermarket year around; northerners vacationing in southern destinations during winter).
- given a case study of rice growing in monsoon India, relate the sequence of rice growing activities to the occurrence of specific climatic conditions (see teacher note 1).
- given a table showing wheat yields per hectare for a given period, construct a line graph to represent the relationship between wheat yield and rainfall. Write a statement to describe the pattern shown.
- summarize a newspaper or magazine article about a weather- or climate-related disaster. Pay particular attention to the property effects.
- research a newspaper article about the impact of a weather- or climate-related disaster. Project the possible human effects of the disaster (e.g., deaths, injury, emotional trauma, economic impact).
- examine a piece of art and describe how landscape and climate influenced what the artist's mood and technique.
- conduct research to present a case that human activity can have a detrimental effect on climatic conditions (see teacher note 2).

Unit 2: World Climate Patterns

Sample Assessment Strategies

Students can, for example:

- examine an advertisement for a southern holiday package (e.g., Florida, Cancun) in summer and in winter. They could write a statement to compare the cost in winter to the cost in summer. Explain why this difference occurs.
- analyze a case study about a weather-related disaster (e.g., a storm surge in the Bay of Bengal; a hurricane in the Gulf of Mexico) to decide whether a given event may be categorized as a cause, effect, or a human response. The analysis may be charted:

Disaster-Related Event	Cause	Effect	Human Response

- assume the role of an individual who is to migrate to another country. Evaluate the degree to which climate might be a factor in your decision-making process.
- analyze a case study and describe the methods used to reduce the risk of a weather-related threat (e.g., the construction of sea wall defences in eastern England to prevent erosion by the sea).

Teacher Notes

- The Geography World website has excellent material (text, photos, and video and sound clips) on weather- and climate-related hazards, e.g., droughts, tornadoes, and hurricanes.
- Also refer to About Geography website (<http://geography.about.com/mbody.htm>) and select “Climate and Weather” to find material on “Climate Effects on Human Health.”
- For an example of a sequence of coffee growing activities, refer to TR Worksheet 5.3, page 56. (1)
- See ST, pages 237-238.

Physical Geography

Unit 3 - Ecosystems

Unit 3 focuses on the interrelationships between landforms and water forms on the one hand and climate on the other, and how these interrelationships make up the earth's ecosystems. Soils, which result from a complex interaction among climate, land, flora and fauna, form a vital resource that humans use to satisfy needs and wants. Students will understand that humans must exercise wise stewardship in order to conserve resources

Unit 3: Ecosystems

Outcomes

SCO 3.1: The student will be expected to demonstrate an understanding that an ecosystem consists of a complex network of organisms, including the following delineations:

- 3.1.1 Define the term ecosystem. (k)
- 3.1.2 Differentiate the terms food chain and food web. (k)
- 3.1.3 Outline the energy flow through an ecosystem. (k)

Sample Learning/Teaching Strategies

Teachers can have students

- given an illustration, give an example of a food chain.
- use a diagram to describe the energy flow through an ecosystem.

Unit 3: Ecosystems

Sample Assessment Strategies

Students could, for example:

- draw an example of a food web of which the human being is a part.
- analyze a short story to describe the features of the ecosystem(s) in which the action takes place.

Teacher Notes

- Many of the delineations for SCOs 3.1, 3.2, and 3.3 are covered in Science 1206, Science 2000, and Canadian Geography 1202. These delineations are still listed for purposes of review, particularly for World Geography 3200 students.
- The BBC school website <http://www.bbc.co.uk/schools/gcsebite/size/geography/> has excellent information on ecosystems (e.g., definitions, sample questions, and diagrams).

Unit 3: Ecosystems

Outcomes

SCO 3.2: The student will be expected to demonstrate an understanding that the relationships among the living and non-living elements of an ecosystem are delicately balanced, including the following delineations:

- 3.2.1 Define the term biological amplification. (k)
- 3.2.2 Explain why there are fewer organisms at each trophic level. (k)
- 3.2.3 With reference to a food pyramid, explain how pesticides can reach toxic levels for organisms at a higher trophic level. (a)
- 3.2.4 Predict the effect on an ecosystem of the introduction of a new organism. (i)

Sample Learning/Teaching Strategies

Teachers can have students

- explain how a food pyramid helps one to understand how pesticides such as DDT can reach toxic levels for organisms at a higher trophic level.
- given an illustration of a particular ecosystem (e.g., a marine ecosystem), describe the effect that the introduction of a pollutant would have on a food web.
- given a description of the introduction of a new organism into a particular ecosystem, draw a diagram to show the probable impact of the new organism on the ecosystem (see teacher note 1).

Unit 3: Ecosystems

Sample Assessment Strategies

Students can, for example:

- given the population numbers for organisms in an ecosystem, draw a food pyramid and label each level with the names of organisms and their populations (see teacher note 2).
- conduct a study of a local ecosystem to identify the consumers, decomposers and food relationships. Develop a display consisting of maps, charts, diagrams, and photographs.

Teacher Notes

- Refer to BBC school website for support for this SCO.
- For delineation 3.2.4, simple examples would suffice. For example, students should be able to infer what the probable impact that the recent arrival of coyotes on the island of Newfoundland may have on the local ecosystem.
- Refer to ST, Exercise 13, page 98. (1)
- Refer to ST, Exercise 14a, page 98. (2)

Unit 3: Ecosystems

Outcomes

SCO 3.3: The student will be expected to examine general interrelationships within and among world ecosystems, including the following delineations:

- 3.3.1 List the general characteristics of a given ecosystem. (k)
- 3.3.2 Analyze patterns in the distribution of world ecosystems. (a)
- 3.3.3 Predict which kind of ecosystem is likely to result from a stated set of climatic conditions (i)

Sample Learning/Teaching Strategies

Teachers can have students

- analyze a world ecosystems map and identify
 - the most predominant ecosystem in the high latitudes
 - the name of the forest ecosystem in the low latitudes
 - the most predominant ecosystem in South America
 - the continents that do not experience a tundra ecosystem
 - the name of the ecosystem in the local area
- given a photograph of a vegetated landscape, determine the type of ecosystem it illustrates.
- briefly describe the relationship between climatic conditions and the type of ecosystem they produce (see teacher note 1).
- describe the general characteristics of a given world ecosystem.
- describe the structure of an equatorial rainforest.
- given a schematic showing the relationship among temperature, rainfall, and ecosystems, predict the ecosystem once given the rainfall and temperature combination.

Unit 3: Ecosystems

Sample Assessment Strategies

Students could, for example:

- write a sentence to describe the climax vegetation in the local area.
- given a world climate map and a world ecosystems map, complete the following table to relate climate and ecosystems.

Ecosystem	Climatic Conditions

- given a description of climatic conditions and vegetation in a particular area, identify the ecosystem described.
- given several climographs and a series of descriptions of ecosystems, match each climograph to the correct description (see teacher note 2).

Teacher Notes

- Refer to <http://www.teachersfirst.com/lessons/biomes/biomes.html> for illustrations and information on world ecosystems.
- Refer to ST, Exercise 23, page 105. (1)
- Refer to ST, Exercise 25, page 107. (2)

Unit 3: Ecosystems

Outcomes

SCO 3.4: The student will be expected to demonstrate an understanding of the characteristics of soil quality and the need to reduce the threat to our soils, including the following delineations:

- 3.4.1 Describe the factors that affect soil quality. (k)
- 3.4.2 Analyze the quality of a soil in terms of its soil texture. (a)
- 3.4.3 Draw conclusions about global patterns related to soil loss. (a)
- 3.4.4 Assess statements about soil availability. (i)

Sample Learning/Teaching Strategies

Teachers can have students

- analyze a triangular graph of soil texture to
 - describe the amount of sand, silt, and clay a given soil contains
 - comment on its usefulness for farming
- refer to ST, Exercise 16, page 137. (2)
Refer to a world ecosystems map and explain why each of the following patterns occur:
 - in Africa, only 16% of the land is considered suitable for farming
 - in Southern Asia, only 20% of the land is arable
- analyze a table of statistics showing soil loss by continent. Briefly describe the spatial pattern shown.
- evaluate the validity of the following statement:
Soil is a plentiful resource.

Unit 3: Ecosystems

Sample Assessment Strategies

Students could, for example:

- examine photos of two soil profiles and explain which is more suited to agriculture (see teacher note 2).
- refer to a world ecosystems map and explain why each of the following patterns occur:
 - only 10% of northern and central Asia is used to support crops
 - in Europe, a fairly large share of the soil is suited to farming
- analyze a table of statistics to:
 - identify the two regions suffering most from desertification
 - explain why by referring to an ecosystems map (see teacher note 1)

Teacher Notes

- This activity should be very basic, since the linking of soil types to their ecosystems can be very complex. Select several of the more common soil types (e.g., the chernozem and latosol) that students will link to their ecosystems (e.g., temperate grassland and tropical rainforest). Refer students to Figure 6.8, page 102, and Figure 137, page 137. (2)
- The issue of desertification is extensively treated in the ST, pages 121-124. (1)
- Refer to the FAO forestry website <http://www.fao.org/forestry/index.jsp> - the section on desertification contains maps and graphs about trends in soils at risk.

Unit 3: Ecosystems

Outcomes

SCO 3.5: The student will be expected to recognize the need for humans to be sensitive to the fragile nature of ecosystems, including the following delineations:

- 3.5.1 Draw conclusions about possible short-term and long-term impacts of a threat to an ecosystem (a)
- 3.5.2 Anticipate actions needed to help ameliorate an environmental risk. (i)
- 3.5.3 Relate climatic zones to areas of environmental risk. (a)
- 3.5.4 Analyze value positions taken on environmental issues. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- analyze a case study of a traditional cultural group to determine how they successfully used the environment to meet their needs and wants (e.g., the Yanomamo of the Amazon rainforest).
- analyze a case study to determine how a given economic activity has disrupted fragile relationships in a particular ecosystem (e.g., the draining of wetlands for residential and agricultural use; acid rain as a result of industrial activity; deforestation as a result of farming and ranching; the removal of grass cover due to overgrazing).
- compare a world ecosystems map with a world map showing areas at risk of desertification. Identify the ecosystems where the threat of desertification is greatest and describe the underlying causes.
- analyze a case study to determine the extent, causes and effects of desertification.
- research and report on the goals, strategies, activities, and effectiveness of a humanitarian organization that has been involved in reducing the effects of drought on peoples in a desert ecosystem.
- analyze a map to develop a generalization about worldwide patterns related to environments naturally at risk.
- take a stand on the following position: Canada should be more concerned with solving its own economic problems rather than extending aid to peoples affected by a natural disaster.

Unit 3: Ecosystems

Sample Assessment Strategies

Students could, for example:

- examine a table of statistics on a negative ecological trend for a specific time period (e.g., rate of forest removal; decline in spawning biomass of a fish stock) and write a statement to show the pattern reflected (see teacher note 1).
- given a world map showing, by country, the percentage of plant species under threat of extinction, briefly describe the major patterns shown.
- through the use of case study material, analyze the position of selected groups toward the natural environment (e.g., environmentalists, industrialists, governmental officials, indigenous peoples). Identify the underlying values of the group. Briefly explain how your values compare with those of the group(s) on the position(s) taken (see teacher note 2).
- develop a position for or against a government official who argues that the economic use of the Amazon rainforest is strictly an economic resource for Brazilians to develop as they see fit.
- conduct research and write a report on the state of forests in the local area.

Teacher Notes

- Refer to ST, Exercise 4, page 117. (1)
- This assessment strategy lends itself to a cooperative group structure such as jigsaw. (2)

Economic Geography

Unit 4 - Primary Resource Activities

Unit 4 shifts the focus from physical geography to economic geography; more specifically to a study of how humans interact with land resources (i.e., farming and forestry) and ocean resources (i.e., oil recovery and fishing) to satisfy needs and wants. Students will also understand that culture and technology shape what is deemed to be a resource and that the use of resources varies from place to place but still reflects spatial patterns.

Unit 4: Primary Resource Activities

Outcomes

SCO 4.1: The student will be expected to demonstrate an understanding of what constitutes a resource, including the following delineations:

- 4.1.1 Describe the three conditions that determine if a natural material is potentially a resource. (k)
- 4.1.2 Demonstrate, with examples, how the use of a resource can be influenced by cultural practices. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- analyze a brief case study of a traditional culture and determine why a given natural material was not a resource according to the three conditions in 4.1.2.
- examine two photos (e.g., a scene showing bicycle traffic or animal transport in a developing country, and a scene showing heavy vehicular traffic in a developed country) and explain how developed societies compare with developing societies in terms of the consumption of resources.

Unit 4: Primary Resource Activities

Sample Assessment Strategies

Students could, for example:

- analyze a brief case study and explain why a change in the use of a given resource occurred (e.g., in southern Ontario, the growing of peanuts on land previously planted in tobacco - change in demand; the spread of residential lots on to farmland - profitability; the retrieval of offshore oil - technology) (see teacher note 1).

Teacher Notes

- To introduce this SCO, refer to TR Worksheet 8.1.
- The United Nations Food and Agriculture Organization provides a very comprehensive website (<http://www.fao.org>). The agriculture section is an excellent teacher resource. The structure of the site and the extensive range of topics may prove to be daunting for some students. Nonetheless, the statistics, annual reports, and issues treated provide interesting background material. Refer to the State of Food and Agriculture 2000 report. Also click on FactFile.
- Refer to ST, Exercise 5, page 134. (1)

Unit 4: Primary Resource Activities

Outcomes

SCO 4.2: *The student will be expected to demonstrate the application of the systems model to farming, including the following delineations:*

- 4.2.1 Define the terms inputs, processes, and outputs. (k)
- 4.2.2 Identify the natural inputs in a farming operation. (k)
- 4.2.3 Identify the human inputs in a farming operation. (k)
- 4.2.4 Analyze the processes in a farming operation. (a)
- 4.2.5 Relate farming processes to inputs. (a)
- 4.2.6 Relate the outputs in a farming operation to processes and inputs. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- given a list of farm features and farming activities, complete the following chart:

Inputs		Processes	Outputs
Physical	Human		

- given a case study of a farming operation, briefly describe (inputs)
 - the workers and their source
 - the kinds of tools and equipment used
 - the infrastructure
 - the capital invested in the operation
 - the types of seeds or young livestock used
 - the nature of the land
 - the quality of the soil
 - climatic conditions
- given a case study of a farming operation, briefly examine (processes)
 - the division of labour
 - the spatial movement of people and animals
 - how the crops are planted
 - irrigation and soil maintenance practices
 - the annual cycle of farming activities
 - how farming activities spatially arranged
- given a case study of a farming operation, briefly describe (outputs)
 - the kinds of products they obtain the operation for market
 - how they market these products

Unit 4: Primary Resource Activities

Sample Assessment Strategies

Students can, for example:

- given a list or pictures of farm features and farming activities, classify each one as an input, farm process, or output.
- compare two charts showing the annual cycle of activities for farms in different climatic zones. Explain why they differ.
- given a case study of agriculture (e.g., shifting cultivators of Borneo), briefly comment upon
 - climatic conditions
 - how the forest is cleared
 - why the soil is infertile
 - the tools used
 - types of crops grown
 - ratio of labour-to-land
 - marketing of products
 (see teacher note 1)
- interview a senior about subsistence farming in rural Newfoundland and Labrador (e.g., the growing of potatoes, raising of sheep). They should use the systems model to prepare a brief summary of their findings (see teacher note 2).

Teacher Notes

- The purpose of SCO 4.2 is for students to be able to apply the systems model to any farming operation.
- SCOs 4.2 and 4.4 may be taught together.
- The Farms Around the World website features visual and text information about a wide range of farming systems around the world. This material should be beneficial, particularly for World Geography 3200 students.
<http://ajwebs.com/elliott/>
- It is not necessary for students to recall specific detail from farming case studies in the student text. The case studies should be used as opportunities for students to apply the concepts promoted by the SCOs and the related delineations.
- Refer to the ST, Case Study, “Shifting Cultivation in Borneo,” pages 149-151. (1)
- Have students in a small group cooperative learning structure (e.g., Think-Pair-Share) compare their results and arrange a presentation. (2)

Unit 4: Primary Resource Activities

Outcomes

SCO 4.3: *The student will be expected to demonstrate an application of the systems model to off-shore oil and gas recovery, including the following delineations:*

- 4.3.1 Identify physical factors that influence the decision to recover offshore oil and gas. (k)
- 4.3.2 Identify human factors that influence the decision to recover offshore oil and gas. (k)
- 4.3.3 Relate the kinds of technology used to recover off-shore oil and gas to environmental conditions. (a)
- 4.3.4 Describe elements (e.g., work roles, shift rotations) of an off-shore oil recovery operation. (k)
- 4.3.5 Examine the economic importance of the off-shore oil industry. (a)
- 4.3.6 Examine factors that affect the viability of the off-shore oil and gas industry. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- given a list of features and activities related to off-shore oil and gas recovery, complete the following chart:

Inputs		Processes	Outputs
Physical	Human		

- given a case study of an off-shore oil or gas recovery operation that utilizes a gravity-based platform,
 - describe the location of the reserve
 - explain how the type of drilling platform used relates to the nature of the marine environment
 - describe some of the risks faced by off-shore oil and gas workers
 - describe activities associated with the recovery of the oil or gas
 - describe the method used to transport the oil or gas to the onshore site
 - identify the market for the oil or gas
- given information related to working conditions experienced by an on-shore worker and those experienced by an off-shore (for the same trade), account for the difference in wages and work-shift arrangements.
- given a case study about working conditions aboard an off-shore drilling platform, students can identify the conditions that would most attract them to work in the offshore oil industry.

Unit 4: Primary Resource Activities

Sample Assessment Strategies

Students could, for example:

- given diagrams illustrating the four types of off-shore drilling rigs (i.e., submersible, jack-up, semi-submersible anchored, and semi-submersible dynamically positioned), correctly identify each one and explain how they relate to the nature of the marine environment (see teacher note 1).
- given a case study of an off-shore oil or gas recovery operation that utilizes a semi-submersible anchored platform,
 - describe the location of the reserve
 - explain how the type of drilling platform used relates to the nature of the marine environment
 - describe some of the risks faced by off-shore oil and gas workers
 - describe activities associated with the recovery of the oil or gas
 - describe the method used to transport the oil or gas to the onshore site
 - identify the market for the oil or gas (see teacher note 2)
- prepare a questionnaire that could be used to interview a worker in the off-shore oil industry.

Teacher Notes

- SCOs 4.3 and 4.5 may be taught together.
- Refer to TR Worksheet 11.2 and to ST, Figure 11.4, page 187. (1)
- Refer to the ST, Hibernia case study, pages 187-191. (2)

Unit 4: Primary Resource Activities

Outcomes

SCO 4.4: The student will be expected to demonstrate an understanding of selected patterns in the distribution of selected types of farming including the following delineation:

- 4.4.1 Compare commercial farming and subsistence farming. (k)
- 4.4.2 Compare extensive farming and intensive farming. (k)
- 4.4.3 Define the terms shifting cultivation, agribusiness, and nomadic herding. (k)
- 4.4.4 Relate types of agriculture to climatic regions. (a)
- 4.4.5 Analyze a farming operation in terms of criteria related to commercial, subsistence, extensive, or intensive agriculture. (a)
- 4.4.6 Relate types of crops to selected climatic conditions. (a)
- 4.4.7 Examine patterns in the global distribution of types of agriculture. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- given a case study of a farm, classify the operation as commercial or subsistence, extensive or intensive. The classification must be supported with information from the case study (see teacher note 1).
- analyze a world map showing types of farming activities and a world ecosystems map to complete the following exercises:
 - briefly describe and explain the distribution of shifting agriculture
 - briefly describe and explain the distribution of cattle ranching (see teacher note 2)
- select a produce item that is imported from another country. They should explain why it is not possible to grow it in their local area.

Unit 4: Primary Resource Activities

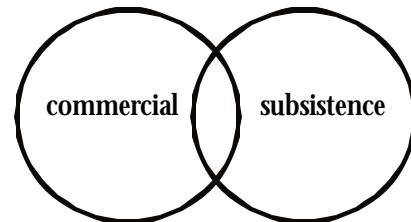
Sample Assessment Strategies

Students could, for example:

- analyze a world map showing types of farming activities and a world ecosystems map to complete the following exercises:
 - describe the conditions that areas of nomadic herding have in common
 - describe the conditions that explain why some areas have little or no agricultural activities
- given a map and a description of climatic conditions (e.g., number of frost-free days, temperature and rainfall conditions), indicate where a given crop may be grown and explain their choice.
- conduct an Internet search for an email contact for a farmer. Develop a brief questionnaire about the farming operation for the farmer to complete.

Teacher Notes

- For a simple collaborative strategy about types of agriculture, refer to TR, Triad Presentations, pages 98-99. (1)
- ST, Case Study: Rice Farming in Bangladesh, pages 147-149, and ST, Case Study: Shifting Farming in Borneo, pages 149-151 are examples of intensive and subsistence farming. (1)
- ST, Case Study: Plantation Farming in Hawaii, pages 152-153; ST, Case Study: Wheat Farming in Ukraine, pages 153-156; and ST, Case Study: An Agribusiness in the Philippines, pages 156-157 are examples of extensive and commercial farming. (1)
- Refer to ST, Figure 9.13, page 157.
- It should be noted that an intensive farming operation can also be commercial.
- Delineations 4.4.1 and 4.4.2 may be taught through the use of Venn diagrams. For example,



Unit 4: Primary Resource Activities

Outcomes

SCO 4.5: The student will be expected to analyze patterns in the location of off-shore oil reserves, including the following delineations:

- 4.5.1 Explain how oil and gas are formed. (k)
- 4.5.2 Describe the techniques used to locate oil and gas reserves. (k)
- 4.5.3 Analyze patterns to arrive at patterns in the distribution of proven off-shore oil and gas reserves. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- given a diagram, describe the formation of oil and gas (see teacher note 1).
- given a world map, identify the primary off-shore areas with proven oil and gas reserves.

Unit 4: Primary Resource Activities

Sample Assessment Strategies

Students could, for example:

- using a map showing the oil regions of the world, identify the areas that pose the greatest risk in the recovery of oil and gas. Select one area and explain why.

Teacher Notes

- Refer to ST, Figure 11.1, page 183.
- Refer to the International Energy Association website (<http://www.iea.org>) and follow the links to the report, World Energy Outlook 2000.

Unit 4: Primary Resource Activities

Outcomes

SCO 4.6: The student will be expected to analyze trends and related issues in the utilization of forest resources, including the following delineations:

- 4.6.1 Compare the terms clear-cutting and selective cutting. (k)
- 4.6.2 Compare the advantages and disadvantages of each approach to the harvesting of timber. (k)
- 4.6.3 Examine major threats to forest resources. (a)
- 4.6.4 Examine strategies for a sustainable forestry. (a)
- 4.6.5 Evaluate a position taken on a given argument about timber harvesting. (i)
- 4.6.6 Infer a relationship between climate and the extent of forest cover. (a)
- 4.6.7 Analyze global patterns in the depletion of forest resources. (a)

Sample Learning/Teaching Strategies

- analyze a case study of a tree harvesting operation in a needleleaf ecosystem or an operation in an equatorial rainforest ecosystem:
 - determine if clear-cutting or selective cutting is used
 - determine if the operation is labour-intensive or capital-intensive
 - identify the market for and uses made of the harvested timber
 - identify factors that are difficult for the owner of the operation to control
 - describe the forest management practices that the operation engages in
- conduct research and write a brief report on an alternative use of the forest resource (e.g., recreational use, medical research).
- compare a line graph showing trends in global forest depletion (1950-2025) and one showing trends in the demand for agricultural land (1950-2025). Describe the relationship in the trends shown.
- examine a case study of a past issue in the forest industry (e.g., Native group opposition to forestry in South Moresby, or in northern Ontario; opposition to the aerial spraying of insecticides):
 - identify the problem
 - describe the positions taken by each side
 - explain the reasons for the opposing positions
 - explain how the issue has been resolved (or why it has not been resolved)
- analyze a table of statistics showing, by continent, the percentage of land surface covered in forest. Describe the pattern shown.

Unit 4: Primary Resource Activities

Sample Assessment Strategies

- analyze a case study of a tree-farming operation and describe
 - the climatic conditions
 - the annual cycle of activities
 - the equipment used
 - measures taken to control insects and weeds
 - how the trees are harvested and marketed
- describe major natural and human-made threats to the forest resource.
- select a continent with a low percentage of its land area covered in forest. Examine a world climate map and identify one factor that contributes to this problem.
- examine a world map showing trends in deforestation:
 - identify areas where the rainforest is expected to vanish within 50 years
 - identify areas where the rainforest is expected to be seriously diminished
- assume the role of a government official assigned to promote sustainable forestry. Outline possible strategies to achieve this goal.
- identify an environmental issue in a newspaper article, letter to the editor, or any other source that centers around conflicting positions of industry and environmentalists on the use of the forest resource. Describe what the conflict is about and determine the values underlying both positions. Select a position and evaluate its validity.

Teacher Notes

- For Delineation 4.6.5, have the World Geography 3200 students draw very simple conclusions about the value position of a timber harvester and compare them to those of an environmentalist. For World Geography 3202 students, teachers may wish to have them elaborate on why different stakeholders will have very different positions.
- Refer to the FAO forestry website <http://www.fao.org/forestry/index.jsp> - the section on desertification contains maps and graphs about trends in forest cover. The section on biodiversity contains the report, State of the World's Forests 2003.

Unit 4: Primary Resource Activities

Outcomes

SCO 4.7: *The student will be expected to explore issues related to the management of the fish resource, including the following delineations:*

- 4.7.1 Examine impacts on a marine ecosystem. (a)
- 4.7.2 Examine trends in fish catches over an extended period. (a)
- 4.7.3 Develop an argument for the development of the aquacultural sector of the fishery. (i)
- 4.7.4 Identify major sources of ocean pollution. (k)
- 4.7.5 Examine the impact of new catch technology on the ocean environment. (a)
- 4.7.6 Develop strategies for a sustainable fishery. (i)
- 4.7.7 Predict possible effects of a declining fish resource on the livelihood of fishers. (i)

Sample Learning/Teaching Strategies

- given statistics about the estimated bio-mass levels of the world's major fishing grounds, draw a bar graph to represent the data. Briefly describe the pattern shown (see teacher note 1).
- describe why a new technology (e.g., the freezer factory trawler) was introduced. They should determine whether its introduction also had negative effects on the ocean environment.
- given a case study of an international boundaries dispute (e.g., Canada-U.S. Georges Bank, Canada-France St. Pierre and Miquelon bank), describe
 - what the dispute is (was) about
 - factors which make (made) the issue difficult to resolve
 - present status of the dispute
 - impact on those involved in the fishery
- assume the role of a television reporter who is to investigate the impact of a declining fish resource upon a fisher person. They could develop a list of issues they wish to explore and related questions they would ask.
- examine case study material about an aquacultural operation. Identify information that may be used to support the argument that aquaculture should be expanded.

Unit 4: Primary Resource Activities

Sample Assessment Strategies

- conduct research on a practice that is a threat to a fish resource (e.g., use of trawlers, drift netting). They should develop a brief report
 - identifying the countries involved
 - the species threatened
 - attempts by environmental organizations to change the practice
 - the prospects for satisfactorily resolving the issue (see teacher note 2)
- draw a cartoon to depict some aspect of either a cause or effect of the decline in the cod fishery off Canada's east coast.
- assume the role of a minister of fisheries for a province or state that is experiencing declining fish stocks. They could develop a list of strategies that they wish to present to government to help ensure a sustainable harvest.

Teacher Notes

- Refer to the FAO website (<http://www.fao.org>). Follow the links to the fisheries section for the State of the World Fisheries and Aquaculture 2000 report.
- NOAA has an excellent website containing a fisheries section. <http://www.noaa.gov>
- Refer to ST, Figure 12.7, page 203. (1)
- Refer to ST, Exercises 11, and 12(b), page 208. (2)

Economic Geography

Unit 5 - Secondary and Tertiary Activities

Unit 5 gives the student insight into selected secondary activities in which humans engage as they transform raw materials, provided by primary activities, to more finished forms. Manufacturing utilizes capital and labour inputs to move materials through a series of processes until a higher-value added product is obtained. Services involve the “manufacturing” of intangible goods or services for human use. Students are encouraged to examine the importance of the secondary and tertiary sectors and factors that help to account for their location.

Unit 5: Secondary and Tertiary Activities

Outcomes

SCO 5.1: The student will be expected to demonstrate an understanding of what manufacturing entails, including the following delineations:

- 5.1.1 Identify natural and human inputs in a manufacturing operation. (k)
- 5.1.2 Analyze the processes in a manufacturing operation. (a)
- 5.1.3 Describe the three processes that may be used to change a raw material into a useable form. (k)

Sample Learning/Teaching Strategies

Teachers can have students

- examine a case study of a factory to describe the components of a manufacturing operation.

Inputs		Manufacturing Processes	Outputs
Physical	Human		

- using data provided in the case study above, compare the value of outputs to the value of inputs. Explain why this comparison is an important one for the manufacturer.
- identify components in the systems model, based on the case study, which are difficult for the manufacturer to control.

Unit 5: Secondary and Tertiary Activities

Sample Assessment Strategies

Students could, for example:

- research a local factory or one featured in a magazine or newspaper. They should construct a flow chart to show the relationship among the inputs, manufacturing processes, and outputs (see teacher note 1).
- develop a poster display to describe a local factory and illustrate the operation with photos.

Teacher Notes

- Students may be assigned the task of flowcharting the information in ST, Figure 13.4, page 221. (1)

Unit 5: Secondary and Tertiary Activities

Outcomes

SCO 5.2: The student will be expected to differentiate among types of manufacturing activity, including the following delineations:

- 5.2.1 Define the terms labour-intensive and capital-intensive. (k)
- 5.2.2 Analyze a manufacturing operation to determine if it is labour-intensive or capital-intensive. (a)
- 5.2.3 Define the terms light industry and heavy industry. (k)
- 5.2.4 Analyze a manufacturing operation to determine if it is an example of light-industry or heavy-industry. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- examine a case study of a manufacturing operation. They should describe characteristics that help to classify it as either light industry or heavy industry (see teacher note 1).
- classify the manufacturing operation profiled above as either labour-intensive or capital-intensive. They should defend the choice.

Unit 5: Secondary and Tertiary Activities

Sample Assessment Strategies

Students can, for example:

- given short descriptions of a series of manufacturing operations, and classify each as either labour-intensive or capital intensive (see teacher note 1).
- examine a series of photos of manufacturing operations, and classify each as either light industry or heavy industry.

Teacher Notes

- Refer students to ST, “Case Study: Manufacturing Wrigley’s Gum,” page 219; and “Case Study: Making Steel World Wide,” pages 221-223. (1)

Unit 5: Secondary and Tertiary Activities

Outcomes

SCO 5.3: The student will be expected to determine the factors that influence the location of an industry, including the following delineations:

- 5.3.1 Examine the influence that site conditions and situation may have on the location of an industry. (a)
- 5.3.2 Compare the terms resource-oriented industry and market-oriented industry. (k)
- 5.3.3 Analyze the influence of weight-gain and weight-loss production on the location of an industry. (a)
- 5.3.4 Describe the advantages of the agglomerating tendency. (k)
- 5.3.5 Identify the characteristics of a labour force that make it attractive to industry. (k)
- 5.3.6 Explain how government subsidies on transportation influence the location of a given industry. (k)
- 5.3.7 Draw conclusions about patterns in the distribution of highly industrialized areas on the earth's surface. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- given (1) a map showing the location of a resource (e.g., wood) and the market for a product (e.g., paper) manufactured from this resource, and (2) transportation costs, determine whether the factory should be located near the resource or near the market.
- given (1) a map showing the location of a resource (e.g., drink concentrate) and the market for a product (e.g., soft drinks) manufactured from this resource, and (2) transportation costs, determine whether the factory should be located near the resource or near the market.
- given the findings in the above two scenarios, write a statement to describe where to locate (1) an industry that produces weight-loss products, and (2) one that produces weight-gain products.
- develop a brief article for a manufacturers' magazine outlining the advantages of the local community for a given industry.
- given a map showing the most industrialized areas of the world, briefly describe the pattern shown.

Unit 5: Secondary and Tertiary Activities

Sample Assessment Strategies

Students could, for example:

- given a brief description of manufacturing operations and their locations, match each description with a location diagram (see teacher note 1).
- given a case study of an industrial activity, extrapolate factors that account for its location.

Teacher Notes

- To introduce the concept of agglomeration (for delineation 5.3.5 and 5.3.6), refer to examples in the local area. If no references to industry can be made, refer to the service industry; for example, ask students to think about why it is advantageous for a fast-food restaurant to be located in or near a pedestrian mall.
- Refer to ST, Exercise 16, page 227. (1)

Unit 5: Secondary and Tertiary Activities

Outcomes

SCO 5.4: The student will be expected to examine environmental issues related to industrial activity, including the following delineations:

- 5.4.1 Analyze the roles of stakeholders in the face of an environmental threat. (a)
- 5.4.2 Relate the location of areas at risk to the location of major industrialized areas. (a)
- 5.4.3 Anticipate the kinds of actions that should be taken to avert an environmental threat posed by an industry. (i)
- 5.4.4 Defend selected social/moral issues associated with manufacturing operations. (i)

Sample Learning/Teaching Strategies

Teachers can have students

- analyze a case study for an industrial operation that has a poor environmental record:
 - identify the kind of environmental threat it poses
 - determine the underlying causes of this threat
 - describe the responses of interest groups to the hazard
 - describe the reaction of industry and government to interest groups
- suggest alternative actions that may be taken to reduce or eliminate the environmental threat described in the case study above.
- analyze a case study of a closure of a factory:
 - factors underlying the closure
 - the human impact of the closure
- given a map showing the effect of a doubling of carbon dioxide in the atmosphere, describe the likely effect on
 - the production of wheat
 - the distribution of equatorial rainforests
 - the distribution of desert areas
- given a map showing the chlorofluorocarbon (CFC) emissions per person per year, evaluate the validity of the following statement:
- “Industrialized countries are the main culprits in the depletion of the ozone layer.”

Unit 5: Secondary and Tertiary Activities

Sample Assessment Strategies

Students could, for example:

- analyze a world map showing areas with high acid rain levels and a map identifying industrialized areas. They should describe the relationship between acid rain levels and the degree of industrialization.
- evaluate the validity of the following statement:
“An industry should be shut down if it poses any degree of risk to the environment.”
- examine a case study about an operation that employs child labour. They should develop a stand either for or against the practice. Student should show their arguments in a letter to the editor of the local newspaper (see teacher note 1).

Teacher Notes

- Refer to the World Bank website (<http://www.worldbank.org/data/>) and then click on “Data by Topic” and then scroll to “Environment.”
- Refer to the Free the Children website (<http://www.freethechildren.org/>)
The stories of real child labourers are featured. (1)
- Refer to ST, “Case Study: When Children Do Not Play,” pages 235-236. (1)

Unit 5: Secondary and Tertiary Activities

Outcomes

SCO 5.5: The student will be expected to describe types of tertiary activities, including the following delineations:

- 5.5.1 Define the term tertiary activity. (k)
- 5.5.2 Identify the four categories of service activities. (k)
- 5.5.3 Contrast private tertiary activity and public tertiary activity. (k)
- 5.5.4 Define the term quaternary activity. (k)

Sample Learning/Teaching Strategies

Teachers can have students

- examine a case study of a tertiary activity (e.g., tourism) to determine:
 - the factors that account for the location of the activity
 - the importance of the activity to the local economy
 - examples of the agglomerating tendency
 - other world sites with which it has to compete
 - factors which threaten the viability of this activity
- examine a graph to explain how distance affects demand for a service (see teacher note x).

Unit 5: Secondary and Tertiary Activities

Sample Assessment Strategies

Students could, for example:

- examine a telephone directory and cite examples of tertiary activity according to the categories in item 5.5.2.
- conduct research to identify a place that is strongly associated with a certain tertiary activity (e.g., Rome as a religious site). They should write a report to account for its location and economic importance.

Teacher Notes

- To begin this SCO, you may wish to have students to talk about the location of tertiary activities (e.g., a coffee shop, a law office) in the local community and find evidence for the agglomerating tendency.

Unit 5: Secondary and Tertiary Activities

Outcomes

SCO 5.6: The student will be expected to analyze patterns in the location of selected tertiary and quaternary activities, including the following delineations:

- 5.6.1 Examine factors that affect the location of a tertiary activity. (a)
- 5.6.2 Examine factors that affect the location of a quaternary activity. (a)
- 5.6.3 Analyze factors that account for patterns in world trade for a selected commodity. (a)
- 5.6.4 Analyze factors that account for patterns in mass communications. (a)
- 5.6.5 Examine how mass communications can affect the location of a workplace. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- examine a case study of a quaternary activity (e.g., a call centre) to determine
 - the factors that account for the location of the activity
 - the importance of the activity to the local economy
 - other world sites with which it has to compete
 - factors which threaten the viability of this activity (see teacher note 1)
- analyze a case study to examine the economic importance of information-based technology.
- conduct a survey in the local community to gain an indication of the percentage of people employed in primary, secondary tertiary, and quaternary sectors. They should briefly describe the pattern shown by the research.
- examine a graph to explain how distance affects demand for a service (see teacher note 2).

Unit 5: Secondary and Tertiary Activities

Sample Assessment Strategies

Students could, for example:

- Examine a telephone directory and cite examples of tertiary activity according to the categories in item 5.5.2.
- Select an occupation in the quaternary sector that they may wish to consider as a career choice. They should describe aspects of the job that appeal to you.

Teacher Notes

- Explain to students that service industries make up the tertiary sector as described in the ST, pages 240-241. Since the high-technology and information-based industries have gained such economic importance, some economists and geographers use the term “quaternary” as a sub-category of the tertiary sector. For SCOs 5.6 and 5.7, refer to ST, 249-251 and 293-296.
- Refer to ST, Exercises 15, 16 and 17, page 248. (1)
- Refer to ST, Figure 14.5, page 244, and TR Worksheet 14.1 (Location of Tertiary Activities). (2)

Unit 5: Secondary and Tertiary Activities

Outcomes

SCO 5.7: The student will be expected to analyze trends and issues in the tertiary and quaternary sectors, including the following delineations:

- 5.7.1 Describe the economic importance of the tertiary sector. (k)
- 5.7.2 Analyze issues that affect the viability of a tertiary activity. (a)
- 5.7.3 Describe the economic importance of the quaternary sector. (k)
- 5.7.4 Examine factors that affect the growth of the quaternary sector. (a)
- 5.7.5 Evaluate the social and economic impact of developments in the quaternary sector. (i)

Sample Learning/Teaching Strategies

Teachers can have students

- ask students to conduct a survey of the occupations of parents/care givers of other students in the school. Determine the percentage share of jobs related to the tertiary and quaternary sector.
- conduct research to examine factors that give rise to “telecommuting”. Write a report to describe this trend (see teacher note 1).

Unit 5: Secondary and Tertiary Activities

Sample Assessment Strategies

Students could, for example:

- given a scenario describing a communications need, sketch an information journey chain and describe the impact of an email connection (see teacher note 1).
- compare a map showing the location of industrial regions with a map showing international communications traffic. Describe the similarities in the two patterns (see teacher note 2).
- assess the validity of the following statement:
“The world is becoming a smaller place.”

Teacher Notes

- Refer to Exercise 16, page 294. (1)
- Refer to Figures 13.6 and 17.11. Figure 13.12 may also be used in this activity. (2)

Unit 5: Secondary and Tertiary Activities

Outcomes

SCO 5.8: *The student will be expected to use a specific indicator to measure standard of living including the following delineations:*

- 5.8.1 Define the term gross national product (GNP). (k)
- 5.8.2 Define the term per capita GNP. (k)
- 5.8.3 Relate per capita GNP to level of economic development. (a)
- 5.8.4 Relate employment structures to levels of economic development. (a)
- 5.8.5 Explain why it is beneficial to use more than one indicator when describing the standard of living of a country. (k)
- 5.8.6 Relate selected social and economic indicators to level of economic development. (a)
- 5.8.7 Analyze patterns in the distribution of selected socio-economic indicators with the patterns in the distribution of developed or developing countries. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- test the following hypothesis:

As a nation becomes wealthier, the percentage employed in agriculture decreases. The following steps may be used:

 - examine a table indicating, for selected countries, the per capita GNP and the percentage employed in the primary sector
 - plot the values on a graph and describe the extent to which the hypothesis is supported (see teacher note 1)
- examine a table showing, the employment structure for selected countries at different levels of development. They should briefly describe the relationship between:
 - the level of development and the percentage employed in the secondary sector
 - the level of development and the percentage employed in the tertiary sector (see teacher note 2)
- support their agreement or disagreement with the following statement:

“A high per capita GNP figure indicates that all of the people in that country enjoy a high standard of living.”
- examine a world map showing the average number of calories available as a percentage of the calories needed. Identify:
 - two continents where there is an adequate supply of calories
 - the continent experiencing the most severe calorie shortfall (see teacher note 4)

Unit 5: Secondary and Tertiary Activities

Sample Assessment Strategies

Students could, for example:

- given a world map indicating the per capita GNP for each country, determine the per capita GNP for each country in the chart below.

Country	Per Capita GNP
Developed:	
Canada	
Sweden	
United States	
Developing:	
Argentina	
Mexico	
Spain	
Least developed:	
Bangladesh	
India	
Kenya	

Briefly describe the relationship between per capita GNP and level of economic development (see teacher note 3).

- analyze a world map showing the per capita GNP for each country and evaluate the validity of each of the following statements:
 - *“The continent of Africa has the greatest concentration of countries with a low standard of living.”*
 - *“The most highly developed countries in the world are concentrated in Europe and North America.”*
 - *“The least developed countries are mostly found in regions with hot climates”* (see teacher note 3).
- given a table indicating, for six countries, the number of newspapers per 10 000 people and the number of televisions per 10 000 people, determine the two countries that are likely to be developed, and the two which are likely to be least developed.

Teacher Notes

- Refer to Figure 13.11, page 231. (1)
- Refer to Figures 13.11 and 13.12, page 231. (2)
- Refer to Figure 13.12, page 231. (3)
- For a map on caloric intake, refer to http://www.fc.bus.emory.edu/~john_uda/agriculture/ and follow the link to GDP-Caloric Intake Correlation, then to Exhibit 2. (4)

Population Geography

Unit 6 - Population Distribution and Growth

Unit 6 draws students' attention to the importance of population studies. The distribution of people over the earth's surface reflects the characteristics (e.g., climate, physical features, ecosystems) of different regions. As well, population growth and structures are related to the level of economic development of a country or region.

Unit 6: Population Distribution and Growth

Outcomes

SCO 6.1: The student will be expected to examine factors that account for the distribution of population on the earth's surface, including the following delineations:

- 6.1.1 Define the terms population density, densely populated, and sparsely populated. (k)
- 6.1.2 Explain why population density is not always an accurate indicator of population distribution. (k)
- 6.1.3 Examine patterns in the distribution of population on the earth's surface. (a)
- 6.1.4 Analyze the impact of selected factors on the population distribution of a given region. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- given a world population map, identify the three primary concentrations of high population density (see teacher note 1).
- identify global areas of low population density.
- given a world population map and a world landforms map, relate world population distribution to landform patterns.
- given a world population map and a world climate map, explain how world population distribution is affected by patterns in climate.

Unit 6: Population Distribution and Growth

Sample Assessment Strategies

Students could, for example:

- given the necessary data, calculate the population density for a given country.
- given the necessary statistics, construct a pie chart to illustrate each continent's share of the world's total population. Student should briefly describe the pattern shown (see teacher note 2).
- read a case study and account for the distribution of population in Newfoundland and Labrador. (see teacher note 3).
- given a world population map and a world climate map, explain how world patterns in climate help to explain why there are regions with very low population densities (see teacher note 4).

Teacher Notes

- Help World Geography 3200 students develop very basic patterns about population distribution; e.g., arid areas are not heavily populated; Western Europe, eastern north America, and southeast Asia are highly populated.
- In the About Geography website (<http://geography.about.com/science/geography/>), there is an article archive containing over 200 articles on 11 subjects. Under the subject, Census and Population, there are articles on age-sex pyramids, doubling time and population growth, population density, and world population growth.
- Again refer to Geography World website (Population section) as you teach Unit 6. The following sites also provide a wealth of information (e.g., statistics, maps)
<http://www.geographic.org>
<http://www.prb.org>
- The Statistics Canada website has a section "Teaching Resources" that includes lesson plans for the teaching of selected topics on population.
(<http://www.statcan.ca/english/edu/teachers.htm>)
- Refer to the NASA site (<http://visibleearth.nasa.gov/>) Follow the links to "Human Dimensions" and then to "Population" for a night view of the earth. The population concentrations show up as lighted areas. (1)
- Refer to ST, Exercise 3, page 302. (2)
- Refer to case study provided in ST, pages 303-304. (3)
- Refer to ST, Figure 18.5, page 305 and Figure 5.1, page 75. (4)

Unit 6: Population Distribution and Growth

Outcomes

SCO 6.2: The student will be expected to detect temporal and spatial trends in population growth, including the following delineations:

- 6.2.1 Compare the terms absolute population growth and population growth rate. (k)
- 6.2.2 Examine trends in the size and growth rate of the population of a selected region. (a)
- 6.2.3 Given relevant data, classify a country according to the demographic transition model. (a)
- 6.2.4 Classify a population growth rate as slow-, moderate-, or fast-growing populations. (a)
- 6.2.5 Relate a country's rate of population growth to its socio-economic conditions. (a)
- 6.2.6 Describe some of the problems that result from overpopulation. (k)
- 6.2.7 Defend one's views about the efficacy of controlling population growth. (i)

Sample Learning/Teaching Strategies

Teachers can have students

- given the necessary statistics, determine the number of years it took for each one billion increase in world population. Briefly describe the pattern shown.
- use a world map showing rate of population increase to determine areas of slow, moderate, and fast growing populations (see teacher note 1).
- use a table showing population growth rates for selected developed and developing countries, write a generalization about the relationship between population growth rates and standard of living.
- briefly describe the economic and social conditions that may result in a near zero population growth in a developed country (e.g., Sweden).

Unit 6: Population Distribution and Growth

Sample Assessment Strategies

Students can, for example:

- given a line graph, describe the change in population over the last three centuries in terms of (1) size and (2) rate of growth (see teacher note 2).
- analyze a table of statistics to identify countries with slow-, moderate-, and fast-growing population rates (see teacher note 3).
- the government of a developing country has decided to take measures to limit population growth. Write a letter to the editor of a newspaper stating their views on this decision.
- briefly describe issues around the need to control population (see teacher note 4).

Teacher Notes

- Refer to ST, Figure 18.8, page 308. (1)
- Check the “Population and People – Games and Quizzes” section of the Geography World website for a “Jeopardy” type game on the population theme.
- Refer to Exercise 10, page 306. (2)
- Refer to Exercise 12, page 307. (3)
- Refer to TR Video Activity, pages 194-195. (4)

Unit 6: Population Distribution and Growth

Outcomes

SCO 6.3: The student will be expected to analyze the dynamics of changing populations, including the following delineations:

- 6.3.1 Define the terms natural change, natural increase, and natural decrease. (k)
- 6.3.2 Express population change in mathematical terms. (a)
- 6.3.3 Classify a given population as expanding, contracting, or stationary. (a)
- 6.3.4 Examine the relationship between birth rate and death rates to determine natural change in a population. (a)
- 6.3.5 Analyze factors that affect birth rates. (a)
- 6.3.6 Analyze factors that affect death rates. (a)
- 6.3.7 Define the term dependency ratio. (k)
- 6.3.8 Given population data, calculate dependency ratios. (a)
- 6.3.9 Describe the factors that contribute to a graying of the population. (k)
- 6.3.10 Project future population trends from data provided. (i)

Sample Learning/Teaching Strategies

Teachers can have students

- develop a formula for calculating birth rate.
- develop a formula for calculating death rate.
- analyze a case study to extrapolate social and economic factors that affect birth rates.
- analyze a case study to extrapolate social and economic factors that affect death rates.
- use statistics to determine the relationship between the wealth of a country (e.g., per capita GNP) and its rate of population growth.
- given a population pyramid, classify the population it represents as expanding, contracting, or stationary.
- analyze a population pyramid to describe the percentage share of the total population by gender and selected age groups.
- compare the population pyramids of selected countries and account for their differences.

Unit 6: Population Distribution and Growth

Sample Assessment Strategies

Students could, for example:

- given the necessary data, calculate the natural change in the population of a country (see teacher note 1).
- given the necessary data, calculate the birth rate for a given country.
- given the necessary data, calculate the death rate for a given country.
- use population statistics for a given country to construct a population pyramid. They could classify it as expanding, contracting or stationary (see teacher note 2).
- conduct research on the impact of disease for a selected country. They could write a brief report to describe the conditions that led to its spread, age groups most affected, challenges in eradicating the disease, and the economic and social impact on the country.
- examine the economic implications of a graying of the population.

Teacher Notes

- Refer to Exercise 18, page 311. (1)
- Refer to Figure 19.13, page 335. The U.S. Census Bureau provides population data for every country by 5-year intervals and by gender that the teacher can provide students as they complete this exercise. The data is also displayed as a population pyramid that the teacher can use to check the work of the student. Refer to the following site: (2)
<http://www.census.gov/>
Also refer to About Geography website.
- For a role-play activity on overpopulation, refer to TR, page 195.

Unit 6: Population Distribution and Growth

Outcomes

SCO 6.4: The student will be expected to determine the effect of migration on population size, including the following delineations:

- 6.4.1 Define the terms migration, immigration, and emigration. (k)
- 6.4.2 Define the term actual population change. (k)
- 6.4.3 Express the actual change in population in mathematical terms. (a)
- 6.4.4 Examine the relationship among birth rate, death rate, emigration and immigration to determine the actual change in a population. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- given a statement that describes the relationship between actual change, migration and natural change, develop a formula to show these relationships.
- use statistics on births, deaths, immigrants, and emigrants to calculate the actual change in the population of a given country.

Unit 6: Population Distribution and Growth

Sample Assessment Strategies

Students could, for example:

- Analyze statistics to develop generalizations about source areas for immigrants to Canada for a given time period (see teacher note 1).

Teacher Notes

- For Delineation 6.4.4, a useful analogy to use with students is water flow in and out of a bathtub. Just as the two faucets increase the water level, births and immigration tend to increase population size. Just as the drain and overflow outlets serve to reduce the water level in a bathtub, emigration and deaths tend to reduce the population size. You can give them different scenarios and ask them to predict the probable results. For example, if the death rate and immigration rates are about the same and birth rates are greater than emigration rates, what will happen to the size of the population.
- Refer to Exercise 8, page 330. The teacher can update Figure 19.7 by referring to the Statistics Canada site (<http://www.statcan.ca/english/Pgdb/People/popula.htm>). Click on “Immigrant Population”. (1)

Unit 6: Population Distribution and Growth

Outcomes

SCO 6.5: The student will be expected to examine conditions that result in migration, including the following delineations:

- 6.5.1 Define the terms push factor, pull factor, repel factor, and intervening obstacle. (k)
- 6.5.2 Examine the dynamics related to an individual's decision to migrate. (a)
- 6.5.3 Determine the major source areas for international migrants. (a)
- 6.5.4 Use population data to make a demographic argument for the admission of migrants to a country. (a)
- 6.5.5 Describe the economic impacts of immigration and emigration. (k)
- 6.5.6 Support a position taken on an issue related to immigration. (i)

Sample Learning/Teaching Strategies

Teachers can have students

- interpret a model that accounts for the decision to migrate (see teacher note 1).
- analyze a case study to determine the factors that account for an individual's decision to migrate.
- use a world map of source areas of migrants and relate migration to economic, political, and environmental conditions.
- list the classes of immigrants as outlined in Canada's immigration policy and describe the conditions for each.
- adopt and defend a position on the following statement:

Canada should take an open-door approach to immigration.

Unit 6: Population Distribution and Growth

Sample Assessment Strategies

Students could, for example:

- analyze a table of statistics to identify the main factors that account for the decision of migrants to leave a selected country and come to Canada (see teacher note 2).
- summarize a newspaper article that relates to a situation where an ethnic group was forced to migrate. They should describe the feelings that the account evoked as they read it.
- write an editorial expressing your views about reducing the rate of immigration to Canada.
- obtain an e-mail contact for a person who has moved out of your area to live in another province or country. They should find out why he or she left your area (push and pull factors). Student should compare their results with those of several other classmates and identify common factors that account for out-migration.

Teacher Notes

- Refer to ST, Figure 19.3, page 325. (1)
- Refer to ST, Figure 19.2, page 324. (2)

Unit 6: Population Distribution and Growth

Outcomes

SCO 6.6: The student will be expected to appreciate the importance of population studies, including the following delineations:

- 6.6.1 Define the term census. (k)
- 6.6.2 Defend a position on issues related to population dynamics. (i)
- 6.6.3 Assess the usefulness of census data for a stated purpose. (i)

Sample Learning/Teaching Strategies

Teachers can have students

- become familiar with the categories of information contained in the census compiled by Statistics Canada. They could assume a planning role for establishing a business (e.g., a toy store; a seniors' clothing store). Student should determine the usefulness of census data for the type of business selected.

Unit 6: Population Distribution and Growth

Sample Assessment Strategies

Students could, for example:

- Assume the role of an entrepreneur who plans to open a sports equipment business. They should explain how census data will help in the decision.

Teacher Notes

- For delineation 6.6.3, ask students to assume the role of a government official who has to decide whether an aging school should be replaced. Have students identify the population trends that should be examined.

Urban Geography

Unit 7 - Settlement and Urbanization

Unit 7 is a logical extension of the population theme. In their analysis of the distribution of people on the earth's surface, students became aware that some areas are heavily populated. Some cities have populations that are larger than that of some countries. In this unit, students will examine factors that help to account for the location and growth of communities, the internal structure of communities, and patterns in the distribution of cities on the earth's surface.

Unit 7: Settlement and Urbanization

Outcomes

SCO 7.1: The student will be expected to examine differences between rural and urban areas, including the following delineations:

- 7.1.1 Define the terms rural and urban. (k)
- 7.1.2 Contrast a low density area and a high density area. (k)
- 7.1.3 Examine factors that contribute to a high density urban area. (a)
- 7.1.4 Classify a good or service as low-, intermediate-, or high-order. (a)
- 7.1.5 Relate services available in a settlement to its population size. (a)
- 7.1.6 Evaluate the appeal of a low density area as a place to live. (i)

Sample Learning/Teaching Strategies

Teachers can have students

- given a series of photos of settlements, categorize each according to whether it is a high density area or a low density area.
- given the population and types of services for ten settlements, graph the data to show the relationship between population size and the number of services available. They should briefly describe the pattern shown.
- write a paragraph to compare a rural settlement with an urban settlement.
- take a stand on the following position:
“Any grouping of people may be described as a settlement.”

Unit 7: Settlement and Urbanization

Sample Assessment Strategies

Students could, for example:

- given a table of population statistics for selected settlements, determine which settlements are rural centres and which are urban centres (see teacher note 1).
- given a list of services required to meet a wide range of needs and wants, determine whether a given service is likely to be found in a rural community or in a city.

Teacher Notes

- Refer to World bank website for data on urbanization: (<http://www.worldbank.org/>) Do a search on the term urbanization.
- Refer to NASA website (<http://visibleearth.nasa.gov/>) and select “Human Dimensions” then “Environmental Impacts” and then “Urbanization” for high altitude images of selected cities.
- Refer to ST, Exercise 1, page 343. (1)

Unit 7: Settlement and Urbanization

Outcomes

SCO 7.2: The student will be expected to recognize the different shapes that settlements may take, including the following delineations:

- 7.2.1 Define the terms compact, loose-knit, and linear. (k)
- 7.2.2 Classify the shapes of given settlements. (a)
- 7.2.3 Examine how selected factors, such as physical features and transportation links, account for the shape of selected settlements. (a)
- 7.2.4 Relate settlement shape to a land use activity. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- draw simple sketches and briefly describe the four types of linear settlements, namely straight line, circular, Y-shaped, and T-shaped.
- analyze a case study for a selected settlement to extrapolate the physical, social, and economic factors that help to account for its shape.
- classify the shape of the local community and describe the factors that helped its shape to evolve.

Unit 7: Settlement and Urbanization

Sample Assessment Strategies

Students can, for example:

- given a series of air photos or maps of settlements, categorize each settlement by shape.
 - compact
 - loose-knit
 - straight-line
 - Y-shaped
 - circular
 - T-shaped
 - composite
- examine how land use affected the shape of the local community (see teacher note 1).

Teacher Notes

- The morphology of Newfoundland outports were largely shaped by both physical features and the economic dependence upon the fishery. (1)

Unit 7: Settlement and Urbanization

Outcomes

SCO 7.3: The student will be expected to examine factors that influenced the decision about where to locate a settlement, including the following delineations:

- 7.3.1 Define the term site. (k)
- 7.3.2 Define the terms river-island site, confluence site, head-of-navigation site, river-meander site, sheltered harbour site, peninsula site, acropolis site, and resource site. (k)
- 7.3.3 Analyze the physical factors that give rise to a particular type of settlement site. (a)
- 7.3.4 Relate site to a land use activity. (a)
- 7.3.5 Justify the choice of location of a settlement. (i)

Sample Learning/Teaching Strategies

Teachers can have students

- given a series of photos of settlement sites, identify a confluence site, head-of-navigation site, river-island site, river-meander site, sheltered harbour site, peninsula site, acropolis site, and resource site.
- examine a case study for a selected city to determine the advantages that its particular site (river-island site in the case of Paris, for example) provided for its early residents (see teacher note 1).

Unit 7: Settlement and Urbanization

Sample Assessment Strategies

Students could, for example:

- examine a series of photos, maps, or sketches and categorize them according to site.

Illustration	Site Category

- describe the site of the local community and the advantages it afforded early settlers (see teacher note 2).
- given a map showing site conditions for an area, determine the most appropriate location for a settlement whose residents will earn a living by farming and fishing. They should defend their decision. (i)

Teacher Notes

- Refer to ST, Exercise 12, page 350. (1)
- Some students may wish to complete this task through use of a digital camera and presentation software to develop a photo-essay. (2)

Unit 7: Settlement and Urbanization

Outcomes

SCO 7.4: The student will be expected to account for the conditions that influence the growth of a city, including the following delineations:

7.4.1 Define the term situation. (k)

7.4.2 Explain how situation influences a community's growth in size. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- given the population statistics for a selected city (e.g., Moscow), compare its population size in 1990 with that of 1950.
- for the case above, describe the nature of its linkages with the remainder of the country (see teacher note 1).

Unit 7: Settlement and Urbanization

Sample Assessment Strategies

Students could, for example:

- invite a local historian to the class to explain how situation affected the population dynamics of the local community.
- comment on the validity of the following statement:

“The growth of a city depends mainly upon the resources it has within its immediate area.”

Teacher Notes

- Refer to ST, Exercises 17 and 18, page 354.

Unit 7: Settlement and Urbanization

Outcomes

SCO 7.5: The student will be expected to analyze global trends in urbanization, including the following delineations:

- 7.5.1 Define the term urbanization. (k)
- 7.5.2 Examine temporal patterns in urban growth from analysis of statistics and visual representations. (a)
- 7.5.3 Examine spatial patterns in urban growth from analysis of statistics and visual representations. (a)
- 7.5.4 Account for differences in regional rates of urban growth. (a)
- 7.5.5 Relate the contrast in rural and urban living conditions to migration from the countryside to urban centers. (a)
- 7.5.6 Describe the conditions that lead to the emergence of a metropolis and a megalopolis. (k)
- 7.5.7 Classify a city-size arrangement as primate or rank-size. (a)
- 7.5.8 Describe the conditions that determine rank-size and primacy. (k)

Sample Learning/Teaching Strategies

Teachers can have students

- given a line graph showing the percentage of the world's population living in cities for the past 200 years, describe the trend shown.
- given a bar graph showing the percentage of people living in cities in a developing country (e.g., Brazil), write a sentence to compare the percentage of people living in towns and cities in the late 1990s with the percentage 50 years ago.
- given a table showing the population and location of the world's fifteen largest cities for 1950, 1985, and 2000, plot their location on a grid. They should briefly describe the change in the location of the main concentration of the fifteen largest cities (see teacher note 1).
- given a world map showing the cities experiencing 3% or more growth, determine their location by latitude and longitude.
- analyze a case study for a developing country to extrapolate factors that account for the migration of rural inhabitants from the country to the city:
 - push factors in the countryside
 - pull factors in the city
- analyze a case study for a developed country to determine the factors that account for the recent process of deurbanization:
 - push factors in the city
 - pull factors in towns and cities

Unit 7: Settlement and Urbanization

Sample Assessment Strategies

Students could, for example:

- given a bar graph showing the percentage of Canadians living in towns and cities, write a sentence to compare the percentage of Canadians living in towns and cities in the early 1990s with the percentage for the early 1890s (see teacher note 2).
- cite evidence from the above activities to support each of the following statements:
“Urbanization is a more recent phenomena in developing countries than in developed countries.”
“Urbanization is occurring more rapidly in developing countries than in developed countries” (see teacher note 3).
- examine a table showing city sizes for a given country to determine if it reflects primacy or a rank-size arrangement.

Teacher Notes

- For a discussion of primate cities and rank-size rule, refer to (<http://geography.about.com/science/geography/library/weekly/topicmenu.htm>), click on “Urban, Retail and Transportation Geography” and then “The Law of the Primate City and Rank-Size Rule.”
- Refer to Exercise 5, page 357. (1)
- Refer to Exercise 3, page 356. (2)
- Refer to exercise 6, page 359. (3)

Unit 7: Settlement and Urbanization

Outcomes

SCO 7.6: The student will be expected to analyze types of land use in a city, including the following delineations:

- 7.6.1 Describe the three main land use zones in a city. (k)
- 7.6.2 Explain why land use planning is essential in administering large cities. (k)
- 7.6.3 Describe the typical land use zones in a city. (k)
- 7.6.4 Evaluate the zoning arrangements of an urban area. (i)
- 7.6.5 Examine how the number and types of services relate to settlement size. (a)

Sample Learning/Teaching Strategies

Teachers can have students

- examine factors that affect the range of services available in the local community (see teacher note 1).
- given a case study of a regional shopping mall
 - describe its location relative to the transportation network
 - describe its location relative to residential areas
 - comment upon the range of goods and services provided
 - cite evidence of the agglomerating tendency
- given a land use map for a large North American city, identify the Central Business District, the older residential areas, new residential areas, shopping zones, industrial areas, and the outskirts where the newest homes, business parks, and light industry are found.
- explain why the height of buildings tend to decrease as one moves from the centre of a large city to its outskirts.
- evaluate the land use or zoning regulations in the local community in terms of
 - the location of given zones
 - the need for zoning changes

Unit 7: Settlement and Urbanization

Sample Assessment Strategies

Students could, for example:

- given a series of photos, identify examples of residential, industrial and commercial land use (see teacher note 2).
- given an urban land use map, comment upon the distribution of land use zones (see teacher note 3).
- given a list of services in selected settlements of varying sizes, describe the relationship between settlement size and the range of services available.

Teacher Notes

- Refer to ST, Exercise 3, page 343 (to show students that population size is a factor) and to ST, Exercise, 15, Page 368 (to show that the agglomerating tendency is also a factor). (1)
- Refer to Exercise 19, page 368. (2)
- Refer to Exercise 19, page 370. (3)

Outcomes

SCO 7.7: The student will be expected to reflect upon the quality of life in large cities, including the following delineations:

- 7.7.1 Examine quality of life indicators in a city in the developing world. (a)
- 7.7.2 Examine quality of life indicators in a city in the developed world. (a)
- 7.7.3 Contrast living conditions in a developing world city with those in a developed world city. (a)
- 7.7.4 Develop strategies to improve the quality of life in a city. (i)
- 7.7.5 Defend one's personal quality of life preferences in large cities. (i)

Sample Learning/Teaching Strategies

Teachers can have students

- given a case study of a growing city in the developing world (e.g., Calcutta, or Mexico City), describe the quality of life in its squatter areas in terms of :
 - peace and security
 - job opportunities
 - housing
 - educational services
 - health and sanitation services
- given a case study of a large city in the developed world (e.g., New York City, or London), describe conditions in its central core in terms of :
 - air quality
 - traffic flows
 - crime rates
 - cost of residential and business space
- assume that their community will experience a large increase in population. They should describe the possible impact it may have and their likely reaction to it (see teacher note 1).

Sample Assessment Strategies

Student could, for example:

- Develop a list of features or qualities of an urban neighbourhood that should be considered in a decision to move there (see delineation 9.7.3).

Teacher Notes

- The think-pair-share cooperative learning structure would be useful for this task. (1)

Section 4: Resources

Authorized Student Resources

Crewe, R. James, Barry Corbin, Malcolm Squires, and John Trites. *World Geography*. Toronto; Oxford University Press, 1998.

Authorized Teacher Resources

Crewe, R. James, Barry Corbin, Malcolm Squires, and John Trites. *World Geography – Teacher’s Resource*. Toronto; Oxford University Press, 2002.

Professional Print Resources

The following is a bibliography of general references that are useful to teachers of World Geography 3200/3202. These include selected social science and geography texts, instructional references, statistical sources, and atlases.

Beyer, Barry K. 1991. *Teaching Thinking Skills: A Handbook for Secondary School Teachers*. Allan & Bacon.

De Blij, Harm. 2001. *Concepts and Regions in Geography*. John Wiley and Sons Inc.

Bloom, Benjamin S. (ed.) 1984. *Taxonomy of Educational Objectives, Handbook I: Cognitive Domain*. New York: David McKay.

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Broek, Jan O.M., et al. 1980. *The Study and Teaching of Geography*. Charles E. Merrill.

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Cuffaro, Nadia. 2003. *Population, Economic Growth, and Agriculture in Less Developed Countries*. Routledge.

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- Espendshade, Edward B., Jr. (ed.). 1999. *Goode's World Atlas* 20th edition. Rand McNally.
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- Frankel, Jack R. 1980. *Helping Students Think and Value: Strategies for Teaching Social Studies*. Prentice-Hall, Inc.
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- Haupt, Arthur. 1998. *Population Reference Bureau's Population Handbook: International Edition*. Population Reference Bureau.

- Jordan, T.G. and L. Rowntree. 1997. *The Human Mosaic*. Addison-Wesley Educational Publishers, Inc.
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- Lambert, David, and David Balderstone. 1999. *Learning to Teach Geography in the Secondary School*. Rutledge.
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Professional Periodical Sources

Some of these sources contain units of study and lesson plans intended for use by teachers.

- Annals of the Association of American Geographers*. Association of American Geographers, General Office, 1710 16th Street, Washington, DC 20009-3918. <http://www.aag.org/>
- The Canadian Geographer*. Canadian Association of Geographers, Burnside Hall, McGill University, 805 Sherbrooke St. W., Montreal, PQ H3A 2K6. <http://www.geog.ouc.bc.ca/tcg/>
- Canadian Geographic*. The Royal Canadian Geographical Society, 35 McArthur Avenue, Ottawa, ON K1L 8L7. <http://canadiangeographic.ca/>
- Focus Magazine*. American Geographical Society, 120 Wall Street, Suite 100, New York, NY 10005-3904. <http://www.amergeog.org/default.asp>
- The Geographical Magazine*. Hyde Park Publications Ltd., 27 Kensington Court, London, England W8 5DN. <http://www.geographical.co.uk/>
- Journal of Geography*. National Council for Geographic Education, Indiana University of Pennsylvania, 16A Leonard Hall, Indiana, PA 15705-1087. <http://www.ncge.org/>
- Geographical Review*. American Geographical Society, 120 Wall Street, Suite 100, New York, NY 10010-7002. <http://www.aag.org/>
- National Geographic Magazine*. National Geographic Society, Educational Services, P.O.Box 98199, Washington, DC 20090-8199. <http://www.nationalgeographic.com/>
- Scientific American*. 415 Madison Avenue, New York, NY 10017. <http://www.sciam.com/>
- Teaching Geography*. Geographical Association, 343 Fulwood Rd., Sheffield England S10 3BP.

Appendix 1: Outcomes/Delineations

Physical Geography

Unit 1 - Landforms and Water Forms

SCO 1.1: The student will be expected to demonstrate an understanding that the earth's surface is shaped by building-up forces resulting from tectonic activity, including the following delineations:

- 1.1.1 Explain how compressional forces are caused. (k)
- 1.1.2 Explain how tensional forces are caused. (k)
- 1.1.3 Relate selected plate movements to compressional and tensional forces. (a)
- 1.1.4 Explain how compressional forces create fold mountains. (k)
- 1.1.5 **Differentiate between the terms anticline and syncline.** (k)
- 1.1.6 Explain how tensional forces create a normal fault. (k)
- 1.1.7 **Explain how compressional forces create reverse and overthrust faults.** (k)
- 1.1.8 Explain what causes a volcano to erupt. (k)
- 1.1.9 **Describe the characteristics of an ash-and-cinder cone, a shield cone, and a composite cone.** (k)
- 1.1.10 Conclude how the location of active volcanoes is related to places where plates meet. (a)
- 1.1.11 Describe global patterns in the location of landforms. (k)

SCO 1.2: The student will be expected to demonstrate an understanding of how the process of weathering helps wear down the land, including the following delineations:

- 1.2.1 Distinguish between the terms physical weathering and chemical weathering. (k)
- 1.2.2 Describe the mechanical processes by which physical weathering occurs. (k)
- 1.2.3 Describe the main interactions that result in chemical weathering. (k)
- 1.2.4 **Infer the relationship between environmental conditions and the rate of physical and chemical weathering.** (a)

SCO 1.3: The student will be expected to demonstrate an understanding of how running water acts as an agent of erosion and deposition, including the following delineations:

- 1.3.1 Describe the three stages in the life cycle of a river. (k)
- 1.3.2 State two ways in which water erosion occurs. (k)
- 1.3.3 Examine evidence to determine the life cycle stage of a river. (a)
- 1.3.4 Explain how deltas are formed. (k)
- 1.3.5 **Contrast the terms arcuate delta, digitate delta, and estuarine delta.** (k)

SCO 1.4: The student will be expected to demonstrate an understanding of how moving ice acts as an agent of erosion and deposition, including the following delineations:

- 1.4.1 Define the terms outwash plain, terminal moraine, erratic, drumlin, and esker. (k)
- 1.4.2 **Examine evidence for the direction of movement of a continental glacier.** (a)
- 1.4.3 Define the terms cirque, arête, hanging valley, lateral moraine, and terminal moraine. (k)
- 1.4.4 Define the term fiord. (k)

SCO 1.5: The student will be expected to demonstrate an understanding that ocean waves and currents change coastlines, including the following delineations:

- 1.5.1 Define the term spit. (k)
- 1.5.2 Define the terms sea cave, sea arch, and stack. (k)
- 1.5.3 Explain how sea caves, sea arches and stacks are formed. (a)
- 1.5.4 Analyze the processes that result in the “straightening out” of an irregular coastline. (a)

SCO 1.6: The student will be expected to demonstrate an understanding of how landforms and water forms influence human activity, including the following delineations:

- 1.6.1 Examine how human activity adapts to landforms and water forms. (a)
- 1.6.2 Examine how humans respond to hazards posed by selected landforms and water forms. (a)
- 1.6.3 Develop a proposal for the economic use of selected landforms or water forms. (i)
- 1.6.4 **Justify a preference for the aesthetic appeal of selected landforms and water forms.** (i)
- 1.6.5 Propose a solution to a threat posed by selected landforms and water forms. (i)

Unit 2 - World Climate Patterns

SCO 2.1: The student will be expected to demonstrate an understanding of how the earth’s movement in space causes the occurrence of and the conditions related to day and night and the seasons, including the following delineations:

- 2.1.1 Distinguish between the terms rotation and revolution. (k)
- 2.1.2 Explain how cloud cover influences the range of temperatures from day to night. (k)
- 2.1.3 Define the terms equinox and solstice. (k)
- 2.1.4 Explain how changes in the seasons, in the northern hemisphere and the southern hemisphere, relate to the earth’s revolution around the sun. (k)
- 2.1.5 Describe the factors that account for differences in length of day as seasons change. (k)
- 2.1.6 Describe the factors that account for differences in temperature as seasons change. (k)

SCO 2.2: The student will be expected to detect patterns in the distribution of temperatures on the earth’s surface, including the following delineations:

- 2.2.1 Explain how the greenhouse effect moderates climates. (k)
- 2.2.2 Generalize that temperatures *tend* to decrease from low to high latitudes. (a)
- 2.2.3 **Explain how the earth’s shape causes temperatures to decrease from low to high latitudes.** (k)
- 2.2.4 Given selected data, assess the accuracy of temperature descriptions. (i)

SCO 2.3: The student will be expected to demonstrate an understanding of the cause of winds and how winds affect climate, including the following delineations:

- 2.3.1 Define the term prevailing winds. (k)
- 2.3.2 Describe conditions that result in land breezes and sea breezes. (k)
- 2.3.3 **State the impact of the coriolis effect on wind direction.** (k)
- 2.3.4 **Infer how wind systems relate to major pressure belts.** (a)
- 2.3.5 **Explain how wind systems and temperature are related.** (k)
- 2.3.6 Define the terms windward, leeward, and rain shadow. (k)

2.3.7 **Examine how the type of rainfall (i.e., orographic, frontal, and convectional) is related to the nature of location.** (a)

2.3.8 Explain how wind systems and precipitation are related. (k)

SCO 2.4: The student will be expected to demonstrate an understanding of how ocean currents affect climate, including the following delineations:

2.4.1 Define the term ocean current. (k)

2.4.2 Analyze how ocean currents can create different climatic conditions for two locations on the same latitude. (a)

SCO 2.5: The student will be expected to demonstrate an understanding how distance from the ocean affects climate, including the following delineations:

2.5.1 Define the term temperature range. (k)

2.5.2 Analyze the relationship between range in temperature and distance from the ocean. (a)

2.5.3 Define the term monsoon. (k)

2.5.4 **Explain why winter and summer monsoons occur.** (k)

2.5.5 Describe the relationship between seasonal level of precipitation and distance from the ocean. (k)

SCO 2.6: The student will be expected to demonstrate an understanding of the relationship between elevation and climate, including the following delineations:

2.6.1 Define the term elevation. (k)

2.6.2 Describe the relationship between the elevation of a point and its temperature and precipitation. (k)

2.6.3 **Analyze the relationship between temperature and precipitation of a point and its location relative to a mountain system.** (a)

SCO 2.7: The student will be expected to demonstrate an understanding of the combined effect of climatic conditions and the zones they produce, including the following delineations:

2.7.1 Given relevant information, determine climatic conditions within selected zones. (a)

2.7.2 Draw conclusions about patterns in the distribution of climatic zones. (a)

SCO 2.8: The student will be expected to demonstrate an understanding of how climate conditions may affect human activity, including the following delineations:

2.8.1 Illustrate how human activity is influenced by climatic conditions. (a)

2.8.2 Examine how human activity affects climatic conditions (e.g., greenhouse effect, ozone depletion, global warming). (a)

2.8.3 **Argue a preference for the aesthetic appeal of selected climatic conditions.** (i)

2.8.4 Examine how selected climatic phenomena (e.g., El Nino, lake effect, hurricanes) affect human activity. (I)

Unit 3 - Ecosystems

SCO 3.1: The student will be expected to demonstrate an understanding that an ecosystem consists of a complex network of organisms, including the following delineations:

- 3.1.1 Define the term ecosystem. (k)
- 3.1.2 Differentiate the terms food chain and food web. (k)
- 3.1.3 Outline the energy flow through an ecosystem. (k)

SCO 3.2: The student will be expected to demonstrate an understanding that the relationships among the living and non-living elements of an ecosystem are delicately balanced, including the following delineations:

- 3.2.1 Define the term biological amplification. (k)
- 3.2.2 Explain why there are fewer organisms at each trophic level. (k)
- 3.2.3 With reference to a food pyramid, explain how pesticides can reach toxic levels for organisms at a higher trophic level. (a)
- 3.2.4 Predict the effect on an ecosystem of the introduction of a new organism. (i)

SCO 3.3: The student will be expected to examine general interrelationships within and among world ecosystems, including the following delineations:

- 3.3.1 List the general characteristics of a given ecosystem. (k)
- 3.3.2 Analyze patterns in the distribution of world ecosystems. (a)
- 3.3.3 Predict which kind of ecosystem is likely to result from a stated set of climatic conditions (i)

SCO 3.4: The student will be expected to demonstrate an understanding of the characteristics of soil quality and the need to reduce the threat to our soils, including the following delineations:

- 3.4.1 Describe the factors that affect soil quality. (k)
- 3.4.2 Analyze the quality of a soil in terms of its soil texture. (a)
- 3.4.3 Draw conclusions about global patterns related to soil loss. (a)
- 3.4.4 Assess statements about soil availability. (i)

SCO 3.5: The student will be expected to recognize the need for humans to be sensitive to the fragile nature of ecosystems, including the following delineations:

- 3.5.1 Draw conclusions about possible short-term and long-term impacts of a threat to an ecosystem. (a)
- 3.5.2 Anticipate actions needed to help ameliorate an environmental risk. (i)
- 3.5.3 Relate climatic zones to areas of environmental risk. (a)
- 3.5.4 Analyze value positions taken on environmental issues. (a)

Economic Geography

Unit 4 - Primary Resource Activities

SCO 4.1: The student will be expected to demonstrate an understanding of what constitutes a resource, including the following delineations:

- 4.1.1 Describe the three conditions that determine if a natural material is potentially a resource. (k)
- 4.1.2 Demonstrate, with examples, how the use of a resource can be influenced by cultural practices. (a)

SCO 4.2: The student will be expected to demonstrate an application of the systems model to farming, including the following delineations:

- 4.2.1 Define the terms inputs, processes, and outputs. (k)
- 4.2.2 Identify the natural inputs in a farming operation. (k)
- 4.2.3 Identify the human inputs in a farming operation. (k)
- 4.2.4 Analyze the processes in a farming operation. (a)
- 4.2.5 Relate farming processes to inputs. (a)
- 4.2.6 Relate the outputs in a farming operation to the processes and inputs. (a)

SCO 4.3: The student will be expected to demonstrate an application of the systems model to offshore oil and gas recovery, including the following delineations:

- 4.3.1 Identify physical factors that influence the decision to recover offshore oil and gas. (k)
- 4.3.2 Identify human factors that influence the decision to recover offshore oil and gas. (k)
- 4.3.3 Relate the kinds of technology used to recover off-shore oil and gas to environmental conditions. (a)
- 4.3.4 Describe elements (e.g., work roles, shift rotations) of an off-shore oil recovery operation. (k)
- 4.3.5 Describe the economic importance of the off-shore oil and gas operations. (a)
- 4.3.6 Examine factors that affect the viability of the off-shore oil industry. (a)

SCO 4.4: The student will be expected to demonstrate an understanding of selected patterns in the distribution of selected types of farming, including the following delineations:

- 4.4.1 Compare commercial farming and subsistence farming. (k)
- 4.4.2 Compare extensive farming and intensive farming. (k)
- 4.4.3 Define the terms shifting cultivation, agribusiness, and nomadic herding. (k)
- 4.4.4 Relate types of agriculture to climatic regions. (a)
- 4.4.5 Analyze a farming operation in terms of criteria related to commercial, subsistence, extensive, or intensive agriculture. (a)
- 4.4.6 Relate types of crops to selected climatic conditions. (a)
- 4.4.7 Examine patterns in the global distribution of types of agriculture. (a)

SCO 4.5: The student will be expected to analyze patterns in the location of off-shore oil reserves, including the following delineations:

- 4.5.1 Explain how oil and gas are formed. (k)
- 4.5.2 Describe the techniques used to locate offshore oil and gas reserves. (k)
- 4.5.3 Analyze data to arrive at patterns in the distribution of proven oil and gas reserves. (a)

SCO 4.6: The student will be expected to analyze trends and issues in the utilization of forest resources, including the following delineations:

- 4.6.1 Compare the terms clear-cutting and selective cutting. (k)
- 4.6.2 Compare the advantages and disadvantages of each approach to the harvesting of timber. (k)
- 4.6.3 Examine major threats to forest resources. (a)
- 4.6.4 Examine strategies for a sustainable forestry. (a)
- 4.6.5 Evaluate a position taken on a given argument about timber harvesting. (i)
- 4.6.6 Infer a relationship between climate and the extent of forest cover. (a)
- 4.6.7 Analyze global patterns in the depletion of forest resources. (a)

SCO 4.7: The student will be expected to explore issues related to the management of the fish resource, including the following delineations:

- 4.7.1 Examine impacts on a marine ecosystem. (a)
- 4.7.2 Examine trends in fish catches over an extended period. (a)
- 4.7.3 Develop an argument for the development of the aquacultural sector of the fishery. (i)
- 4.7.4 Identify major sources of ocean pollution. (k)
- 4.7.5 Examine the impact of new catch technology on the ocean environment. (a)
- 4.7.6 Develop strategies for a sustainable fishery. (i)
- 4.7.7 Predict possible effects of a declining fish resource on the livelihood of fishers. (i)

Unit 5 - Secondary and Tertiary Activities

SCO 5.1: The student will be expected to demonstrate an understanding of what manufacturing entails, including the following delineations:

- 5.1.1 Identify natural and human inputs in a manufacturing operation. (k)
- 5.1.2 Analyze the processes in a manufacturing operation. (a)
- 5.1.3 Describe the three processes that may be used to change a raw material into a useable form. (k)

SCO 5.2: The student will be expected to differentiate among types of manufacturing activity, including the following delineations:

- 5.2.1 Define the terms labour-intensive and capital-intensive. (k)
- 5.2.2 Analyze a manufacturing operation to determine if it is labour-intensive or capital-intensive. (a)
- 5.2.3 Define the terms light industry and heavy industry. (k)
- 5.2.4 Analyze a manufacturing operation to determine if it is an example of light-industry or heavy-industry. (a)

SCO 5.3: *The student will be expected to determine the factors that influence the location of an industry, including the following delineations:*

- 5.3.1 Examine the influence that site conditions and situation may have on the location of an industry. (a)
- 5.3.2 Compare the terms resource-oriented industry and market-oriented industry. (k)
- 5.3.3 **Analyze the influence of weight-gain and weight-loss production on the location of an industry.** (a)
- 5.3.4 Describe the advantages of the agglomerating tendency. (k)
- 5.3.5 Identify the characteristics of a labour force that make it attractive to industry. (k)
- 5.3.6 **Explain how government subsidies influence the location of a given industry.** (k)
- 5.3.7 Draw conclusions about patterns in the distribution of highly industrialized areas on the earth's surface. (a)

SCO 5.4: *The student will be expected to examine environmental issues related to industrial activity, including the following delineations:*

- 5.4.1 Analyze the roles of stakeholders in the face of an environmental threat. (a)
- 5.4.2 Relate the location of areas at risk to the location of major industrialized areas. (a)
- 5.4.3 Anticipate the kinds of actions that should be taken to avert an environmental threat posed by an industry. (i)
- 5.4.4 **Defend selected social/moral issues associated with a manufacturing operation.** (i)

SCO 5.5: *The student will be expected to describe types of tertiary activities, including the following delineations:*

- 5.5.1 Define the term tertiary activity. (k)
- 5.5.2 Identify the four categories of service activities. (k)
- 5.5.3 **Contrast private tertiary activity and public tertiary activity.** (k)
- 5.5.4 Define the term quaternary activity. (k)

SCO 5.6: *The student will be expected to analyze patterns in the location of selected tertiary and quaternary activities, including the following delineations:*

- 5.6.1 **Examine factors that affect the location of a tertiary activity.** (a)
- 5.6.2 **Examine factors that affect the location of a quaternary activity.** (a)
- 5.6.3 **Analyze factors that account for patterns in world trade for a selected commodity.** (a)
- 5.6.4 Analyze factors that account for patterns in mass communication. (a)
- 5.6.5 Examine how mass communication can affect the location of a work place. (a)

SCO 5.7: *The student will be expected to analyze trends and issues in the tertiary and quaternary sectors, including the following delineations:*

- 5.7.1 Describe the economic importance of a tertiary activity. (k)
- 5.7.2 Analyze issues that affect the viability of a tertiary activity. (a)
- 5.7.3 Describe the economic importance of the quaternary sector. (a)
- 5.7.4 Examine factors that affect the growth of the quaternary sector. (a)
- 5.7.5 Evaluate the social and economic impact of developments in the quaternary sector. (i)

SCO 5.8: *The student will be expected to use a specific indicator to measure standard of living, including the following delineations:*

- 5.8.1 Define the term gross national product (GNP). (k)
- 5.8.2 Define the term per capita GNP. (k)
- 5.8.3 Relate per capita GNP to level of economic development. (a)
- 5.8.4 Relate employment structure to level of economic development. (a)
- 5.8.5 Explain why it is beneficial to use more than one indicator when assessing a country's level of economic development. (k)
- 5.8.6 Relate selected social and economic indicators to level of economic development. (a)
- 5.8.7 **Analyze patterns in the distribution of selected socio-economic indicators with the patterns in the distribution of developed or developing countries.** (a)

Population and Urban Geography

Unit 6 - Population Distribution and Growth

SCO 6.1: *The student will be expected to examine factors that account for the distribution of population on the earth's surface, including the following delineations:*

- 6.1.1 Define the terms population density, densely populated, and sparsely populated. (k)
- 6.1.2 Explain why population density is not always an accurate indicator of population distribution. (k)
- 6.1.3 Examine patterns in the distribution of population on the earth's surface. (a)
- 6.1.4 **Analyze the impact of selected factors on the population distribution of a given region.** (a)

SCO 6.2: *The student will be expected to detect temporal and spatial trends in population growth, including the following delineations:*

- 6.2.1 Compare the term absolute population growth and population growth rate. (k)
- 6.2.2 Examine trends in the size and growth rate of the population of a selected region. (a)
- 6.2.3 Given relevant data, classify a country according to the demographic transition model. (a)
- 6.2.4 **Classify a population growth rate as slow-, moderate-, or fast-growing populations.** (a)
- 6.2.5 **Relate a country's rate of population growth to its socio-economic conditions.** (a)
- 6.2.6 Describe some of the problems that result from overpopulation. (k)
- 6.2.7 **Defend one's own views upon the efficacy of controlling population growth.** (i)

SCO 6.3: *The student will be expected to analyze the dynamics of changing populations, including the following delineations:*

- 6.3.1 Define the terms natural change, natural increase, and natural decrease. (k)
- 6.3.2 Express population change in mathematical terms. (a)
- 6.3.3 Classify a given population as expanding, contracting, or stationary. (a)
- 6.3.4 Examine the relationship between birth rate and death rates to determine natural change in a population. (a)
- 6.3.5 Analyze factors that affect birth rates. (a)
- 6.3.6 Analyze factors that affect death rates. (a)

- 6.3.7 Define the term dependency ratio. (k)
- 6.3.8 Given population data, calculate dependency ratios. (a)
- 6.3.9 Describe the factors that contribute to a graying of the population. (k)
- 6.3.10 Project future population trends from data provided. (i)

SCO 6.4: The student will be expected to determine the effect of migration on population size, including the following delineations:

- 6.4.1 Define the terms migration, immigration, and emigration. (k)
- 6.4.2 Define the term actual population change. (k)
- 6.4.3 Express the actual change in population in mathematical terms. (a)
- 6.4.4 Examine the relationship among birth rate, death rate, emigration and immigration to determine the actual change in a population. (a)

SCO 6.5: The student will be expected to examine conditions that result in migration, including the following delineations:

- 6.5.1 Define the terms push factor, pull factor, repel factor, and intervening obstacle. (k)
- 6.5.2 Examine the dynamics related to an individual's decision to migrate. (a)
- 6.5.3 **Determine the major source areas for international migrants.** (a)
- 6.5.4 **Use population data to make a demographic argument for the admission of migrants to a country.** (a)
- 6.5.5 Describe the economic impact of immigration and emigration. (k)
- 6.5.6 Support a position taken on an issue related to immigration. (i)

SCO 6.6: The student will be expected to appreciate the importance of population studies, including the following delineations:

- 6.6.1 Define the term census. (k)
- 6.6.2 **Defend a position on issues related to population dynamics.** (i)
- 6.6.3 **Assess the usefulness of census data for a stated purpose.** (i)

Unit 7 - Settlement and Urbanization

SCO 7.1: The student will be expected to examine differences between rural and urban areas, including the following delineations:

- 7.1.1 Define the terms rural and urban areas. (k)
- 7.1.2 Contrast a low density area and a high density area. (k)
- 7.1.3 Examine factors that contribute to a high density urban area. (a)
- 7.1.4 Classify a good or service as low-, intermediate-, or high-order. (a)
- 7.1.5 Relate services available in a settlement to its population size. (a)
- 7.1.6 Evaluate the appeal of a low density area as a place to live. (i)

SCO 7.2: *The student will be expected to recognize the different shapes that settlements may take, including the following delineations:*

- 7.2.1 Define the terms compact, loose-knit, and linear settlements. (k)
- 7.2.2 Classify the shapes of given settlements. (a)
- 7.2.3 **Examine how selected factors, such as physical features and transportation links, account for the shape of selected settlements.** (a)
- 7.2.4 Relate settlement shape to a land use activity. (a)

SCO 7.3: *The student will be expected to examine factors that influenced the decision about where to locate a settlement, including the following delineations:*

- 7.3.1 Define the term site. (k)
- 7.3.2 Define the terms river-island site, confluence site, head-of-navigation site, river-meander site, sheltered harbour site, peninsula site, acropolis site, and resource site. (k)
- 7.3.3 Analyze the physical factors that give rise to a particular type of settlement site. (a)
- 7.3.4 Relate site to a land use activity. (a)
- 7.3.5 **Justify the choice of location of a settlement.** (i)

SCO 7.4: *The student will be expected to account for the conditions that influence the growth of a city, including the following delineations:*

- 7.4.1 Define the term situation. (k)
- 7.4.2 Explain how situation influences a community's growth in size. (a)

SCO 7.5: *The student will be expected to analyze global trends in urbanization, including the following delineations:*

- 7.5.1 Define the term urbanization. (k)
- 7.5.2 **Examine temporal patterns in urban growth from analysis of statistics and visual representations.** (a)
- 7.5.3 **Examine spatial patterns in urban growth from analysis of statistics and visual representations.** (a)
- 7.5.4 Account for differences in regional rates of urban growth. (a)
- 7.5.5 Relate the contrast in rural and urban living conditions to migration from the countryside to urban centers. (a)
- 7.5.6 Describe the conditions that lead to the emergence of a metropolis and a megalopolis. (k)
- 7.5.7 Classify a city-size arrangement as primate or rank-size. (a)
- 7.5.8 **Describe the conditions that determine rank-size and primacy.** (k)

SCO 7.6: *The student will be expected to analyze types of land use in a city, including the following delineations:*

- 7.6.1 Describe the three main land use zones in a city. (k)
- 7.6.2 **Explain why land use planning is essential in administering large cities.** (k)
- 7.6.3 Describe the typical land use zones in a city. (k)
- 7.6.4 **Evaluate the zoning arrangements of an urban area.** (i)
- 7.6.5 **Examine how the number and types of services relate to settlement size.** (a)

SCO 7.7: The student will be expected to reflect upon the quality of life in large cities, including the following delineations:

- 7.7.1 Examine quality of life indicators in a city in the developing world. (a)
- 7.7.2 Examine quality of life indicators in a city in the developed world. (a)
- 7.7.3 Contrast living conditions in a developing world city with those in a developed world city. (a)
- 7.7.4 Develop strategies to improve the quality of life in a city. (i)
- 7.7.5 Assess one's personal quality of life preferences in large cities. (i)

Appendix 2: Instructional Approaches

Planning for Instruction

Pacing Chart

The following guide for the allocation of instructional time approximates the weighting in the course table of specifications (refer to page 21). Curriculum units 1-3 are weighted at 36% of the course; a comparable teaching block is about 36 class periods. Each of units 4 and 5 is weighted at 22%, which requires about 22 instructional periods each. A total of 100 instructional periods of 60 minutes each is used for these suggested timeframes; the teacher will have to adjust this base given the local context. Each of optional unit 6 and 7 is weighted at 20%, about 22 periods. Given these timeframes, the date of completion for each curriculum unit may be determined prior to commencement of instruction in September.

Geographic Theme	Unit	Instructional Periods	Completion Date
Physical Geography	1. Land and Water Forms		
	2. World Climate Patterns		
	3. Ecosystems		
Economic Geography	4. Primary Resource Activities		
	5. Secondary and Tertiary Activities		
<i>One of</i>	Population Geography	6. Population Distribution and Growth	
	Urban Geography	7. Settlement and Urbanization	

Guidelines for Lesson Planning

Although different formats are used to write a lesson plan, most reflect some common characteristics.

Before the Lesson

1.1 Identify the purpose of the lesson The lesson should relate to an SCO (e.g., SCO 2.8) and a set of delineations (2.8.1-2.8.4) that support that outcome. The SCO gives the general goal and rationale for the lesson and the delineations provide the objectives, or the kinds of knowledge students will have to achieve.

1.2 Strategically decide the nature of instruction

Analyze the SCO and related delineations to determine the cognitive level(s) at which students will be engaged. For example, SCO 2.8 focuses on the kinds of impacts that climate has on human activity. Delineation 2.8.1 relates to examples of this relationship, but it is cast as at the application-level. Accordingly, students will have to analyze information to arrive at ways in which human activity is shaped by climate. The key factors affecting this decision are explored in section 2.2 below.

Similarly, delineation 2.8.3 requires students to argue their preference for a selected set of climatic conditions. Should the instructional approach now change?

1.3 Ensure that classroom logistics are in order

Identify and procure the equipment and materials needed for the lesson (e.g., projector, copies of graphic organizer(s), maps, etc.). If a case study is to be used, identify one that related best to the SCO and related delineations. If a cooperative learning strategy should be used, identify the structure (e.g., jig-saw, graffiti, etc.) that is most beneficial.

During the Lesson

2.1 Introduce the lesson

Use direct instruction to introduce the purpose of the lesson (usually in the form of a focus question or statement) and how the lesson will play itself out. Then it is extremely important to tie the lesson to students' prior learning. For SCO 2.8, this may merely be asking a question such as, "If you were living in (*select a location that would have climatic conditions much different from the local area*), what would you be doing after school?"

2.2 Teaching-learning activities

In preparing the lesson, ask the question “If another teacher were to visit my classroom during this lesson, what would he or she see going on?” The answer to this question, of course, depends on the SCO and delineations, the phase of the lesson itself (introducing, teaching-learning, and closure), and the progress of the student through the lesson.

After the aim of the SCO is clarified and the cognitive level of the related delineations has been identified, the teacher has to decide how the delineations are to be achieved. Will indirect, collaborative, or independent instruction be used? In any case, delineation 2.8.1 should not be taught through direct instruction where notes are given for memorization; if this approach is taken, the delineation will be reduced to the knowing-level of cognition.

Similarly, delineation 2.8.3 requires students to argue their preference for a selected set of climatic conditions. This may be done through indirect instruction (e.g., case studies) and/or collaborative instruction (e.g., cooperative learning). Direct instruction would reduce the cognitive level, and independent instruction would reduce the opportunity to argue in a group context.

It is important to note that if indirect, or collaborative instruction, is used, the teacher does not relinquish control of the learning environment. More specifically, continual informal assessment has to go on to ensure that students are achieving the delineations and engaging in the learning processes (e.g., case study analysis, completion of graphic organizers, participation on a cooperative learning structure).

2.3 Closure

At this point, key ideas are drawn together to support the SCO. For example, the focus question may be rephrased, “What have we found out to support the idea that human activity is influenced by climate?” Ask students to synthesize the information previously gathered to answer the question. For example a simple chart may be used:

Focus Question: How does climate shape human activity?	
Climiate Conditions	Human Activity
1.	
2.	
3.	
4.	

This information may be used as a work sample to assess student achievement of the delineations.

It may be useful, but maybe not for every lesson, to have students reflect upon instructional processes used during the lesson (e.g., how well groups worked together during collaborative instruction).

Selected Methodologies

Field Studies

Field studies help students to connect course outcomes and delineations with the “real” world. Students are expected to demonstrate competencies in “gathering primary geographical data through the use of appropriate techniques, such as interviews, field studies, sampling and enumerating.” *World Geography 3200/3202 Curriculum Guide*, page 18). Selected specific curriculum outcomes and related delineations provide opportunities for students to gather information from a variety of sources to build concepts and generalizations. Sources outside of the classroom, then, are legitimate avenues for research.

The following is a planning guide for the preparation for fieldwork, field activities, and in-class synthesis. References to specific examples are made where appropriate.

1. Preparation for Fieldwork

- 1.1 Identify the SCOs and Delineations to be supported by fieldwork.

SCO 1.3 and Delineations 1.3.1-1.3.4 nicely demonstrate the potential for field studies in World Geography 3200/3202. Basically, the field trip would focus on the collection of evidence of the erosional and depositional effects of running water.

- 1.2 Advise school administration of the purpose of the field study.
- 1.3 Become familiar with the field area.
 - visit to the site
 - examination of maps
 - examination of air photos

This step in preplanning is important if the teacher is to have a degree of confidence in conducting the field trip. Visit a river to identify areas where lateral erosion is occurring; find evidence to support the life stage of the particular river, and find evidence of deposition at the river mouth (classify the type of delta if one is present. This work may be aided by the use of maps and air photos.

- 1.4 Develop a list of materials and equipment needed.
- 1.5 Develop questionnaire (where applicable) and identify other recording formats

2. *Introduce the Field Study*

- 2.1 Fully brief students of the purpose of the field study.

Purpose:

To find out how running water acts as an agent of erosion and deposition.

- 2.2 Assign field responsibilities to students.

3. *Activities in the Field*

- 3.1 Engage students in assigned tasks.
 - note-taking
 - field sketching
 - taking photos
 - interviewing
 - digital audio-visual recording

It is important to assign a task that is compatible with a skill a student may have. For example, some students may be more skilled at photography than with note-taking.

Ask students to take notes, sketch, photograph, and/or record evidence of erosion (e.g., rounded rocks, meanders, under-cut banks, areas that are V-shaped, etc.).

Then ask students to take notes, sketch, photograph, and/or record evidence of deposition (e.g., river plain, delta, etc.).

Ask students to find evidence of the two forces working together to produce a particular feature (e.g., an ox-bowl lake).

- 3.2 Monitor student activities.
- Ensure time on task
 - Clarify tasks
 - Assist with tasks, where necessary.

4. *In-class Synthesis*

- 4.1 Student prepares and presents field data in a variety of formats
- written report
 - oral report
 - A/V presentation
 - bulletin board display
 - published article (e.g., school website, community or school newspaper)
- 4.2 Use of methodologies most suited to the task
- independent work, as students organize their field notes and other materials
 - questioning to help students review what happened in the field
 - cooperative learning as students compare their findings and prepare group reports, displays, or articles
- 4.3 Assessment of the field study
- teacher and students reflect upon the field study

At this stage, it is important for students to determine if the purpose of the field trip has been achieved. Encourage students to point out what they particularly liked about the fieldtrip – what things went really well. Conversely, ask them to suggest how such a field study could have been better.

- assess student work products
- provide formative and/or summative feedback

A Guided Approach to Inquiry Learning

Although inquiry learning shares some of the features of the decision-making model, it focuses on the testing of a suggested explanation or solution, i.e., a hypothesis. Inquiry is a five-step process as outlined below:

Establish a Purpose for Inquiring

A question or issue merits investigation; it has to be specific and manageable.

Develop Tentative Answers

An answer (or several answers) is posed to the question.

Test the Answer (i.e., Hypothesis)

The hypothesis (or series of hypotheses) is tested for its validity. To do this, relevant information has to be gathered and analyzed. From this analysis, patterns or trends in the information should be detected.

Draw a Conclusion

A judgement is made, in the light of the analysis of the evidence gathered, about how valid or invalid the hypothesis is. A conclusion is stated to the original question.

Generalize

Finally, the conclusion is tested against new information to see how well it works in other situations.

Although inquiry shifts the responsibility for learning to the student, the teacher has a vital role in guiding the process. The following chart illustrates how this may be done.

Steps	Suggested Teacher Role
Establish a purpose for inquiring	Explains what the steps are. Structures the lesson. Poses the question as the basis for the inquiry. Assigns reading for background information.
Develop tentative answers	Explains how to hypothesize. Sets up groups and assigns tasks. Monitors group work and makes suggestions when a student really gets “stuck.”
Test the answer (i.e., hypothesis)	Provides a graphic organizer and explains its use in assessing the information collected. Interacts with students to identify information sources, poses questions to help them collect and analyze information. Examines analysis of information done by each student to determine if he or she has grounds for drawing a conclusion.
Draw a conclusion	Takes a lead role by asking questions and providing suggestions to help students to write a conclusion based on trends in their information.
Generalize	Continues to take a lead role by explaining how to apply their conclusion to another situation.

Case Study Method

Case studies are records of real-life situations that give students opportunities to explore a concept or issue to greater depth. They may be newspaper articles, written observations, personal stories, scenarios, or simulations. The use of case studies is an essential element in the teaching of World Geography 3200/3202:

- They give students opportunities to connect knowledge by reflecting about how a specific concept relates to a practical and real-life issue.
- The application of knowledge to a case study makes learning more meaningful.
- As students find different ways to resolve an issue in a case study, they become more motivated.
- Students have an opportunity to test their own assumptions in the light of new criteria in a case study.

Case studies may be classified according to three types:

Information-based

A case study may provide essential background information to help students explore how an idea, principle, or process is reflected in a real-world phenomena or situation.

Issues-based

This type of case study also extends a concept or idea the student has already learned, but there is a focus on a situation that requires analytical thinking to identify what is going on, how the situation arose, whether the situation could have been averted, or how positions on the situation may differ.

Dilemma-based

This type of case study presents a problem-based situation that requires a solution. Most typical of this type are environmental-related case studies that present opposing positions; the student is given an opportunity to propose a solution to the problem.

Examples of Case Study Types

Information-Based: Mount Pinatubo Volcanic Eruption, Philippines 1991 (pages 17-19)

Issues-Based: Life in the Big Apple (pages 373-375)

Dilemma-Based: Exxon Valdez Oil Disaster (pages 193-195)

The following protocol is offered as a preparation guide for the use of a case study in the classroom:

Before the lesson

- Ensure that you are thoroughly familiar with the content of the case study. (References will be made to the “Mount Pinatubo Volcanic Eruption ...”
- Identify the SCO and related delineations and teaching/learning/assessment strategies that are supported by the case study.
- Develop a focus statement to express the generalization (for the information-based case study), the position on an issue that to be appraised (for the issue-based case study), or the problem that has to be solved (for the dilemma-based case study).
- Develop questions that will guide students in critically analyzing the focus statement.

During the Lesson

- Bring student attention to previous concepts in the course that relate to or are developed by the case study.
- Connect the case study to student’s prior experiences. For example, ask them if they have experienced a threat from the environment (e.g., a forest fire, flood, or wave action), or viewed a natural disaster on television. Solicit descriptions about the effects on the people concerned.
- Assign the case study for independent reading.
- Assign the focus question to give students the purpose for the case study; e.g., making a living from the environment sometimes put people at risk from a natural disaster.”
- Ask factual questions to determine if students comprehend what they are reading.
- Ensure there are no gaps in the students’ understanding of the case study after the reading. Invite them to ask questions of their own.

Sample questions:

“Is the focus statement clear?”

“Tell me some of the things you have learned that support the focus statement.”

“Any further questions about what you have read?”

“Are we ready to proceed to our discussion?”

Discussion Phase

- Provide students ground rules for good discussion.
- Refer students to Figure 1.17, page 20.
- Divide students into three groups: one to examine why people live near Mount Pinatubo; one, the bio-medical effects of the eruption; the other, the psycho-social effects.
- Ask them to discuss their findings and to take notes.
- Encourage them to pose questions to each other about why people settled in the area, sequence of events, how weather added to the problem, and the bio-medical and psycho-social effects.
- Select one student from each of the three groups and form a symposium to make a presentation in support of the focus statement.
- Select another student to act as symposia facilitator.
- Each student presents the findings from the discussion in her/his group.
- Encourage the rest of the class to ask questions from the floor after the presentations.
- The facilitator then synthesizes what has been said to develop a generalization in support of the focus statement.

Appendix 3: Assessment Tools

Key Verbs

Some students write inadequate responses in examinations because they are unable to interpret the nature of the task expected of them. They may write a response according to what they think the question is rather than the one that is actually intended by the item writer. The difficulty may result from an incorrect interpretation of the task word used in the item. To help remedy this problem, the following task words are provided below. It should be noted that these words are arranged from the simple to the more complex.

The examples cited below will be variation of selected Delineations from the course.

List

This verb merely requires the identification, cataloguing, or naming of elements in a concept. For example, “Identify the natural inputs in a farming operation.” (Delineation 4.2.2) No explanation or description is necessary.

Similar verbs include *catalogue*, *name*, *identify*, and *label*.

State

This verb requires a short statement of a definition, principle, concept or relationship. For example, “State the impact of the coriolis force on wind direction.” (Delineation 2.3.3)

A similar verb includes *recall*.

Illustrate

This verb is asking for the use of specific examples to clarify a point or idea. For example, “Illustrate how human activity is influenced by climate.” (Delineation 2.8.1)

Similar verbs are *show* and *demonstrate*.

Outline

Students are expected to give the framework of the main features of a thing, idea, or event. For example, “Outline the energy flow through an ecosystem.” (Delineation 3.1.3)

A similar verb is *chart*.

Contrast

This verb asks for an account of the differences between two items, phenomena, ideas, or principles. For example, “Contrast a low population density area and a high population density area.” (Delineation 7.1.2)

Similar verbs include *distinguish* and *differentiate*.

Compare

This verb requires an account of the similarities and differences between two items, phenomena, ideas, or principles. In responding to this task, students often give the similarities and not the differences; and/or provide two definitions. For example, “Compare commercial farming and subsistence farming.” (Delineation 4.4.1)

Describe

This verb requires a factual account, with no interpretative undertone, of the distinctive features of an event, situation, or phenomena; no explanation is necessary. Usually the aspects to be described are specified. For example, “Describe some of the problems that result from overpopulation.” (Delineation 6.2.6)

Explain

This verb asks for an account of the make-up of something; how something works; or why something is the way it is. For example, “Explain how situation influences a community’s growth in size.” (Delineation 7.4.2)

Similar verb phrases include “*Give reasons for ...*”, “*Account for ...*”.

Discuss

Students only vaguely understand this verb although it is one of more commonly used ones on teacher-constructed tests. This verb should be used within a context. If an argument is presented, “discuss” means to present various points for and/or against the argument. For example, “(*Name of a community*) is poorly located. Discuss.” (Delineation 7.3.5)

In this case, similar verb phrase is *support and critique*.

If a principle is stated, “discuss” would involve the extension of the meaning of the principle and how it applies to a given situation. For example, “The extent of forest cover on the earth’s surface is affected by climate. Discuss.” (Delineation 4.6.6)

In this case, a similar verb is *extend*.

Examine

Students are expected to “inquire into”, reflect, look critically at something and to present an analysis of an issue or situation. For example, “Examine how the number and type of services available in a community are affected by its size.” (Delineation 7.6.5)

Similar verbs include *infer* and *analyze*.

Similar verb phrases include “Draw conclusions about ...,” and “Relate ... to ...”

Develop

Students are expected to create a new entity by combining elements into a new pattern. For example, “Develop an argument for the development of the aquacultural sector of the fishery.” (Delineation 4.7.3)

Similar verbs include *compose*, *construct*, *design*, *formulate*, *predict*, and *propose*.

Assess

This verb requires an examination of the value or validity of something according to some criteria; it involves making an informed judgment. This process may involve weighing the merit of different points of view. In teaching Delineation 5.4.4, for example, students could be asked, for example, to assess the validity of the statement, “The closure of a factory is merely a business decision.”

Similar verbs are *judge* and *evaluate*.

Support

In response to this verb, students are expected to defend a particular point of view with a well-reasoned argument with evidence and examples. For example, Support the following statement:

"Canada should take an open-door approach to immigration."

(Delineation 6.5.5)

A similar verb is *defend* and *justify*.

Constructing Selected Response Items

A selected response item consists of a stem and a number of alternatives. The stem may be a statement or a direct question that poses a problem. The student's task is to respond to the problem by choosing the correct or best alternative. The remaining incorrect or less acceptable alternatives serve as distractors.

The following guidelines may be used to construct multiple-choice items:

- The stem may prompt students for two possible types of answers: a **correct** answer, or the **best** answer.
- Try to write responses of approximately the same length for any one item.
- The position of the correct answer should be randomized. One way to do this is to arrange the responses alphabetically.
- The stem must not contain grammatical clues to the correct response.
- Avoid using "all of the above" or "none of the above" as responses.
- The stem itself should contain enough information to set the context for the response.

Poor: The fertility of soil

- (a) is determined by the amount of soluble minerals and organic matter.
- (b) depends upon the ratio of sand to clay.
- (c) depends upon the depth of the sub-soil.
- (d) is determined by texture and depth.

Better: Which of the following conditions has the greatest effect on soil fertility?

- (a) amount of soluble minerals and organic matter
- (b) depth of the sub-soil
- (c) ratio of sand to clay
- (d) texture and depth

- The stem should present only one concept.

Poor: Which term refers to the grasslands of tropical regions as opposed to grasslands of middle-latitude regions?

- (A) pampas
- (B) prairies
- (C) savannas
- (D) steppes

Better: Which term refers to the grasslands of tropical regions?

- (a) pampas
- (b) prairies
- (c) savannas
- (d) steppes

- Items should have a clearly defensible correct or best option.

Poor: Which ecosystem has a hot climate?

- (a) desert
- (b) equatorial rainforest
- (c) needleleaf rainforest
- (d) prairie

Better: Which ecosystem has a hot, humid climate?

- (a) desert
- (b) equatorial rainforest
- (c) needleleaf rainforest
- (d) prairie

- Avoid using superfluous information in the stem.

Poor: Farming in developing countries is an integral part of the household economy. Which of the following characteristics **best** describes agriculture in southeast Asia?

- (a) Farm plots are distant from markets.
- (b) It is capital intensive.
- (c) It employs a small percentage of the labour force
- (d) Monoculture is practiced.

Better: Which of the following characteristics **best** describes agriculture in southeast Asia?

- (a) Farm plots are distant from markets.
- (b) It is capital intensive.
- (c) It employs a small percentage of the labour force
- (d) Monoculture is practiced.

- The question should require a specific single answer.

Poor: Which of the following characteristics describes population dynamics in highly developed countries?

- (a) contracting population
- (b) low birth rates
- (c) high death rates
- (d) both (A) and (B)

Better: Which of the following characteristics describes population dynamics in highly developed countries?
(a) contracting population
(b) low birth rates
(c) high death rates
(d) high emigration rates

- Where possible, the stem should be stated in positive terms.

Poor: Which of the following is **not** a feature of continental glaciation?
(a) arête
(b) drumlin
(c) esker
(d) terminal moraine

Better: Which of the following is an example of alpine glaciation?
(a) arête
(b) drumlin
(c) esker
(d) terminal moraine

- The responses should be equally plausible to the uninformed respondent.

Poor: What measure gives the number of persons per square unit of arable land?
(a) carrying capacity
(b) nutritional density
(c) population density
(d) standard of living

Better: What measure gives the number of persons per square unit of arable land?
(a) carrying capacity
(b) farm concentration index
(c) nutritional density
(d) population density

Writing Constructed Response Items

- Only use essay questions if some other item format, particularly multiple-choice, is not appropriate for the knowledge and skill tested.
- Word the question so that it will elicit the type of response that you wish to measure.

- Clear, descriptive words should be used to indicate the nature of the task required of the student.
- The value or weighting of the question should be indicated so that the student can allocate sufficient writing time.
- Use a larger number of questions requiring shorter responses in lieu of fewer questions requiring longer responses.
- The length of the expected response and the level of vocabulary used in the item should reflect the maturity level of the student.
- Use words that ensure that students respond at the cognitive level required by the related outcome.

