

SYLLABUS

**Cambridge International AS and A Level
Geography**

9696

For examination in June and November 2017

Changes to syllabus for 2017

This syllabus has been updated, but there are no significant changes.

You are strongly advised to read the whole syllabus before planning your teaching programme.

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1. Introduction

1.1 Why choose Cambridge?

Cambridge International Examinations is part of the University of Cambridge. We prepare school students for life, helping them develop an informed curiosity and a lasting passion for learning. Our international qualifications are recognised by the world's best universities and employers, giving students a wide range of options in their education and career. As a not-for-profit organisation, we devote our resources to delivering high-quality educational programmes that can unlock learners' potential.

Our programmes set the global standard for international education. They are created by subject experts, are rooted in academic rigour, and provide a strong platform for progression. Over 10 000 schools in 160 countries work with us to prepare nearly a million learners for their future with an international education from Cambridge.

Cambridge learners

Cambridge programmes and qualifications develop not only subject knowledge but also skills. We encourage Cambridge learners to be:

- **confident** in working with information and ideas – their own and those of others
- **responsible** for themselves, responsive to and respectful of others
- **reflective** as learners, developing their ability to learn
- **innovative** and equipped for new and future challenges
- **engaged** intellectually and socially, ready to make a difference.

Recognition

Cambridge International AS and A Levels are recognised around the world by schools, universities and employers. The qualifications are accepted as proof of academic ability for entry to universities worldwide, although some courses do require specific subjects.

Cambridge AS and A Levels are accepted in all UK universities. University course credit and advanced standing is often available for Cambridge International AS and A Levels in countries such as the USA and Canada.

Learn more at www.cie.org.uk/recognition

1.2 Why choose Cambridge International AS and A Level?

Cambridge International AS and A Levels are international in outlook, but retain a local relevance. The syllabuses provide opportunities for contextualised learning and the content has been created to suit a wide variety of schools, avoid cultural bias and develop essential lifelong skills, including creative thinking and problem-solving.

Our aim is to balance knowledge, understanding and skills in our programmes and qualifications to enable students to become effective learners and to provide a solid foundation for their continuing educational journey. Cambridge International AS and A Levels give learners building blocks for an individualised curriculum that develops their knowledge, understanding and skills.

Schools can offer almost any combination of 60 subjects and learners can specialise or study a range of subjects, ensuring a breadth of knowledge. Giving learners the power to choose helps motivate them throughout their studies.

Cambridge International A Levels typically take two years to complete and offer a flexible course of study that gives learners the freedom to select subjects that are right for them.

Cambridge International AS Levels often represent the first half of an A Level course but may also be taken as a freestanding qualification. The content and difficulty of a Cambridge International AS Level examination is equivalent to the first half of a corresponding Cambridge International A Level.

Through our professional development courses and our support materials for Cambridge International AS and A Levels, we provide the tools to enable teachers to prepare learners to the best of their ability and work with us in the pursuit of excellence in education.

Cambridge International AS and A Levels have a proven reputation for preparing learners well for university, employment and life. They help develop the in-depth subject knowledge and understanding which are so important to universities and employers.

Learners studying Cambridge International AS and A Levels have opportunities to:

- acquire an in-depth subject knowledge
- develop independent thinking skills
- apply knowledge and understanding to new as well as familiar situations
- handle and evaluate different types of information sources
- think logically and present ordered and coherent arguments
- make judgements, recommendations and decisions
- present reasoned explanations, understand implications and communicate them clearly and logically
- work and communicate in English.

Guided learning hours

Cambridge International A Level syllabuses are designed on the assumption that learners have about 360 guided learning hours per subject over the duration of the course. Cambridge International AS Level syllabuses are designed on the assumption that learners have about 180 guided learning hours per subject over the duration of the course. This is for guidance only and the number of hours required to gain the qualification may vary according to local curricular practice and the learners' prior experience of the subject.

1.3 Why choose Cambridge International AS and A Level Geography?

Cambridge International AS and A Level Geography is accepted by universities and employers as proof of knowledge and understanding of Geography. Successful candidates gain lifelong skills, including:

- an appreciation of the need for understanding, respect and co-operation in conserving the environment and improving the quality of life both at a global scale and within the context of different cultural settings
- an awareness of the usefulness of geographical analysis to understand and solve contemporary human and environmental problems
- a sense of relative location, including an appreciation of the complexity and variety of natural and human environments
- an understanding of the principal processes operating within Physical and Human Geography
- an understanding of the causes and effects of change on the natural and human environments
- an awareness of the nature, value, limitations and importance of different approaches to analysis and explanation in geography
- a concern for accuracy and objectivity in collecting, recording, processing, analysing, interpreting and reporting data in a spatial context
- the ability to handle and evaluate different types and sources of information
- the skills to think logically, and to present an ordered and coherent argument in a variety of ways
- an excellent foundation for studies beyond Cambridge International A Level in Geography, in further or higher education, and for professional courses.

Prior learning

We recommend that candidates who are beginning this course should have previously completed a Cambridge O Level or Cambridge IGCSE course in Geography or the equivalent.

Progression

Cambridge International A Level Geography provides a suitable foundation for the study of Geography or related courses in higher education. Equally it is suitable for candidates intending to pursue careers or further study in Planning, Environmental Subjects, Development, Tourism, etc., or as part of a course of general education.

Cambridge International AS Level Geography constitutes the first half of the Cambridge International A Level course in Geography and therefore provides a suitable foundation for the study of Geography at Cambridge International A Level and thence for related courses in higher education. Depending on local university entrance requirements, it may permit or assist progression directly to university courses in Geography or other subjects. It is also suitable for candidates intending to pursue careers or further study in Planning, Environmental Subjects, Development, Tourism, etc., or as part of a course of general education.

1.4 Cambridge AICE (Advanced International Certificate of Education) Diploma

Cambridge AICE Diploma is the group award of the Cambridge International AS and A Level. It gives schools the opportunity to benefit from offering a broad and balanced curriculum by recognising the achievements of candidates who pass examinations in different curriculum groups.

Learn more about the Cambridge AICE Diploma at www.cie.org.uk/aice

1.5 How can I find out more?

If you are already a Cambridge school

You can make entries for this qualification through your usual channels. If you have any questions, please contact us at **info@cie.org.uk**

If you are not yet a Cambridge school

Learn about the benefits of becoming a Cambridge school at **www.cie.org.uk/startcambridge**. Email us at **info@cie.org.uk** to find out how your organisation can register to become a Cambridge school.

2. Teacher support

2.1 Support materials

We send Cambridge syllabuses, past question papers and examiner reports to cover the last examination series to all Cambridge schools.

You can also go to our public website at **www.cie.org.uk/alevel** to download current and future syllabuses together with specimen papers or past question papers and examiner reports from one series.

For teachers at registered Cambridge schools a range of additional support materials for specific syllabuses is available from Teacher Support, our secure online support for Cambridge teachers. Go to **<http://teachers.cie.org.uk>** (username and password required).

2.2 Endorsed resources

We work with publishers providing a range of resources for our syllabuses including print and digital materials. Resources endorsed by Cambridge go through a detailed quality assurance process to ensure they provide a high level of support for teachers and learners.

We have resource lists which can be filtered to show all resources, or just those which are endorsed by Cambridge. The resource lists include further suggestions for resources to support teaching.

2.3 Training

We offer a range of support activities for teachers to ensure they have the relevant knowledge and skills to deliver our qualifications. See **www.cie.org.uk/events** for further information.

3. Syllabus content at a glance

Paper 1

The Physical Core

- Hydrology and fluvial geomorphology
- Atmosphere and weather
- Rocks and weathering

The Human Core

- Population
- Migration
- Settlement dynamics

Paper 2

Advanced Physical Geography Options

- Tropical environments
- Coastal environments
- Hazardous environments
- Arid and semi-arid environments

Candidates study two of the above environments.

Paper 3

Advanced Human Geography Options

- Production, location and change
- Environmental management
- Global interdependence
- Economic transition

Candidates study two of the above topics.

4. Assessment at a glance

- Candidates for Advanced Subsidiary (AS) certification take Paper 1 only.
- Candidates who already have AS certification and wish to achieve the full Advanced Level qualification may carry their AS marks forward and take just Papers 2 and 3 in the exam series in which they require certification.
- Candidates taking the complete Advanced Level qualification take all three papers.

Paper 1	Core Geography	3 hours
Candidates answer questions in three sections. In Section A, they must answer five of six questions on the Physical and Human Core topics for a total of 50 marks. In each of Sections B and C, candidates answer one of three structured questions based on the Physical (Section B) and Human (Section C) Core topics, for a total of 25 marks in each section. See Description of components in this booklet for more details.		
100% of total marks at Cambridge International AS Level		50% of marks at A Level
Paper 2	Advanced Physical Options	1 hour 30 minutes
Candidates answer two structured essay questions, each on a different optional topic, from a total of eight questions based on the Advanced Physical Options syllabus, for a total of 50 marks. See Description of components in this booklet for more details.		
		25% of marks at A Level
Paper 3	Advanced Human Options	1 hour 30 minutes
Candidates answer two structured essay questions, each on a different optional topic, from a total of eight questions based on the Advanced Human Options syllabus, for a total of 50 marks. See Description of components in this booklet for more details.		
		25% of marks at A Level

Papers 2 and 3 assess the Advanced Geography Options. These are separate 1½ hour exams, but will be timetabled for the same date and session. A short break (maximum 15 minutes) is allowed between Paper 2 and Paper 3.

Availability

This syllabus is examined in the June and November examination series.

This syllabus is available to private candidates.

Detailed timetables are available from **www.cie.org.uk/examsOfficers**

Combining this with other syllabuses

Candidates can combine this syllabus in an examination series with any other Cambridge syllabus, except:

- syllabuses with the same title at the same level

5. Syllabus aims and assessment objectives

Candidates and Centres may choose:

- to take both Advanced Level components in the same exam series, leading to the full Cambridge International A Level
- to follow a **staged** assessment route to the Advanced Level by taking the Advanced Subsidiary (AS) qualification in an earlier exam series. Given satisfactory performance, these candidates are then only required to complete the final part of the assessment to be granted the full Cambridge International A Level
- to take the Advanced Subsidiary (AS) qualification only.

The distinctive features of this syllabus include:

- a balanced core that consists of a range of compulsory Physical and Human Geography topics;
- the opportunity to teach and assess both Physical and Human Geography topics and their inter-relationships in preparation for the Advanced Subsidiary examination;
- progression from the core established at the Advanced Subsidiary to the full Advanced Level by means of a range of optional Physical and Human Geography topics;
- a variety of assessment techniques, ranging from short structured and stimulus/data response questions to essay questions;
- a variety of assessment objectives, so that candidates must apply their knowledge and understanding, as well as make decisions and evaluate the data;
- a scheme of assessment that allows flexibility for those taking the full Advanced Level syllabus.

Geography occupies a central position in understanding and interpreting social, economic, political and environmental conditions and change, in both space and time. This syllabus encourages candidates to think about the specific contribution that they can make to understanding contemporary issues and also the complexity of natural systems, their linkages and their impact upon the human race. Candidates are also shown that it is equally important to understand the impacts of the human race upon the environment and how these impacts can be managed in achieving sustainable development. The study of environments is rooted in an understanding of physical processes, so this syllabus emphasises studying real examples to show the variety and complexity of human and physical environments.

5.1 Syllabus aims

The aims of this syllabus describe the educational purposes of a course in Geography at Advanced Level. They include references to a number of attributes and qualities that cannot or should not be assessed by exam, but which still form an essential part of any Geography course.

1 Geography as a subject discipline: its content, role and value

The aims are to:

- develop candidates' awareness of the relevance of geographical analysis to understanding and solving contemporary human and environmental problems;
- introduce candidates to the main elements of Physical and Human Geography and the inter-relationships between these components;
- encourage understanding of the principal processes operating at different scales within Physical and Human Geography;
- develop candidates' sense of relative location, including an appreciation of the complexity and variety of natural and human environments;
- demonstrate and explain the causes and effects of change over space and time on the natural and human environments;
- show the importance of scale in understanding Physical and Human Geography;
- make candidates aware of the problems of explanation (including data collection and processing) in Physical and Human Geography, and give them an appreciation of the nature, value, limitations and importance of different approaches to analysis and explanation in Geography.

2 Skills and attitudes

The aims are to:

- increase candidates' knowledge of, and ability to use and apply, appropriate skills and techniques relevant to greater understanding and interpretation of facts and relationships in Physical and Human Geography;
- encourage a concern for accuracy and objectivity in collecting, recording, processing, analysing, interpreting and reporting data in a spatial context;
- develop candidates' ability to handle and evaluate different types and sources of information;
- develop candidates' ability to think logically, and to present an ordered and coherent argument in a variety of ways;
- promote candidates' awareness of the need for understanding, respect and co-operation in conserving the environment and improving the quality of life both at a global scale and within the context of different cultural settings.

5.2 Assessment objectives

An Assessment objective is an intended area of competence within the subject. Four are identified in Geography.

1 Knowledge

Candidates should be able to:

- 1.1 give definitions and explanations of relevant geographical terms and concepts
- 1.2 show working knowledge of relevant principles, theories and models
- 1.3 recall accurately the location and character of chosen places and environments
- 1.4 show knowledge of the physical and human processes at work.

2 Understanding and application

Candidates should be able to:

- 2.1 understand the complex and interactive nature of physical and human environments
- 2.2 understand how processes bring changes in systems, distributions and environments
- 2.3 recognise the distinctiveness and the generality of places and environments
- 2.4 recognise the significance of spatial scale and of time scale
- 2.5 apply this geographical understanding to new contexts.

3 Skills and enquiry

Candidates should be able to:

- 3.1 collect, record and interpret a variety of information from primary (fieldwork) sources and secondary sources (e.g. statistical data)
- 3.2 interpret a range of map and diagram techniques displaying geographical information
- 3.3 assess methods of enquiry and consider the limitations of evidence
- 3.4 demonstrate skills of analysis and synthesis
- 3.5 use geographical understanding to develop their own explanations and hypotheses.

4 Evaluation and decision-making

Candidates should be able to:

- 4.1 assess the effects of geographical processes and change on physical and human environments
- 4.2 consider the relative success or failure of initiatives and demonstrate a sense of judgement
- 4.3 analyse the viewpoints of different groups of people and identify conflicts of interest
- 4.4 assess the decision-making process in physical and human contexts
- 4.5 recognise a number of possible outcomes from a given situation.

Specification grid

The weighting given to these is:

Assessment objective	Paper 1 (%)	Papers 2 and 3 (%)	Advanced Subsidiary Level (%)	Advanced Level (%)
1 Knowledge	30	35	30	32.5
2 Understanding and application	30	35	30	32.5
3 Skills and enquiry	20	10	20	15
4 Evaluation and decision-making	20	20	20	20
TOTAL	100%	100%	100%	100%

6. Description of components

6.1 Paper 1

The paper is split into three sections, which assess the Physical and Human Core topics:

Physical Core

- Hydrology and fluvial geomorphology
- Atmosphere and weather
- Rocks and weathering

Human Core

- Population
- Migration
- Settlement dynamics

Section A consists of six questions based on the Physical and Human Core topics. Three questions are set on the Physical Core and three on the Human Core. Candidates must answer five of these six questions. In the Human Core, questions may be based either on a single topic or on a combination of topics. These questions make use of a variety of resources, including survey maps in some instances, and so are largely skills-based. All questions carry 10 marks. Although there are six core topics, this does not mean that there will always be one question set on each topic.

In **Section B**, candidates must answer one question based on the Physical Core topics. The section has three questions, one on each core topic.

In **Section C**, candidates must answer one question based on the Human Core topics. The section has three questions, either on a single topic or on a combination of topics.

In both Sections B and C, candidates have a choice from three questions. The questions are structured and give the opportunity for extended writing. Some questions involve the use of stimulus material. All questions carry 25 marks.

6.2 Papers 2 and 3

Paper 2 is set on the Advanced Physical Options. Candidates must answer two questions, **each on a different topic**. There are two questions on each topic:

- Tropical environments
- Coastal environments
- Hazardous environments
- Arid and semi-arid environments

Paper 3 is set on the Advanced Human Options. Candidates must answer two questions, **each on a different topic**. There are two questions on each topic:

- Production, location and change
- Environmental management
- Global interdependence
- Economic transition

In both papers, the questions are structured and may involve the interpretation of resources, as well as opportunities for extended writing. All questions carry 25 marks.

6.3 Notes

All papers will be available in June and November each year. Certification at Advanced Subsidiary and Advanced Level will, similarly, be available in both June and November each year.

Centres should collect scripts and question papers for Paper 2 before Paper 3 is given out to candidates.

Centres must send off scripts for Paper 2 and Paper 3 **separately**.

7. Syllabus content

7.1 Paper 1: Core Geography

Physical Core

Candidates must study all three units. They are assessed in Sections A and B of Paper 1.

1. Hydrology and fluvial geomorphology

1.1 The drainage basin system

The hydrological cycle as it applies to drainage basins. The terminology and processes operating within drainage basins. Candidates should study examples from a variety of climatic environments.

The drainage basin as a system; inputs, outputs, stores and flows. These should include precipitation, evaporation, evapotranspiration, interception, throughfall, stemflow, overland flow, infiltration, percolation, throughflow, baseflow, water tables, groundwater, recharge, springs.

1.2 Rainfall – discharge relationships within drainage basins

The components of hydrographs (storm and annual), climatic influences on hydrographs to include precipitation type and intensity, temperature, evaporation, transpiration, evapotranspiration, antecedent moisture. The influence on hydrographs and stores and flows of drainage basin characteristics including size and shape, drainage density, porosity and permeability of soils, rock type, slopes, vegetation type, land-use.

1.3 River channel processes and landforms

Channel processes of load transport (traction, saltation, suspension and solution), deposition and sedimentation (the Hjulstrom curve), erosion processes (abrasion, corrasion, solution, hydraulic action), velocity and discharge, patterns of flow (laminar, turbulent and helicoidal), channel types (straight, braided, meandering), channel landforms (thalweg, riffle and pool sequences, gorges, rapids, waterfalls, bluffs, river cliffs, point bars, floodplains, levées, alluvial fans, deltas).

1.4 The human impact

Modifications to catchment flows and stores and to channel flows by land-use changes (including urbanisation), abstraction and water storage; the causes and effects of floods and droughts, prediction of flood risk, and recurrence. The prevention and amelioration of floods.

2. Atmosphere and weather

2.1 Local energy budgets

Daytime: incoming solar radiation, reflected solar radiation, energy absorbed into the surface and subsurface, sensible heat transfer, long wave earth radiation, latent heat transfer – evaporation.

Night-time: long wave earth radiation, latent heat transfer – dew, sensible heat transfer, absorbed energy returned to earth. Weather phenomena associated with local energy budgets (mist, fog, dew, temperature inversions, land and sea breezes).

2.2 The global energy budget

The latitudinal pattern of radiation excesses and deficits and resultant atmospheric transfers; seasonal variations in pressure and wind belts; the influence of latitude, land/sea distribution and ocean currents on the global distribution of temperature, pressure and wind.

2.3 Weather processes and phenomena

Atmospheric moisture (vapour, liquid, solid); the processes of changes to atmospheric moisture (evaporation, condensation, freezing, melting, deposition and sublimation); humidity (relative and absolute) and precipitation, radiation cooling, environmental and adiabatic lapse rates, convection and orographic uplift of air; stability, instability and conditional instability; resultant weather phenomena (clouds, rain, hail, snow, frost, dew, fog).

2.4 The human impact

The greenhouse effect and global warming (greenhouse gases and the energy budget, climatic and other impacts); urban effects on climate in comparison with surrounding rural areas (temperature – heat island, humidity, precipitation, pollution, winds).

3. Rocks and weathering

3.1 Elementary plate tectonics

Global patterns of plates, sea floor spreading, processes at divergent and convergent plate boundaries; mountain building, ocean ridges, ocean trenches, island arcs.

3.2 Weathering and rocks

Physical weathering processes (freeze-thaw, heating/cooling, wetting/drying, exfoliation/spheroidal, salt crystal growth, pressure release); chemical weathering processes (hydrolysis, hydration, carbonation, solution, oxidation, organic action – humic acids and chelation).

Types of weathering and effectiveness in different climates (Peltier diagram); general factors influencing weathering (climate, rock type, structure, vegetation, relief); properties of granite and limestone, their chemical composition and physical nature in relationship to weathering and erosion.

3.3 Slope processes and development

Slope development (rock type and structure, climate, soil, vegetation, gradient, aspect). Slope processes of mass movement, heaves, flows, slides and falls (conditions under which each occurs and effects on slopes).

3.4 The human impact

The impact of human activities on rocks, weathering and slopes (quarrying, mining, pollution, acid rain, dumping material on the Earth's surface).

7.2 Paper 1: Core Geography

Human Core

Candidates must study all three units. They are assessed in Sections A and C of Paper 1. Candidates should illustrate their answers, where appropriate, with reference to case studies drawn from LEDCs (less economically developed countries) and MEDCs (more economically developed countries) since 1970.

There are strong interrelationships between the three topics in the Human Core, so questions spanning two or more topics may be set in both Sections A and C.

1. Population

1.1 Natural increase as a component of population change

Natural increase rate; birth rate and death rate; fertility rate; infant mortality rate. The factors affecting levels of fertility and mortality. The interpretation of age/sex pyramids. Population structure (age, gender, dependency and dependency ratio).

1.2 Demographic transition

Changes in birth rate and death rate over time. A critical appreciation of the demographic transition model, Stages 1–4, and the possible addition of Stage 5. Issues of ageing populations. The link between population and development: changes in demographic indices over time (e.g. life expectancy).

1.3 Population–resource relationships

Carrying capacity. Causes and consequences of food shortages. The roles of technology and innovation in resource development (e.g. food production); the role of constraints (e.g. war, climatic hazards) in relation to sustaining changing populations. A critical appreciation of the concept of overpopulation, optimum population and underpopulation. The concept of a population ceiling and population adjustments over time (the J-curve and the S-curve).

1.4 The management of natural increase

A case study of one country's population policy regarding natural increase, illustrating the difficulties faced and evaluating the attempted solution(s). The case study should include attempts to control population and to manage the results of population change.

2. Migration

2.1 Migration as a component of population change

Movements of populations (excluding all movements of less than one year's duration). Causes of migration; push factors and pull factors; processes and patterns of migration; the role of constraints, obstacles and barriers (e.g. distance, cost, national borders).

2.2 Internal migration (within a country)

Rural–urban and urban–rural movements; their causes and impacts on source and receiving areas including population structures. Stepped migration within the settlement hierarchy and urban–urban movements. Causes and impacts of intra-urban movements (within urban settlements).

2.3 International migration

Voluntary and forced (involuntary) movements. Causes and patterns of international migrations including economic migration and refugee flows and impacts on source and receiving areas.

2.4 A case study of international migration

A case study of one international migration stream, its causes, character, scale, pattern and impacts on source and receiving areas. (The chosen case may or may not involve an element of management.)

3. Settlement dynamics

3.1 Changes in rural settlements

Contemporary issues in rural settlements in LEDCs and MEDCs, including the impacts of rural–urban and urban–rural migration and the consequences of urban growth. A case study of a rural settlement (village or hamlet) or a rural area illustrating some of the issues of its development and growth (or decline) and evaluating the responses.

3.2 Urban trends and issues of urbanisation

The process of urbanisation in LEDCs and MEDCs, including counterurbanisation and re-urbanisation, competition for land, urban renewal, gentrification, changing accessibility and lifestyles. The concept of a world city; causes of the growth of world cities; the development of a hierarchy of world cities.

3.3 The changing structure of urban settlements

Factors affecting the location of activities within urban areas (including planning) and how urban locations change over time for retailing, services and manufacturing. Functional zonation and competition for space (spatial competition) in urban areas and the concept of bid-rent. The changing Central Business District (CBD). Residential segregation and the process basis of residential zonation.

3.4 The management of urban settlements

A case study illustrating the difficulties of, and evaluating the attempted solutions in, each of the following: shanty towns and/or squatter settlement in an LEDC; the provision of infrastructure for a city; the inner city in an MEDC; strategies for reducing urbanisation in LEDCs.

7.3 Paper 2: Advanced Physical Geography Options

Candidates must study at least **two** of these four physical options, which are assessed in Paper 2. Two questions are set on each option in each exam series. Questions may require the use of case studies, so it is essential that real, rather than theoretical, examples are studied.

1. Tropical environments

1.1 Tropical climates

Characteristics of air masses, their migration, the roles of the ITCZ and subtropical anticyclones, winds, ocean currents, monsoons; resulting climatic characteristics and distribution of temperature and rainfall in the humid and seasonally humid tropics.

1.2 Tropical ecosystems

Plant communities (development of climax and plagioclimax vegetation in the tropics); plant succession; vegetation structure of the tropical rainforest and savanna; nutrient cycling (Gersmehl diagrams), energy flows and trophic levels in tropical ecosystems. Soil forming processes, soil types and profile characteristics (oxisols/latosols, tropical red and brown earths); tropical soil catena (role of slopes in soil formation); soil fertility.

1.3 Tropical landforms

Weathering processes under humid and sub-humid tropical conditions; the development of deep weathering profiles and the basal surface of weathering; the development of landforms in granite (tors, inselbergs, etchplains, pediplains); the development of landforms in limestone (tropical karst).

1.4 Sustainable management of tropical environments

A case study illustrating some of the threats to (exploitation) and problems of sustainable management of areas within either the tropical rainforest ecosystem or the savanna ecosystem and an evaluation of attempted solutions.

2. Coastal environments

2.1 Wave, marine and sub-aerial processes

Wave generation and characteristics (fetch, energy, refraction); breaking waves, high and low energy waves (constructive and destructive), swash, backwash; marine erosion (hydraulic action, wave quarrying, corrasion/abrasion, solution, attrition); sub-aerial weathering, wave transportation and deposition (sediment sources and characteristics, sediment cells, longshore drift).

2.2 Coastal landforms of cliffed and constructive coasts

Cliffs and wave-cut platforms, cliff profiles (including caves, arches and stacks) and their evolution (related to rock type, structure, erosional history, sub-aerial processes, mass movement); formation of depositional features (beaches in cross section (profile) and plan, swash and drift aligned beaches, simple and compound spits, tombolos, offshore bars, barrier beaches and islands, coastal dunes, tidal sedimentation in estuaries and coastal saltmarshes).

2.3 Coral reefs

Characteristics and distribution of fringing reefs, barrier reefs and atolls; conditions required for coral growth and development; theories of atoll formation; causes and results of sea level change on coral reefs; threats to coral reefs and possible management strategies.

2.4 Sustainable management of coasts

A case study illustrating some of the problems of the sustainable management of a stretch or stretches of coastline and an evaluation of attempted solutions.

3. Hazardous environments

3.1 Hazardous environments resulting from crustal (tectonic) movement

Global distribution and the relationship of hazards to plate tectonics (convergent, divergent, conservative plate margins, hot spots); earthquakes and resultant hazards (shaking, landslides, tsunami); volcanic hazards; types of eruption and their products (nuées ardentes, lava flows, mudflows, pyroclastic and ash fallout); prediction and monitoring of hazard; perception of risk. Effects on lives and property.

3.2 Hazardous environments resulting from mass movements

Nature and causes of mass movements on slopes, leading to hazards that result from slope instability; level of impact; the nature and causes of avalanches and the hazards produced; prediction and monitoring of the hazard and the perception of risk. Effects on lives and property.

3.3 Hazard resulting from atmospheric disturbances

Distribution of areas most at risk from tropical storms (cyclones) and tornadoes; processes causing the development of tropical storms (cyclones) and tornadoes; related hazards (storm surges, coastal flooding, severe river floods, landslides, high winds, pressure imbalances). Prediction, monitoring of tropical storms (cyclones) and tornadoes and perception of risk. Effects on lives and property.

3.4 Sustainable management in hazardous environments

A case study illustrating some of the problems of sustainable management of a hazardous environment and an evaluation of attempted or possible solutions.

4. Arid and semi-arid environments

4.1 The distribution and climatic characteristics of hot arid and semi-arid environments

Definitions and causes of aridity; effective precipitation, pressure and wind systems in deserts and influence of ocean currents; degrees of aridity, high wind energy environments, diurnal and seasonal variations in precipitation and temperature; past climatic change (Pleistocene pluvials and evidence for climatic change).

4.2 Processes producing desert landforms

Weathering processes (thermal fracture, exfoliation, chemical weathering); results of weathering on rocks (block and granular disintegration); processes of erosion, transport and deposition: by wind (corrosion/abrasion, deflation, saltation) and by water (hydrological regime, episodic rainfall, flash floods, changing climate, sheet and stream floods); development of sand dune landscapes; development of wadis, alluvial fans, arroyos, pediments, piedmont zone (bahadas, playas, salt lakes, inselbergs).

4.3 Soils and vegetation

Biomass productivity (biodiversity, limited nutrient cycling, fragility); adaptation of plants and animals to extreme temperatures, physical and physiological drought; characteristic soils (process of upward capillary movement of water and minerals). The process of desertification and the degradation of soils in semi-arid environments.

4.4 Sustainable management of arid and semi-arid environments

A case study illustrating the problems of sustainable management in either an arid or a semi-arid environment and an evaluation of attempted or possible solutions.

7.4 Paper 3: Advanced Human Geography Options

Candidates must study at least **two** of these four human options, which are assessed in Paper 3. Two questions are set on each option in each exam series. Candidates should illustrate their answers, where appropriate, with reference to case studies from LEDCs (less economically developed countries) and MEDCs (more economically developed countries) since 1970.

1. Production, location and change

1.1 Agricultural systems and food production

Factors (physical, social, economic, political) affecting agricultural land-use and practices on farms; the roles of irrigation, land tenure, the nature of demand and distance from markets, agricultural technology. The concept of an agricultural system with inputs, throughputs, subsystems and output; one arable system and one pastoral system. Intensive and extensive production and agricultural productivity. Issues in the intensification of agriculture and the extension of cultivation.

1.2 The management of agricultural change

A case study illustrating the need for, and some of the difficulties in, the management of agricultural change in one country, at the scale of the holding or producer and at the national scale, with an evaluation of the attempted solutions.

1.3 Manufacturing and related service industry

Factors affecting the location of manufacturing and related service industry (land, labour, capital, markets, materials, technology, economies and diseconomies of scale, inertia, transport, government policies). Industrial agglomeration; functional linkages; the industrial estate and the export processing zone (EPZ). The informal sector of manufacturing and services; causes, characteristics, location and impact.

1.4 The management of industrial change

A case study of the industrial policy of one country and consequent changes in the character, location and organisation of its industrial production, illustrating some of the issues faced and evaluating the attempted solutions.

2. Environmental management

2.1 Sustainable energy supplies

Renewable and non-renewable energy resources. Factors at the national scale affecting demand for and supply of energy and the balance between different sources (including levels of development, resource endowment, capital, technology, pollution, energy policy). Trends in the consumption of fossil fuels, nuclear power and renewables (e.g. hydro-electric power, wind, biofuels) in LEDCs and MEDCs. The environmental impact of energy production, transport and usage at local and global scales.

2.2 The management of energy supply

A case study of one country's overall electrical energy strategy and of one named located scheme to produce electrical energy (e.g. a power station), illustrating some of the issues of changes in demand and supply, in power production and its location, and evaluating the success of the overall strategy and the selected scheme.

2.3 Environmental degradation

Pollution: land, air and water. Demand for and supply of water; issues of water quality. Factors in the degradation of rural environments (e.g. overpopulation, poor agricultural practices, deforestation). Factors in the degradation of urban environments (e.g. urbanisation, industrial development, inadequate infrastructure). Constraints on improving the quality of degraded environments. The protection of environments at risk: needs, measures and outcomes.

2.4 The management of a degraded environment

A case study of one degraded environment, illustrating the causes of its degradation, problems faced, issues in attempts to improve the environment and evaluating the attempted solution(s).

3. Global interdependence

3.1 Trade flows and trading patterns

Visible and invisible imports and exports. Global inequalities in trade flows. Factors affecting global trade (including resource endowment, locational advantage, historical factors such as colonial ties, trade agreements, changes in the global market). The World Trade Organization (WTO). The nature and role of Fair Trade.

3.2 Debt and aid and their management

The causes, nature and problems of debt at the national scale. The debt crisis and debt relief. Different types of aid and donors: relief aid, development aid, tied aid, bilateral or multilateral aid. A critical appreciation of the impacts of aid on receiving countries.

3.3 The development of international tourism

Reasons for and trends in the growth of tourism. The impacts of tourism on the environments, societies and economies (local and national) of tourist destinations. Carrying capacity; the multiplier effect. A critical appreciation of the life cycle model of tourism. Recent developments including ecotourism.

3.4 The management of a tourist destination

A case study of one tourist area or resort, its growth and development, illustrating the issues of sustainability it faces and evaluating the impacts of tourism on local environment(s), society and economy.

4. Economic transition

4.1 National development

The nature of the primary, secondary, tertiary and quaternary sectors and their roles in economic development. The nature, causes (physical and human) and distribution of global inequalities in social and economic wellbeing; a critical appreciation of some of the indices of measurement of social and economic inequality.

4.2 The globalisation of industrial activity

An introduction to global patterns of resources, production and markets. Foreign direct investment (FDI); the new international division of labour (NIDL). Factors affecting the growth and spatial structure of transnational corporations (TNCs); a case study of the global spatial organisation and operation of one TNC. Factors in the emergence and growth of newly industrialised countries (NICs). The connections between industrial growth in some LEDCs and in NICs and deindustrialisation in MEDCs.

4.3 Regional development

Regional disparities in social and economic development within countries. The concept of core–periphery. The process of cumulative causation from initial advantage(s); spread and backwash effects. (Regional is taken here to mean within a country or internal to that country, not a region of the world.)

4.4 The management of development

A case study of one country's policy for social and economic development at either the national scale or the regional scale (between the different regions within that country), illustrating some of the difficulties faced and evaluating the attempted solutions.

7.5 Geographical skills

Centres should study the information about skills in 3.1 (Aims) and 3.2 (Assessment objectives). The following information mainly refers to the use of source materials. However, it is also important that candidates develop skills in geographical enquiry, decision-making and evaluation.

Cambridge expects that candidates will be familiar with using a variety of source materials. Teachers are not expected to develop a separate teaching unit concerned with geographical skills. Instead, they should integrate appropriate skills into teaching the AS and A Level units. Case studies give excellent opportunities for introducing candidates to a wide variety of stimulus material for interpretation and analysis. The following list of source materials is not exhaustive. It simply shows the types of source materials that candidates should be confident in handling and that might be used in exam papers. Candidates who have studied Geography at Cambridge IGCSE or Cambridge O Level will generally be familiar with these source materials, but a greater level of response is, of course, expected.

Graphs	bar graphs, divided bar graphs, line graphs, scatter graphs (including line of best fit), pie charts, proportional circles, triangular graphs, climate graphs, etc.
Photographs	colour, black/white, aerial, terrestrial, satellite
Maps	survey maps (1:25 000 and 1:50 000 scales), flow line, isoline, choropleth, sketch, etc.
Diagrams	two and three dimensional, with/without annotation, flow diagrams, etc.
Written	text from a variety of sources (including newspapers, articles, books, interviews)
Numeric	tables, charts, raw data, etc.
Cartoons	

Centres should note that survey maps will not be set in every exam series. When survey maps are set, they will only appear on Paper 1.

8. Resource list

8.1 Recommended textbooks

ISBN numbers are given in both 10 figure and 13 figure forms.

Endorsed textbook

Author	Title	Date	Publisher	ISBN
Nagle, G and Guinness, P	<i>Cambridge International A and AS Level Geography</i>	2011	Hodder Education, www.hoddereducation.co.uk	978-1444123166

General texts

Author	Title	Date	Publisher	ISBN
Guinness, P and Nagle, G	<i>Advanced Geography: Concepts and Cases Revised Edition</i>	2002	Hodder Education, www.hoddereducation.co.uk	0340858265 or 978-0340858264
Nagle, G and Spencer, K	<i>AS and A level Advanced Geography through Diagrams</i>	2001	OUP, www.oup.co.uk	0199134324 or 978-0199134328

Reference sources

Author	Title	Date	Publisher	ISBN
Goudie, A and Thomas, D	<i>The Dictionary of Physical Geography</i>	2000	Wiley-Blackwell, www.blackwellpublishing.com	0631204733 or 978-0631204732
Johnston, R (editor)	<i>Dictionary of Human Geography</i>	2000	Wiley-Blackwell, www.blackwellpublishing.com	0631205616 or 978-0631205616
Small, J, Witherick, M and Ross, S	<i>A Modern Dictionary of Geography (4th edition)</i>	2001	Hodder Education, www.hoddereducation.co.uk	0340762101 or 978-0340762103

Physical Geography

Author	Title	Date	Publisher	ISBN
Bishop, V	<i>Landmark Geography: Hazards and Responses</i>	2001	Collins Educational, www.collinseducation.com	0007114311 or 978-0007114313
Bishop, V and Prosser, R	<i>Landmark Geography: Water Resources: Process and Management</i>	2001	Collins Educational, www.collinseducation.com	000711429X or 978-0007114290
Gillett, M	<i>Access to Geography Ecosystems</i>	2005	Hodder Education, www.hoddereducation.co.uk	0340889209 or 978-0340889206
Goudie, A	<i>Nature of the Environment</i>	2001	Blackwell Publishers, www.blackwellpublishing.com	063120069X or 978-0631200697
Haslett, S	<i>Coastal Systems</i>	2008	Routledge	0415440602 or 978-0415440608
Hill, M	<i>Access to Geography: Coasts and Coastal Management</i>	2004	Hodder Education, www.hoddereducation.co.uk	0340846380 or 978-0340846384
Hordern, B	<i>Rivers and Coasts</i>	2006	Philip Allan Updates, www.philipallan.co.uk	1844892042 or 978-1844892044
Park, C	<i>Tropical Rainforests</i>	1992	Routledge, www.routledge.com	041506239X or 978-0415062398
Pethick, J	<i>An Introduction to Coastal Geomorphology</i>	1984	Hodder Arnold	0713163917 or 978-0470249611
Prosser, R	<i>Natural Systems and Human Responses</i>	1996	Nelson Thornes, www.nelsonthornes.com	0174440693 or 978-0174440697
Prosser, R and Bishop, V	<i>Landmark Geography: Landform Systems</i>	2001	Collins Educational, www.collinseducation.com	000711432X or 978-0007114320
Warburton, P	<i>Landmark Geography: Atmospheric Processes and Human Influence</i>	2001	Collins Educational, www.collinseducation.com	0007114303 or 978-0007114306

Human Geography

Author	Title	Date	Publisher	ISBN
Burtenshaw, D	<i>Economy and Development</i>	2006	Philip Allan, www.philipallan.co.uk	1844892026 or 978-1844892020
Carr, M	<i>New Patterns: Process and Change in Human Geography</i> (2nd revised edition)	1999	Nelson Thornes, www.nelsonthornes.com	0174386818 or 978-0174386810
Chrispin, J and Jegede, F	<i>Landmark Geography: Population, Resources and Development</i>	2000	Collins Educational, www.collinseducation.com	0003266516 or 978-0003266511
Guinness, P	<i>Access to Geography: Migration</i>	2002	Hodder and Stoughton, www.hoddereducation.co.uk	0340800313 or 978-0340800317
Holmes, D and Warn, S	<i>Natural Hazards and Disasters</i>	2008	Philip Allan, www.philipallan.co.uk	1844896129 or 978-1844896127
Potter, R et al	<i>Geographies of Development</i> (3rd edition)	2008	Pearson Education Ltd www.pearsoned.co.uk	0132228238 or 978-0132228237
Prosser, R	<i>Landmark Geography: Leisure, Recreation and Tourism</i>	2000	Collins Educational, www.collinseducation.com	0003266508 978-0003266504
Raw, M	<i>Landmark Geography: Manufacturing Industry</i>	2000	Collins Educational, www.collinseducation.com	0003266494 or 978-0003266498
Witherick, M	<i>AS/A Level Geography Contemporary Case Studies: Population and Migration</i>	2011	Philip Allan, www.philipallan.co.uk	01444119826 or 978-1444119824
Witherick, M	<i>The Urban World</i>	1999	Nelson Thornes, www.nelsonthornes.com	0748744193 or 978-0748744190
Witherick, M and Adams, K	<i>Cities and Urbanisation</i>	2006	Philip Allan Updates, www.philipallan.co.uk	1844892204 or 978-1844892204

8.2 Other sources

There are many other sources that are very suitable for teaching the AS and A Level Geography courses. Organisations such as Friends of the Earth, Greenpeace, and Oxfam produce a range of materials. Various companies have produced a range of videos and CD ROMs for advanced-level students. The worldwide web offers many opportunities to find information on geographical topics. Teachers may find *Geography Factsheets* useful which are available from **www.curriculum-press.co.uk** by subscription.

8.3 Journals

Title	Publisher
<i>Geofile</i> (quarterly)	Nelson Thornes, www.nelsonthornes.com
<i>Geographical Review</i> (quarterly)	Philip Allan, www.philipallan.co.uk
<i>Geography</i> (three annually)	The Geographical Association, www.geography.org.uk
<i>Teaching Geography</i> (three annually)	The Geographical Association, www.geography.org.uk

Resources are also listed on Cambridge's public website at www.cie.org.uk. Please visit this site on a regular basis as the Resource lists are updated through the year.

Access to teachers' email discussion groups, suggested schemes of work and regularly updated resource lists may be found on the Cambridge Teacher Support website at <http://teachers.cie.org.uk>. This website is available to teachers at registered Cambridge Centres.

9. Other information

Equality and inclusion

Cambridge International Examinations has taken great care in the preparation of this syllabus and assessment materials to avoid bias of any kind. To comply with the UK Equality Act (2010), Cambridge has designed this qualification with the aim of avoiding direct and indirect discrimination.

The standard assessment arrangements may present unnecessary barriers for candidates with disabilities or learning difficulties. Arrangements can be put in place for these candidates to enable them to access the assessments and receive recognition of their attainment. Access arrangements will not be agreed if they give candidates an unfair advantage over others or if they compromise the standards being assessed.

Candidates who are unable to access the assessment of any component may be eligible to receive an award based on the parts of the assessment they have taken.

Information on access arrangements is found in the *Cambridge Handbook* which can be downloaded from the website www.cie.org.uk/examsOfficers

Language

This syllabus and the associated assessment materials are available in English only.

Grading and reporting

Cambridge International A Level results are shown by one of the grades A*, A, B, C, D or E, indicating the standard achieved, A* being the highest and E the lowest. 'Ungraded' indicates that the candidate's performance fell short of the standard required for grade E. 'Ungraded' will be reported on the statement of results but not on the certificate. The letters Q (result pending), X (no results) and Y (to be issued) may also appear on the statement of results but not on the certificate.

Cambridge International AS Level results are shown by one of the grades a, b, c, d or e, indicating the standard achieved, 'a' being the highest and 'e' the lowest. 'Ungraded' indicates that the candidate's performance fell short of the standard required for grade 'e'. 'Ungraded' will be reported on the statement of results but not on the certificate. The letters Q (result pending), X (no results) and Y (to be issued) may also appear on the statement of results but not on the certificate.

If a candidate takes a Cambridge International A Level and fails to achieve grade E or higher, a Cambridge International AS Level grade will be awarded if both of the following apply:

- the components taken for the Cambridge International A Level by the candidate in that series included all the components making up a Cambridge International AS Level
- the candidate's performance on these components was sufficient to merit the award of a Cambridge International AS Level grade.

For languages other than English, Cambridge also reports separate speaking endorsement grades (Distinction, Merit and Pass), for candidates who satisfy the conditions stated in the syllabus.

Entry codes

To maintain the security of our examinations, we produce question papers for different areas of the world, known as 'administrative zones'. Where the component entry code has two digits, the first digit is the component number given in the syllabus. The second digit is the location code, specific to an administrative zone. Information about entry codes for your administrative zone can be found in the *Cambridge Guide to Making Entries*.

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