Singapore Examinations and Assessment Board

Cambridge Assessment International Education

Singapore–Cambridge General Certificate of Education
Normal (Academic) Level (2024)

Humanities
(Social Studies, Geography)
(Syllabus 2125)

CONTENTS

Humanities
(Social Studies, Geography)
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INTRODUCTION

This Humanities syllabus aims to enable students to acquire knowledge and understanding of events and phenomenon, issues and perspectives, and human actions and behaviours.

Humanities syllabus (2125) comprises two components: Social Studies and Geography. Both components are compulsory.

The examination format is shown in the table below.

Paper No.	Component	Marks	Weighting	Duration
1	Social Studies	50	50%	1 hr 45 min
2	Geography	50	50%	1 hr 45 min

Paper 1
Social Studies

INTRODUCTION

Philosophy of the Singapore Social Studies Curriculum

At the heart of the Singapore Social Studies curriculum is the preparation of students to be effective citizens by helping them to better understand the interconnectedness of Singapore and the world they live in and appreciate the complexities of the human experience.

Drawing on aspects of society that are of meaning and interest to students, Social Studies seeks to ignite students' curiosity to inquire into real-world issues that concern their lives. Through inquiry and authentic learning experiences, Social Studies helps students to attain relevant knowledge and understanding about these issues, develop critical and reflective thinking skills, and appreciate multiple perspectives.

Social Studies seeks to inculcate in students a deeper understanding of the values that define the Singapore society, nurture dispositions that will inspire them to show concern for the society and the world in which they live and demonstrate empathy in their relationships with others. The curriculum therefore envisions students as informed, concerned and participative citizens, competent in decision-making with an impassioned spirit to contribute responsibly to the society and world they live in.

Figure 1.1 reflects the philosophy underpinning the Singapore Social Studies curriculum.

Figure 1.1 The Singapore Social Studies Curriculum

The syllabus content is organised around three Issues and is anchored in a set of knowledge, skills and values outcomes. The three Issues correspond to societal issues that have been shaping Singapore, the region and the world. The knowledge, skills and values acquired through exploring these Issues will develop students' competencies to be informed, concerned and participative citizens. The following table shows an overview of the three Issues in the Social Studies Normal (Academic)-Level syllabus.

Issue 1: Exploring Citizenship and Governance
Inquiry Focus – Working for the good of society: Whose responsibility is it? ***Why this Issue matters*** This Issue invites students to begin exploring what it means to be an informed, concerned and participative citizen. Students will deepen their understanding of citizenship and governance and learn how citizens and government play complementary roles in working for the good of society. In a complex society and world, understanding their roles as citizens will influence how they respond to various situations and issues in Singapore and the world. This will serve to develop a stronger sense of civic consciousness, enhancing the roles they play as citizens who are rooted in Singapore with a global outlook.
Key Understandings • Citizenship is varied and complex. • Government is a political institution with important functions and roles to govern. • Different groups of people in society have differing needs, interests and priorities, and experience unequal sharing of costs. Managing these differences often requires trade-offs to be made. • Both citizens and government can play complementary roles in working for the good of society.
Issue 2: Living in a Diverse Society
Inquiry Focus – Living in a diverse society: Is harmony achievable? ***Why this Issue matters*** This Issue helps students appreciate diversity and the importance of harmony. Students will develop an understanding of who they are as individuals and accept, respect and celebrate diversity as well as common practices and values in a diverse society. This will heighten students' awareness of the need to develop personal and collective responsibility in promoting and maintaining harmony in a diverse society.
Key Understandings • Identities are diverse and complex. • Living harmoniously in a diverse society means respecting our differences and appreciating what we share in common. • People respond to diversity in a variety of ways to achieve harmony.

Issue 3: Being Part of a Globalised World
Inquiry Focus* – Being part of a globalised world: How can we respond to globalisation?** ***Why this Issue matters This Issue helps students understand and make meaning of their lives in a globalised world where countries and individuals are interconnected and interdependent. Students will explore the impacts of globalisation on the economy. They will understand the complex process of globalisation through examining how the impacts of globalisation result in trade-offs and different responses from countries and individuals. Students will therefore appreciate the complex decision-making process behind the responses towards the impacts of globalisation. This understanding will help them to make well-reasoned and responsible decisions as informed, concerned and participative citizens in a globalised world.
Key Understandings • Globalisation shapes the interconnections and interdependence among countries and people. • Globalisation creates impacts in the economy. • The impacts of globalisation result in differing responses from countries and people.

AIMS

As **informed** citizens, students would:
- understand the rights and responsibilities of citizens and the role of the government in society
- understand their identity as Singaporeans, with a regional and global outlook
- understand the Singapore perspective on key national, regional and global issues
- analyse and negotiate complex issues through evaluating multiple sources with different perspectives
- arrive at well-reasoned, responsible decisions through reflective thought and discernment.

As **concerned** citizens, students would:
- have a sense of belonging to the nation, appreciate and be committed to building social cohesion in a diverse society
- be motivated to engage in issues of societal concern
- reflect on the ethical considerations and consequences of decision making.

As **participative** citizens, students would:
- take responsible personal and collective actions to effect change for the good of society; and
- be resilient in addressing concerns of society in spite of challenges faced.

ASSESSMENT OBJECTIVES

AO1 – Knowledge with Understanding

Candidates should be able to:
- demonstrate an understanding of societal issues.

AO2 – Interpreting and Evaluating Sources/Given Information

Candidates should be able to:
- comprehend and extract relevant information
- draw inferences from given information
- analyse and evaluate evidence
- compare and contrast different views
- distinguish between fact, opinion and judgement
- recognise values and detect bias
- draw conclusions based on reasoned consideration of evidence and arguments.

AO3 – Constructing Explanations

Candidates should be able to:
- analyse societal issues through different perspectives
- construct reasoned arguments and make informed judgement and recommendations.

N(A)-LEVEL ASSESSMENT SPECIFICATION GRID FOR SOCIAL STUDIES

Assessment Objective	Weighting
Objective 1 + Objective 2	35%
Objective 1 + Objective 3	15%
Total	50%

Note: Objective 1 is inevitably part of the testing of Objectives 2 and 3.

SCHEME OF ASSESSMENT

N(A)-LEVEL SOCIAL STUDIES

- One paper of 1 hour 45 minutes.
- Paper comprises 2 sections:

  Section A: (35 marks)
  One source-based case study testing Assessment Objectives 1 and 2.

  Section B: (15 marks)
  Two structured-response questions testing Assessment Objectives 1 and 3.

- Candidates are required to answer the compulsory source-based case study from Section A and the compulsory structured-response questions from Section B.

Source-Based Case Study

The compulsory source-based case study can be set on any of the three Issues:

- Exploring Citizenship and Governance
- Living in a Diverse Society
- Being Part of a Globalised World

Candidates will be expected to have an understanding of the ways in which sources may be evaluated. The case study will be set on one of the three Issues of the syllabus and will require the skills and concepts taught during the course. The issue of the case study will be related to the syllabus and may or may not be covered in the syllabus content. Candidates are expected to use their knowledge, skills and conceptual understanding developed during the course to help them use the given sources to answer the questions.

The source-based case study comprises five questions:

Question	Skills Tested	Mark Allocation
1–4	• Source-handling skills on specific sources	25
5	• Source-handling skills requiring use of multiple sources – question will relate directly to the issue of the case study	10

A 'Levels of Response Marking Scheme' **(LORMS)** will be used to assess candidates' responses.

Structured-Response Questions

The compulsory structured-response questions will be set on any of the three Issues in the syllabus. However, in an examination, the question set will not be on the same Issue as the source-based case study.

The structured-response questions comprise two questions:

Question	Skills Tested	Mark Allocation
6	• Constructing explanation by giving reasoned argument and/or making recommendation on an issue (single strategy / mono-causal) – question will require candidates to consider the issue in the context of Singapore	7
7	• Constructing explanation of two factors / perspectives on an issue	8

A 'Levels of Response Marking Scheme' **(LORMS)** will be used to assess candidates' responses.

<table>
<tr><th colspan="3">Issue 1: Exploring Citizenship and Governance</th></tr>
<tr><th>Descriptor</th><th colspan="2">Key Understandings</th></tr>
<tr><td>Inquiry Focus – Working for the good of society: Whose responsibility is it?

Why this Issue matters
This Issue invites students to begin exploring what it means to be an informed, concerned and participative citizen. Students will deepen their understanding of citizenship and governance, and learn how citizens and government play complementary roles in working for the good of society. In a complex society and world, understanding their roles as citizens will influence how they respond to various situations and issues in Singapore and the world. This will serve to develop a stronger sense of civic consciousness, enhancing the roles they play as citizens who are rooted in Singapore with a global outlook.</td><td colspan="2">• Citizenship is varied and complex.

• Government is a political institution with important functions and roles to govern.

• Different groups of people in society have differing needs, interests and priorities, and experience unequal sharing of costs. Managing these differences often requires trade-offs to be made.

• Both citizens and government can play complementary roles in working for the good of society.</td></tr>
<tr><th>Knowledge Outcomes</th><th>Skills Outcomes</th><th>Concepts</th></tr>
<tr><td>Students will be able to understand:
• different attributes can shape one’s understanding of citizenship
• the functions and roles of government in working for the good of society
• the challenges of determining what is good for a society, with decisions guided by the principles of governance
• how citizens and government can work together for the good of society.</td><td>Students will be able to:
• examine societal issues critically by gathering, interpreting, analysing and evaluating information from different sources to make well-reasoned and substantiated arguments, recommendations and conclusions on societal issues
• demonstrate sound reasoning and responsible decision-making that considers
– Singapore’s unique contexts, constraints and vulnerabilities
– the consequences of one’s actions on those around them
• demonstrate perspective-taking when encountering differing views
• demonstrate reflective thinking when reviewing their understanding of societal issues and examining personal assumptions and beliefs about others.</td><td>• Citizenship
• Governance
• Trade-offs</td></tr>
</table>

Issue 1: Exploring Citizenship and Governance	
Guiding Questions	**Content**
1 What does citizenship mean to me?	• Attributes can shape one's understanding of citizenship – Legal status o Rights and obligations of citizens – A sense of identity – Shared values – Civic participation o Participate in public affairs as individuals and community groups
2 What are the functions and roles of government in working for the good of society?	• Functions and roles of government in a representative democracy – Functions of government o Makes and passes laws o Implements and enforces laws o Interprets and applies laws – Roles of government o Maintains law and order o Ensures economic and social well-being of citizens o Promotes and protects a country's national interests
3 How do we decide what is good for society?	• Deciding what is good for society – Challenges in deciding what is good for society o Differing needs and interests o Differing priorities o Unequal sharing of costs – Managing trade-offs – Principles shaping governance o Having good leadership o Anticipating change and staying relevant o A stake for everyone, opportunities for all o Practising meritocracy
4 How can we work together for the good of society?	• Citizens and government working together for the good of society – Addressing the needs of society – Influencing decision-making in public affairs – Strengthening citizens' sense of belonging

<table>
<tr><th colspan="3">Issue 2: Living in a Diverse Society</th></tr>
<tr><th>Descriptor</th><th colspan="2">Key Understandings</th></tr>
<tr><td>Inquiry Focus – Living in a diverse society: Is harmony achievable?

Why this Issue matters
This Issue helps students appreciate diversity and the importance of harmony. Students will develop an understanding of who they are as individuals and accept, respect and celebrate diversity as well as common practices and values in a diverse society. This will heighten students' awareness of the need to develop personal and collective responsibility in promoting and maintaining harmony in a diverse society.</td><td colspan="2">• Identities are diverse and complex.

• Living harmoniously in a diverse society means respecting our differences and appreciating what we share in common.

• People respond to diversity in a variety of ways to achieve harmony.</td></tr>
<tr><th>Knowledge Outcomes</th><th>Skills Outcomes</th><th>Concepts</th></tr>
<tr><td>Students will be able to understand:
• the factors that shape identities of people and contribute to a diverse society
• the experiences and effects of living in a diverse society
• the various ways in which individuals, communities and governments can respond to the effects of living in a diverse society.</td><td>Students will be able to:
• examine societal issues critically by gathering, interpreting, analysing and evaluating information from different sources to make well-reasoned and substantiated arguments, recommendations and conclusions on societal issues
• demonstrate sound reasoning and responsible decision-making that considers
– Singapore's unique contexts, constraints and vulnerabilities
– the consequences of one's actions on those around them
• demonstrate perspective-taking when encountering differing views
• demonstrate reflective thinking when reviewing their understanding of societal issues and examining personal assumptions and beliefs about others.</td><td>• Identity
• Diversity
• Harmony</td></tr>
</table>

Issue 2: Living in a Diverse Society	
Guiding Questions	**Content**
1 What are the factors that shape the identities of people and contribute to a diverse society?	• Factors that shape the identities of people and contribute to a diverse society – Race and ethnicity – Religion – Socio-economic status – Nationality
2 What are the experiences and effects of living in a diverse society?	• Interactions in a diverse society and common space • Experiences and effects of living in a diverse society – Cultural exchange and appreciation – Exchange of knowledge and skills – Stereotypes, prejudice and discrimination – Competition for resources
3 How can we respond to diversity in society?	• Citizens and government responding to socio-cultural diversity – Responses of citizens as individuals and community groups – Responses of government o Assimilationist policy and its tensions o Integration policy and its tensions • Citizens and government responding to socio-economic diversity – Responses of citizens as individuals and community groups – Responses of government o A government-financed approach and its challenges o A shared responsibility approach and its challenges

<table>
<tr><th colspan="3">Issue 3: Being Part of a Globalised World</th></tr>
<tr><th>Descriptor</th><th colspan="2">Key Understandings</th></tr>
<tr><td>Inquiry Focus – Being part of a globalised world: How can we respond to globalisation?

Why this Issue matters
This Issue helps students understand and make meaning of their lives in a globalised world where countries and individuals are interconnected and interdependent. Students will explore the impacts of globalisation on the economy. They will understand the complex process of globalisation through examining how the impacts of globalisation result in trade-offs and different responses from countries and individuals. Students will therefore appreciate the complex decision-making process behind the responses towards the impacts of globalisation. This understanding will help them to make well-reasoned and responsible decisions as informed, concerned and participative citizens in a globalised world.</td><td colspan="2">• Globalisation shapes the interconnections and interdependence among countries and people.

• Globalisation creates impacts in the economy.

• The impacts of globalisation result in differing responses from countries and people.</td></tr>
<tr><th>Knowledge Outcomes</th><th>Skills Outcomes</th><th>Concepts</th></tr>
<tr><td>Students will be able to understand:
• the key driving forces of globalisation
• different responses of countries and individuals to economic impacts of globalisation.</td><td>Students will be able to:
• examine societal issues critically by gathering, interpreting, analysing and evaluating information from different sources to make well-reasoned and substantiated arguments, recommendations and conclusions on societal issues
• demonstrate sound reasoning and responsible decision-making that considers
– Singapore’s unique contexts, constraints and vulnerabilities
– the consequences of one’s actions on those around them
• demonstrate perspective-taking when encountering differing views
• demonstrate reflective thinking when reviewing their understanding of societal issues and examining personal assumptions and beliefs about others.</td><td>• Globalisation
• Interconnectedness
• Interdependence</td></tr>
</table>

Issue 3: Being Part of a Globalised World	
Guiding Questions	**Content**
1 What are the factors that contribute to globalisation?	• Driving forces of globalisation – Technological advancements o Developments in transportation o Developments in digital technology – Growth of Multinational Corporations
2 How can we respond to the economic impacts of globalisation?	• Economic impacts of globalisation and responses of countries and individuals – Economic impacts of globalisation o Economic growth and economic vulnerability experienced by countries o Employment opportunities and challenges experienced by individuals – Responses to economic impacts of globalisation o Government support o Acquisition of knowledge and skills by individuals

Paper 2
Geography

INTRODUCTION

At all levels of study, Geography bridges the humanities, social and natural sciences. It is a holistic subject that provides students with integrative ways of understanding the real world. Students will explore Earth, its natural and man-made environments, and examine the interactions of humans with these environments, from the personal to global scales. Geography fascinates and inspires students, enabling them to gain a deep appreciation of Earth's beauty, the immense power of natural forces, and the ingenious ways humans thrive under different circumstances. Through Geography, students will understand how places and landscapes evolve, deliberate on consequences arising from our everyday decisions, and experience the mosaic of cultures and societies.

Fieldwork satisfies and nourishes students' curiosity about contemporary issues that affect their communities. Through fieldwork, students apply their classroom learning in the real world to make new discoveries. They also get to hone their abilities to generate innovative solutions and help make our world a better place. Such learning experiences make Geography a vital resource, in enabling students living in an interconnected world to discover what it means to live sustainably and exist harmoniously with one another and with other living species.

The Geography Curriculum Concept

The Geography Curriculum Concept (Figure 1) articulates the aspirations of Geography education in Singapore, from Secondary to Pre-University. It signals a shared belief regarding the nature, purpose and structure of Geography for all levels of study so that all stakeholders can better support students' growth as they progress from one level of study to the next.

Figure 1: The Geography Curriculum Concept

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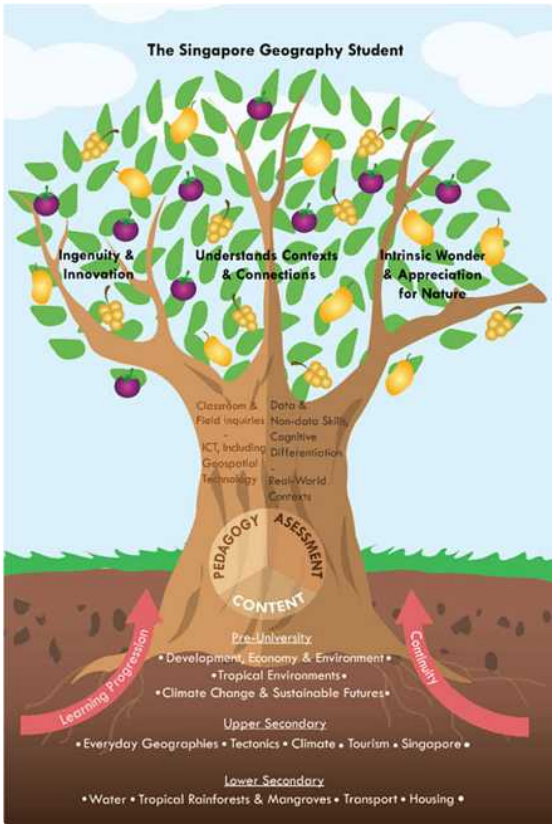

AIMS AND LEARNING OUTCOMES

AIMS

This syllabus enables students to:

1 acquire knowledge and skills to describe, explain and analyse geographical phenomena and processes that occur in Singapore and beyond

2 examine selected geographical phenomena and processes by analysing data

3 be aware of different value orientations towards the environment, which influence people's actions

4 be imbibed with a sense of responsibility towards the environment

5 be provided with opportunities to discuss solutions and take actions to achieve a more sustainable world.

LEARNING OUTCOMES

Knowledge and Understanding

This syllabus develops students with the knowledge and understanding of:

- geographical phenomena and processes that occur in Singapore and beyond
- geographical concepts associated with selected natural and human phenomena
- geographical methods of inquiry to investigate selected natural and human phenomena and processes
- sustainable development and approaches that enhance the sustainability of our world at various scales.

Skills

This syllabus seeks to equip students with skills to:

- analyse geographical data
- interpret geographical data to recognise patterns and trends, and suggest relationships
- pose relevant geographical questions to learn about natural and human phenomena and processes
- apply selected geographical concepts and methods to investigate natural and human phenomena and processes
- evaluate geographical information to make reasoned decisions.

Values and Attitudes

This syllabus seeks to nurture in students:

- an awareness of different value orientations towards the environment, which influence people's actions
- a sense of responsibility towards the environment, and a desire to contribute towards building a sustainable future.

ASSESSMENT OBJECTIVES

AO1: Knowledge with Understanding

Candidates should be able to construct responses based on understanding of theories, generalisations, models and concepts. This will be demonstrated by the ability to:

(a) identify, describe or explain theories, generalisations, models, concepts and methods

(b) classify environments, events, methods, objects, people, processes and places into categories according to their common features

(c) explain how events, objects and processes cause changes to environments, people and places.

AO2: Skills and Analysis

Candidates should be able to apply their understanding to break down information into its component parts or to carry out an investigation. This will be demonstrated by the ability to:

(a) support conclusions using relevant material from information provided

(b) identify, describe or compare characteristics, relationships, patterns and trends shown in graphs, maps, photographs, diagrams, tables and texts

(c) compare similarities and differences between environments, events, methods, objects, people, processes and places

(d) describe or explain how to collect, process, interpret and present quantitative and qualitative data

(e) adapt methods to manage risks, limitations and achieve investigation objectives.

AO3: Judgement and Decision-Making

Candidates should be able to use defined criteria and standards to evaluate methods, outcomes and proposals. This will be demonstrated by the ability to:

(a) arrive at an overall evaluation by considering constraints and opportunities in the environment, people's varying needs, attitudes and beliefs, or the importance of sustainable development

(b) evaluate the reliability and validity of investigation findings.

Assessment Specification Grid

The table below shows the approximate weighting of the Assessment Objectives in the syllabus.

Assessment Objectives	Weighting for Paper 2
AO1: Knowledge with Understanding	20%
AO2: Skills and Analysis	20%
AO3: Judgement and Decision-Making	10%
Total	**50%**

SCHEME OF ASSESSMENT

1h 45min **50 marks** **50%**	Candidates answer **Question 1** in Section A**,** and ***either*** **Question 2** ***or*** **3** in Section B. Section A • **Question 1**: Cluster 1 – Geography in Everyday Life (25 marks) Section B *Either* • **Question 2**: Cluster 2 – Climate (25 marks) *Or* • **Question 3**: Cluster 3 – Tectonics (25 marks) Each structured question will consist of no more than 12 sub-parts. Candidates will be required to answer one 6-mark question testing AO3 in Question 2/ Question 3. This question will be marked using generic level descriptors. All other questions in this paper will be point-marked.

USE OF CALCULATORS

An approved calculator may be used in this paper.

SYLLABUS FRAMEWORK AND OUTLINE

The N(A)-Level Geography syllabus is organised by topics that are grouped according to clusters to achieve a balance between breadth and depth of content coverage. A key feature is the close examination of students' everyday experiences using geographical concepts and methods in the Geography in Everyday Life Cluster. This would elevate the relevance and applicability of Geography learning. Additionally, this would enable students to learn new concepts and skills in familiar environments, before applying them to understand different contexts featured in the subsequent clusters. Students shall undertake bite-sized fieldwork to complement their classroom learning.

Content Overview

This syllabus is divided into **three** clusters of three topics.

Cluster 1: Geography in Everyday Life
- Topic 1.1 – Thinking Geographically
- Topic 1.2 – Sustainable Development
- Topic 1.3 – Geographical Methods

EITHER

Cluster 2: Climate
- Topic 2.1 – Weather and Climate
- Topic 2.2 – Climate Change
- Topic 2.3 – Climate Action

OR

Cluster 3: Tectonics
- Topic 3.1 – Plate Tectonics
- Topic 3.2 – Earthquakes and Volcanoes
- Topic 3.3 – Disaster Risk Management

SYLLABUS CONTENT

Cluster 1: Geography in Everyday Life

TOPIC 1.1: THINKING GEOGRAPHICALLY

Geography is more than a world knowledge. Geographers make sense of their everyday lives and the world around them by viewing it through a 'geographical lens' or concept. Concepts introduce the diversity of ways to think geographically and investigate, using geographical methods, the connections and relationships between places and spaces. Learning Geography is to engage mentally with questions about people, society, environment and the planet. Geographers studying sustainable development explore how people attach values to the environment and consider people's varied responses to sustainability challenges in context.

About this Topic

Notwithstanding the diversity of practices among geographers worldwide, disciplinary concepts are commonly used by geography teachers to support students in classifying and establishing their understanding of concepts and phenomena. These disciplinary concepts exemplify how geographers conduct research, providing a meaningful structure that helps students to organise conceptual and factual knowledge. Equipped with the ability to think geographically would make students' knowledge powerful, enriching their civic participation and enabling them to contribute productively in cross-disciplinary teams.

Key Questions	Content
1 What is the relationship between people and nature in their neighbourhoods?	1 Relationship between people and nature (a) local communities and nearby nature areas are dependent upon each other (b) local communities and nearby nature areas mutually affect each other 2 Benefits enjoyed by people and nature (a) nature areas lower air temperatures, remove pollutants and provide space for recreation (b) community activities promote the importance of environmental protection 3 Disadvantages to people and nature (a) wildlife from nearby nature areas may harm people and environmental protection limits development (b) visitors to nature areas cause soil erosion, damage vegetation, worsen pollution and disturb wildlife
2 How do people acquire a sense of place in their neighbourhoods?	1 Sense of place (a) people associate importance, meanings and memories with specific locations in their neighbourhoods (b) people's experiences with natural and built environments, and interaction with others at these locations 2 Acquiring a sense of place (a) individuals repeatedly encounter people and objects along familiar paths or roads during regular travel (b) individuals experience significant or memorable events at local landmarks and gathering places 3 Representing a sense of place (a) individuals and organisations use different forms and types of media to express people's sense of place (b) individuals' sense of place could be enhanced or contradicted by these different representations

Key Questions	Content
3 What is the relationship between locations in a neighbourhood?	1 Regions (a) areas with similar physical and/or human characteristics or are known for something (b) spheres of influence of services, events and objects on other locations in the area 2 Spatial patterns (a) non-random arrangement of services, events and objects in an area (b) services, events and objects arranged in recognisable shapes, geometry, clusters or at regular intervals 3 Spatial associations (a) tendency of a pair of services, events and objects to locate near each other (b) tendency suggests a connection between a service, event or object and another service, event or object
4 How are neighbourhoods organised in Singapore?	1 Spatial scales in Singapore (a) more than 20 towns spread across the country, catering to different lifestyles (b) each town has a town centre, serving as commercial and social hubs for residents living in its neighbourhoods 2 Spatial hierarchies in Singapore (a) nested areas of different sizes beginning with a single residential unit (b) clusters of residential units form a precinct, which in turn forms neighbourhoods that combine into a town 3 Town planning in Singapore (a) serve residents and provide for nature at distinct levels of the precinct, neighbourhood and town (b) create connections and synergies across precincts, neighbourhoods and towns

TOPIC 1.2: SUSTAINABLE DEVELOPMENT

About this Topic

The key to sustainable development is to achieve a balance between the exploitation of natural resources for economic and social development, and conserving ecosystem services that are critical to people's livelihoods and well-being. Disasters destroy lives, undoing many years of effort in protecting natural environments, and improving economic and social conditions. Therefore, putting emphasis on disaster risk reduction is central to sustainable development.

Key Questions	Content
1 What are sustainable urban neighbourhoods?	1 Sustainable development (a) meet the needs of the present population by achieving high standards of living for all (b) ensure the ability of future generations to meet their own needs 2 Economic and social sustainability in urban neighbourhoods (a) high enough population density to support local businesses, and keep transport and infrastructure costs low (b) small population size to enable regular interaction among residents and to discuss decisions affecting the neighbourhood 3 Environmental sustainability in urban neighbourhoods (a) ample protection for nature and facilities that support waste minimisation and recycling (b) adopts energy and water efficient design approaches for buildings and landscapes
2 What ecosystem services are found in urban neighbourhoods?	1 Urban neighbourhoods as ecosystems (a) ecosystems consist of living communities and the non-living environment interacting with one another (b) aquatic and terrestrial ecosystems in neighbourhoods including ponds, lakes, parks and forests 2 Provisioning and regulating services (a) provisioning services available in neighbourhoods include fresh water and food (b) regulating services in neighbourhoods include microclimate regulation, flood mitigation, air and water quality control 3 Cultural and supporting services (a) cultural services in neighbourhoods include aesthetics, education and recreation (b) supporting services in neighbourhoods include soil formation, pollination and photosynthesis

Key Questions	Content
3 What are common hazards in urban neighbourhoods?	1 Fire hazards (a) fires in neighbourhoods are commonly caused by faulty electrical appliances and wiring, and unattended cooking fires (b) negative consequences of fires include burn injuries, smoke inhalation and property damage 2 Air pollution hazards (a) air pollution in neighbourhoods is commonly caused by burning vegetation and industrial and motor vehicle emissions (b) negative consequences of air pollution include respiratory infections, heart disease and lung cancer 3 Traffic hazards (a) traffic accidents in neighbourhoods are commonly caused by speeding, red-light running and drink driving (b) negative consequences of traffic accidents include serious injury and loss of life
4 How to build sustainable urban neighbourhoods?	1 Environmental stewardship (a) promote volunteerism among neighbourhood residents to share knowledge with others about the importance of healthy ecosystems (b) partner public and private stakeholders in environmental stewardship efforts 2 Disaster risk management (a) reduce neighbourhoods' exposure to hazards and the vulnerability of people and properties to hazards (b) improve residents' preparedness in responding to hazards and implement monitoring and warning systems 3 Community resilience (a) strengthen relationships among residents and raise their awareness of potential hazards (b) develop residents' ability to organise themselves and equip themselves with resources to resist, adapt and recover from a disaster

TOPIC 1.3: GEOGRAPHICAL METHODS

About this Topic

Geographical inquiry is integral to school geography and provides the closest proximate to the practice of geographers. It is learning that takes place outside the classroom and occurs in a real-world context. It is a systematic approach to investigating geographical phenomena and their related issues, by applying relevant geographical concepts and skills. At the end of their inquiry, students should reflect on the learning process by evaluating the reliability of the data collected, and the validity of their conclusion or findings.

Key Questions	Content
1 How to design fieldwork?	1 Research questions and hypotheses (a) identify a topic or thesis from textbooks, news articles and websites (b) craft a question that outlines a specific scope and a measurable hypothesis about one or two variables 2 Data collection sequence through primary and/or secondary sources (a) collect quantitative data then design qualitative data collection to examine patterns and trends (b) collect qualitative data then design quantitative data collection to verify observations 3 Limitations and risks (a) adjust research aim, study area, sample size and timeframe according to available resources (b) implement measures to avoid harming oneself, other people and nature
2 How to collect primary data?	1 Sampling (a) use non-probability sampling methods including convenience and quota sampling (b) use probability sampling methods including simple random sampling and stratified random sampling 2 Closed-ended questionnaire surveys (a) create pre-defined responses to questions that are limited to short phrases, single words or numbers (b) use rating scales to guide responses including the Likert scale, frequency scale and ranking scale 3 Mental maps (a) visualise experiences by drawing features and adding labels onto the base map of a study area (b) conduct semi-structured interviews with open-ended questions exploring features and labels added to the map

Key Questions	Content
3 How to process and analyse data?	1 Closed-ended questionnaire surveys (a) interpret responses using measures of frequency including counts and percentages (b) interpret responses using measures of central tendency including mean, mode and median 2 Mental maps (a) analyse how well maps represent reality, and how features and labels are drawn or added (b) examine how memories of experiences are represented on maps and described during semi-structured interviews 3 Relationships and patterns (a) visualise positive and negative correlations using scatter plots and best-fit lines (b) identify recognisable geometric shapes, clusters and repetition
4 How to present findings?	1 Maps (a) represent spatial information using dots, lines and polygons (b) provide title, date, orientation, scale, legend, author and source(s) on maps 2 Graphs (a) use bar graphs and pie charts to show distributions (b) use line graphs to show trends and relationships between two variables 3 Photographs and texts (a) use satellite and aerial images to display spatial information (b) use colour-coded quotations and word clouds to represent qualitative analyses

Cluster 2: Climate

Climate change is not new. Earth's climate has changed in response to the varying amounts of energy from the Sun and the evolving atmospheric composition. This has occurred over timescales ranging from millions to hundreds of years. Today, changes in the climate have been exacerbated due to anthropogenic activities. The climate system is part of the natural system that is interconnected with the human system. Hence, changes in one part of the system affect another, impacting people and nature. Climate action could build our resilience to the effects of climate change, but it requires active participation from many stakeholders.

TOPIC 2.1: WEATHER AND CLIMATE

About this Topic

Weather and climate are closely associated phenomena that affect both natural and human systems. While climate patterns are comparatively more predictable, weather, in contrast, is highly dynamic and varies considerably. Factors affecting three weather variables – air temperature, precipitation and wind – can be examined to better understand short-term weather changes and changing climate patterns over a longer term. An insight into the workings of weather and climate would aid in the study of climatic hazards and their impact on natural and human systems.

Key Questions	Content
1 What is weather and climate?	1 Weather (a) state of atmospheric conditions at a particular time and place (b) described using variables including air temperature, cloud cover, precipitation, wind speed and wind direction 2 Climate (a) average state of atmospheric conditions over a specified time period (b) climate types include tropical equatorial climate, tropical monsoon climate and cool temperate climate 3 Climatic hazards (a) changes in climate and extreme weather including heat waves, droughts, floods, cyclones and wildfires (b) impact natural and human systems significantly
2 Why does air temperature vary across Earth's surface?	1 Earth's rotation and revolution (a) Earth's rotation on its axis results in variability of air temperature over time in a day (b) Earth's revolution around the sun results in variability of air temperature over time in a year 2 Latitude and altitude (a) at the global scale, solar angles are lower at higher latitudes resulting in lower air temperatures (b) at a local scale, air pressure is lower at higher altitudes resulting in lower air temperatures 3 Nature of surfaces and distance from sea (a) Earth's surfaces, including snow cover, vegetation and exposed soil, affect site specific air temperatures (b) maritime effect on coastal areas and continental effect on inland areas affect site specific air temperatures

Key Questions	Content
3 Why does precipitation vary across Earth's surface?	1 Water cycle (a) movement of water between the atmosphere and the Earth's surface through evapotranspiration, condensation and precipitation (b) movement of water at different rates in the form of infiltration, surface runoff and groundwater flow 2 Relative humidity (a) condensation is affected by the amount of water vapour in the atmosphere (b) condensation occurs when the amount of water vapour exceeds the amount that can be held by the atmosphere at a given temperature 3 Clouds and precipitation (a) clouds form due to condensation nuclei and the coalescence of water droplets in the atmosphere (b) results in precipitation including convectional and relief rainfall
4 Why do wind direction and wind speed vary across Earth's surface?	1 Unequal distribution of air temperature (a) results in uneven distribution of pressure gradient (b) initiates horizontal motion of air and determines wind direction 2 Wind speed (a) influenced by strength of pressure gradient between two locations (b) influenced by friction due to Earth's topography 3 Local and regional winds (a) land and sea breezes occur at the local scale (b) Northeast and Southwest monsoons occur at the regional scale and are influenced by the Coriolis force

TOPIC 2.2: CLIMATE CHANGE

About this Topic

Evidence has shown that the climates we know today have not always been the same. The Earth's climates have gone through periodic cycles of change over time. However, anthropogenic factors since the dawn of modern industrialisation have affected natural climate variability significantly. The large-scale emission of greenhouse gases from human activities has resulted in the enhanced greenhouse effect, which increases Earth's temperature. This rapid change in global climates would affect both the natural and human systems.

Key Questions	Content
1 What is the natural variability of climate?	1 Evidence of past climates (a) episodes of cooling and warming over geological time (b) evidenced by data on seafloor sediment and oxygen isotope 2 Changing climate zones (a) indicated by temperature (b) evidenced by expansion and contraction of main climatic zones 3 Climate variability due to natural processes (a) changes in Earth's orbit and angle of tilt (b) occurrences of sunspots and large-scale volcanic eruptions
2 How do anthropogenic factors contribute to climate change?	1 Growth in population and industrialisation (a) altered quantity of greenhouse gases in the atmosphere including carbon dioxide, methane and nitrous oxide (b) data from the last decade has shown it to have been successively warmer than any of the preceding decades since 1850 2 Causes of the greenhouse effect (a) a natural process making Earth habitable (b) involves absorption and emission of shortwave and longwave radiation, respectively 3 Causes of the enhanced greenhouse effect (a) burning of fossil fuels (b) changing land use
3 How might climate change affect natural systems?	1 Impact of climate change on natural systems (a) increase in ocean surface temperatures and changes to ocean circulations (b) increase in atmospheric temperatures and changes in precipitation on land 2 Impact of climate change on aquatic ecosystems (a) threatens coral reefs and disruption of marine food webs (b) ocean acidification 3 Impact of climate change on terrestrial ecosystems (a) threatens flora and fauna (b) increase in extreme weathers including droughts and excessive rainfall

Key Questions	Content
4 How might climate change affect human systems?	1 Impact of climate change on human systems (a) geographically uneven due to varying climate variables and localised economic and social factors (b) impacts are interconnected and cascaded from natural systems to people 2 Direct impact of climate change on human systems (a) occurs through extreme weather events (b) including heat waves, droughts, floods, cyclones and wildfires 3 Indirect impact of climate change on human systems (a) affects provisioning ecosystem services including food production, and regulating ecosystem services including disease regulation (b) alters cultural ecosystem services including melting of arctic ice and degradation of natural landscapes

TOPIC 2.3: CLIMATE ACTION

About this Topic

Climate change affects natural and human systems unevenly across the world, and climate risks vary considerably over time and space. Considered one of the most significant threats to sustainable development, climate change complicates the challenges faced by communities, especially those living in developing countries. To be effective, climate action thus needs to be calibrated according to the vulnerability of each different community. Most importantly, mitigating and adapting to climate change requires a holistic approach that combines different strategies to bring about sustained results.

Key Questions	Content
1 How does climate action help achieve sustainable development?	1 Climate action (a) adaptation and mitigation strategies are complementary responses (b) may create risks and benefits 2 Climate change is a threat multiplier (a) exacerbates other threats to natural and human systems (b) resulting in uneven climate-related effects 3 Climate change constrains development paths (a) uneven impacts of climate change globally (b) place additional burdens on disadvantaged communities and developing countries
2 Why do climate risks vary across places?	1 Climate risks (a) interaction between climate-related hazards, and vulnerability and exposure of natural and human systems to these hazards (b) results in potential loss of human lives and damage to properties 2 Affected by climate-related hazards (a) shorter-term events including cyclones and floods (b) longer-term events including sea level rise and droughts 3 Affected by vulnerability and exposure (a) conditions that increase the susceptibility of a community to suffer from a lack of water, food and health resources due to extreme weather (b) exposure to hazard areas including proximity to coastal and dry environments
3 How effective are mitigation strategies in building a community's resilience to climate change?	1 Mitigation strategies (a) involves changing how societies produce and use energy and land (b) effectiveness limited by technological, economic, social and institutional challenges 2 Mitigation strategies that reduce greenhouse gas emissions (a) international agreements and cooperation, and use of low-carbon technologies (b) use of clean energy sources and changes in consumption patterns 3 Mitigation strategies that enhance carbon sinks (a) protection of oceans and forests through land-use change (b) protection of forests through forest regeneration

Key Questions	Content
4 How effective are adaptation strategies in building a community's resilience to climate change?	1 Adaptation strategies (a) require actions to lessen harm brought about by climate change (b) effectiveness limited by technological, economic, social and institutional challenges 2 Adaptation strategies involving structural and technological approaches (a) water and flood management (b) use of technology to produce food 3 Adaptation strategies involving social and institutional approaches (a) raising awareness and education (b) national and regional policies

Cluster 3: Tectonics

Plate tectonics theory describes and explains the spatial patterns of tectonic phenomena. It unified different explanations of natural phenomena such as earthquakes and volcanoes, synthesising evidence collected by scientists from different parts of the world. The distribution and occurrence of earthquakes and volcanoes is closely associated with tectonic movement. By understanding how disaster risks vary across places, communities living in areas prone to tectonic hazards can better prepare for earthquakes and volcanic eruptions, which is essential for sustainable development.

TOPIC 3.1: PLATE TECTONICS

About this Topic

Scientists analyse the spatial distribution of natural phenomena, create knowledge based on verifiable observations, and strengthen existing knowledge with new observations. The plate tectonic theory was developed in the 1960s, but its origins have been traced to the ideas of German meteorologist Alfred Wegener who proposed in the 1910s that Earth's seven continents were once a single landmass, which he called Pangea. Scientists then added new observations of the seafloor, earthquake and volcanic activity to develop the plate tectonic theory, which explains how major landforms are created.

Key questions	Content
1 What is the plate tectonic theory?	1 Plate tectonic theory (a) Earth's internal structure consists of core, mantle and crust, including continental and oceanic crusts (b) explains how forces within Earth drive global plate movements 2 Convection currents (a) within the hot softened mantle below the crust (b) being the driving force of overlying plates 3 Slab-pull force (a) gravity-controlled subduction of denser oceanic plate (b) drags the rest of the plate along
2 How does seafloor spreading support the plate tectonic theory?	1 Seafloor spreading (a) magma rises through mid-ocean ridges (b) forms new oceanic crusts 2 Evidence from age of rocks (a) younger rocks are found nearer the crest of mid-ocean ridges (b) rocks get progressively older further away from mid-ocean ridges 3 Evidence from limited sediment accumulation (a) destruction of older oceanic crusts at trenches (b) oceanic crusts younger than continental crusts
3 How does magnetic striping support the plate tectonic theory?	1 Magnetic striping (a) normal and reversed polarity (b) stripes of rock on the seafloor with alternating magnetic properties 2 Evidence from rock composition (a) basalt is a volcanic rock that forms the oceanic crust (b) contains minerals that can be influenced by Earth's magnetic field 3 Evidence from rock patterns (a) alternating polarity forms a striped pattern (b) not random or isolated occurrences

Key questions	Content
4 What happens at plate boundaries when tectonic plates move?	1 Divergent plate boundaries (a) plates move away from each other (b) results in mid-ocean ridges, volcanoes including submarine volcanoes and volcanic islands, rift systems and earthquakes 2 Convergent plate boundaries (a) plates move towards each other (b) results in fold mountains, volcanoes including submarine volcanoes, oceanic trenches and earthquakes 3 Transform plate boundaries (a) plates slide past each other (b) results in faults and earthquakes

TOPIC 3.2: EARTHQUAKES AND VOLCANOES

About this Topic

Plate movements resulting from Earth's internal processes explain why some locations in the world are prone to experiencing earthquakes and volcanic eruptions. Large-scale tectonic hazards could pose considerable danger to people living in hazard-prone areas, causing widespread destruction that results in the loss of lives and massive damage to property. Tectonic hazards can also affect the natural environment, destroying ecosystems, killing plants and animals. However, there are many advantages to living near volcanoes, which resilient communities can benefit from.

Key questions	Content
1 How do tectonic processes affect the magnitude of earthquakes?	1 Tectonic processes of earthquakes (a) stress builds up and exceeds strength of the fault (b) sudden release of seismic waves, radiating energy from the focus 2 Magnitude of earthquakes (a) affected by amount of energy released through ground movement (b) recorded using seismometers 3 Measuring earthquakes (a) Richter scale measures local magnitude of earthquakes (b) Moment Magnitude scale measures larger earthquakes more reliably
2 How do tectonic processes affect the magnitude of volcanic eruptions?	1 Tectonic processes of volcanic eruptions (a) magma consisting of dissolved gases is less dense (b) forces its way upward and breaks through weak areas in the Earth's crust 2 Magnitude of volcanic eruptions (a) determined by amount of dissolved gases and magma viscosity (b) stratovolcanoes erupt violently and shield volcanoes emit magma gently 3 Measuring volcanic eruptions (a) Volcanic Explosivity Index measures relative explosivity of historic eruptions (b) considers the volume of ejected materials, height of eruption cloud and duration of the eruption
3 How might distribution of earthquakes and volcanoes influence the location of tectonic hazards?	1 Distribution of earthquakes (a) along all plate boundaries (b) largest concentration at the Pacific Ring of Fire 2 Distribution of volcanoes (a) located near convergent and divergent plate boundaries (b) hot spot volcanoes are found away from plate boundaries 3 Distribution of tectonic hazards (a) most located near plate boundaries, and near earthquakes and volcanoes (b) tsunamis and volcanic ash may spread beyond geographic region

Key questions	Content
4 How might tectonic hazards affect the natural and human systems?	1 Earthquake hazards and their impacts (a) hazards include ground shaking, soil liquefaction, landslides and tsunamis (b) impacts include destroying ecosystems, properties and infrastructure, disrupting services, and causing injury and loss of life 2 Volcanic eruption hazards and their impacts (a) hazards include tephra, volcanic gases, lava flows, pyroclastic flows, lahars and volcanic landslides (b) impacts include destroying ecosystems, properties and infrastructure, disrupting services, and threatening public health and causing injury and loss of life 3 Benefits of volcanic eruptions and living near volcanoes (a) volcanic eruption provides fertile soil for farming after volcanic materials are broken down and weathered, and makes available valuable minerals and building materials (b) living near volcanoes allows harnessing of geothermal energy and tourism activities

TOPIC 3.3: DISASTER RISK MANAGEMENT

About this Topic

Earthquake and volcanic eruption disaster risks vary greatly from place to place depending on both physical and human factors. For countries that are prone to tectonic hazards, sustainable development requires effective disaster risk management involving all stakeholders. Analysing the factors influencing disaster risks is important to reducing disaster risks successfully. Ultimately, it is vital for communities to continually build their resilience, and for governments to sustain their efforts in enhancing disaster response and recovery capabilities.

Key Questions	Content
1 How does disaster risk management help achieve sustainable development?	1 Disaster risk management (a) prevent, reduce and manage disaster risks thus strengthening resilience (b) apply plans and actions which are developed into various strategies by communities 2 Disaster risk and loss (a) brings about serious economic, social and environmental consequences (b) costly for individuals and countries, and may hinder development 3 Reducing disaster risks (a) important for disaster-prone developing countries (b) cost-effective investment in preventing future losses, thus contributing to sustainable development
2 Why do disaster risks related to earthquakes and volcanic eruptions vary across places?	1 Tectonic disaster risk (a) interaction between tectonic hazards, and vulnerability and exposure to earthquakes and volcanic eruptions (b) results in potential loss of human lives and damage to properties 2 Factors influencing disaster risks related to earthquakes (a) nature of hazards including duration and time of shaking (b) vulnerable conditions including quality of building design and construction, soil and rock properties, and exposure including population density and distance from epicentre 3 Factors influencing disaster risks related to volcanic eruptions (a) nature of hazards including chemical composition of magma (b) vulnerable conditions including availability of surface and ground water facilitating the development of lahars, prevailing wind conditions affecting distribution of tephra, and exposure including presence of human settlements
3 How effective are the strategies in building communities' resilience to earthquakes and volcanic eruptions?	1 Strengthening resilience (a) important for communities living in hazard-prone zones (b) to resist, adapt and recover from impacts of disasters in a timely and efficient manner 2 Strategies in building community resilience (a) reducing exposure including land use planning, reducing vulnerability including hazard-resistant building designs, and monitoring and warning systems (b) increasing preparedness for response and recovery 3 Challenges in building community resilience (a) extent of community's resources (b) capability of community to organise itself for disasters

Key Questions	Content
4 How effective are the disaster management strategies after an earthquake or a volcanic eruption?	1 Disaster management (a) organisation, planning and application of strategies (b) responding to and recovering from disasters 2 Disaster management strategies (a) disaster response includes search and rescue efforts, timely evacuation, and provision of basic social and psychosocial services to affected communities (b) disaster recovery includes restoring and improving facilities and living conditions of affected communities 3 Challenges in disaster management (a) lack of domestic resources, including technological and financial resources (b) engaging relevant stakeholders to collaborate and integrate disaster management strategies into their practices

GEOGRAPHICAL DATA SKILLS AND TECHNIQUES

Geographical data skills and techniques are essential to the work of geographers. They help geographers gather, analyse, present and interpret information about the characteristics, patterns and processes of the phenomenon/phenomena they are investigating. They also facilitate geographical thinking and decision making. As students learn about a range of geographical data types such as graphs, maps and images through the topics, they will acquire the skills necessary for them to read, construct, analyse and interpret the data in context.

Candidates will be expected to interpret geographical data from the following resources:

- Tabular data
- Text extracts
- Landscape photographs
- Aerial photographs and satellite images
- Scatter graphs and best fit lines
- Simple and comparative line graphs
- Simple and comparative bar graphs
- Pie charts
- Sketch maps
- Dot maps
- Choropleth maps
- Flow line maps
- Proportional symbol maps
- Isoline maps
- Cartoons
- Wind roses
- Diagrams (schematics, block)

Candidates should be able to:

- Calculate mean, median and mode
- Describe patterns, trends and relationships
- Describe natural and human characteristics shown in photographs
- Draw simple sketches of photographs and annotate them to illustrate the features
- Identify locations on maps using compass direction, longitude and latitude
- Read map scales and symbols
- Plot scatter, line and bar graphs

Appendix A

Level	Marks	Generic Level Descriptors for 6-mark AO3 Questions
3	**5–6**	Develops arguments that support both sides of the discussion clearly, using a range of points with good elaboration. Examples used demonstrate a comprehensive understanding of the issue or phenomenon. Evaluation is well supported by arguments.
2	**3–4**	Develops arguments that support one side of the discussion well, using one or two points with some elaboration. Example(s) used demonstrate a good understanding of the issue or phenomenon. Evaluation is partially supported by arguments.
1	**1–2**	Arguments are unclear with limited description or may be listed. No examples provided or examples are generic, demonstrating a basic understanding of the issue or phenomenon. Evaluation is simple, missing or unclear.
0	**0**	No creditworthy response.