Geography (Secondary 1-3) Curriculum Framework

Curriculum Aims and Objectives

1.1 Curriculum Aims

This curriculum aims to enable students to:

(a) develop knowledge and understanding of space, place and environment, with particular emphasis on spatial distribution, human-environment interactions across different places, and changes in the natural and human environment;

(b) cultivate the ability to think and enquire from a geographical perspective, and develop geospatial thinking skills to analyse geographical phenomena and address geographical issues of daily life;

(c) understand national geography, appreciate the magnificent landscapes of our motherland, and recognise our country's achievements in economic and social development, as well as its contributions to the sustainable development of human societies, thereby fostering a sense of belonging to our country and strengthening national identity; and

(d) develop a global perspective, understand the importance of international cooperation, and contribute to the well-being and sustainable development of our country and the world.

1.2 Objectives

In relation to the above aims, students should be able to:

1.2.1 Knowledge and Understanding

(a) develop a thorough understanding of key geographical concepts, including space, place, region, human-environment interaction, global interdependence and sustainable development, and apply them in different contexts;

(b) understand how the natural and human processes shape the characteristics of places and their interconnectedness at the local, national and global scales;

(c) understand the spatial distribution of major natural and human features, as well as the underlying factors that account for the distribution pattern in our country and the world;

(d) understand how places and the natural environment influence human life, how human activities alter them at the regional or global scale, and how different regions/countries respond to such impacts;

(e) describe and explain the interactions between humans and the natural environment across space and time, including the physical and human processes involved, and the patterns and impacts created by such interactions; and

(f) develop knowledge and understanding of the major global issues and how they can be addressed and/or resolved through sustainable development.

1.2.2 Skills

(a)   think geographically, guided by the following questions:
   (i)   "What is it?"
   (ii)   "Where is it?" and "What is it like?"
   (iii)   "Why is it there?" and "How did it happen?"
   (iv)   "How and why is it changing?"
   (v)   "What impacts does it have?"
   (vi)   "How should it be managed?"

(b)   master basic geographical enquiry skills, including the ability to :
   (i)   ask geographical questions;
   (ii)   locate and collect information and data relevant to the enquiry from a variety of sources;
   (iii)   organise and present information and data in appropriate formats; and
   (iv)   analyse and interpret information and data in order to draw conclusions.

(c)   master basic geographical skills, including:
   (i)   fieldwork skills: including the selection and use of different fieldwork techniques and instruments to collect and record data, processing and analysing data, and drawing conclusions;
   (ii)   map reading and interpretation skills: including the ability to read and interpret maps of different types and scales, calculate distance using map scales, determine direction using direction signs, and locate places using grid references; and
   (iii)   geospatial thinking skills: including the reading and interpretation of different types of maps, photographs and satellite images, and the use of Geographic Information Systems (GIS) to analyse spatial data for understanding, analysing and solving geographical problems.

(d)   master basic generic skills, particularly holistic thinking skills (including critical thinking skills, problem-solving skills and creativity), through geographical enquiry, including:
   (i)   evaluate information collected and determine its reliability;
   (ii)   analyse geographical phenomena from multiple perspectives; and
   (iii)   identify the causes of problems and propose solutions based on such causes.
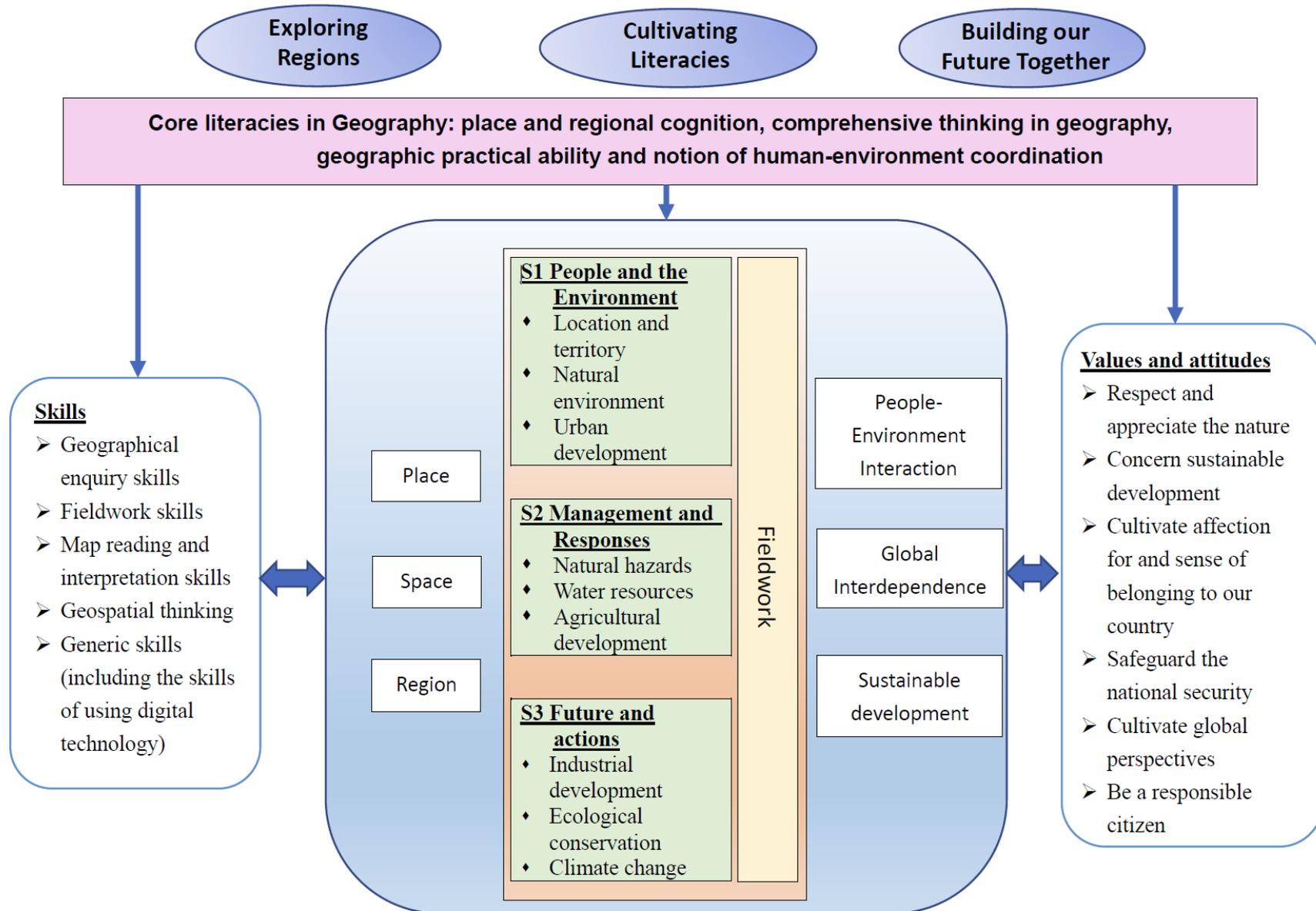

(e)   develop the ability to use digital technology, including
   (i)   share information by using applications (apps),
   (ii)   use digital educational tools to create content, such as employing data visualisation tools to produce charts, or using tools such as apps or Geographic

Information Systems to present fieldwork reports; and

(iii)   use artificial intelligence (AI) to organise and analyse data, and to construct knowledge.

1.2.3   Values and Attitudes

(a)   develop humanistic qualities and the attitude of respect for and protection of the natural environment, and encourage them to take the initiative in assuming responsibility for environmental conservation and the wise use of the Earth's resources, and to take actions to create a better environment and promote the sustainable development of the world;

(b)   appreciate the magnificent landscapes of our motherland, and recognise our country's achievements in economic and social development and its contributions to global sustainable development, thereby developing their sense of national identity as Chinese nationals and sense of belonging to our country, national identity and national pride, enhancing their awareness of national sovereignty and strengthening their affection for our country; and be willing to safeguard national security and contribute to social well-being and national prosperity;

(c)   recognise the interdependence between China and other regions, develop a global perspective, and understand the importance of international cooperation in addressing global issues;

(d)   respect different ethnic groups, their values, cultures, and ways of life; and

(e)   cultivate attitudes towards the ethical use of information and digital technology.

Curriculum structure

Exploring Regions

Cultivating Literacies

Building our Future Together

Core literacies in Geography: place and regional cognition, comprehensive thinking in geography, geographic practical ability and notion of human-environment coordination

Skills
- Geographical enquiry skills
- Fieldwork skills
- Map reading and interpretation skills
- Geospatial thinking
- Generic skills (including the skills of using digital technology)

Place

Space

Region

S1 People and the Environment
- Location and territory
- Natural environment
- Urban development

S2 Management and Responses
- Natural hazards
- Water resources
- Agricultural development

S3 Future and actions
- Industrial development
- Ecological conservation
- Climate change

Fieldwork

People-Environment Interaction

Global Interdependence

Sustainable development

Values and attitudes
- Respect and appreciate the nature
- Concern sustainable development
- Cultivate affection for and sense of belonging to our country
- Safeguard the national security
- Cultivate global perspectives
- Be a responsible citizen

5

Geography Curriculum (Secondary 1-3)

Curriculum Framework

Secondary 1   People and the Environment

Module 1.1   Location and Territory

Location is one of the key factors influencing cultural characteristics and socio-economic development. This module aims to introduce how to determine locations using the world's continents and oceans, and the latitude-longitude coordinate system. It enables students to gain a deeper understanding of our country's location in the world, its territorial characteristics, and its provincial-level administrative divisions. Through this, students are expected to understand our country's geographical background and locational advantages, and fully recognise that Hong Kong is a Special Administrative Region (SAR) of our country, thereby understanding the vastness of its territory and the importance of safeguarding national territory, and enhancing their awareness of upholding national unity and territorial integrity.

Suggested time allocation: 5 – 6 hours

Topics	Essential Learning Content	Learning Content Description	Geographical Concepts and Skills	Examples of Suggested Learning and Teaching Activities
1. Determining locations using the world's continents and oceans	◆ Definition of location ◆ Distribution of land and sea in the world ◆ Describing the location of places using continents and oceans	◆ Understand the definition of location ◆ Know the distribution of the seven continents and the four oceans of the world	Geographical Concepts ◆ Location ◆ Direction Geographical Skills ◆ Locate continents and oceans on a world map	◆ Locate the continents and oceans on globes, world maps or satellite images ◆ Label the continents and oceans on a world map using the drag-and-drop functions provided on online learning platforms ◆ Describe the location of major countries (including China) using

		◆ Know how to describe the location of places using continents and oceans	◆ Describe the location of major countries (including China) on a map ◆ Use an eight-point compass to indicate direction	continents and oceans on the world map
2. Determining locations using the latitude-longitude coordinate system	◆ Latitude and longitude ◆ Major lines of latitude and longitude ◆ Determine locations using the latitude-longitude coordinate system	◆ Know latitude and longitude ◆ Know the major lines of latitude and longitude ◆ Know how to determine locations using the latitude-longitude coordinate system	<u>Geographical Concepts</u> ◆ Location ◆ Lines of latitude and longitude ◆ Latitude and longitude grids <u>Geographical Skills</u> ◆ Distinguish between the Eastern, Western, Northern and Southern Hemispheres ◆ Find places using latitude and longitude ◆ Find the location of places using the latitude-longitude coordinate system	◆ Find major lines of latitude and longitude on a globe, and point out the basis for dividing the world into the Eastern, Western, Northern and Southern Hemispheres ◆ Find places based on the latitudes and longitudes given through online games ◆ Use electronic maps to find the latitudes and longitudes of major cities in the world ◆ Describe the location of historic sites and scenic spots in the world using latitude and longitude on a world map

3. Location of China	• Location of China in the world • China's locational advantages	• Know the location of China in the world • Know the locational advantages of China (having both land and sea access, and numerous neighbouring countries)	Geographical Concepts • Location • Lines of latitude and longitude • Direction Geographical Skills • Read a map and describe the location of China in the world	• By reading a map, describe the location of China in the world in terms of hemispheres, the major lines of latitude it crosses, and its land-sea position, and list the countries that border China, starting from northeast China and moving anti-clockwise to southern China, as well as the adjacent seas from north to south, thereby helping in understanding China's locational advantages of having both land and sea access and numerous neighbouring countries
4. The territory of China	• Definition of territory • China's land area • The four extremities of China's territory and their locations • Characteristics of the territory of China	• Understand the definition of territory • Know China's land area (including the Mainland, coastal islands, Nanhai Zhudao, Diaoyu Dao and its affiliated islands) • Know the four extremities of China's territory and their locations	Geographical Concepts • Territory • Location • Latitude and longitude grids • Scale and distance • Direction Geographical Skills • Read a map of China • Determine locations using the latitude-longitude coordinate system	• Use electronic maps to compare the area of China with that of other countries, highlighting China's vast territory • Read a map of China to know the composition of the national territory and enhance the awareness of the national territory • Find the latitudes and longitudes of the four extremities of China's territory on both paper and electronic maps of China • Find the longitudinal extent between China's easternmost and westernmost points, and the

		♦ Know the vastness of China's territory	♦ Calculate actual straight-line distances using a map scale	latitudinal extent between its southernmost and northernmost points on paper and electronic maps of China ♦ Calculate the actual straight-line distances between China's easternmost and westernmost points, as well as between its southernmost and northernmost points, using a statement scale on a paper map of China, or measure them on an electronic map of China, thereby understanding the vastness of China's territory
5. China's provincial-level administrative divisions	♦ Names, abbreviations, and administrative centres of the 34 provincial-level administrative areas ♦ Relative locations of the 34 provincial-level administrative areas	♦ Know the names, abbreviations, and administrative centres of the 34 provincial-level administrative areas ♦ Know the relative location of the 34 provincial-level administrative areas	Geographical Concepts ♦ Location ♦ Provincial-level administrative areas ♦ Place ♦ Latitude and longitude grids ♦ Scale and distance ♦ Direction	♦ Watch the audiobook titled "Learning and Teaching Series on 'Geography of China': Introduction to the Geography of China", produced by the Education Bureau, to know the geographical location, territorial land and sea, and provincial-level administrative areas ♦ In small groups, play a jigsaw puzzle game depicting China's administrative divisions ♦ Label administrative centres on a map of China and describe the

				Geographical Skills	location of some key administrative centres using latitude and longitude
				• Read a political map of China and describe the relative locations of provincial-level administrative areas within China • Determine locations using the latitude-longitude coordinate system • Find the compass points and whole-circle bearings • Calculate actual straight-line distances using a map scale	• Through map reading, initially explore the relative location of the Hong Kong Special Administrative Region in China and the world, and analyse its locational advantages as an international shipping centre • Find out the relative location of Hong Kong SAR in relation to other key administrative centres using distance and direction on a map of China • In small groups, select a provincial-level administrative area and create a 'Provincial-level Administrative Area Name Card' that shows its location, administrative division, cultural characteristics, and economic development

Values and Attitudes	• Appreciate the vastness of our country's territory • Enhance the awareness of the national territory and homeland security • Cultivate a sense of belonging to our country and a deep affection for it

Module 1.2   Natural Environment

The Earth's land surface is characterised by diverse topography, featuring varying elevations and landforms. Our country, with its vast territory, boasts five primary types of landforms: plateaus, mountains, hills, basins, and plains. This varied topography, marked by high relief in the west and low relief in the east, along with significant latitudinal differences, further enhances the complexity and diversity of its climate. This module aims to introduce our country's topography, climate, and rivers, enabling students to understand the rich and varied natural environment and landscapes of our country, as well as their impact on people's lives. In Part One, students have to learn the basic types of landforms, identify different parts of mountains on contour maps, and use maps and relevant data to briefly summarise the types of landforms and relief characteristics of our country. In Part Two, students have to use maps and climatic graphs to understand our country's climatic characteristics and the distribution of climate types. In Part Three, students have to learn the concept and classification of rivers, gain an overview of our country's major rivers, compare the characteristics of the Changjiang and Huanghe by reading data tables, and use maps and relevant information to summarise the relationship between topography, climate, and rivers. In Part Four, through project-based learning, students can explore the impact of the natural environment on people's lives within the four major geographical regions of our country.

Suggested time allocation: 10 – 11 hours

Topics	Essential Learning Content	Learning Content Description	Geographical Concepts and Skills	Examples of Suggested Learning and Teaching Activities
1. Topography	♦ Basic types of landforms ♦ Different parts of mountains ♦ Contour patterns of different parts of mountains	♦ Know five types of landforms (plateaus, mountains, hills, basins and plains) ♦ Know different parts of mountains (peak, slope, ridge, saddle, valley, spur)	<u>Geographical Concepts</u> ♦ Topography ♦ Altitude ♦ Contour line ♦ Vertical interval <u>Geographical Skills</u> ♦ Interpret a contour map to identify different parts of mountains	♦ Through studying photographs, aerial photographs or satellite images, observing topographic models or watching audio-visual materials, identify the morphological characteristics (height and steepness of slope) of the five basic types of landforms, as well as the shape and features of different parts of mountains

		♦ Know the contour patterns of different parts of mountains	♦ Identify conventional signs used for showing the height of land with the aid of a legend	♦ Find examples of major world mountain ranges, plateaus, basins, and plains on a three-dimensional world relief map ♦ Observe how a three-dimensional terrain is transformed into a two-dimensional contour map using apps or contour boxes ♦ Identify the relationship between the spacing of contour lines and steepness of slope ♦ Identify the vertical interval and distinguish different parts of mountains on maps of Hong Kong or areas near the school (1:5 000 or 1:20 000) ♦ Observe and take photographs of different landforms and different parts of hills from high vantage points in Hong Kong, and describe their shape and features ♦ Create models of landforms and mountains using apps, 3D printing technology, AI tools, or smart sandboxes

		Landforms	Geographical Concepts	• On a topographic map of China, delineate the boundaries of the three-step ladder-like topography, and mark the major mountain ranges along these boundaries and the main landforms on either side, enabling students to recognize the diverse topography of China
	• Topography of China	• Know the distribution of the five basic types of landforms in China • Know the vast extent of mountainous areas in China Relief characteristics • Know that China's relief is high in the west and low in the east, forming a three-step ladder-like pattern of China's relief, with unique landforms at each step	• Topography • Relief • Spatial distribution • Direction Geographical Skills • Identify the basic types of landforms on a map of China • Interpret a pie chart, and calculate the percentage of mountainous areas within the total land area	• Read and interpret a pie chart showing the share of different types of landforms among the total land area of China, identify the type of landform that accounts for the largest proportion, and calculate the share of mountainous areas (including plateaus, mountains, hills) within the total land area, thereby understanding the vast extent of mountainous areas in China • On a topographic map of China, point out that Hong Kong belongs to the coastal hilly region at the third step, and read the relief map of Hong Kong, provide a general description of the relief of Hong Kong • Watch the audiobook titled "Learning and Teaching Series on 'Geography of China': The Topography of China", produced by

				the Education Bureau, to understand the three-step ladder-like topography of China and appreciate its magnificent landscapes
2. Climate	◆ Climate	◆ Understand the definition of climate ◆ Know climatic elements (air temperature, precipitation, air pressure, wind direction, wind speed, relative humidity) ◆ Know how to describe climatic characteristics	Geographical Concepts ◆ Climate ◆ Climatic elements ◆ Climatic characteristics Geographical Skills ◆ Construct, read and interpret climatic graphs	◆ Construct a climatic graph, tell the characteristics of the changes in climate over time, and describe the seasonal distribution patterns of temperature and precipitation shown on the graph ◆ Interpret a climatic graph and understand the climatic characteristics of Hong Kong
	◆ Climatic characteristics of China	◆ Know the distribution patterns of temperature and annual precipitation in China ◆ Know the seasonal variations of temperature and precipitation in China	Geographical Concepts ◆ Temperature ◆ Precipitation ◆ Monsoon ◆ Spatial distribution pattern ◆ Seasonal change ◆ Climatic characteristics Geographical Skills	◆ Read and interpret the maps showing the distribution of mean temperatures in China during January and July, as well as the map illustrating the distribution of annual precipitation across China, and summarise the distribution patterns of temperature and annual precipitation in China

		• Know that China has a significant monsoon climate	• Read and interpret the maps showing the distribution patterns of temperature and annual precipitation • Interpret a climatic graph to describe the seasonal distribution patterns of temperature and precipitation	• Watch the audiobook titled "Learning and Teaching Series on 'Geography of China': Climate of China", produced by the Education Bureau, to know the spatial variations in climate across China • Based on climatic graphs, describe the seasonal distribution patterns of temperature and precipitation of two cities in southern China, and summarise the characteristics of monsoon climate
	• Distribution of climate types in China	• Know the climate types in China • Know the distribution of climate zones in China *Extended Learning Part** *Understand the factors controlling the climate of China (latitude, altitude, distance from the sea, and monsoon)*	Geographical Concepts • Climate zone • Spatial distribution pattern Geographical Skills • Read and interpret climatic graphs • Read the map showing the distribution of major climate types in China and describe the distribution of climate zones in China	• Read and interpret five climatic graphs belonging to different climate zones, describe their climate characteristics, and identify their respective climate types, thereby summarizing the diversity of climate types in China • *Extended learning part:* *Read maps showing monsoon activity and the distribution of monsoon regions in China, identify the wind directions and characteristics of the summer and winter monsoons, thereby illustrating how monsoons influence climate*

3. Rivers	◆ The concepts and classification of rivers ◆ Major rivers in China ◆ Relationship between topography, climate and rivers	◆ Understand the concept and classification of rivers ◆ Know the distribution and major characteristics of the major rivers in China (the Changjiang, Huanghe and Zhujiang) ◆ Know the variations in the characteristics of rivers in the northern and southern regions, and along different river courses ◆ Know the relationship between topography, climate and rivers *Extended learning part** *Using the Changjiang and Huanghe as examples, know the human factors leading to the hydrological differences*	Geographical Concepts ◆ River ◆ Exterior river ◆ Interior river ◆ Direction ◆ Spatial distribution ◆ Regional variations ◆ Spatial association Geographical Skills ◆ Read and interpret the topographic map of China, and identify the flow directions of China's three major rivers ◆ Read a map showing the distribution of rivers in China, and identify the regions through which the three major rivers flow ◆ Read a table showing the length and mean annual discharge of the rivers, construct and interpret a bar chart, and compare the hydrological differences between these rivers	◆ Watch the audiobook titled "Learning and Teaching Series on 'Geography of China': Rivers in China", produced by the Education Bureau to understand China's three major rivers, their distribution and characteristics ◆ Based on hydrological data of the Changjiang and Huanghe, work in groups to construct bar charts displaying their mean annual discharge, and then discuss the natural and human factors leading to hydrological differences ◆ Prepare overlays of different types of geographical information of China (e.g. rivers, topography and annual precipitation) to create an integrated GIS map for understanding hydrological differences of rivers ◆ Watch a documentary footage of the Changjiang and Huanghe to visualise hydrological phenomena ◆ Use AI to assist in analysing river data

			◆ Read and interpret a map showing the wet regions and dry regions in China, and identify the relationship between climate and rivers ◆ Read and interpret the topographic map and photographs of China, and using the Changjiang and Huanghe as examples, compare the characteristics of different river courses and identify the relationship between topography and rivers	
4. Impact of the natural environment on people's lives	◆ Overview of the natural environment of China's four major geographical regions ◆ Impact of the natural environment on people's lives	◆ Know China's four major geographical regions ◆ Understand how the natural environment affects the way of life of the people	Geographical Concepts ◆ Location ◆ Region ◆ Spatial distribution ◆ Use of natural resource ◆ Interrelationship between people and the environment Geographical Skills	◆ Using one of the geographical regions as a case study, collect relevant data on its location, climate, topography, local produce, and people's lives. Analyse the impact of the natural environment on local produce and people's lives, and explain how people adapt to nature and develop the area according to the local conditions. Finally, prepare study reports and make a

			♦ Study a topographic map to identify the basic types of landforms in a given region ♦ Interpret climatic graphs to describe climatic characteristics ♦ Geographical enquiry skills	presentation to share the research findings with classmates ♦ In line with the curriculum, the mainland exchange programmes under the theme of "National Landscape of China" can be organised, allowing students to personally experience the magnificent landscapes of China, and through project learning, understand how the natural environment influences the lifestyles, customs, and culture of local people

Values and Attitudes	♦ Appreciate China's magnificent landscapes and its beauty of nature ♦ Strengthen students' affection for and sense of belonging to our country ♦ Understand the importance of safeguarding homeland security and resource security ♦ Foster the concept of harmonious coexistence between people and nature ♦ Respect and protect the natural environment, and be willing to take proactive actions for environmental conservation ♦ Respect different ethnic groups, their values, cultures, and ways of life

Extended learning part: Teachers may choose whether to cover this part for enrichment, depending on the teaching progress, student abilities, and interests. The part may also be used for students' independent learning.

Module 1.3   Urban Development

The evolution process of cities from individual entities into city clusters represents not only spatial expansion but also profound changes in economic, cultural and social interactions. The development of sustainable smart cities reflects the emphasis of modern society on innovative technology and sustainable development. With the continuous development of the economy of our country, cities have been expanding since the Reform and Opening-up. The development of city clusters along the eastern coast precisely demonstrates that urban development in this region has entered a mature stage. This module aims to enable students to understand the characteristics of cities, urban development and the distribution of city clusters. Through studying the city cluster of Guangdong-Hong Kong-Macao Greater Bay Area, students can know the locational advantages of China's city clusters and understand how smart cities achieve sustainable development through technology.

Suggested time allocation: 8 – 9 hours

Topics	Essential Learning Content	Learning Content Description	Geographical Concepts and Skills	Examples of Suggested Learning and Teaching Activities
1. Characteristics and development of cities	⬥ Characteristics of cities ⬥ Urban growth and development	⬥ Know the characteristics of cities ⬥ Know urban growth and development (increase in urban population, and the growth in number and scale of cities)	Geographical Concepts ⬥ Urban area ⬥ Place ⬥ Population density ⬥ Urban land use ⬥ Changes over time ⬥ Population movement ⬥ Urban growth ⬥ Grid reference Geographical Skills ⬥ Calculate population density ⬥ Identify different types of land use on	⬥ Identify the characteristics of cities (such as building density, transport network and facilities) on a map ⬥ Understand the characteristics of urban land use through photographs ⬥ Use AI tools to analyse the types of land use and their characteristics on maps ⬥ Along a planned route in the school vicinity, identify land use types and describe their characteristics ⬥ Map urban land use in the field and construct a land use map using GIS ⬥ Based on Hong Kong's population statistics, calculate the increase in

			photographs and a simplified land use map ♦ Identify and use conventional signs with the aid of a legend on a map of Hong Kong (1:5 000 or 1:20 000) ♦ Show the location of places using grid references ♦ Calculate the increase in the size of urban population ♦ Read and interpret the maps in different periods to compare the number and scale of cities	the size of urban population of Hong Kong in different periods over the past few decades ♦ Read and interpret the maps of a certain region in different periods of time and identify the changes in the number and scale of cities
2. City clusters	♦ Characteristics of city clusters ♦ Global distribution of city clusters ♦ Locational advantages of China's city clusters	♦ Know the characteristics of city clusters ♦ Know the global distribution of city clusters ♦ Know the locational advantages of China's city clusters Case Study: Guangdong-Hong	Geographical Concepts ♦ City cluster ♦ Location ♦ Hinterland ♦ Spatial distribution ♦ Relationship between people and the environment	♦ Watch the audiobook titled "Learning and Teaching Series on 'Geography of China': Cities", produced by the Education Bureau, to understand China's three major city clusters and list their common characteristics ♦ Read maps, aerial photographs, or satellite images, and describe the spatial distribution of city clusters worldwide or within China

		Kong-Macao Greater Bay Area *Extended learning part** *Understand the relationship between the development of the Northern Metropolis and the Guangdong-Hong Kong-Macao Greater Bay Area*	Geographical Skills ♦ Read a map showing the global distribution of city clusters ♦ Read and interpret a map of the Guangdong-Hong Kong-Macao Greater Bay Area and related socio-economic data	♦ Prepare overlays of different types of geographical information of China (e.g. rivers, topography, transport network and city clusters) to create an integrated GIS map for understanding the locational advantages of city clusters in China ♦ *Extended learning part: Use the learning content of this topic and previous topics to understand and conduct a preliminary enquiry into the relationship between the development of the Northern Metropolis and the Guangdong-Hong Kong-Macao Greater Bay Area*
3. Trend of urban development - Building sustainable smart cities	♦ Build sustainable smart cities	♦ Understand the concept of sustainable development ♦ Understand the concept of smart cities ♦ Understand the ways in which technology is used to optimise urban planning to achieve sustainable development	Geographical Concepts ♦ Sustainable development ♦ Smart city ♦ Urban planning ♦ Application of technology ♦ Relationship between people and environment	♦ Conduct a fieldwork in Kowloon East, or search for information about the area online, to explore the potential of Kowloon East to be developed into a smart city area ♦ Search for information online to understand the application of Global Navigation Satellite Systems (GNSS), such as the Global Positioning System (GPS) and the BeiDou Navigation Satellite System

		Examples: Shenzhen, China; Oslo, Norway	Geographical Skills ♦ Geographical enquiry skills	(BDS), in traffic flow management, safety monitoring and urban management in smart cities ♦ Conduct a case study on one of the sustainable smart cities by collecting information on its location and examples of technologies applied to promote smart city development, analysing how such elements optimise urban planning to achieve sustainable development, and finally delivering a presentation to share the research findings with classmates ♦ Cross-curricular collaboration: Use AI to generate images to showcase or design a sustainable smart city

Values and Attitudes	♦ Recognise the importance of sustainable development ♦ Concern the importance of technology in building sustainable smart cities ♦ Understand the importance of safeguarding science and technology security, data security and societal security ♦ Cultivate a sense of responsibility and willingness to take proactive actions for sustainable development

Extended learning part: Teachers may choose whether to cover this part for enrichment, depending on the teaching progress, student abilities, and interests. The part may also be used for students' independent learning.

Secondary 2   Management and Responses

Module 2.1   Natural Hazards

Natural hazards are natural phenomena that lead to loss of life and property. In this module, students should know the causes and effects of two types of natural hazards - typhoons and earthquakes, as well as the preventive and remedial measures that can reduce their negative effects. By studying examples from different countries, students should understand regional variations in disaster prevention, disaster relief, and post-disaster reconstruction, as well as the factors affecting the ability to cope with natural hazards. As a result, students should have a better understanding of the reasons why some regions are more vulnerable to natural hazards than others.

Suggested time allocation: 8 – 9 hours

Topics	Essential Learning Content	Learning Content Description	Geographical Concepts and Skills	Examples of Suggested Learning and Teaching Activities
1. Major natural hazards in the world	• Meaning of natural hazards • Major natural hazards	• Understand the concept of natural hazards • Know the major natural hazards in the world (earthquakes, volcanic eruptions, floods, droughts, landslides, tropical cyclones, and wildfires)	Geographical Concept • Natural hazards Geographical Skills • Read the photographs to identify different natural hazards in the photographs	• Read the news about natural hazards, and identify the natural hazards, their locations of occurrence and the damage caused
2. Typhoons	• Distribution pattern of areas affected by	• Know the distribution pattern of areas	Geographical Concepts • Spatial distribution • Location	• Use the information provided by the Hong Kong Observatory to describe

	typhoons and the reasons behind ♦ Causes of typhoons ♦ Weather conditions brought by typhoons ♦ Negative effects of typhoons ♦ Preventive and remedial measures	affected by typhoons and the reasons behind ♦ Understand the causes of typhoons ♦ Know the weather conditions brought by typhoons ♦ Know the secondary disasters brought by typhoons and the socio-economic impact of typhoons ♦ Understand preventive and remedial measures that can reduce losses	♦ Weather elements ♦ Secondary disasters ♦ Human response to natural hazards ♦ Prediction of typhoon ♦ Scale and distance ♦ Direction Geographical Skills ♦ Calculate the actual straight-line distance using a map scale ♦ Identify direction ♦ Read and interpret the weather chart, and identify weather symbols ♦ Read a map to describe the track of the typhoon ♦ Identify the warning signals associated with typhoons in Hong Kong	the place of origin, the moving direction, and the track of typhoons ♦ On the weather chart, calculate the actual straight-line distance from the eye of the typhoon to Hong Kong using a map scale, and find out the direction from the eye of the typhoon to Hong Kong ♦ Read a series of weather charts of Hong Kong to describe the weather conditions of Hong Kong on the days affected by a typhoon, and state the changes in weather conditions brought by typhoons ♦ Use the instruments provided by the school, measure and record the local weather data before and after the occurrence of a typhoon, and use IT to present the data systematically ♦ Watch the audiobook titled "Learning and Teaching Series on 'Geography of China': Natural Hazards and Mitigation Measures I", produced by the Education Bureau, to understand the causes, effects, and mitigation measures of typhoons ♦ Use China or the Philippines as a case study, collect information on the

				disasters caused by typhoons and the remedial measures carried out by the government, and then produce a short report • Use of AI tools to design a poster educating the citizens on ways to escape and respond to typhoons
3. Earthquake	• Internal structure of the earth • Major plate boundaries in the world • Relationship between global distribution of earthquakes and plate boundaries • Causes of earthquakes • Destruction brought by earthquakes • Preventive and remedial measures • International disaster relief efforts	• Know the internal structure of the earth • Know the major plates in the world • Know the relationship between global distribution of earthquakes and plate boundaries • Understand how plate movement results in earthquakes • Know primary and secondary disasters brought by earthquakes • Understand ways to reduce the loss by preventive and remedial measures	Geographical Concepts • Plate tectonics • Earthquake belts • Spatial association • Human response to natural hazards • Prediction of earthquakes • Interdependence • International cooperation • Scale and distance • Direction	• On the map, calculate the actual straight-line distance from the epicentre of earthquake to a place using a map scale and find out the direction of that place from the epicentre • Use GIS to create a map showing the relationship between the earthquakes occurred recently in the world and plate boundaries • Watch a video about plate tectonics and plate movement, and understand how plate movement leads to earthquakes • Compare aerial photographs of relevant cities before and after the earthquake to understand the damage caused by the earthquake • Collect information online to understand how Global Navigation

		♦ Understand international disaster relief work (including how China helps other countries to carry out disaster relief work)	Geographical Skills ♦ Calculate the actual straight-line distance using a map scale ♦ Identify directions ♦ Read the map showing the distribution of earthquakes, find out the relationship between plate boundaries and the global distribution and earthquakes ♦ Read and interpret the aerial photos to describe the destructions caused by an earthquake	Satellite Systems (GNSS), such as Global Positioning System (GPS) and Beidou Navigation System (BDS), assist in disaster relief efforts ♦ Collect information online to understand China's contribution in the United Nations International Search and Rescue Advisory Group, and take pride in its contribution ♦ Watch the audiobook titled "Learning and Teaching Series on 'Geography of China': Natural Hazards and Mitigation Measures II", produced by the Education Bureau, to understand the causes, effects and mitigation measures of the earthquakes ♦ Through a case study, collect information on the causes of a recent earthquake in a country, the disasters caused by the earthquake, and the remedial measures implemented by the government, and then produce a short report

| 4. Reasons for some regions being more vulnerable to natural hazards than others | • Variations in disaster prevention, disaster relief and post-disaster reconstruction work across different regions
• Factors affecting the abilities to cope with natural hazards | • Understand the disaster prevention, disaster relief and post-disaster reconstruction work across different regions
• Understand the major factors affecting the abilities to cope with natural hazards before, during and after the natural disasters

Examples: China, Indonesia, New Zealand | Geographical Concepts
• Management of natural hazards
• Human response to natural hazards
• Level of economic development
• Technology
• Government policies

Geographical Skills
• Read and interpret the population and socio-economic data of more developed and less developed regions, and make comparisons | • Collect information online and watch the videos, and then compare the impact of natural hazards on different countries
• Analyse specific cases to compare the achievements and shortcomings of different regions in pre-disaster prevention, disaster relief, and post-disaster reconstruction, and explore the main factors affecting disaster response capabilities |

| Values and Attitudes | • Willing to take preventive measures to reduce the negative effects brought by natural hazards
• Recognise the importance of safeguarding societal security
• Show concern for people affected by natural hazards and build empathy
• Take pride in our country's contribution to disaster prevention and international relief efforts, and foster a sense of belonging to our country and affection for our country |

Module 2.2   Water Resources

Freshwater resources available for drinking account for less than one percent of total water resources on Earth, making water scarcity a global issue. This module aims to enable students to know the operation of the water cycle and the distribution pattern of water resources, and understand the current status of water security and water resource management strategies in North China. Through the study of this module, students can explore how the interplay of natural and human factors has led to water shortage problem in the Sahel region of Africa, and finally, understand the measures China has taken to assist the Sahel region in managing water resources, enhancing its capacity for water resource management, and addressing water scarcity, thereby contributing to the building of a global community with a shared future for humanity.

Suggested time allocation: 8 – 9 hours

Topics	Essential Learning Content	Learning Content Description	Geographical Concepts and Skills	Examples of Suggested Learning and Teaching Activities
1. Water resources in the globe	◆ Water cycle ◆ Water resources ◆ Distribution pattern of water supply in the world	◆ Know the operation of the water cycle ◆ Understand the concept of water resources ◆ Know the global distribution pattern of water resources and major areas experiencing water scarcity	Geographical Concepts ◆ Water cycle ◆ Water resources ◆ Spatial distribution Geographical Skills ◆ Calculate the amount of water resources per capita ◆ Draw a pie chart to show the distribution of planetary water by percentage ◆ Read and interpret a map showing the distribution of	◆ Draw a simple flow chart to show the operation of the water cycle ◆ Organise a visit to the H2O Public Education (H2OPE) Centre to help students gain an understanding of the limitations of Hong Kong's water resources and recognise the importance of Dongjiang water through guided tour, thereby cultivating their attitude of "gratitude for the source of benefit" and encouraging proactive conservation of these precious water resources

			freshwater resources in the world, and describe the major areas with water scarcity	

2. Current status of water security and water resources management in North China	◆ Distribution pattern of water resources in China
	◆ Location, climatic characteristics and types of water resources in North China
	◆ Challenges to water security in North China
	◆ Strategies for water resources management in North China
		◆ Know the distribution pattern of water resources in China
		◆ Know the location, climatic characteristics and types of water resources in North China
		◆ Understand the challenges of water security in North China
		◆ Know the water resource management strategies in North China
		   – Water diversion scheme: the South-North Water Transfer Project
		   – Pollution control
		   – Control of water usage
			<u>Geographical Concepts</u>
			◆ Location
			◆ Spatial and temporal distribution
			◆ Climatic characteristics
			◆ Resource management
			◆ Human-environment interaction
			◆ Sustainable development
			
			<u>Geographical Skills</u>
			◆ Calculate the amount of water resources per capita
			◆ Read and interpret a map showing the distribution pattern of water resources in China
			◆ Read and interpret a climatic graph
			◆ Read and interpret data
				◆ Read and interpret a map showing the distribution of water resources in China, and identify the regions experiencing water scarcity
				◆ Describe the seasonal distribution of precipitation in the urban areas of North China according to the climatic graph
				◆ Compare the share of water resources, area of arable land, population size and the regional GDP with the national total, and analyse the challenges to water security in North China in terms of supply and demand
				◆ Interpret a map and watch video to understand the construction of South-North Water Transfer Project
				◆ Students discuss various ways of proper water resource management and utilization, thereby understanding that protection, proper management and use of water resources are crucial

		– Restoration of ecological environment		components related to national security (such as resource security)
3. Causes of water shortage in the Sahel, Africa	♦ Distribution of water resources in Africa ♦ Location and climatic characteristics of the Sahel region ♦ Causes of water shortage in the Sahel region	♦ Know the distribution pattern of water resources in Africa ♦ Know the location and climatic characteristics of the Sahel region ♦ Understand the physical and human factors leading to water shortage in the Sahel region *Extended learning part** *Understand the impact of water shortage in the Sahel*	Geographical Concepts ♦ Spatial distribution ♦ Location ♦ Climatic characteristics ♦ Interaction between physical and human factors ♦ Infrastructure ♦ Climate change ♦ Desertification Geographical Skills ♦ Read and interpret a map showing the distribution of water resources ♦ Read and interpret a climatic graph	♦ Read and interpret a map showing the distribution of water resources in Africa, and identify the regions with water shortage in Africa ♦ Collect information online and from news to understand the causes of water shortage in the Sahel region ♦ Collect information online and conduct a preliminary exploration of the causes of water shortages in other regions
4. Measures carried out by China to assist the Sahel region	♦ Measures that China has taken to assist the Sahel region in Africa in combating water shortages	♦ Know the measures that China has taken to assist the Sahel region in combating water shortages	Geographical Concepts ♦ Interaction between human and the environment ♦ Resource management	♦ Collect information online to understand how China assists the Sahel region in combating water shortages

in Africa in combating water shortages		− Water infrastructure − Sharing of technology − Scientific research and training *Extended learning part** *Understand the effectiveness of the China-aided Water Supply Project in Zinder, Niger in solving the problem of water shortage*	♦ Interdependence ♦ International cooperation	♦ Use AI or IT tools to create a video that introduces the conservation of water resources and promotes water conservation ♦ *Extended learning part: Read the online map and information to understand the location and natural environment of the China-aided Water Supply Project in Zinder, Niger, and evaluate its effectiveness*

Values and Attitudes	♦ Recognise the importance of water resource management ♦ Cultivate a sense of responsibility for water conservation ♦ Concern about the well-being of our country, recognise the importance of safeguarding resource security, and take proactive action to conserve water resources ♦ Show concern and lend a helping hand to people affected by water shortages, cultivate empathy, and build a global community with a shared future for humanity

*Extended learning part: Teachers may choose whether to cover this part for enrichment, depending on the teaching progress, student abilities, and interests. The part may also be used for students' independent learning.

Module 2.3   Agricultural Development

Food security has always been a critical issue. With economic development, countries must not only produce enough food to feed their populations but also improve the quality of agricultural produce while minimising the environmental impact of agricultural production. This module aims to help students understand agricultural systems and locational factors, as well as agricultural technologies that contribute to sustainable agricultural development. Through a case study of China, students will learn about our country's major agricultural regions and the factors that influence their distribution. Additionally, in this module, students will explore how China and Australia, each with unique natural conditions, adopt climate-smart agriculture to combat climate change and improve food quality, thereby achieving sustainable agricultural development.

Suggested time allocation: 7 – 8 hours

Topics	Essential Learning Content	Learning Content Description	Geographical Concepts and Skills	Examples of Suggested Learning and Teaching Activities
1. Agricultural system	◆ Agricultural system	◆ Know the inputs, processes and outputs of the agricultural system	Geographical Concepts ◆ Agricultural system ◆ Input and output ◆ Interrelationship between humans and the environment	◆ Read the flow diagram of the agricultural system to describe how it operates
2. Agricultural location factors	◆ Agricultural location factors ◆ Major agricultural regions of China and factors affecting their distribution	◆ Know the agricultural location factors (physical factors) Case Study: China ◆ Know the four major agricultural regions in China (Types of farming and their major characteristics)	Geographical Concepts ◆ Locational factors ◆ Region ◆ Types of agriculture ◆ Spatial association ◆ Interrelationship between people and the environment ◆ Climatic characteristics	◆ Read and interpret a map showing the distribution of climate zones and a relief map of China to analyse the impact of climate and relief on types of agricultural produce, farming patterns, and farm productivity ◆ Use AI tools to read a contour map of an agricultural region and

		• Know the physical factors affecting the distribution of agricultural regions	• Gradient Geographical Skills • Calculate area of fields or farms on a map • Find the height of the land and calculate the slope gradient from a contour map • Draw an annotated cross-section • Read and interpret a map showing the distribution of climate zones and a relief map of China to know its natural environment • Read and interpret a map showing the distribution of the four major agricultural regions of China	analyse how relief affects the distribution of different types of farming • Conduct a field trip to a farm in Hong Kong or the Zhujiang Delta to identify the type of farming and its characteristics through observation and interviews with farmers • Watch the audiobook titled "Learning and Teaching Series on 'Geography of China': Agriculture", produced by the Education Bureau, to understand the types and locations of farming, challenges faced in agriculture and the solutions implemented in China, thereby helping students understand the measures China has taken to improve farming productivity and stabilise the food supply for safeguarding food security
3. Sustainable agricultural development	• Farming technology for sustainable agricultural development • Climate-smart agriculture	• Know the farming technology that help achieve sustainable agricultural development (precision farming, controlled	Geographical Concepts • Impact of technology • Sustainable agricultural development • Climate-smart agriculture	• Collect information online to explore the agricultural technology adopted by China, helping students learn more about important strategies and achievements in safeguarding food security

		environment greenhouse, biotechnology and breed improvement) ♦ Understand the reasons for the development, technological applications, and characteristics of climate-smart agriculture Case studies: China and Australia *Extended learning part** *Understand the challenges faced in climate-smart agriculture*	♦ Climate change <u>Geographical Skills</u> ♦ Calculate the difference in production before and after adopting climate-smart agriculture	♦ Read and interpret photographs to understand the operation of climate-smart agriculture ♦ Cross-curricular collaboration: Collaborate with Computer Literacy teachers to help students learn how to use advanced technologies (such as sensors, Internet of Things, and AI) to design precision farming or optimising farming production processes ♦ Use AI tools to create a short video displaying the operation of climate-smart agriculture ♦ Read and interpret a graph to understand the changes in production before and after adopting climate-smart agriculture ♦ Collect information online, compare the characteristics of climate-smart agriculture in China and Australia, and analyse the challenges encountered during its implementation in these countries

Values and Attitudes	♦ Recognise technologies that adapt to the local environment should be used to raise the quantity and quality of agricultural produce ♦ Recognise the importance of safeguarding food security ♦ Cultivate the habit of cherishing food

Extended learning part: Teachers may choose whether to cover this part for enrichment, depending on the teaching progress, student abilities, and interests. The part may also be used for students' independent learning.

Secondary 3   Future and Actions

Module 3.1 Industrial Development

Global industrial development is advancing towards intelligence, green transformation and sustainability. In recent years, our country has vigorously promoted new quality productive forces, driving a new type of industrialisation with technological innovation, and, to balance environmental conservation and industrial development, actively encouraging high-quality industrial development, technological innovation, energy conservation, and emission reduction. The rapid development of the new energy vehicle industry in our country aims to achieve green and low-carbon development. Concurrently, leveraging the policy provided by the joint pursuit of the Belt and Road Initiative, our country's enterprises are strengthening investment in relevant countries, promoting the development of the new energy vehicle (NEV) industry, and providing new pathways for other countries to achieve sustainable development. This module enables the students to understand the term of 'industry' and the operation of manufacturing systems, and grasp the characteristics and global distribution of the NEV industry. Using China's NEV sector as a successful case for study, students are required to analyse the reasons for its rapid growth, its geographic distribution, and the factors that determine plant location. Through the case study, they have to know the mode of transnational production of China's NEV industry —how Chinese firms establish factories in other countries (for example, those along the Belt and Road) and how these investments generate development momentum for both China and host countries.

Suggested time allocation: 7 – 8 hours

Topics	Essential Learning Content	Learning Content Description	Geographical Concepts and Skills	Examples of Suggested Learning and Teaching Activities
1. Industry	♦ Four sectors of industry ♦ Concept of 'industry'	♦ Know the primary industry, secondary industry, tertiary industry and quaternary industry ♦ Understand the concept of 'industry'	Geographical Concepts ♦ Sectors of industry ♦ Industry ♦ Manufacturing industry	♦ Search online for information about various industries in the Chinese mainland and categorise different economic activities by the types of sectors

				• Search online for information about "Made in China" to gain a preliminary understanding of China as an 'industrial superpower'
2. Manufacturing System	• Manufacturing system	• Know the inputs, processes and outputs of the manufacturing system	Geographical Concepts • Manufacturing system • Input and output	• Read a flow diagram of the manufacturing system to illustrate the flow of industrial production
3. New Energy Vehicle (NEV) Industry	• Manufacturing system of a new energy vehicle enterprise • Characteristics of the new energy vehicle industry • Global distribution of the new energy vehicle industry	• Know the manufacturing system of NEV enterprises - inputs (such as rare earths, components, energy, etc.), processes (such as design, research and development, assembly, etc.) and outputs • Know the characteristics of the NEV industry • Know the global distribution of the NEV industry	Geographical Concepts • Manufacturing system • Natural resources • Heavy industry • Capital-intensive industry • High-tech industry • Spatial distribution Geographical Skills • Read and interpret a map to describe the global distribution pattern of NEV industry	• Search information online and draw a diagram of the manufacturing system of a NEV enterprise to show its inputs, processes and outputs • Search information online to explore the importance of rare earths in industrial production and their application in the NEV industry, enabling students to recognise the importance of rare earth resource security for China's technological development and national security • Read and interpret a map showing the world distribution of

			the NEV industry to describe its global distribution pattern
4. China's new energy vehicle (NEV) industry	• Reasons for the rapid development of China's new energy vehicle industry • Location of China's new energy vehicle industry • Factors affecting the location of new energy vehicle industry in China • Mode of transnational production in China's new energy vehicle industry • Development momentum generated for China and host countries by	• Know the reasons for the rapid development of China's NEV industry • Know the location of the NEV industry in China • Know the factors affecting the location of NEV industry in China • Know the mode of transnational production in China's NEV industry • Understand the development momentum generated for China and host countries by the establishment of factories of China's NEV industry in other countries (such as those along the Belt and Road) *Extended learning part** *Understand the reasons for the emergence of*	Geographical Concepts • Government policy • Sustainable development • Location • Locational factors • Transnational production • Multi-point production Geographical Skills • Read and interpret the photos and maps to identify the factors affecting the location of NEV industry • Read and interpret maps to describe the distribution and transnational production situation of China's NEV industry	• Read the recent policy documents of China to gain insight into the direction of China's industrial development • Prepare overlays of different types of geographical information of China (e.g. relief, transport network and cities) to create an integrated GIS map for understanding the factors that affect the site selection of NEV factories • Based on the content in this module and information collected online, discuss whether Hong Kong is suitable for developing NEV industry • Collect information online, identify the Belt and Road countries in which China's NEV enterprises have established factories • Through role-play, express the views of different stakeholders (such as Chinese manufacturers,

	establishing factories in other countries	*transnational production in China's NEV industry*		government officials and workers of the host country) on transnational production

Values and Attitudes	● Recognise the interconnectedness and interdependence among countries ● Concern the importance of industrial development for national economic security ● Concern the importance of rare earth resource security for China's technological development and national security ● Recognise the importance of cherishing resources and reducing pollution

*Extended learning part: Teachers may choose whether to cover this part for enrichment, depending on the teaching progress, student abilities, and interests. The part may also be used for students' independent learning.

Module 3.2   Ecological Conservation

Forests are the largest terrestrial ecosystems on Earth. With economic development and land exploitation, massive deforestation has led to the rapid disappearance of forests. Deforestation not only affects humans and species that directly depend on forests for their livelihoods, but also disrupts ecosystems in other regions. Therefore, the conservation of forests has become particularly important. China has been taking effective measures to protect, restore, and make proper use of forest resources to accelerate the rate of national vegetation coverage, safeguard forest ecological security, and speed up the realisation of the "dual carbon" goals. This module enables students to know forest ecosystems and the global distribution of different types of forest ecosystems, and to understand the relationship between vegetation growth and climate within these ecosystems, as well as the importance of conserving forest ecosystems for the global environment. Finally, students will have to learn about the conservation initiatives, such as the Three-North Shelterbelt Forest Programme that our country has taken, and appreciate its achievements in greening, thereby fostering an awareness of ecological conservation and recognising the importance of sustainable development.

Suggested time allocation: 7 – 8 hours

Topics	Essential Learning Content	Learning Content Description	Geographical Concepts and Skills	Examples of Suggested Learning and Teaching Activities
1. Components and distribution of forest ecosystems	◆ Ecosystem ◆ Biotic and abiotic components of forest ecosystems ◆ Global distribution of different types of forest ecosystems ◆ Relationship between vegetation growth	◆ Understand the definition of an ecosystem ◆ Know the biotic and abiotic components of forest ecosystems ◆ Know the main characteristics of forest ecosystems ◆ Know the global distribution of	<u>Geographical Concepts</u> ◆ Ecosystem ◆ Biotic and abiotic components ◆ Biodiversity ◆ Structure of vegetation ◆ Spatial distribution ◆ Climatic characteristics	◆ Understand the characteristics of forests through photographs, short videos or virtual reality ◆ Read a map showing the global distribution of forest vegetation to describe the global distribution of different types of forest (coniferous forest, temperate deciduous forest, and tropical rainforest) ecosystems in terms of latitude, and to identify the countries where each type of forest is found

	and climate in forest ecosystems	different types of forest ecosystems ♦ Understand the relationship between vegetation growth and climate in forest ecosystems	♦ Relationship between climate and vegetation Geographical Skills ♦ Read photographs to identify forest characteristics ♦ Read a map showing the global distribution of forest vegetation ♦ Draw, read and interpret climatic graphs ♦ Calculate mean annual temperature, annual range of temperature range and annual precipitation	♦ Read photographs to compare the vegetation characteristics (such as tree density and tree height) in three types of forest ♦ Read and interpret climatic graphs for three forest regions to compare their mean annual temperatures, annual ranges of temperature, annual precipitation, and seasonal variations, and explain the relationship between vegetation growth and climate ♦ Conduct fieldwork in Hong Kong Park to observe and record the characteristics of various biotic and abiotic components, and investigate the relationship between vegetation growth and climate ♦ Cross-curricular collaboration: Know the biotic and abiotic components of ecosystems through constructing mini rainforest terrariums or forest ecological models

2. Importance of conserving forest ecosystems	◆ Importance of conserving forest ecosystems for the global environment	◆ Understand the importance of conserving forest ecosystems for the global environment (climate regulation, maintaining biodiversity, preventing soil erosion and protecting water resources)	<u>Geographical Concepts</u> ◆ Carbon sink ◆ Biodiversity ◆ Water cycle ◆ Relationship between human and environment <u>Geographical Skills</u> ◆ Read and interpret graphic and textual materials	◆ Search online for information regarding the importance of forests to the environment, and then create a concept map to illustrate the environmental benefits of conserving forest ecosystems

3. Implementation of forest conservation measures	◆ Implementation of measures for forest conservation and restoration in China	◆ Understand the measures implemented for forest conservation and restoration in China
		  − Forest protection
		    • Establishment of nature reserves and national parks
		    • Natural Forest Protection Program
		  − Forest Restoration Projects
		    • 'Grain for Green' Programme
		  − Afforestation
		    • Three-North
			<u>Geographical Concepts</u>
			◆ Biodiversity
			◆ Environmental conservation and management
			◆ Sustainable development
			◆ Desertification
			◆ Technology
			
			<u>Geographical Skills</u>
			◆ Measure the greening area on a map
				◆ View "China Current": 'China is Planting 70 Billion Trees' to know the benefits of afforestation
				◆ View "China Current": 'Wuyi Mountain - China's First Batch of National Parks' (Broadcast in Cantonese), and search for relevant information to illustrate the ecological value of national parks with examples and how they contribute to sustainable development
				◆ Use AI tools to create posters, animations or short videos that promote the use of forest-certified products

		Shelterbelt Forest Programme − Forest management • Sustainable forest management and ecological compensation • Monitoring forest resource by means of technology − Education and legislation *Extended learning part** *Understand how China and Brazil cooperate on forest conservation*		

Values and Attitudes	⬩ Appreciate biodiversity ⬩ Nurture a mindset of harmony between humanity and nature ⬩ Respect and cherish nature ⬩ Concern the importance of ecological security ⬩ Cultivate a sense of responsibility and act for forest conservation

*Extended learning part: Teachers may choose whether to cover this part for enrichment, depending on the teaching progress, student abilities, and interests. The part may also be used for students' independent learning.

Module 3.3   Climate Change

Human activities have caused extensive, rapid changes to the atmosphere, hydrosphere, cryosphere and biosphere. Climate change has triggered many extreme weather events and affected human life and safety. As the climate change accelerates, international cooperation is vital to promote environmental sustainability. This module enables students to explore the trends, causes, and effects of global climate change. It also introduces measures taken by different countries to combat climate change, and highlights the interdependence of countries in their efforts to combat it. Through the study of this module, students will develop climate literacy, understand the interactions between humans and the natural environment, and recognise the importance of environmental conservation.

Suggested time allocation: 9 – 10 hours

Topics	Essential Learning Content	Learning Content Description	Geographical Concepts and Skills	Examples of Suggested Learning and Teaching Activities
1. Trends in global climate change	♦ Trends in global climate (temperature and precipitation) change	♦ Know the trend in global temperature change ♦ Know the trend in global precipitation change	<u>Geographical Concepts</u> ♦ Climate ♦ Climate change <u>Geographical Skills</u> ♦ Read articles from different sources to identify issues and problems related to climate change ♦ Interpret simple statistical diagrams (e.g. line graphs) showing long-term climate trends (e.g. global annual mean	♦ Watch the short video "Cool Met Stuff": 'The ABC's of Climate' (broadcast in Cantonese) on the Hong Kong Observatory's website to understand the difference between 'climate' and 'weather' and to learn how to determine whether climate has changed ♦ Use different international reports, such as the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6) and the China Climate Change Blue Book (2024), to understand the trends in global climate change

			temperature over an extended period)	
2. Causes of climate change	◆ Causes of climate change	◆ Understand the concepts of greenhouse effect, global warming and climate change ◆ Understand how human activities lead to climate change	<u>Geographical Concepts</u> ◆ Greenhouse gases ◆ Greenhouse effect ◆ Global warming ◆ Relationship between people and environment	◆ Watch the short video "Cool Met Stuff": 'Greenhouse Effect' (broadcast in Cantonese) on the Hong Kong Observatory's website to understand the concept of the greenhouse effect and its relationship with global warming ◆ Refer to the World Meteorological Organisation's online resources to learn about the causes and effects of climate change
3. Effects of climate change on different parts of the world	◆ Effects of climate change on different parts of the world	◆ Understand the effects of climate change on different parts of the world (e.g. changes in the frequency and/or severity of extreme weather events, and droughts and floods, sea-level rise, changes to ecosystems, disruption of crop yields and food supplies, the spread of diseases)	<u>Geographical Concepts</u> ◆ Extreme weather ◆ Ecosystem ◆ Relationship between people and the environment <u>Geographical Skills</u> ◆ Interpret charts, maps, photographs and satellite images to understand	◆ Watch the short video "Cool Met Stuff": 'World's Weather in 2023' (broadcast in Cantonese) on the Hong Kong Observatory's website to gain a preliminary understanding of the effects of climate change on different parts of the world ◆ Use GIS to construct a map showing the areas in the world most severely affected by the major negative effects of climate change

			changes brought by climate change ♦ Measure the area of sea ice on a map	♦ Use an online electronic map to visualise the impact of sea-level rise on coastal regions ♦ Use satellite imagery to understand the impact of climate change on polar sea ice and ecological environment, enabling students to understand how human activities pose a threat to polar security and ecological security ♦ *Extended learning part: Watch the short video ﹁Cool Met Stuff﹂: 'The Arctic Region' (broadcast in Cantonese) on the Hong Kong Observatory's website to understand how global warming is causing the melting of sea ice and permafrost in the Arctic region, and how this further accelerates global warming*
		Extended learning part* *Understand how the melting of sea ice and permafrost in the polar regions further enhances global warming*		
4. Measures taken to combat climate change	♦ Measures taken to combat climate change – National level – International cooperation	♦ Know the mitigation and adaptation strategies adopted to combat climate change Case Studies: Carbon emission reduction strategies adopted in China and Sweden	Geographical Concepts ♦ Green energy ♦ Industrial restructuring ♦ Energy conservation and emission reduction ♦ Carbon sink	♦ Search online information on carbon emission reduction strategies in China and Sweden ♦ Refer to the latest actions for addressing climate change in China, such as the 'China's Policies and Actions Addressing Climate Change 2024 Annual

	– Individual actions	♦ Know the main actions taken by different organisations to combat climate change through international agreements ♦ Understand the difficulties involved in the international cooperation for combating climate change ♦ Know the individual actions that can help mitigate climate change *Extended learning part** *Know the strategies Hong Kong has adopted to combat climate change*	♦ International cooperation ♦ Sustainable development ♦ Individual interests and common well-being	Report' and 'National Climate Change Adaptation Strategy 2035', to understand China's contributions in addressing climate change ♦ Watch the short video "Cool Met Stuff": 'Climate Summit COP21' (broadcast in Cantonese) on the Hong Kong Observatory's website to know the historical background of the climate summit and highlight its important achievements ♦ Watch the short video "Cool Met Stuff": 'Low Carbon Living You can Help' (broadcast in Cantonese) on the Hong Kong Observatory's website to understand the individual actions that can help reduce carbon emissions ♦ Visit the Jockey Club Museum of Climate Change at the Chinese University of Hong Kong to help students understand the relationship between human activities and climate change, and know the important concepts such as clean energy, low-carbon living and sustainable development

				◆ Use AI tools to create leaflets, animations or short videos that encourage students and Hong Kong citizens to actively reduce emissions and conserve energy
				◆ Use the "Low Carbon Living Calculator" to assess students' carbon emissions from clothing, food, housing and travel over the past year, identify the high-energy-consumption habits, and make targeted improvements to address climate change

Values and Attitudes	◆ Recognise the interrelationship between humans and the natural environment ◆ Recognise the impact of climate change on polar security and ecological security ◆ Recognise individual responsibility for climate change and adopt a sustainable lifestyle

Extended learning part: Teachers may choose whether to cover this part for enrichment, depending on the teaching progress, student abilities, and interests. The part may also be used for students' independent learning.

Enquiry-based Fieldwork

Enquiry-based fieldwork is a vital component of geography education. It can be regarded as any enquiry learning activity conducted outside the classroom. Fieldwork offers students the opportunity to apply or validate knowledge/concepts learned in the classroom within real-world environments, deepen their understanding of the learning content, and learn about the local geographical environment through first-hand experience. Additionally, fieldwork helps students develop their geographical skills and generic skills, such as problem-solving and critical thinking skills, while also cultivating their geospatial thinking abilities. Furthermore, through fieldwork, students can conduct enquiries, seek answers, and discover knowledge, thereby enhancing their learning motivation, cultivating the spirit of geographical enquiry, and promoting self-directed learning. Meanwhile, conducting enquiry-based fieldwork in real-life contexts, together with a "learning by doing" approach, effectively increases students' interest in learning. Therefore, the revised curriculum allocates 2-4 hours of lesson time each school year for schools, and **schools should arrange for each student from Secondary 1 to Secondary 3 to participate in at least one enquiry-based fieldwork activity annually.**
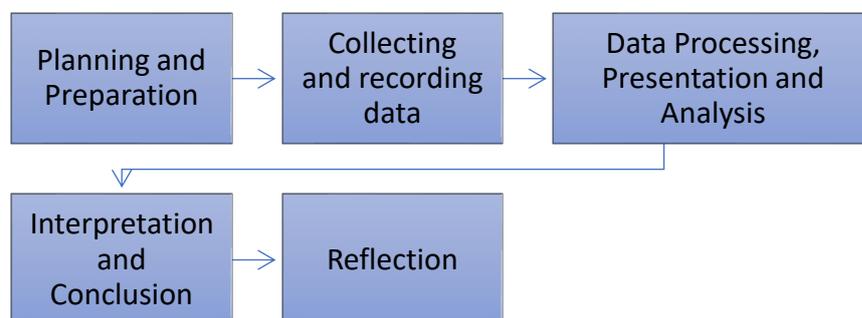
Arrangement of Enquiry-based Fieldwork

1. Fieldwork is not limited to full-day, large-scale field studies in remote locations. Teachers may consider conducting small-scale fieldwork on the school campus or within the nearby community (e.g., a study of urban land use near the school). This type of fieldwork is also easier to manage and can be completed in a relatively short time. Teachers should recognise that the value of fieldwork lies in its ability to help students develop skills such as distinguishing, observing, collecting, applying, and analysing, rather than in the duration of the fieldwork or the number of tasks/assignments completed. Based on this, schools may, depending on their circumstances, arrange for students to conduct enquiry-based fieldwork in the Mainland or overseas study and exchange programmes, or integrate relevant fieldwork elements into existing itineraries.

2. Fieldwork may also be conducted in an interdisciplinary format; however, it is necessary to ensure that students remain focused on exploring geographical questions. Meanwhile, collaboration with other subjects is possible — for example, cooperating with the Science department to teach students how to use instruments for precise measurements, followed by the Information Technology department instructing them on how to use data visualisation tools to create charts. This approach encourages students to integrate knowledge from different subjects to propose solutions and/or make decisions.

3. Flexible arrangements may be made within one school year. If a school is unable to organise fieldwork in distant locations for a particular level, teachers may use virtual reality (VR), electronic maps, or pre-recorded footage of the study environment to allow students to conduct "non-real-world" enquiries, experience different study environments, observe and identify geographical phenomena and patterns, and collect and interpret data.

Process of enquiry

In enquiry-based fieldwork, students need to use the method of geographical enquiry to conduct fieldwork activities. They adopt various methods to collect data based on specific geographical questions, organise and present the data in appropriate formats, analyse and interpret it, draw

conclusions, and finally evaluate the entire fieldwork process to make appropriate recommendations for improving future fieldwork procedures and outcomes.

The following flowchart illustrates the five stages of enquiry-based fieldwork that students may have to experience:

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┌─────────────────┐    ┌─────────────────┐    ┌─────────────────┐
│  Planning and   │───▶│  Collecting     │───▶│ Data Processing,│
│  Preparation    │    │  and recording  │    │ Presentation and│
│                 │    │  data           │    │  Analysis       │
└─────────────────┘    └─────────────────┘    └─────────────────┘
         │                                              │
         ▼                                              │
┌─────────────────┐    ┌─────────────────┐             │
│ Interpretation  │───▶│   Reflection    │◀────────────┘
│ and             │    │                 │
│ Conclusion      │    │                 │
└─────────────────┘    └─────────────────┘
```

Enquiry-based fieldwork involves five key steps. However, teachers are not required to have students complete all steps in every enquiry-based fieldwork activity. Instead, **teachers may flexibly arrange for students to engage in and experience different stages of enquiry-based fieldwork,** depending on the enquiry questions, study environment and lesson design. They should also consider students' levels and abilities, **progressively guiding them through the complete enquiry process**. For examples of fieldwork topics suitable for different levels and the learning expectations for junior secondary geography enquiry-based fieldwork skills, please refer to Tables 1 and 2 below.

Table 1　Examples of Fieldwork Topics for Different Grade Levels

Level	Topic	Examples of Enquiry-based Fieldwork	Methods Adopted in Suggested Enquiry-based Fieldwork Activities
Secondary 1	Urban Development	Investigate the major types of land use in the community where the school is located	Observation, classification, and land use mapping
		Investigate the differences in land use between the school community and another area	Observation, classification, and land use mapping
Secondary 2	Natural Hazards	Compare the differences in pre-disaster prevention and disaster relief work between Hong Kong and another region	Interviewing Hong Kong citizens and ethnic minorities
	Agricultural Development	Conduct a farm visit to identify the types of agriculture and their characteristics, and explore the operation of the agricultural system	Observing and interviewing farmers

Secondary 3	Ecological Conservation	Investigate the relationship between vegetation growth and climate in different environments at Hong Kong Park	Measurement, counting, observation, and sampling
	Climate Change	Investigate whether indoor temperatures in shopping malls are reasonable, analyse the environmental problem caused, and propose solutions	Measurement, and sampling

Table 2 Learning Expectations for Enquiry-based Fieldwork in Junior Secondary Geography

Stage of Fieldwork	Foundation	Extended	Advanced
<1> Planning and Preparation	Observe the surrounding environment. Under the teacher's guidance, initially formulate simple, exploratory geographical questions, and then select the data to be collected and method(s) to use from the options provided	Under the teacher's guidance, formulate exploratory geographical questions, develop a simple enquiry and study plan (including data to be collected and methods), and initially design simple tools (such as record forms and questionnaires) to collect primary data	Identify a clear geographical question, develop a feasible enquiry and study plan (including the study location, timeframe, data to be collected, and methods), and under the teacher's guidance, design appropriate tools to collect primary data
<2> Collecting and Recording Data	Under the teacher's guidance, attempt to use basic methods and tools to collect primary data, and record it using photographs, tables, maps or written descriptions	Select appropriate methods and tools to collect relevant primary and secondary data, and record it using photographs, videos, tables, maps or written descriptions	Use simple sampling methods and a variety of appropriate tools to collect sufficient, accurate and relevant primary and secondary data, and systematically record it using photographs, videos, tables, maps or written descriptions
<3> Data Processing, Presentation and Analysis	Under the teacher's guidance, conduct simple data classification, comparison and integration, present data using photographs, simple charts, and maps, and perform	Conduct preliminary classification, comparison, and integration of data, select appropriate methods (such as photographs, charts, and maps) to present data, and analyse	Appropriately apply methods such as classification, comparison, integration, and summarisation, skillfully use appropriate methods to clearly present data, and scrutinise and

Stage of Fieldwork	Foundation	Extended	Advanced
	preliminary analysis of data to identify relationships	data to identify patterns and relationships	analyse data to identify their meanings, patterns and relationships
<4> Interpretation and Conclusion	Under the teacher's guidance, apply geographical concepts to explain fieldwork findings and draw conclusions based on evidence	Apply relevant geographical concepts to explain fieldwork findings and draw specific conclusions based on evidence	Apply relevant geographical concepts and knowledge to explain fieldwork findings from a geographical perspective, draw precise conclusions based on evidence, and propose solutions and/or make decisions
<5> Reflection	Examine whether there were shortcomings in the fieldwork process and identify areas for improvement	Evaluate whether there were shortcomings in the whole enquiry process and propose methods for improvement	Reflect on shortcomings in the enquiry process and propose specific methods for improvement

Note: Teachers are not required to have students complete all five stages in every enquiry-based fieldwork activity.