Curriculum Planning and Development Division
Ministry of Education

GEOGRAPHY SYLLABUS

Lower Secondary

2006

GEOGRAPHY SYLLABUS
LOWER SECONDARY

SECONDARY 1 and 2 (Special/Express Course)
SECONDARY 1 and 2 (Normal Academic Course)

Year of Implementation From 2006

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CONTENTS

1 Introduction and Rationale

1.1 The Lower Secondary Geography syllabus was reviewed in 2003 to ensure that it remains relevant and future-oriented. It has incorporated knowledge, skills and values essential to a holistic understanding of Geography and provides a foundation for the study of Geography at the upper secondary level. It has also integrated MOE initiatives and programmes on innovation and enterprise (I&E), thinking skills, Information Technology (IT), National Education (NE), economic literacy and financial literacy.

2 Aims and Objectives

2.1 The Lower Secondary Geography syllabus aims to develop knowledge and skills as well as inculcate positive values and attitudes in students.

2.2 Aims

- Stimulate students' interest in Geography;
- Provide a holistic understanding of physical-human relationships;
- Develop basic skills in acquiring, communicating and applying geographical knowledge; and
- Develop an informed concern about the quality of the environment and the future of the human habitat; and thereby enhance students' sense of responsibility for the care of the Earth and its people.

2.3 Objectives

2.3.1 Knowledge

Students should demonstrate knowledge of

- geographical concepts, terms and facts;
- components of physical and human environments;
- spatial patterns of physical and human phenomena; and
- physical-human relationships at local, regional and global scales.

2.3.2 Skills

Students should be able to

- identify and classify physical and human features of the environment;
- observe, collect and record geographic information from both primary and secondary sources;
- interpret maps, tables, graphs, photographs and fieldwork data; and
- organise and present information in a coherent manner.

2.3.3 Attitudes and Values

Students should be able to demonstrate

- a sense of appreciation and responsibility for the quality of the environment at local, regional and global scales;
- sensitivity towards people in different human environments;

- an awareness of Singapore's strategic vulnerabilities and constraints, and the strategies used to overcome them; and
- instinct for survival and confidence in the future of Singapore.

3 Curriculum Time

3.1 A minimum of two periods per week should be allocated to the study of Geography in Secondary 1 and 2. This syllabus has been designed to be covered over a minimum of 114 periods over 2 years.

4 Framework of the Syllabus

4.1 The syllabus adopts a systematic framework to organise content. Geographical skills and foundation knowledge are introduced at both Secondary 1 and Secondary 2. At Secondary 1, the emphasis is on the components of the physical environment and at Secondary 2, the focus is on the human environment and issues related to managing the changing environment. Within this framework, the physical-human relationships are used as the organising theme to show how relationships between people and the environment have given rise to the distinctive character of places and environments. There are a total of 5 themes: 3 themes to be covered in Secondary 1 and 2 themes to be covered in Secondary 2.

4.1.1 Secondary 1 Syllabus
Theme I: Introduction to Geography
Theme II: Understanding the Environment
Theme III: The Physical Environment

4.1.2 Secondary 2 Syllabus
Theme IV: The Human Environment
Theme V: Managing the Changing Environment

4.2 Case studies and examples are used to explicitly highlight the physical-human relationships and to illustrate important concepts and values. They also provide the opportunities for the infusion of MOE initiatives and programmes. Current issues and events should be incorporated into the lessons to ensure that the subject remains relevant and interesting.

4.3 The teaching of geographical skills such as atlas skills, map reading skills and photograph interpretation are given greater attention in this syllabus to prepare students for upper secondary Geography. Generic skills in sourcing, analysing, communicating and applying geographical knowledge have also been integrated into the syllabus.

5 Suggested Teaching Strategies

5.1 A variety of appropriate teaching aids and activities should be employed to provide a range of meaningful learning experiences to students.

5.1.1 Teaching aids could include transparencies, slides, photographs, newspaper clippings, CD-ROMs, games, the Internet, and video programmes.

5.1.2 Activities could include group discussions, cooperative learning strategies, SAIL (Strategies for Active and Independent Learning) approach, simulation exercises, role-plays, debates and the use of models and experiments.

5.1.3 Field studies should be conducted whenever opportunities are available. Field study topics could include tropical rainforest, micro-climate study, high-tech farming, urban land use and environmental pollution.

6 Assessment

6.1 Assessment is an integral part of the teaching-learning process. It complements and enhances the learning by providing guidance and feedback on students' performance and proficiency in the subject. This helps to foster positive attitudinal characteristics in students in their pursuit for academic excellence.

6.2 Assessment Objectives (AOs)

6.2.1 AO1: Knowledge

- Demonstrate relevant factual knowledge of geographical concepts, processes and interactions

6.2.2 AO2: Critical Understanding and Constructing Explanation

- Select, organise and apply concepts, terms and facts learnt

6.2.3 AO3: Interpreting and Evaluating Geographical data

- Comprehend and extract relevant information from geographical data (numerical, diagrammatic, pictorial and graphical forms)
- Use and apply geographical knowledge and understanding to interpret geographical data
- Recognise patterns in geographical data and deduce relationships

6.3 Assessment Specification Grid

To ensure that students are assessed on different cognitive skills, weightings will be given to the assessment objectives as follows:

Assessment Objective (AO)	Weighting
AO1 + AO2	50%
AO1 + AO3	50%
Total	100%

6.4 Semestral assessment could include items such as multiple-choice questions, map skills, basic techniques and structured questions. These items evaluate content knowledge as well as processes and skills. Other assessment modes such as oral presentations, portfolio, and fieldwork assignments may be included as part of continuous assessments. Continuous assessment is as important as semestral assessment because it is used as a formative tool to improve learning.

6.5 Assessment Format

The recommended assessment format for Special/Express and Normal (Academic) courses is as follows:

Assessment Format

Section	Item Type	No. of questions to be set	No. of questions to be answered	Weighting (%)
A	Multiple-Choice Questions	15	15	15
B	Map Skills	15	15	25
	Basic Techniques	10	10	
C*	Structured Questions	6	4	60

* Not more than 5 parts per question for Special/Express
Not more than 6 parts per question for Normal (Academic)

7 Implementation

7.1 The revised Lower Secondary Geography syllabus is for implementation at Secondary One in 2006 and at Secondary Two in 2007.

SPECIAL/EXPRESS COURSE

CONTENT OUTLINE OF SYLLABUS FOR SPECIAL/EXPRESS COURSE

SECONDARY ONE		*
THEME I:	**Introduction to Geography**	
1	Overview of Geography	1
2	Earth as Home	2
THEME II:	**Understanding the Environment**	
3	Physical and Human Environments	3
4	Environments Through Maps	9
5	Environments Through Photographs	2
THEME III:	**The Physical Environment**	
•	Introduction	1
6	Landforms and Rocks	12
7	Rivers	9
8	Weather and Climate	8
9	Natural Vegetation	9

SECONDARY TWO		*
THEME IV:	**The Human Environment**	
•	Introduction	1
10	Population and Settlements	8
11	Agriculture	8
12	Transport and Communications	8
THEME V:	**Managing the Changing Environment**	
•	Introduction	1
13	Land Supply	8
14	Water Resources	8
15	Pollution	8
16	Global Warming and Ozone Depletion	8

***** Suggested number of periods

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
I Introduction to Geography	<u>Overview of Geography</u> • Definition of Geography • Importance of studying Geography • Value of fieldwork in Geography <u>Earth as Home</u> • Earth as part of the Solar System • Revolution and rotation of the Earth • Only one Earth and home (e.g. food, shelter) for all human kind • Fragile nature of Earth as an entity	Students will be able to: • understand the importance of studying Geography • understand the physical-human relationships in Geography • understand the value of fieldwork in Geography • understand the fragile nature of Earth	• physical-human relationships • Earth • Solar System • revolution • rotation • fragility	• appreciate the importance of studying Geography • recognise the value of fieldwork in Geography • responsibility • stewardship • survival
II Understanding the Environment	<u>Physical and Human Environments</u> • The physical and human environments • The inter-relationships between people and the environment • The physical environment as a natural resource • Contrast between a hunting and gathering system that is in harmony with the physical environment (e.g. !Kung Bushmen in the Kalahari Desert) and an urban system that is	Students will be able to: • differentiate between the physical and human environments • contrast different people-environment relationships	• physical environment • human environment • natural resource • inter-relationships	• adaptability • harmony • ingenuity • respect for diversity • respect for the environment • resourcefulness • social cohesion

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	a product of human's modification to the physical environment (e.g. Singapore) <u>Environments Through Maps</u> • Maps as graphical representations of the Earth • Types of maps and their uses (e.g. sources of information, records of changes in the environment, basis of planning and decision-making) • Importance of maps in the past and today • Map skills (I) Atlas – latitude (Equator, Tropic of Cancer, Tropic of Capricorn, Arctic Circle, Antarctic Circle, North Pole, South Pole) and longitude (Greenwich Meridian, International Dateline) – time zone variations – continents, oceans, countries, major cities, physical and human features (II) Topographical map – location (four-figure and six-figure grid references) – straight line and curved distances	• understand maps as graphical representations of the Earth • understand that maps have varied uses • use an atlas to locate specific places and features • interpret physical and human environments shown on topographical maps	• map • latitude • longitude • time zone • continent • ocean • country • city • physical feature • human feature • location • distance • direction • scale • symbol • legend • contour	• accuracy • being meticulous

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	– direction (compass points, compass bearings) – line and statement scales – map symbols representing physical and human features – contours (gentle slope, steep slope, mountain, hill, plateau, ridge, valley, plain) <u>Environments Through Photographs</u> • Importance of photographs in Geography • Types of photographs (landscape and aerial photographs, satellite images) • Photograph interpretation	• interpret physical and human environments shown on photographs • understand the usefulness of photographs in conveying information	• photograph • foreground • middle ground • background	• being meticulous • being observant
III The Physical Environment	<u>Introduction</u> • Components of the physical environment – landforms and rocks – rivers – weather and climate – natural vegetation • The inter-relationships of all the components in the physical environment	Students will be able to: • explain the inter-relationships between the components of the physical environment	• landform • rock • river • weather • climate • natural vegetation	• appreciate the inter-relationships between the different components of the physical environment

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	<u>Landforms and Rocks</u> <u>Landforms</u> • Types of landforms – mountains – hills – plateaux – plains – valleys • Formation of landforms by internal forces of crustal movements – fold mountains – volcanoes • Modification of landforms by external forces • Landforms and people • Case study of living with volcanoes in Indonesia <u>Rocks</u> • Landforms are made up of rocks – origins and basic characteristics of main rock types ▪ igneous (e.g. granite and basalt) ▪ sedimentary (e.g. shale and limestone) ▪ metamorphic (e.g. marble and schist) – rock cycle	• describe different types of landforms • explain how landforms result from internal forces of crustal movements • draw an annotated diagram of the cross-section of a volcano • describe how landforms are modified by external forces • discuss how landforms affect people • evaluate the benefits and risks of living in the volcanic areas of Indonesia • investigate the origins and characteristics of the main rock types • describe the distribution of main rock types in Singapore using a map	• mountain • hill • plateau • plain • valley • crustal movement • folding • vulcanicity • active • dormant • extinct • weathering • erosion • rock • igneous rock • sedimentary rock • metamorphic rock • rock cycle	• adaptability • ingenuity • pragmatism • preparedness for any eventuality • resourcefulness • risk taking • survival

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	• Distribution of the main rock types in Singapore <u>Rivers</u> • Distribution of earth's water • The hydrologic cycle (evaporation, transpiration, condensation, rainfall, runoff) • Drainage basin (watershed, river source, tributaries, distributaries, river mouth) • River features (waterfall, valley, meander, floodplain, delta) • Rivers and people • Case study of River Nile <u>Weather and Climate</u> • Differences between weather and climate • Weather elements (temperature, rainfall, wind*)* • Instrumentation (thermometer, rain	• describe the features along a river course • identify river features on topographical maps • discuss how rivers affect people positively and negatively • examine the inter-relationship between River Nile and human activities • differentiate between weather and climate • understand the use and siting of weather instruments • compare weather and	• hydrologic cycle • evaporation • transpiration • condensation • rainfall • runoff • drainage basin • watershed • river source • tributary • waterfall • valley • meander • floodplain • distributary • delta • river mouth • weather • climate • temperature • rainfall • wind	• adaptability • ingenuity • pragmatism • preparedness for any eventuality • resourcefulness • risk taking • survival • adaptability • ingenuity • pragmatism • preparedness for any eventuality

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	gauge, wind vane) • Calculations of temperature (daily, monthly, annual range, mean) and rainfall (daily, monthly, annual) • Overview of world's major climatic types: distribution and characteristics – tropical – temperate – polar • Weather, climate and people <u>Natural Vegetation</u> • Distribution and characteristics of the major types and sub-types of natural vegetation – forests (tropical, temperate deciduous, coniferous) – grasslands (tropical savannah, temperate grasslands) – deserts (hot desert, cold tundra) • Inter-relationship between climate and vegetation • Natural vegetation and people • Case study of a tropical rainforest in Singapore	climatic data to understand weather and climatic variations • describe the distribution and characteristics of the world's major climatic types • discuss how weather and climate affect people positively and negatively • describe and compare the distribution and characteristics of the major types and sub-types of natural vegetation • describe the distribution of natural vegetation on topographical maps • examine the relationship between climate and vegetation • discuss the benefits of natural vegetation to people • investigate the location, characteristics and uses of a tropical rainforest in Singapore	• tropical • temperate • polar • natural vegetation • forest • grassland • desert • climate-vegetation relationship • conservation	• resourcefulness • risk taking • survival • care and concern for our natural heritage • harmony • pride in our natural heritage • resourcefulness • responsibility towards our natural heritage

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
IV The Human Environment	<u>Introduction</u> • Components of the human environment – population and settlements – agriculture – transport and communications • The human environment is a product of interaction with the physical environment	Students will be able to: • understand that the human environment is a product of interaction with the physical environment	• population • settlement • agriculture • transport • communication • interaction	• appreciate the inter-relationships between different components of the human environment
	<u>Population and Settlements</u> <u>Population</u> • World population growth • World population distribution and density • Causes and consequences of and responses to – high rate of population growth (e.g. India) – low rate of population growth (e.g. Singapore)	• describe the trend of world population growth • describe the distribution and density of world population • explain the causes and consequences of and responses to high and low rates of population growth	• population growth • population distribution • population density • birth rate • death rate • rate of natural increase • high rate of population growth • low rate of population growth • ageing population • financial planning	• filial responsibility • foresight • good governance • pragmatism • self reliance

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	<u>Settlements</u> • Types of settlements – rural – urban • Characteristics of rural and urban settlements in terms of dominant function, amenities and way of life • Types of and reasons for settlement patterns – dispersed – linear – nucleated	• compare characteristics of rural and urban settlements • describe settlement patterns on topographical maps	• rural settlement • urban settlement • settlement pattern • dispersed settlement • linear settlement • nucleated settlement	• resourcefulness • sense of belonging
	<u>Agriculture</u> • Agriculture as a primary industry • Distribution and characteristics (purpose, input, produce) of selected agricultural types – shifting cultivation (e.g. Indonesia) – wet rice cultivation (e.g. Thailand) – plantation (e.g. Peninsular Malaysia) – high-tech farming (e.g. Singapore)	• understand that agriculture is a type of primary industry • compare the characteristics of the different agricultural types • describe the distribution of agricultural types on a topographical map	• primary industry • agricultural type • shifting cultivation • wet rice cultivation • plantation • high-tech farming	• adaptability • diligence • harmony • pragmatism • resourcefulness • self reliance • survival

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	<u>Transport and Communications</u> • Types of transport and communications • Developments in transportation and communications as a result of technological advancements • Effects of transport and communications development on accessibility and connectivity ('shrinking world', globalisation) • Case study of Singapore as a transport and communications hub	• describe how accessibility and connectivity can be increased by improvements in transport and communications • examine the development of Singapore as a transport and communications hub • describe the relationship between transport networks and human activities on a topographical map	• accessibility • connectivity • 'shrinking world' • globalisation • technological advancement • transport hub • entrepreneurship	• competitiveness • enterprise • excellence • good governance • foresight • pragmatism • survival
V Managing the Changing Environment	<u>Introduction</u> • Role of humans in managing the changing environment – land supply – water resources – pollution – global warming and ozone depletion • The impact of human activities on the environment at local, regional and global scales • Protecting and conserving the environment at different levels (individual, national, international)	Students will be able to: • explain human's role in managing the changing environment • describe the impact of human activities on the environment at local, regional and global scales • justify the need for protection and conservation of the environment at different levels	• global warming • ozone depletion • local scale • regional scale • global scale • environmental conservation	• recognise that the impact of human activities on the environment can occur at different spatial scales • recognise that environmental conservation is a shared responsibility

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	<u>Land Supply</u> • Land as a scarce resource • Reasons for the rising demand for land • Responses to the rising demand for land – increase price of land – increase land supply ▪ land clearance (deforestation) ▪ land reclamation (landfill, reclamation of derelict land, empoldering) ▪ maximise existing land use ○ urban (mixed land use, high density building) ○ agricultural (terracing, irrigation, soil-less farming) – conserve land (nature reserve)	• explain the reasons for land constraint • evaluate the effectiveness of different responses to increase land supply	• land constraint • scarcity • opportunity cost • price mechanism • land clearance • deforestation • land reclamation • landfill • derelict land • empoldering • land use planning • arable land • terracing • irrigation • soil-less farming • nature reserve • natural heritage	• foresight • good governance • ingenuity • pragmatism • prudence • resourcefulness • risk taking • survival
	<u>Water Resources</u> • Water as a scarce resource • Reasons for the rising demand for water • Responses to the rising demand for water – increase price of water	• explain the reasons for water constraint • evaluate the effectiveness of different responses to increase water supply	• water constraint • catchment areas • international agreement • technology	• co-operation • enterprise • foresight • good governance • pragmatism

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	– increase water supply ▪ catchment areas ▪ international agreements ▪ technology (desalination, recycled water) – conserve water (public education) • Case study of water supply in Singapore <u>Pollution</u> • Types of pollution – air (dust, smoke) – water (oil spill, sewage) – land (waste, pesticides) – noise (construction, traffic) • Causes and extent of pollution • Measures taken to reduce pollution at different levels (individual, national, international) • Case study of environmental protection in Singapore <u>Global Warming and Ozone Depletion</u> • Extent of global warming and ozone depletion • Causes and consequences of global warming and ozone depletion • Measures to reduce the impact at	• examine Singapore's responses in overcoming the constraints of water supply • examine the causes and extent of pollution and measures taken to reduce pollution • evaluate Singapore's approaches to environmental protection • describe the extent of global warming and ozone depletion • describe the human-induced causes and the consequences of global warming and ozone depletion	• desalination • recycled water • vulnerability • conservation • pollution • waste • global warming • ozone depletion • enhanced greenhouse effect	• prudence • resourcefulness • social responsibility • survival • accountability • care and concern for our environment • co-operation • good governance • pragmatism • social responsibility • accountability • care and concern for our environment • co-operation

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	different levels (individual, national, international) – global warming ▪ reducing the greenhouse gases – ozone depletion ▪ banning/reducing the use of CFCs	• evaluate the measures to reduce the impact of global warming and ozone depletion		• good governance • pragmatism • social responsibility

NORMAL (ACADEMIC) COURSE

CONTENT OUTLINE OF SYLLABUS FOR NORMAL (ACADEMIC) COURSE

SECONDARY ONE	*	SECONDARY TWO	*
THEME I: Introduction to Geography		**THEME IV: The Human Environment**	
1 Overview of Geography	1	• Introduction	1
2 Earth as Home	2	10 Population and Settlements	8
		11 Agriculture	8
THEME II: Understanding the Environment		12 Transport and Communications	8
3 Physical and Human Environments	3		
4 Environments Through Maps	9	**THEME V: Managing the Changing Environment**	
5 Environments Through Photographs	2	• Introduction	1
		13 Land Supply	8
THEME III: The Physical Environment		14 Water Resources	8
• Introduction	1	15 Pollution	8
6 Landforms and Rocks	12	16 Global Warming and Ozone Depletion	8
7 Rivers	9		
8 Weather and Climate	8		
9 Natural Vegetation	9		

***** Suggested number of periods

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
I Introduction to Geography	<u>Overview of Geography</u> • Definition of Geography • Importance of studying Geography • Value of fieldwork in Geography <u>Earth as Home</u> • Earth as part of the Solar System • Revolution and rotation of the Earth • Only one Earth and home (e.g. food, shelter) for all human kind • Fragile nature of Earth as an entity	Students will be able to: • understand the importance of studying Geography • understand the physical-human relationships in Geography • understand the value of fieldwork in Geography • understand the fragile nature of Earth	• physical-human relationships • Earth • Solar System • revolution • rotation • fragility	• appreciate the importance of studying Geography • recognise the value of fieldwork in Geography • responsibility • stewardship • survival
II Understanding the Environment	<u>Physical and Human Environments</u> • The physical and human environments • The inter-relationships between people and the environment • The physical environment as a natural resource • Contrast between a hunting and gathering system that is in harmony with the physical environment (e.g. !Kung Bushmen in the Kalahari Desert) and an urban system that is	Students will be able to: • differentiate between the physical and human environments • contrast different people-environment relationships	• physical environment • human environment • natural resource • inter-relationships	• adaptability • harmony • ingenuity • respect for diversity • respect for the environment • resourcefulness • social cohesion

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	a product of human's modification to the physical environment (e.g. Singapore) <u>Environments Through Maps</u> • Maps as graphical representations of the Earth • Types of maps and their uses (e.g. sources of information, records of changes in the environment, basis of planning and decision-making) • Importance of maps in the past and today • Map skills (I) Atlas – latitude (Equator, Tropic of Cancer, Tropic of Capricorn, Arctic Circle, Antarctic Circle, North Pole, South Pole) and longitude (Greenwich Meridian, International Dateline) – continents, oceans, countries, major cities, physical and human features (II) Topographical map – location (four-figure, six-figure grid references) – straight line distances – direction (compass points, compass bearings)	• understand maps as graphical representations of the Earth • understand that maps have varied uses • use an atlas to locate specific places and features • interpret physical and human environments shown on topographical maps	• map • latitude • longitude • continent • ocean • country • city • physical feature • human feature • location • distance • direction • scale • symbol • legend • contour	• accuracy • being meticulous

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	– line and statement scales – map symbols representing physical and human features – contours (gentle slope, steep slope, mountain, hill, plateau, ridge, valley, plain) <u>Environments Through Photographs</u> • Importance of photographs in Geography • Types of photographs (landscape and aerial photographs, satellite images) • Photograph interpretation	• interpret physical and human environments shown on photographs • understand the usefulness of photographs in conveying information	• photograph • foreground • middle ground • background	• being meticulous • being observant
III The Physical Environment	<u>Introduction</u> • Components of the physical environment – landforms and rocks – rivers – weather and climate – natural vegetation • The inter-relationships of all the components in the physical environment	Students will be able to: • explain the inter-relationships between the components of the physical environment	• landform • rock • river • weather • climate • natural vegetation	• appreciate the inter-relationships between the different components of the physical environment

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	<u>Landforms and Rocks</u> <u>Landforms</u> • Types of landforms – mountains – hills – plateaux – plains – valleys • Formation of landforms by internal forces of crustal movements – fold mountains – volcanoes • Modification of landforms by external forces • Landforms and people • Case study of living with volcanoes in Indonesia <u>Rocks</u> • Landforms are made up of rocks – origins and basic characteristics of main rock types ▪ igneous (e.g. granite, basalt) ▪ sedimentary (e.g. shale, limestone) ▪ metamorphic (e.g. marble, schist)	• describe different types of landforms • explain how landforms result from internal forces of crustal movements • draw an annotated diagram of the cross-section of a volcano • describe how landforms are modified by external forces • discuss how landforms affect people • evaluate the benefits and risks of living in the volcanic areas of Indonesia • investigate the origins and characteristics of the main rock types • describe the distribution of the main rock types in Singapore using a map	• mountain • hill • plateau • plain • valley • crustal movement • folding • vulcanicity • active • dormant • extinct • weathering • erosion • rock • igneous rock • sedimentary rock • metamorphic rock	• adaptability • ingenuity • pragmatism • preparedness for any eventuality • resourcefulness • risk taking • survival

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	• Distribution of the main rock types in Singapore <u>Rivers</u> • Distribution of earth's water • The hydrologic cycle (evaporation, transpiration, condensation, rainfall, runoff) • Drainage basin (watershed, river source, tributaries, distributaries, river mouth) • River features (waterfall, valley, meander, floodplain, delta) • Rivers and people <u>Weather and Climate</u> • Differences between weather and climate • Weather elements (temperature, rainfall, wind*)* • Instrumentation (thermometer, rain	• describe the features along a river course • identify river features on topographical maps • discuss how rivers affect people positively and negatively • differentiate between weather and climate • understand the use and siting of weather instruments • compare weather and	• hydrologic cycle • evaporation • transpiration • condensation • rainfall • runoff • drainage basin • watershed • river source • tributary • waterfall • valley • meander • floodplain • distributary • delta • river mouth • weather • climate • temperature • rainfall • wind	• adaptability • ingenuity • pragmatism • preparedness for any eventuality • resourcefulness • risk taking • survival • adaptability • ingenuity • pragmatism • preparedness for any eventuality

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	gauge, wind vane) • Calculations of temperature (daily, monthly, annual range, mean) and rainfall (daily, monthly, annual) • Overview of world's major climatic types: distribution and characteristics – tropical – temperate – polar • Weather, climate and people	climatic data to understand weather and climatic variations • describe the distribution and characteristics of the world's major climatic types • discuss how weather and climate affect people positively and negatively	• tropical • temperate • polar	• resourcefulness • risk taking • survival
	<u>Natural Vegetation</u> • Distribution and characteristics of the major types of natural vegetation – forests – grasslands – deserts • Inter-relationship between climate and vegetation • Natural vegetation and people • Case study of a tropical rainforest in Singapore	• describe and compare the distribution and characteristics of the major types of natural vegetation • describe the distribution of natural vegetation on topographical maps • examine the relationship between climate and vegetation • discuss the benefits of natural vegetation to people • investigate the location, characteristics and uses of a tropical rainforest in Singapore	• natural vegetation • forest • grassland • desert • climate-vegetation relationship • conservation	• care and concern for our natural heritage • harmony • pride in our natural heritage • resourcefulness • responsibility towards our natural heritage

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
IV The Human Environment	<u>Introduction</u> • Components of the human environment – population and settlements – agriculture – transport and communications • The human environment is a product of interaction with the physical environment	Students will be able to: • understand that the human environment is a product of interaction with the physical environment	• population • settlement • agriculture • transport • communication • interaction	• appreciate the inter-relationships between different components of the human environment
	<u>Population and Settlements</u> <u>Population</u> • World population growth • World population distribution and density • Causes and consequences of and responses to – high rate of population growth (e.g. India) – low rate of population growth (e.g. Singapore)	• describe the trend of world population growth • describe the distribution and density of world population • explain the causes and consequences of and responses to high and low rates of population growth	• population growth • population distribution • population density • birth rate • death rate • rate of natural increase • high rate of population growth • low rate of population growth • ageing population • financial planning	• filial responsibility • foresight • good governance • pragmatism • self reliance

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	<u>Settlements</u> • Types of settlements – rural – urban • Characteristics of rural and urban settlements in terms of dominant function, amenities and way of life • Types of and reasons for settlement patterns – dispersed – linear – nucleated	• compare characteristics of rural and urban settlements • describe settlement patterns on topographical maps	• rural settlement • urban settlement • settlement pattern • dispersed settlement • linear settlement • nucleated settlement	• resourcefulness • sense of belonging
	<u>Agriculture</u> • Agriculture as a primary industry • Distribution and characteristics (purpose, input, produce) of selected agricultural types – shifting cultivation (e.g. Indonesia) – wet rice cultivation (e.g. Thailand) – high-tech farming (e.g. Singapore)	• understand that agriculture is a type of primary industry • compare the different agricultural types • describe the distribution of agricultural types on a topographical map	• primary industry • agricultural type • shifting cultivation • wet rice cultivation • high-tech farming	• adaptability • diligence • harmony • pragmatism • resourcefulness • self reliance • survival

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	<u>Transport and Communications</u> • Types of transport and communications • Developments in transportation and communications as a result of technological advancements • Effects of transport and communications development on accessibility and connectivity ('shrinking world', globalisation)	• describe how accessibility and connectivity can be increased by improvements in transport and communications • describe the relationship between transport networks and human activities on a topographical map	• accessibility • connectivity • 'shrinking world' • globalisation • technological advancement • transport hub • entrepreneurship	• confidence in our nation • competitiveness • enterprise • excellence • good governance • foresight • pragmatism • survival
V Managing the Changing Environment	<u>Introduction</u> • Role of humans in managing the changing environment – land supply – water resources – pollution – global warming and ozone depletion • The impact of human activities on the environment at local, regional and global scales • Protecting and conserving the environment at different levels (individual, national, international)	Students will be able to: • explain human's role in managing the changing environment • describe the impact of human activities on the environment at local, regional and global scales • justify the need for protection and conservation of the environment at different levels	• global warming • ozone depletion • local scale • regional scale • global scale • environmental conservation	• recognise that the impact of human activities on the environment can occur at different spatial scales • recognise that environmental conservation is a shared responsibility

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	<u>Land Supply</u> • Land as a scarce resource • Reasons for the rising demand for land • Responses to the rising demand for land – increase price of land – increase land supply ▪ land clearance (deforestation) ▪ land reclamation (landfill) ▪ maximise existing land use o urban (mixed land use, high density building) o agricultural (terracing, irrigation, soil-less farming) – conserve land (nature reserve)	• explain the reasons for land constraint • evaluate the effectiveness of different responses to increase land supply	• land constraint • scarcity • opportunity cost • price mechanism • land clearance • deforestation • land reclamation • landfill • land use planning • arable land • terracing • irrigation • soil-less farming • nature reserve • natural heritage	• foresight • good governance • ingenuity • pragmatism • prudence • resourcefulness • risk taking • survival
	<u>Water Resources</u> • Water as a scarce resource • Reasons for the rising demand for water • Responses to the rising demand for water – increase price of water – increase water supply ▪ catchment areas	• explain the reasons for water constraint • evaluate the effectiveness of different responses to increase water supply • examine Singapore's responses in overcoming the constraints of water	• water constraint • catchment areas • technology • desalination • recycled water • vulnerability • conservation	• co-operation • enterprise • foresight • good governance • pragmatism • prudence • resourcefulness

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	▪ technology (desalination, recycled water) – conserve water (public education) • Case study of water supply in Singapore	supply		• social responsibility • survival
	<u>Pollution</u> • Types of pollution – air (dust, smoke) – water (oil spill, sewage) – land (waste, pesticides) • Causes and extent of pollution • Measures taken to reduce pollution at different levels (individual, national, international) • Case study of environmental protection in Singapore	• examine the causes and extent of pollution and measures taken to reduce pollution • evaluate Singapore's approaches to environmental protection	• pollution • waste	• accountability • care and concern for our environment • co-operation • good governance • pragmatism • social responsibility
	<u>Global Warming and Ozone Depletion</u> • Extent of global warming and ozone depletion • Causes and consequences of global warming and ozone depletion • Measures to reduce the impact at different levels (individual, national, international) – global warming ▪ reducing the greenhouse gases	• describe the extent of global warming and ozone depletion • describe the human-induced causes and the consequences of global warming and ozone depletion • evaluate the measures to reduce the impact of global warming and ozone depletion	• global warming • ozone depletion • enhanced greenhouse effect	• accountability • care and concern for our environment • co-operation • good governance • pragmatism • social responsibility

Theme	Content	Learning Outcomes	Concepts	Values/Attitudes
	– ozone depletion ▪ banning/reducing the use of CFCs			

APPENDICES

APPENDIX A

CHART SHOWING CONTENT DIFFERENTIATION BETWEEN SPECIAL/EXPRESS AND NORMAL (ACADEMIC) COURSES

THEME	TOPIC	
	SPECIAL/EXPRESS	**NORMAL(ACADEMIC)**
Theme II **Understanding the Environment**	**Map Skills** (i) Atlas • Time zone variations (ii) Topographical map • Curved distances	 Omitted Omitted
Theme III **The Physical Environment**	**Rocks** • Rock cycle	Omitted
	Rivers • Case study of River Nile	Omitted
	Natural Vegetation • Tropical, temperate deciduous and coniferous • Tropical savanna and temperate grasslands • Hot desert and cold tundra	 Omitted Omitted Omitted

APPENDIX A

THEME	TOPIC	
	SPECIAL/EXPRESS	**NORMAL(ACADEMIC)**
Theme IV **The Human Environment**	**<u>Agriculture</u>** • Distribution and characteristics (e.g. purpose, input, produce) of selected agricultural agricultural systems : – plantation system (e.g. Peninsular Malaysia)	Omitted
	<u>Transport and Communications</u> • Case study of Singapore as a transport and communications hub	Omitted
Theme V **Managing the Changing Environment**	**<u>Land Supply</u>** • Reclamation of derelict land, empoldering	Omitted
	<u>Water Resources</u> • International agreements	Omitted
	<u>Pollution</u> • Noise (construction, traffic)	Omitted

APPENDIX B

CHART SHOWING CASE STUDIES

Secondary 1	Secondary 2
1. Case study of living with volcanoes in Indonesia • Evaluate the benefits and risks of living in the volcanic areas of Indonesia	1. Case study of Singapore as a transport and communications hub***** • Examine the development of Singapore as a transport and communications hub
2. Case study of River Nile***** • Examine the interrelationship between River Nile and human activities	2. Case study of water supply in Singapore • Examine Singapore's responses in overcoming the constraints of water supply
3. Case study of a tropical rainforest in Singapore • Investigate the location, use and characteristics of tropical rainforest in Singapore	3. Case study of environmental protection in Singapore • Evaluate Singapore's approaches to environmental protection

Note: (*) denotes exclusion for Normal (Academic) course

APPENDIX C

BASIC GEOGRAPHY EQUIPMENT

1	**Wall Maps** • Singapore* • Peninsular Malaysia* • Malaysia* • Southeast Asia* • The World* • Asia • Africa • Europe • North America • South America • Australia and New Zealand	**4**	**Weather Recording Equipment** • Stevenson screen • Maximum and minimum thermometers • Wet and dry bulb thermometers • Rain gauge • Wind vane
		5	**Samples** • Sets of geological rock specimens • Samples of natural resources
2	**Topographical Sheets and Street Directories** • Singapore • Peninsular Malaysia	**6**	**Field Instruments** • Measuring tapes • Compasses
3	**Globes** • 40 or 60 cm relief globe • 40 cm globe of political divisions		

Note: Storage and display cupboards, map racks and display boards should be available.

* These are the more essential wall maps.

APPENDIX D

SUGGESTED REFERENCES FOR GEOGRAPHY TEACHERS

I General

1 Ashley, K. (ed) (2000) Reflective Practice In Geography Teaching, London: Paul Chapman Publishing

2 Boardman, D. (ed) (1980) Handbook For Geography Teachers, Sheffield: Geographical Association

3 Boardman, D. (ed) (1985) New Directions In Geography Education, London: Falmer Press

4 Boyce, J. & Feretti, J. (1984) Fieldwork In Geography, Cambridge: Cambridge University Press

5 Fien, J. , Gerber, R. & Wilson, O. (ed) (1989) The Geography Teacher's Guide To The Classroom, 2nd ed., Melbourne: Macmillan

6 Graves, N.J. (ed) (1982) New UNESCO Sourcebook For Geography Teaching, London: Longman, The UNESCO Press

7 Hall, D. (1976) Geography And Geography Teacher, 2nd ed., London: George Allen and Unwin

8 Kent, A., Lambert, D., Naish, M. & Slater, F. (1996) Geography In Education, Cambridge: Cambridge University Press

9 Lambert, D. & Balderstone, D. (2002) Learning To Teach Geography In The Secondary School, London: Routledge Falmer

10 Lambert, D. & Machon, P. (ed) (2001) Citizenship Through Secondary Geography, London: Routledge Falmer

11 Naish, M. (1992) Geography And Education, Institute of Education, London: University of London

12 Rawling, E.M. & Daugherty, R.A. (1996), Geography Into The Twenty-First Century, London: John Wiley & Sons Ltd

13 Salmon, R.B. & Masterton, T.A. (1974) The Principles Of Objective Testing In Geography, London: Heinemann

14 Scoffman, S. (1980) Using The School's Surroundings: A Guide To Local Studies in Urban Schools, London: Ward Lock Educational

15 Slater, F. (1982) Learning Through Geography, London: Heinemann

16 Smith, M. (ed) (2002) Aspects of Teaching Secondary Geography, Oxford: Routledge Falmer, Oxford University Press

17 Smith, M. (ed) (2002) Teaching Geography in Secondary School, London: Routledge

18 Tilbury, D. & William, M. (ed) (1997) Teaching And Learning Geography, London: Routledge

19 Walford, R. (ed) (1981) Signposts For Geography Teaching, London: Longman

II Journals

1 Geofile, published three issues annually by Nelson Thornes Publishers Limited

2 Geographical Magazine, published monthly by the Royal Geographical Society

3 Geography, published quarterly by the Geographical Association, UK

4 Geography Review, published five issues annually by Philip Allan Publishers Limited

5 Journal of Geography, published six times annually by the National Council for Geographic Education, USA

6 National Geographic Magazine, published monthly by the National Geographic Society, USA

7 Teaching Geography, published quarterly by the Geographical Association, UK

8 Understanding Global Issues, published ten issues annually by European Schoolbooks Publishers Limited

III MOE Publications

1 Geography Room Handbook (1985)

2 Geography Through Fieldwork Book 1-3 (1985/6)

3 Reading And Interpreting Geographic Photographs (1988)

4 Making And Using Models in Geography Teaching (1990)

5 Orienteering in Geography (1994)

6 National Education: Selected Readings in Geography (1997)

7 GeoTrail: Labrador (2003)

IV Dictionaries

1 Clark, A.N. (2003) The Penguin Dictionary Of Geography, London: Penguin Books

2 Goudie, A. et al. (ed) (1997) The Encyclopedic Dictionary Of Physical Geography, 2nd ed., Oxford: Blackwell Publishers

3 Johnston, R.J. et al. (ed) (2000) The Dictionary Of Human Geography, 3rd ed., Oxford: Blackwell Publishers

4 Mayhew, S. (2004) Dictionary of Geography, Oxford: Oxford University Press

5 Thomas, S.D. (ed) (2000) Dictionary Of Physical Geography, 3rd ed., Oxford: Blackwell Publishers

6 Witherick, M. et al. (2001) A Modern Dictionary of Geography, 4th ed., London: Arnold

V Atlases

1 The Oxford Large Print Atlas, (2002) Oxford: Oxford University Press

2 Oxford Student Atlas, (2002) Oxford: Oxford University Press

3 Heinemann Singapore Atlas – 21st Century Atlas, (1998) Singapore: Heinemann Asia

4 The Longman Singapore Atlas, (1997) First Impression, Singapore: Longman

VI Internet Resources

1 Geographical Association, UK at http://www.geography.org.uk

2 Ministry of the Environment and Water Resources, Singapore at http://www.mewr.gov.sg

3 Ministry of National Development, Singapore at http://www.mnd.gov.sg

4 The World Bank Group at http://www.worldbank.org

5 United Nations Development Programme at http://www.undp.org

6 US Geological Survey at http://www.usgs.gov

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