

# 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)

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## 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.

<b>Steps</b>	<b>Suggested Teacher Role</b>
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)

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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.

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## 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.

