

INTERNATIONAL ADVANCED LEVEL

GEOGRAPHY

SPECIFICATION

Pearson Edexcel International Advanced Subsidiary in Geography (XGE01)

Pearson Edexcel International Advanced Level in Geography (YGE01)

First teaching September 2016

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August 2018 (International Advanced Level)

Issue 2



Edexcel, BTEC and LCCI qualifications

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Acknowledgements

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Summary of International Advanced Subsidiary/Advanced Level Geography specification Issue 2 changes

Summary of changes made between previous issue and this current issue	Page number
Introductory section has been updated.	5–7
Information about use of calculators has been added.	throughout
Clarification has been added to the place contexts' suggestions.	throughout
The first bullet point in the section 1.4.2 'Global organisations: IGOs promote a liberal model of economic development' has been amended.	20
Introduction to 'Integrating geographical skills' for Units 1 and 3 has been amended.	23, 53
The last bullet point in the section 3.4.1 'Biodiversity patterns: The distribution of biodiversity depends on a range of factors' has been amended.	38
Information on assessment objectives and weightings has been updated.	69–70
The <i>Appendices</i> section has been reorganised and updated with the addition of our World Class Qualification design principles, Transferable skills and Use of calculators. Also, the title of Appendix: Exam command word definitions has been changed to 'Command word taxonomy'.	78–95

If you need further information on these changes or what they mean, contact us via our website at: <https://qualifications.pearson.com/en/contact-us/teachers.html>

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About this specification

The Pearson Edexcel International Advanced Subsidiary in Geography and the Pearson Edexcel International Advanced Level in Geography are part of a suite of International Advanced Level qualifications offered by Pearson.

These qualifications are not accredited or regulated by any UK regulatory body.

Key features

This specification includes the following key features.

Structure

The Pearson Edexcel International Advanced Subsidiary in Geography and the Pearson Edexcel International Advanced Level in Geography are modular qualifications. The Advanced Subsidiary can be claimed on completion of the International Advanced Subsidiary (IAS) units.

The International Advanced Level can be claimed on completion of all the units (IAS and IA2 units).

Content

The content is updated, engaging and relevant to international customers. The content is relevant, engaging for international students, and up to date.

Assessment

All units are externally assessed. Units 1, 2 and 3 have a mix of data-response questions, short-answer, and/or longer/guided essay questions. There are also a fieldwork response question in Unit 2 and a synoptic question in Unit 3. Unit 4 has one research-based question that relates to the option students' have previously studied.

Approach

These qualifications enable students to develop independent thinking and critical thinking skills. It is designed using Pearson's Efficacy Framework, developed in line with world-class principles.

This specification is designed to allow geographers the flexibility to build programmes that suit their own particular interests and needs using a range of approaches. It offers units that allow a balance between students' own particular physical, human and/or environmental interests and key geographical topics that provide them with the knowledge, understanding and skills for further study at higher education or for employment.

Specification updates

This specification is Issue 2 and is valid for first teaching from September 2016. If there are any significant changes to the specification, we will inform centres in writing. Changes will also be posted on our website.

For more information please visit qualifications.pearson.com

Using this specification

This specification gives teachers guidance and encourages effective delivery of these qualifications. The following information will help you get the most out of the content and guidance.

Compulsory content: as a minimum, all the bullet points in the content must be taught. The word 'including' in content specifies the detail of what must be covered.

Examples: throughout the content, we have included examples of what could be covered or what might support teaching and learning. It is important to note that examples are for illustrative purposes only and centres can use other examples. We have included examples that are easily understood and recognised by international centres.

Assessments: use a range of material and are not limited to the examples given. Teachers should deliver these qualifications using a good range of examples to support the assessment of the content.

Depth and breadth of content: teachers should use the full range of content and all the assessment objectives given in the subject content section.

Qualification aims and objectives

The aims and objectives of these qualifications are to enable students to:

- develop their knowledge of locations, places, processes and environments, at all geographical scales from local to global across the specification as a whole
- develop an in-depth understanding of the selected geographical patterns, processes and issues in physical and human geography at a range of temporal and spatial scales, and of the concepts that illuminate their significance in a range of locational contexts
- recognise and be able to analyse the complexity of people–environment interactions at all geographical scales, and appreciate how they underpin understanding of some of the key issues facing the world today
- develop their understanding of, and ability to apply, the concepts of place, space, scale and environment that underpin GCSE/International GCSE, including developing a more nuanced understanding of these concepts
- improve their understanding of the ways in which values, attitudes and circumstances have an impact on the relationships between people, place and environment, and develop the knowledge and ability to engage, as citizens, with the questions and issues arising ('circumstances' in this case refers to the context of people's lives, and the socio-economic and political milieu in which they find themselves)
- become confident and competent in selecting, using and evaluating a range of quantitative and qualitative skills and approaches (including observing, collecting and analysing geo-located data) and applying them as an integral part of their studies
- understand the fundamental role of fieldwork as a tool to understand and generate new knowledge about the real world, and become skilled at planning, undertaking and evaluating fieldwork in appropriate situations
- apply geographical knowledge, understanding, skills and approaches in a rigorous way to a range of geographical questions and issues, including those identified in fieldwork, recognising both the contributions and limitations of geography
- develop as critical and reflective learners, able to articulate opinions, suggest relevant new ideas and provide evidenced argument in a range of situations

- build on knowledge of contexts, locations, places and environments, by extending the scope and scale of study, the variety of physical, social, economic, cultural and political contexts encountered, the depth of conceptual understanding required, and the range of spatial and temporal scales included
- develop a deep understanding of both physical and human processes, applying this understanding to interrogate people–environment interactions and people–place connections at all scales from local to global
- build on and reinforce conceptual understanding underpinning GCSE/International GCSE, experiencing an extended demand that includes a wider range of more complex and specialised concepts that relate to the core and non-core content
- engage with models, theories and generalisations, and develop a mature understanding of the nature and limitations of objectivity and the significance of human values and attitudes
- develop understanding of the rationale for, and applications of, skills and approaches used, showing a considerable degree of independence in selecting and using a wide range of geographical methods, techniques and skills, involving both qualitative and quantitative methods
- undertake fieldwork that encourages them to apply and evaluate theory in the real world, and take responsibility for selecting research questions, applying relevant techniques and skills, and identifying appropriate ways to analyse and communicate findings.

Qualification abbreviations used in this specification

The following abbreviations appear in this specification:

International Advanced Subsidiary – IAS

International A2 – IA2 (the additional content required for an IAL)

International Advanced Level – IAL.

Why choose Edexcel qualifications?

Pearson – the world’s largest education company

Edexcel academic qualifications are from Pearson, the UK’s largest awarding organisation. With over 3.4 million students studying our academic and vocational qualifications worldwide, we offer internationally recognised qualifications to schools, colleges and employers globally.

Pearson is recognised as the world’s largest education company, allowing us to drive innovation and provide comprehensive support for Edexcel students to acquire the knowledge and skills they need for progression in study, work and life.

A heritage you can trust

The background to Pearson becoming the UK’s largest awarding organisation began in 1836, when a royal charter gave the University of London its first powers to conduct exams and confer degrees on its students. With over 150 years of international education experience, Edexcel qualifications have a firm academic foundation, built on the traditions and rigour associated with Britain’s educational system.

To find out more about our Edexcel heritage please visit our website:
qualifications.pearson.com/en/about-us/about-pearson/our-history

Results you can trust

Pearson’s leading online marking technology has been shown to produce exceptionally reliable results, demonstrating that at every stage, Edexcel qualifications maintain the highest standards.

Developed to Pearson’s world-class qualifications standards

Pearson’s world-class standards mean that all Edexcel qualifications are developed to be rigorous, demanding, inclusive and empowering. We work collaboratively with a panel of educational thought-leaders and assessment experts to ensure that Edexcel qualifications are globally relevant, represent world-class best practice and maintain a consistent standard.

For more information on the world-class qualification process and principles please go to *Appendix 2: Pearson World Class Qualification design principles* or visit our website:
uk.pearson.com/world-class-qualifications.

Why choose Pearson Edexcel International Advanced Subsidiary/Advanced Level qualifications in Geography?

We have listened to feedback from all parts of the international school subject community, including a large number of teachers. We have made changes that enable international learners to engage critically with real world issues and places, apply their own geographical knowledge, understanding and skills to make sense of the world around them, and to help prepare them to succeed in their chosen pathway.

Key qualification features

Engaging and contemporary balanced approach

designed to allow geographers the flexibility to build programmes that suit their own particular interests and needs using a range of approaches. This specification offers units that allow a balance between students' own particular physical, human and/or environmental interests and key geographical topics that provide them with the knowledge, understanding and skills for further study at higher education or for employment.

Structure

The International Advanced Subsidiary is the first half of the International Advanced Level qualification and consists of two IAS units, Units 1 and 2. The International Advanced Level consists of the two IAS units (Units 1 and 2) plus two IA2 units (Units 3 and 4).

Clear assessments that offer all students the chance to succeed

100% external assessment, with January and June assessment opportunities. Our question papers are clear and accessible for students of all ability ranges with consistent use of command words. Our mark schemes are straightforward so that the assessment requirements are clear.

Clear and straightforward question papers – our question papers are clear and accessible for students of all ability ranges with consistent use of command words. Our mark schemes are straightforward so that the assessment requirements are clear.

Broad and deep development of learners' skills – we designed the International Advanced Level qualifications to extend learners' knowledge by broadening and deepening skills, for example learners will:

- Cognitive - Use enquiry and geographical skills, including quantitative skills, to solve problems related to geography
- Intrapersonal - Plan, develop and apply own learning of the real world through fieldwork
- Interpersonal - Use verbal and non-verbal communication skills in developing their awareness of geographical concepts and issues.

Progression – International Advanced Level qualifications enable successful progression to undergraduate studies, further education or work. Through our world-class qualification development process we have consulted with teachers, higher education lecturers and geography subject community to validate the appropriateness of this qualification, including content, skills and assessment structure.

More information can be found on our Progression to university web page.

Supporting you in planning and implementing these qualifications

Planning

- Our *Getting Started Guide* gives you an overview of the Pearson Edexcel International Advanced Subsidiary/Advanced Level in Geography qualifications to help you understand the content and assessment, and what these mean for you and your students.
- We will provide you with an editable scheme of work for each unit.

Teaching and learning materials

- Topic Guides
- Fieldwork Guide.

Preparing for exams

We will also provide a range of resources to help you prepare your students for the assessments, including:

- exemplars with examiner commentaries
- past question papers
- examiner reports following each examination series.

ResultsPlus

ResultsPlus provides the most detailed analysis available of your students' examination performance. It can help you identify the topics and skills where further learning would benefit your students.

Training events

In addition to online training, we host a series of training events each year for teachers to deepen their understanding of our qualifications.

Get help and support

Our Geography subject advisor service will ensure that you receive support and guidance from us. You can sign up to receive qualification updates and product and service news. For more information, please contact us on TeachingGeography@pearson.com

Qualification at a glance

Qualification overview

Pearson Edexcel International Advanced Subsidiary in Geography

This qualification consists of two externally-examined units.

The International Advanced Subsidiary is the first half of the International Advanced Level qualification and consists of two IAS units, Units 1 and 2. This qualification may be awarded as a discrete qualification or may contribute 50 per cent towards the International Advanced Level qualification.

Pearson Edexcel International Advanced Level in Geography

This qualification consists of two externally-examined units.

The International Advanced Level consists of the two IAS units (Units 1 and 2) plus two IA2 units (Units 3 and 4). Students wishing to take the International Advanced Level must, therefore, complete all four units.

Course of study

The structure of these qualifications allows teachers to construct a course of study that can be taught and assessed as either:

- distinct modules of teaching and learning with related units of assessment taken at appropriate stages during the course; or
- a linear course assessed in its entirety at the end.

Content and assessment overview

IAS Unit 1: Global Challenges		*Unit code: WGE01/01	
Externally assessed Written examination: 1 hour and 45 minutes Availability: January and June First assessment: June 2017 90 marks		60% of the total IAS	30% of the total IAL
Content overview <ul style="list-style-type: none"> • Topic 1: World at Risk • Topic 2: Going Global 			
Assessment overview Section A: Data response and short-answer questions. Section B: Choice of longer/guided essay questions, on either Topic 1: World at Risk or Topic 2: Going Global.			

IAS Unit 2: Geographical Investigations		*Unit code: WGE02/01	
Externally assessed Written examination: 1 hour and 30 minutes Availability: January and June First assessment: June 2017 60 marks		40% of the total IAS	20% of the total IAL
Content overview <ul style="list-style-type: none"> • Topic 1: Crowded Coasts • Topic 2: Urban Problems, Planning and Regeneration 			
Assessment overview Section A: Data response and short-answer questions on Topics 1 and 2: Crowded Coasts and Urban Problems, Planning and Regeneration. Section B: Compulsory short-answer questions on research and fieldwork investigation. Section C: Choice of one fieldwork question, on either Topic 1: Crowded Coasts or Topic 2: Urban Problems, Planning and Regeneration.			

IA2 Unit 3: Contested Planet		*Unit code: WGE03/01	
Externally assessed Written examination: 2 hours Availability: January and June First assessment: January 2018 90 marks		60% of the total IA2	30% of the total IAL
Content overview Section A – compulsory topics: <ul style="list-style-type: none"> • Topic A1: Atmosphere and Weather Systems • Topic A2: Biodiversity Under Threat Section B – optional topics: <ul style="list-style-type: none"> • Topic B1: Energy Security or Topic B2: Water Conflicts Section C – optional topics: <ul style="list-style-type: none"> • Topic C1: Superpower Geographies or Topic C2: Bridging the Development Gap 			
Assessment overview Section A: Longer/guided essay questions and a synoptic question. Section B: Choice of one data response/essay question from two topics (B1 or B2). Section C: Choice of one data response/essay question from two topics (C1 or C2).			

IA2 Unit 4: Researching Geography		*Unit code: WGE04/01	
Externally assessed Written examination: 1 hour and 30 minutes Availability: January and June First assessment: January 2018 60 marks		40% of the total IA2	20% of the total IAL
Content overview <ul style="list-style-type: none"> • Option 1: Tectonic Activity and Hazards • Option 2: Feeding the World's People • Option 3: Cultural Diversity: People and Landscapes • Option 4: Human Health and Disease 			
Assessment overview Students will be given a list of questions based on the four options. Students will select and answer one question that relates to the option they have studied			

*See *Appendix 1: Codes* for a description of this code and all other codes relevant to these qualifications.

Calculators

Calculators may be used in the units 1, 2 and 3. Please see *Appendix 6: Use of calculators*.

Geography content

Unit 1: Global Challenges	14
Unit 2: Geographical Investigations	24
Unit 3: Contested Planet	34
Unit 4: Researching Geography	54

How to use the content section of the specification

Overview

Each topic begins with an overview. This explains the relevance of the topic to modern geography. It also outlines links between the topic and other areas of the specification. The overview does not form part of the assessed content, but could be used by teachers when introducing a new topic to students.

Enquiry questions

Each topic contains a number of enquiry questions. The enquiry questions should form the basis for the study of that topic. Enquiry questions encourage active learning and an investigative, critically evaluative approach. An enquiry question, combined with the key ideas in the left-hand column of the specification content, can be used as the starting point to develop learning objectives for one or more lessons.

Detailed content

Each key idea contains detailed specification content to give you confidence in how much depth to cover. Some key ideas contain content made up of multiple elements. In order to be clear about what students need to learn, we've included these different elements within brackets e.g. "Plate tectonics and volcanic processes cause geophysical hazards (earthquakes, volcanic eruptions, tsunamis)." The content within brackets must all be taught.


Guidance for integrating geographical skills

These qualifications require students to show evidence of knowledge of a variety of geographical skills, showing a critical awareness of the appropriateness and limitations of different methods, skills and techniques.

Guidance on integrating these skills has been provided at the end of Units 1 and 3 under the heading 'Integrating geographical skills'. This guidance provides suggested opportunities for integrating the full range of skills outlined in *Appendix 7: Geographical skills*.

Opportunities to integrate geographical skills are indicated by bracketed numbers in the detailed content, (1) for example. These skills are not exclusive to the topic areas under which they appear; students will need to be able to apply these skills across any suitable topic area throughout their course of study.

Place contexts

Where the detailed content in the specification must be studied in a located geographical context, this is indicated using the symbol , followed in some cases by suggested place contexts. Place contexts should be in the form of short detailed example, rather than a major case study. The choice of place contexts is designed to include developed, emerging and developing countries. The place contexts suggested in the specification could be replaced by an alternative, similar place context.

In *Unit 2: Geographical Investigations*, the following topics and enquiry questions should be studied with reference to one or more local place contexts, which can be linked to the provision of opportunities for suitable fieldwork.

- Topic 1: Crowded Coasts – enquiry questions **2.3.3** and **2.3.4**
- Topic 2: Urban Problems, Planning and Regeneration – enquiry questions **2.4.2** and **2.4.4**

In *Unit 4: Researching Geography*, the chosen option should be illustrated with reference to suitable place contexts.

Unit 1: Global Challenges

IAS compulsory unit

Externally assessed

1.1 Unit description

This unit provides students with the opportunity to investigate key global issues facing people in a range of countries at different levels of development. The unit is divided into two topics. World at Risk is focused on physical geography and people–environment interactions, whereas Going Global is human geography in focus. Both topics should be studied from a global perspective to gain a broad understanding of the themes, supported by located examples where appropriate.

1.2 Assessment information

- First assessment: June 2017.
 - The assessment is 1 hour and 45 minutes.
 - The assessment is out of 90 marks.
 - The assessment consists of two Sections A and B.
 - A Resource booklet is provided for both sections.
 - Calculators may be used in the examination. Please see *Appendix 6: Use of calculators*.
 - Students must answer **all** questions in Section A and **one** question in Section B.
 - Section A consists of data response and short-answer questions.
 - Section B makes use of students' own ideas and consists of a choice of Topic 1: World at Risk **or** Topic 2: Going Global longer/guided essay questions.
-

1.3 Topic 1: World at Risk

Overview

This topic considers the physical processes that cause natural hazards, as well as the relationship between 'hazard' and 'disaster'. A key theme is investigating the distribution of natural hazards and trends in both hazard events and disasters. Hydro-meteorological hazards are frequently linked to global warming, but this topic also allows for an in-depth study of climate natural change on longer timescales as well as a consideration of the consequences of, and responses to, a warming world today and in the future.

1.3.1 Global hazards	Enquiry question: What are global hazards and what causes them?
Key idea	Detailed content
Natural hazards are caused by geophysical processes	<ul style="list-style-type: none"> • Plate tectonics and volcanic processes cause geophysical hazards (earthquakes, volcanic eruptions, tsunami). • Landslides and avalanches are complex hazards caused by slope processes, often triggered by weather or tectonic events.
Natural hazards are caused by hydro-meteorological processes	<ul style="list-style-type: none"> • Short-term meteorological conditions cause hydro-meteorological hazards (cyclones, floods). • Drought is caused by medium-term trends in rainfall; ENSO cycles can be linked to weather hazards (flooding, drought) (🌐 Pacific basin).
Disaster risk can be explained by the relationship between hazards, vulnerability and capacity to cope	<ul style="list-style-type: none"> • The relationship between natural hazards and disasters and how the magnitude of hazard events can be measured using different scales (Moment Magnitude, Saffir-Simpson, VEI, flood discharge). • The disaster risk equation (Risk = hazard x vulnerability/capacity to cope) can help explain contrasting disaster profiles. (1)

1.3.2 Global hazard distribution	Enquiry question: Which areas are affected by geophysical and hydro-meteorological hazards and disasters?
Key idea	Detailed content
The distribution of hazards is uneven, and related to both physical and human factors	<ul style="list-style-type: none"> • The geographical distribution of natural hazards (hydro-meteorological and geophysical) can be related to the physical processes that cause them. (2) • Human factors (level of development, population density, accessibility and governance) can help explain patterns of disaster impact globally and regionally. (3)

1.3.2 Global hazard distribution (continued)	Enquiry question: Which areas are affected by geophysical and hydro-meteorological hazards and disasters?
Key idea	Detailed content
Some locations are especially vulnerable to multiple hazard processes	<ul style="list-style-type: none"> The concept of multiple hazard zones and why some locations are considered hazard hotspots due to the frequency of different hazards events (📍 Philippines and California). The human and economic costs of disaster events in multiple hazard zones may have an effect on economic development and potential (📍 Philippines and California).
Rare, high magnitude disaster events can have regional or global significance	<ul style="list-style-type: none"> The concept of mega-disasters (tsunami, earthquakes, regional drought) that affect more than one country with unusually large human and economic impacts. The implications for regional economies and the global economy of mega-disasters both in terms of impacts and the scale of the required response (📍 2004 Asian tsunami or 2011 Japanese tsunami). (4)

1.3.3 Global hazard trends	Enquiry question: What are the global trends in hazard occurrence and disaster impacts?
Key idea	Detailed content
Some types of natural hazard are increasing in magnitude and frequency	<ul style="list-style-type: none"> Evidence for trends in the occurrence of hydro-meteorological hazards (floods, drought and cyclones). (5) Explanations for these trends include both physical (changing weather patterns, climate change) and human (deforestation, desertification) factors.
There are complex global trends in terms of disaster occurrence and impacts	<ul style="list-style-type: none"> Disasters and their impacts can be defined and measured using data on economic losses, deaths and numbers affected which reveal contrasting trends for different disaster types. (6) Explanations of disaster trends need to account for rising economic losses, rising numbers of people affected but falling death tolls.
There are differences in degree of predictability and effectiveness of hazard response	<ul style="list-style-type: none"> Prediction and monitoring technology can reduce the impact of some disasters (volcanic eruption prediction, tsunami warning, cyclone tracking) but not others (earthquakes). Warning, evacuation, hazard resistant design, community preparedness, land-use zoning and aid can all reduce disaster impacts but are not universally available (📍 Selective reference to developed, emerging and developing country place contexts).

1.3.4 Climate change	Enquiry question: How and why has climate changed in the past and how significant is recent global warming?
Key idea	Detailed content
There is evidence that the global climate has changed significantly in the past	<ul style="list-style-type: none"> • Tree rings, ice and ocean sediment cores provide evidence for long-term changes to Earth's climate during the Quaternary period, with repeated glacial and interglacial cycles. • Evidence for medium-term, smaller climate fluctuations (Little Ice Age, Medieval Warm Period) comes from a range of sources (pollen records, historical sources, art).
Natural climate change has a number of causes	<ul style="list-style-type: none"> • Milankovitch Cycles (orbital eccentricity, axial tilt and precession and cooling/warming feedback mechanisms) provide an explanation for long-term climate cycles. • Variations in solar output (11 year and longer sunspot cycles) and the impact of volcanic emissions can provide an explanation for medium and short-term climate changes.
Recent global warming needs to be set within a longer climate context	<ul style="list-style-type: none"> • Reconstructed past climate temperature records can be compared with climate warming since 1960 in terms of magnitude and pace of change. • The reliability, geographical coverage and accuracy of past and more recent climate data and predictions can be questioned.

1.3.5 The causes and impacts of global warming	Enquiry question: How significant are the current and future impacts of global warming in contrasting locations?
Key idea	Detailed content
Rising emissions are widely blamed for contemporary global warming	<ul style="list-style-type: none"> • Changes in atmospheric composition (CO₂, CH₄, NO_x) since 1960 show trends in concentrations of greenhouse gases, which are linked to an enhanced greenhouse effect. (4) • There are variations in the sources of these emissions by economic activity, countries (including change over time) both in absolute and per capita terms (🌐 developed, emerging and developing countries).
There are large uncertainties about the future climate	<ul style="list-style-type: none"> • The range of projections of future global warming and sea level rise (IPCC models) are uncertain due to multiple factors (future population and economic development, mitigating efforts). (7) • Uncertainty also results from physical feedback mechanisms (ice albedo feedback, ocean carbon sinks, forest 'die-back'), which could lead to climate tipping points.

1.3.5 The causes and impacts of global warming (continued)	Enquiry question: How significant are the current and future impacts of global warming in contrasting locations?
Key idea	Detailed content
Global warming is a significant risk in some locations	<ul style="list-style-type: none"> Sea-level rise represents a major risk to some low-lying countries that are physically and economically vulnerable, and many coastal cities (🌐 Maldives or Asian mega-deltas). Shifts in the location of climate belts represent risks to farmers in terms of precipitation levels, especially in rain-fed, low-income locations (🌐 Sahel).

1.3.6 Managing global climate risk	Enquiry question: How can the risks from global warming be managed globally and locally?
Key idea	Detailed content
Mitigation of emissions has a mixed record of success	<ul style="list-style-type: none"> Action to mitigate carbon emissions has happened at a national scale (renewable energy, carbon taxes, recycling) in some but not all countries. Global actions (Montreal 1987, Kyoto 1997, Paris 2015) have had variable success both in terms of reaching agreement and actual emissions reductions.
Adaptation to future climates is possible, but carries risks	<ul style="list-style-type: none"> Adapting to rising sea levels and increased flood risk requires costly engineering, which is possible in some locations but unaffordable in others (🌐 Bangladesh and Netherlands). Farming adaptations (irrigation, crop changes, drought resistant crops) require investment, which may not be available to subsistence producers.
Attitudes to global warming vary, and some may see it as an opportunity	<ul style="list-style-type: none"> Globally, and within countries, attitudes to the degree of threat posed by global warming vary between different groups and organisations. Global warming may provide new economic opportunities in some high-latitude locations (🌐 Arctic), and is not universally accepted as 'real' or a threat.

1.4 Topic 2: Going Global

Overview

Globalisation is a key theme in human and economic geography, but it is a complex process with multiple causes and contested consequences. This topic allows the causes to be explored in detail and the consequences to be considered in different places and for different groups of people. Closely linked to globalisation are patterns and trends in global migration, which present significant geographical challenges in some locations. Migration also helps fuel urbanisation and the topic includes an exploration of the consequences of urban growth as well as the problems of providing resources for people in an increasingly globalised, urbanised, affluent world.

1.4.1 Globalisation, networks and trade	Enquiry question: Why are global economic connections increasing?
Key idea	Detailed content
Globalisation is an old process that has accelerated dramatically	<ul style="list-style-type: none">• Globalisation involves widening and deepening global connections and flows (commodities, capital, information, migrants and tourists).• Degree of globalisation varies by country and can be measured using indicators and indices (AT Kearney index, KOF index). (8)
Transport and communications are a key part of globalisation	<ul style="list-style-type: none">• Developments in transport and trade in the 19th century (railways, telegraph, steam-ships) accelerated in the 20th (jet aircraft, containerisation), contributing to a 'shrinking world'.• 21st century developments (mobile phones, internet, social networking, electronic banking, fibre optics) have contributed to time-space compression but are not universal.
Trade patterns reveal broad and deep global connections	<ul style="list-style-type: none">• The growth of free trade, economic growth in the developing world and the global shift of industry to Asia have promoted globalisation.• Patterns of global trade in commodities, goods and services show the nature and importance of global trade connections between developed, emerging and developing countries. (9)

1.4.2 Global organisations	Enquiry question: Which organisations are involved in globalisation and what are their roles?
Key idea	Detailed content
TNCs are key players in the global economy	<ul style="list-style-type: none"> TNCs both contribute to globalisation (global production networks, glocalisation, development of new markets) and take advantage of economic liberalisation (outsourcing and offshoring). There are social, economic and environmental costs and benefits of TNC outsourcing to emerging and developing countries.
Government policies have encouraged globalisation and the global shift	<ul style="list-style-type: none"> National governments are key players in terms of promoting free trade blocs and agreements (EU, ASEAN, TTIP) and through policies such as free-market liberalisation, privatisation, and encouraging business start-ups. Special economic zones, government subsidies and attitudes to FDI have contributed to the spread of globalisation into new emerging global regions.
IGOs promote a liberal model of economic development	<ul style="list-style-type: none"> International political and economic organisations (IMF, World Bank) have contributed to globalisation through their role in the promotion of economic liberalisation and free trade. The WTO has promoted free trade through a series of negotiation rounds since the 1950s, although protectionism still exists.

1.4.3 Globalisation's impact on development	Enquiry question: How far does globalisation produce winners and losers, and switched-on and switched-off places?
Key idea	Detailed content
In developed countries globalisation has affected consumers and workers	<ul style="list-style-type: none"> Global consumers have benefited from low-priced consumer goods and the growth of global brands, but anti-globalisation groups argue this has come at a cost. Deindustrialised regions in developed countries face social and environmental problems as a result of economic restructuring (dereliction, depopulation, crime and high unemployment) (📍 USA Rustbelt).
The benefits of globalisation are unequally distributed	<ul style="list-style-type: none"> There are physical, political and cultural reasons why some developing locations are weakly connected to the wider global economy, with implications for their populations. Some locations (world cities, global hubs) and people (global elites) exhibit multiple economic, transport and population connections and benefit disproportionately from globalisation (📍 Singapore or London). (10)

1.4.3 Globalisation's impact on development (continued)	Enquiry question: How far does globalisation produce winners and losers, and switched-on and switched-off places?
Key idea	Detailed content
Asia, at the centre of 21st century globalisation, is experiencing costs and benefits	<ul style="list-style-type: none"> • The movement of the global economic centre of gravity to Asia benefited that region (poverty reduction, waged work, infrastructure investment, education and training) in terms of development (🌐 China or India). • Globalisation has environmental impacts globally in terms of carbon emissions and locally in terms of air, water and land pollution, especially in outsourcing locations.

1.4.4 Global population trends	Enquiry question: What are the impacts of global and regional population trends on resources and wellbeing?
Key idea	Detailed content
Global population continues to rise	<ul style="list-style-type: none"> • Global population projections suggest rising numbers until 2050 or even 2100, but there is uncertainty and large differences between global regions. • Population pyramids can be used to analyse current population (birth, death, infant mortality and fertility rates) and project future population numbers and structure. (11)
Both ageing and youthful populations bring challenges	<ul style="list-style-type: none"> • Some countries face the challenges of an ageing population (health and social care, shortages of workers, dependency ratio) or will do so in future (🌐 Japan or Russia). • Countries with youthful populations may experience a future demographic dividend but also have high demand for education, housing and health services (🌐 India or Nigeria).
Increasing population has implications for resources	<ul style="list-style-type: none"> • The relationship between population and resources (Malthus, Boserup, Club of Rome) is not resolved. • Rising population and affluence may lead to shortages of water, food and energy in some places but technology may mitigate these.

1.4.5 Global migration	Enquiry question: Why are numbers of internal and international migrants rising?
Key idea	Detailed content
Globalisation and migration are linked	<ul style="list-style-type: none"> Global migration numbers have risen, and there is a pattern of major global migration flows (source and host countries, major legal and illegal migration flows, refugees). (9) Globalisation encourages rural–urban migration and international migration (high-skill elites, low-skill workers) especially to global hubs and megacities.
Migration has costs and benefits	<ul style="list-style-type: none"> Migration has costs and benefits to both host (filling skills gaps, demographic impacts, pressure on services) and source locations (remittances, 'brain drain') (🌐 EU source and host countries). Attitudes to migration vary from country to country, for economic, cultural and political reasons.
Migration represents a management challenge	<ul style="list-style-type: none"> Managing migration in a globalised world with fewer borders is increasingly difficult, which has led to contrasting policies (🌐 Australia and Germany). Migration from conflict zones (refugees, asylum seekers, people trafficking) is a major challenge for destination countries.

1.4.6 World urbanisation	Enquiry question: What are the consequences of an increasingly urban world?
Key idea	Detailed content
The majority of the world's population live in urban areas, and urbanisation is increasing	<ul style="list-style-type: none"> Global trends in urbanisation since 1980 and contrasting regional trends and their causes (demographic and economic), including projections to 2050. Urbanisation has implications for surrounding rural areas in terms of supplying cities with human and physical resources.
Providing suitable housing is a major challenge for many cities	<ul style="list-style-type: none"> Rapid urban growth (migration and internal growth) in some developing and emerging megacities creates challenges in terms of housing supply, resulting in the growth of slums in many cities (🌐 Mumbai or Lagos). Meeting housing need requires joint working between NGOs, community self-help groups and city government.
Megacity growth presents management challenges	<ul style="list-style-type: none"> The changing number, distribution and growth rates of megacities (population over 10 million) and the demographic and economic causes of these changes. Issues of urban air pollution and service provision are common in megacities with consequences for human and environmental health (🌐 Beijing or Mexico City). (12)

Integrating geographical skills in Unit 1

The following are suggestions as to where the skills outlined in *Appendix 7: Geographical skills* can be taught in Unit 1:

(1)	Use of correlation techniques (scattergraphs and Spearman's rank correlation) to investigate the relationships between magnitude and human and economic losses.
(2)	Analysis of the distribution of different hazard types on global and regional scale maps.
(3)	Analysis of population density and development levels using dot density, choropleth and cartogram maps at local and regional scales.
(4)	Analysis and interpretation of tsunami travel time maps.
(5)	Analysis of line graphs to identify trends over time.
(6)	Graphical (bar charts, histograms) and statistical analysis (Chi-Squared) of contrasting disaster events.
(7)	Critical analysis of projections/predictions including reasons for range and error bars.
(8)	Analysis of large data sets and the use of indices and scaling.
(9)	Analysis of proportional flow diagrams and proportional symbols to investigate changing global trade patterns/patterns of migration.
(10)	Analysis of network maps to understand degree of connectivity.
(11)	Interpretation of population pyramids for contrasting countries, and analysis of population pyramid change over time.
(12)	Calculation of mean, mode, median and range using pollution data sets.

Unit 2: Geographical Investigations

IAS compulsory unit

Externally assessed

2.1 Unit description

This unit has two compulsory topics. Topic 1: Crowded Coasts involves a detailed study of the physical processes and systems in coastal environments. Topic 2: Urban Problems, Planning and Regeneration considers the challenges of living and working in cities, where the majority of the world's population now live. Both of these topics have a local focus, which should be reinforced through the use of local geographical investigations.

Students must carry out a geographical investigation which includes both research and fieldwork, in relation to Topic 1: Crowded Coasts **or** Topic 2: Urban Problems, Planning and Regeneration. This should include the use of secondary research sources and primary data collection. Additional details are provided in *Appendix 8: Geographical investigation*. This will be assessed in the Unit 2 examination paper – Sections B and C.

2.2 Assessment information

- First assessment: June 2017.
 - The assessment is 1 hour and 30 minutes.
 - The assessment is out of 60 marks.
 - The assessment consists of Sections A, B and C.
 - A Resource booklet is provided for Sections A and C.
 - Calculators may be used in the examination. Please see *Appendix 6: Use of calculators*.
 - Students must answer **all** questions in Sections A and B and **one** question in Section C.
 - Section A consists of data response and short-answer questions on Topic 1: Crowded Coasts **and** Topic 2: Urban Problems, Planning and Regeneration.
 - Section B consists compulsory short-answer questions on research and fieldwork investigation (familiar context).
 - Section C consists of a choice of **one** unfamiliar context fieldwork question, broken down into short-answer questions, on **either** Topic 1: Crowded Coasts **or** Topic 2: Urban Problems, Planning and Regeneration.
-


2.3 Topic 1: Crowded Coasts

Overview

Physical processes are important in shaping coastlines. This topic allows for an in-depth investigation of how geological structure and lithology influence coastal landforms and how these are also shaped by weathering, erosion, mass movement and deposition processes. The focus of this topic is physical geography, but this is extended to include an assessment of the risks of living on coastlines threatened by erosion and flooding, as well as rapid human development. Consideration should also be given to how coastlines can be managed in a sustainable way in an era of rising sea levels. There are a wide range of opportunities for research and fieldwork including on hard and soft rock coasts, investigating coastal ecosystems, the pressures from coastal development as well as the success of coastal management schemes.

2.3.1 Coastal processes	Enquiry question: What is the coastal zone and how is it influenced by geology and marine processes?
Key idea	Detailed content
The coast, and wider littoral zone, has distinctive features and landscapes	<ul style="list-style-type: none"> The littoral zone consists of backshore, nearshore and offshore zones and is a dynamic zone of rapid change. Coasts can be classified by using criteria such as geology (resistant/less resistant), high or low energy, changes of sea level, relief (cliffed or coastal plains) and sediment type.
Geological structure influences the development of coastal landscapes	<ul style="list-style-type: none"> Geological structure is responsible for the formation of concordant and discordant coasts. Geological structure (jointing, dip, faulting, folding) is an important influence on coastal morphology, erosion rates and the formation of cliff profiles and the occurrence of micro-features such as caves.
Rates of coastal recession and stability depend on lithology and other factors	<ul style="list-style-type: none"> Bedrock lithology (igneous, sedimentary, metamorphic) and unconsolidated material geology are important in understanding rates of coastal recession. Differential erosion of alternating strata in cliffs (permeable/impermeable, resistant/less resistant) produces complex cliff profiles and influences recession rates.

2.3.2 Coastal landscapes and landforms	Enquiry question: How do physical processes produce coastal landforms and landscapes?
Key idea	Detailed content
Marine processes are major influences on coastal development	<ul style="list-style-type: none"> • Different wave types (constructive/destructive) influence beach morphology and beach sediment profiles, which vary seasonally. • Erosion processes (hydraulic action, abrasion, attrition), rock type (resistant, less resistant) and structure (strata, faults, joints) influence cliff profiles and erosion rates.
Coastal landforms are formed by erosion and sub-aerial processes	<ul style="list-style-type: none"> • Erosion creates distinctive coastal landforms (wave cut notch, wave cut platform, cliffs, cave-arch-stack-stump sequence). • Sub-aerial processes of weathering (biological, chemical, mechanical) and mass movement (rockfalls, rotational slides) are important in landform formation.
Sediment transport and deposition are important in coastal development	<ul style="list-style-type: none"> • Sediment transportation (longshore drift) and the processes of deposition produce distinctive coastal landforms (deltas, spits, barrier beaches and bars). • The Sediment Cell concept (sources, transfers and sinks) is important in understanding the coast as a holistic system.

2.3.3 Coastal ecosystems and environments	Enquiry question: How do coastal ecosystems develop, what is their value and how are they threatened?  To be studied through local place contexts in one or more stretches of coastline, which may be linked to research and fieldwork investigation.
Key idea	Detailed content
Plant succession and vegetation help stabilise many coastal environments	<ul style="list-style-type: none"> • Plant succession is important in stabilising areas of deposition (sand dunes and salt marshes) and providing coastal protection. • Mangrove swamps and coral reefs are important coastal ecosystems on many tropical coasts, providing a range of locally important ecosystem services, economic opportunities and coastal protection.
Coastal ecosystem services are threatened by human activity	<ul style="list-style-type: none"> • Coastal ecosystems are threatened by local factors (coastal development, pollution, unsustainable fishing practices and resource extraction, alien species) leading to loss of ecosystem value. • Global threats to coastal ecosystems include rising water temperatures (coral bleaching), rising sea levels and ocean acidification, which can threaten local livelihoods.

2.3.3 Coastal ecosystems and environments (continued)	<p>Enquiry question: How do coastal ecosystems develop, what is their value and how are they threatened?</p> <p>🌐 To be studied through local place contexts in one or more stretches of coastline, which may be linked to research and fieldwork investigation.</p>
Key idea	Detailed content
Economic development at the coast has costs and benefits	<ul style="list-style-type: none"> • Rapid urbanisation and tourism development in coastal areas leads to direct loss of coastal ecosystems, degradation of the wider coastal zone (urban and industrial pollution) and loss of local identity. • Land reclamation and the creation of artificial coastal islands is important in some locations but has economic and environmental costs and benefits.

2.3.4 Managing coastal change	<p>Enquiry question: How can coastlines be managed in a sustainable way?</p> <p>🌐 To be studied through local place contexts in one or more stretches of coastline, which may be linked to research and fieldwork investigation.</p>
Key idea	Detailed content
There are both hard and soft engineering approaches used to manage the coastline	<ul style="list-style-type: none"> • Hard engineering approaches (groynes, sea walls, rip rap, revetments, offshore breakwaters) are economically costly, directly alter physical processes and systems, and can affect erosion rates downdrift with consequences for people and property. • Soft engineering approaches (beach nourishment, cliff re-grading and drainage, dune stabilisation) attempt to work with physical systems to protect coasts.
Coastal management can lead to conflict, but this can be reduced	<ul style="list-style-type: none"> • Policy decisions can lead to conflicts between different players (homeowners, local authorities, environmental pressure groups, planners) perceived to be winners or losers and affecting local communities. • Cost Benefit Analysis (CBA) and Environmental Impact Assessment (EIA) are used as part of the coastal management decision-making process but these may not represent the feelings of local people.
Sustainable policies and defences are now more commonly used	<ul style="list-style-type: none"> • Sustainable coastal defences (beach nourishment, beach profiling, dune stabilisation) accommodate, copy or work alongside natural systems and processes. • Sustainable management is designed to cope with future threats (increased storm events, rising sea levels) but its implementation can lead to local conflict.

2.4 Topic 2: Urban Problems, Planning and Regeneration

Overview


Urban environments are frequently locations of both rapid change and inequality. Stark differences exist in quality of life both in and between urban areas with wealth and poverty often segregated. City planners and managers often struggle to manage rapid urban development and change, both in terms of growth and decline. Transport issues are a key challenge in cities at all levels of development. This topic allows for in-depth investigation of housing issues in both developed and developing world cities, as well as consideration of the variety of approaches to managing demand for housing. Urban change leads to the need to redevelop and regenerate urban areas but this is often a contested process. There are a wide range of potential research and fieldwork opportunities in this topic, including comparing quality of life and housing in an urban area, investigating transport issues and their effects and evaluating the success of transport management, regeneration and housing provision schemes.

2.4.1 Urban social and environmental issues	Enquiry question: What are the environmental and social problems facing cities in the developed and developing world?
Key idea	Detailed content
Housing provision is a major challenge in growing urban areas	<ul style="list-style-type: none"> The imbalance between housing demand and supply in some cities has led to affordability issues and other problems (income deprivation, homelessness, overcrowding). Lack of housing in developing and emerging world cities has led to the growth of slum housing (squatter and shanty settlements) and urban sprawl with implications for urban planning.
Poor service provision can lead to impacts on human and environmental health	<ul style="list-style-type: none"> The lack of affordable services (water, sanitation, electricity) in slum housing areas has implications for human health (disease incidence, life expectancy) and incomes for some communities. Solid waste management is a major issue in many developing and developed world cities (illegal dumping, landfill costs and environmental impacts, street collectors and recycling).
Cities often exhibit stark economic and social inequalities	<ul style="list-style-type: none"> The formal and informal economies in developing cities exhibit very different working conditions, rate of pay, security and human rights and help explain urban inequality. The development of gated communities is both a reflection of and response to the income and opportunity inequalities in many cities in the developed and emerging worlds.

2.4.2 Transport issues in cities	<p>Enquiry question: Why has transport become a key issue in many cities and how can it be best managed?</p> <p>🌐 To be studied through local place contexts in one or more urban areas, which may be linked to research and fieldwork investigation.</p>
Key idea	Detailed content
Urban transport is a major source of pollution in many cities	<ul style="list-style-type: none"> Industrialisation, economic development and rising affluence have led to rapid increases in motor vehicle numbers in cities (motorbikes, cars, goods vehicles). Urban air pollution (particulate matter, low level ozone, NOx) levels are partly explained by increases in transport pollution as well as physical factors and other sources (domestic, industrial).
Transport problems have consequences for people and the urban environment	<ul style="list-style-type: none"> Traffic congestion has implications for urban economic development and human wellbeing (stress, pollution exposure, length of the working day). Air pollution levels are considered unsafe (WHO standards) in some cities with implications for human health, especially for some groups (old, young people).
There are a range of solutions to urban transport issues	<ul style="list-style-type: none"> Major infrastructure projects may reduce urban transport problems (light rail, metro, major road developments) but these have costs and benefits. Planning solutions also attempt to reduce car use and/or emissions (congestion charging, pedestrianisation, park and ride, no-drive days, road pricing) with mixed success.

2.4.3 Urban planning	<p>Enquiry question: How significant is the 'housing crisis' in developing and developed world cities and how can it be reduced?</p>
Key idea	Detailed content
Public housing is one solution to the housing crisis	<ul style="list-style-type: none"> Public housing has its origins in the European industrial revolution, and is a major component of housing stock in some developed and emerging world cities. Public housing provision varies between cities in terms of availability, quality and affordability.
NGO and community action can help improve housing stock	<ul style="list-style-type: none"> Informal slum housing and service provision can be improved by residents and community action through the process of consolidation over time. NGO and community groups play a role in improving housing and services in slum areas in developing world cities, and providing affordable housing in developed cities.

2.4.3 Urban planning (continued)	Enquiry question: How significant is the 'housing crisis' in developing and developed world cities and how can it be reduced?
Key idea	Detailed content
Large-scale 'ideal' cities have been planned with mixed success	<ul style="list-style-type: none"> Planning 'ideal' cities has a long history (garden cities, new towns, new capital cities) with the aim of minimising the social and environmental problems of traditional cities. Eco-cities focus on reducing urban ecological footprints (transport, water use, waste and recycling) and providing a high-quality urban environment, but they are not widespread.

2.4.4 Urban regeneration	Enquiry question: How can the social, economic and environmental aspects of urban areas be improved by regeneration?  To be studied through local place contexts in one or more urban areas, which may be linked to research and fieldwork investigation.
Key idea	Detailed content
Different players have contrasting roles in urban regeneration	<ul style="list-style-type: none"> Urban regeneration involves the renewal of run-down, derelict or unused urban space to improve economic, social and environmental conditions. Planners, local government, businesses and residents all play contrasting roles in regeneration and may have conflicting needs and aims.
There are contrasting approaches to regeneration	<ul style="list-style-type: none"> Large-scale infrastructure projects (sporting events, expos, tourism development) are often the catalyst for regeneration, re-imaging and rebranding. Smaller-scale regeneration projects focus on improving communities (housing, education and skills, employment opportunities) and increasing local representation.
Sustainability is a key part of urban regeneration schemes	<ul style="list-style-type: none"> Both small and large-scale regeneration projects have varying costs and benefits (economic, social and environmental) for different groups involved. Urban regeneration increasingly focuses on urban sustainability in terms of resource consumption, social equality, community identity and representation and pollution reduction.

Research and fieldwork

IAS students must complete a minimum of **two** days of fieldwork (excluding research time). Research and fieldwork must be carried out in relation to processes in physical geography (Topic 1: Crowded Coasts) **or** human geography (Topic 2: Urban Problems, Planning and Regeneration), and can be undertaken at locations entirely of the centre's own choosing.

Authentication of fieldwork

Centres will be required to provide evidence of this fieldwork in the form of a written fieldwork statement. See *Appendix 9: Fieldwork statement*. The fieldwork statement represents a true and accurate written declaration made by a centre to Pearson, confirming that a student to which that centre has offered the IAS Geography assessment has undertaken geographical fieldwork over two days. Pearson will publish the final deadline date for submission of this form on our website. Failure to return the fieldwork statement on time will constitute malpractice on the part of the centre, see *page 73*.

Fieldwork and exceptional circumstances

Pearson recognises that for some centres and/or individuals, fieldwork (specifically first-hand data-collection activities) can be constrained by:

- geographical location/physical nature of the region
- cultural/religious exceptions
- illness
- physical disability, or
- security.

In these rare circumstances other fieldwork data could be used instead, e.g. from another agency/organisation, books/magazines or from other students who were able to collect the data themselves (including from previous cohorts). All other aspects of the geographical investigation process should remain unchanged for those students who have not collected their own data. These students should work with the substitute data, e.g. graphing, analysis, conclusions, evaluations, etc., as if it were their own. When exceptional circumstances are employed as part of the fieldwork process, either for an individual, group or cohort, centres must justify their particular circumstances to Pearson through the teacher and student support provided by Pearson to help you deliver our qualifications. For details, please visit our website.

Research and fieldwork will be assessed in the Unit 2 examination paper – Sections B and C. These questions will assess the geographical investigation process through **familiar and unfamiliar*** contexts. The required knowledge, understanding and skills are provided in *Appendix 8: Geographical investigation*.

*

Familiar	Questions related directly to the students' own fieldwork experience in a particular location and/or environment.
Unfamiliar	Questions based on unseen resources (e.g. tables of data, photographs, maps, etc.), but in a similar context/environment linked to the specification.

The following themes are recommended to help students meet the research and fieldwork requirement:

Topic 1: Crowded Coasts

Students could investigate questions relating to the following themes, and then use those questions to devise an appropriate methodology:

2.3.3 Coastal ecosystems and environments

Enquiry question: How do coastal ecosystems develop, what is their value and how are they threatened?

- A research (secondary data) and fieldwork (primary data) investigation into the development and structure of sand dune, salt marsh or mangrove coastal ecosystems and an evaluation of the types and impacts of human activities threatening the coastal ecosystem.

2.3.4 Managing coastal change

Enquiry question: How can coastlines be managed in a sustainable way?

- A research (secondary data) and fieldwork (primary data) investigation into the flood and/or erosion risk facing a stretch of coastline and an evaluation of the success of management measures and defences implemented to mitigate risk.

Topic 2: Urban Problems, Planning and Regeneration

Students could investigate questions relating to the following themes, and then use those questions to devise an appropriate methodology:

2.4.2 Transport issues in cities

Enquiry question: Why has transport become a key issue in many cities and how can it be best managed?

- A research (secondary data) and fieldwork (primary data) investigation into the impacts of transport problems in an urban area and an evaluation of the strategies used to manage the situation.

2.4.4 Urban regeneration

Enquiry question: How can the social, economic and environmental aspects of urban areas be improved by regeneration?

- A research (secondary data) and fieldwork (primary data) investigation into the impacts of an urban regeneration scheme and an evaluation of the success of the scheme in social and/or economic terms.

It is crucial that students have access to appropriate opportunities for meaningful research. Teachers must also ensure that the fieldwork activities and environments experienced by students allow them to develop and demonstrate the full range, variety and diversity of skills required.

Centres must ensure that:

- the chosen research and fieldwork investigation is appropriately linked to at least one of the enquiry questions in Topic 1 or Topic 2
- the investigation involves collecting a range of primary data, using both suitable quantitative and qualitative techniques
- secondary sources of data are available for students to use, and these can assist with answering key questions/hypotheses and provide a geographical context for the investigation
- the methods chosen for primary data collection yield data that can be presented and analysed in appropriate ways, including numerically and statistically.

Health and safety in fieldwork

All centres need to comply with the requirements of their national or local government regarding fieldwork as well as noting the recent legislation and codes of practice produced for schools and colleges in England (2014);

1. *Department for Education health and safety advice for schools* (www.gov.uk/government/publications/health-and-safety-advice-for-schools)
2. Health and Safety Executive – School trips and outdoor learning activities: Tackling the health and safety myths (www.hse.gov.uk/services/education/school-trips.pdf).

In terms of operational good practice, the most up-to-date reference is 'National guidance for the management of outdoor learning, off-site visits and learning outside the classroom' by the Outdoor Education Advisers' Panel (OEAP England and Wales). These documents provide essential guidance, by role, for all those who might be involved in any aspect of off-site fieldwork. It has a clear and simple format and addresses the basic essentials such as making the case; legal framework; good practice and frequently asked questions.

Centres should develop, based on the above, their own mechanisms to emphasise to students the importance of ensuring their own safety and that of others. This should include developing risk assessments as part of the preparation for fieldwork, for example by using Google Maps and Google StreetView to assess hazards and risk. Students working alone should be given additional information and guidance and the centre must have suitable policies and procedures for lone working, as students are required to complete their own risk assessments. All students, not just those undertaking 'lone working', are required to complete a risk assessment for the fieldwork in which they are involved.

Teachers may offer students specific advice on the availability of equipment and on how to collect data in a safe manner at all times. Teachers should discuss relevant health and safety issues with students, for example personal safety along rivers and coasts, as well as safety when conducting questionnaires in urban areas.

Unit 3: Contested Planet

IA2 compulsory unit

Externally assessed

3.1 Unit description

This unit has two compulsory topics – A1: Atmosphere and Weather Systems **and** A2: Biodiversity Under Threat. These topics focus on physical processes and how processes generate patterns and problems in the natural environment. Issues of managing weather hazards and managing biodiversity loss are also considered.

Two further topics should be chosen, **either** Topic B1: Energy Security **or** Topic B2: Water Conflicts. These topics consider in detail a key human resource, in terms of its distribution and use, and real and potential problems resulting from its development and utilisation.

Finally, **either** Topic C1: Superpower Geographies **or** Topic C2: Bridging the Development Gap can be studied. These are economic and political options considering global power, inequality and development from opposite ends of the development spectrum.

3.2 Assessment information

- First assessment: January 2018.
 - The assessment is 2 hours.
 - The assessment is out of 90 marks.
 - The assessment consists of Sections A, B and C.
 - A Resource booklet is provided.
 - Calculators may be used in the examination. Please see *Appendix 6: Use of calculators*.
 - Section A consists of longer/guided essay questions and a synoptic question on:
 - Topic A1: Atmosphere and Weather Systems
 - Topic A2: Biodiversity Under Threat.
 - In Section B, students have a choice of **one** data response/essay question from **two** topics:
 - Topic B1: Energy Security **or** Topic B2: Water Conflicts.
 - In Section C, students have a choice of **one** data response/essay question from **two** topics:
 - Topic C1: Superpower Geographies **or** Topic C2: Bridging the Development Gap.
-

3.3 Topic A1: Atmosphere and Weather Systems

Overview

This topic is focused on the atmosphere and how physical systems generate climate zones and weather systems which vary spatially and temporally across the Earth's surface. It involves a detailed investigation of the characteristics of the atmosphere and the movement of air and air masses in it as part of a global overview. Hazardous weather systems form in different ways in contrasting locations but can have severe impacts on human populations both in the short and long term. Effective management of extreme weather increasingly involves the use of technology in terms of forecasting, prediction and mitigation but also involves a multi-agency approach to management both regarding long-term planning and shorter-term response.

3.3.1 Global atmospheric circulation	Enquiry question: What are weather and climate and how are they influenced by the global climate system?
Key idea	Detailed content
Weather takes place within the context of the general circulation of the atmosphere	<ul style="list-style-type: none">• Definitions of weather and climate; the structure and composition of the atmosphere and the role different gases play in climate.• The general circulation of the atmosphere, and ocean circulation, redistributes heat energy across the planet and influences the locations of high and low pressure areas. (1)
Precipitation and air masses are important in understanding weather	<ul style="list-style-type: none">• Different types of precipitation and the causes of orographic, frontal and convectional rainfall.• The sources, characteristics, tracks and modification of equatorial, tropical, polar and arctic air masses.
Seasonal variations in global circulation affect climate and weather systems	<ul style="list-style-type: none">• The concept of the migration of the heat equator and seasonal variations in the position of ITCZ and its impacts of temperature and precipitation (including monsoons). (2)• The impact of the polar front and polar front jet stream and Rossby waves on mid-latitude weather.

3.3.2 Extreme weather hazards	Enquiry question: What causes extreme weather events?
Key idea	Detailed content
Mid-latitude weather hazards are associated with high and low pressure systems	<ul style="list-style-type: none"> The formation of depressions and their impact on weather conditions due to their passage and fronts, including wind damage and flooding (🌍 Northern Europe). (3) The formation of anticyclones and blocking anticyclones and their impact on the weather including heat waves, drought and elevated pollution levels. (3)
Tropical cyclones are a major short-term weather hazard	<ul style="list-style-type: none"> The physical conditions and processes leading to the formation of tropical cyclones, including their tracks and eventual dissipation (🌍 Atlantic Basin). (4) Hazards associated with tropical cyclones (wind speed, intense rainfall, storm surge, waves) and the impacts on coastal communities (🌍 North Atlantic Basin or Pacific Basin).
Drought is a longer-term weather hazard	<ul style="list-style-type: none"> The nature of drought as a longer-term hazard and its causes (precipitation trends, land-use change, possible links to global warming) (🌍 Sahel). (5) The impact of drought on river discharge, soil moisture and groundwater supplies and on economic and social wellbeing.

3.3.3 Managing extreme weather	Enquiry question: How are the risks of extreme weather managed by different players and technologies?
Key idea	Detailed content
Forecasting and response are important in reducing impacts	<ul style="list-style-type: none"> The role and accuracy of forecasting technologies (satellites, ground stations, radar, computer modelling) in predicting weather and extreme events. The role of different groups in managing extreme weather (planners and land-use zoning, first responders, community groups, NGOs and aid organisations).
Tropical cyclone prediction and mitigation can reduce impacts	<ul style="list-style-type: none"> The importance of prediction, warning and evacuation (cyclone shelters, hazard-resistant design) as responses to tropical cyclones and the varying success of these (🌍 developed, emerging and developing world contrasts). The role of hard engineering (levees, flood walls, embankments) and the problems of their use in developing world contexts.

3.3.3 Managing extreme weather (continued)	Enquiry question: How are the risks of extreme weather managed by different players and technologies?
Key idea	Detailed content
A variety of approaches are needed to manage weather hazards successfully	<ul style="list-style-type: none"> • Long-term and short-term strategies to cope with drought (water management and conservation, adaptive farming techniques, water transfers and short-term aid) (🌐 Sahel and Australia). • The importance of governance in extreme weather management, and the successes and limitations of aid as a response to large-scale droughts and tropical cyclone disasters.

3.4 Topic A2: Biodiversity Under Threat

Overview

This topic explores the key relationship between ecosystem wellbeing and human wellbeing. In an increasingly urban and industrial world it is easy to overlook the role ecosystems play in maintaining planetary health through ecosystem services. The degradation of ecosystems and biodiversity has implications for physical systems and human populations. This topic should be studied with references to one terrestrial biome in Section 3.4.2, but this biome could also be used to exemplify 3.4.1 and 3.4.3 alongside a broader overview of global biodiversity and its management. Management of biodiversity occurs at all scales from local to global, and this topic allows for a consideration of which approaches are likely to be most successful.

3.4.1 Biodiversity patterns	Enquiry question: What is the nature and value of biodiversity?
Key idea	Detailed content
Biodiversity can be defined in different ways	<ul style="list-style-type: none"> The different ways of defining biodiversity in terms of genetic, species and ecosystem diversity and the merits of each. The processes and factors that influence biodiversity (climate limiting factors, isolation and the role of endemism, age and area, human activity and actions).
The distribution of biodiversity depends on a range of factors	<ul style="list-style-type: none"> The global distribution of terrestrial biomes is related to climate, but local factors (altitude, soils, drainage) also play a role. (6) The global distribution of biodiversity and threatened biodiversity hotspots reveals important patterns suggesting pivotal areas exist.
Ecosystem services is an important concept	<ul style="list-style-type: none"> Ecosystems have value and importance in terms of biodiversity and ecological resources (supporting, provisioning, cultural and regulating services). The value of ecosystems is both locally and globally important, but is not equally valued by all people.

3.4.2 Threats to biodiversity	<p>Enquiry question: What factors and processes threaten biodiversity?</p> <p>This section should be studied by drawing examples from ONE terrestrial biome 🌐, such as tropical rainforests, tropical grasslands or temperate forests.</p>
Key idea	Detailed content
Key processes operate in ecosystems, maintaining their health	<ul style="list-style-type: none"> Ecosystem processes (energy flow and nutrient cycles) are important in maintaining the health of ecosystems and biodiversity. (7) These processes can be disrupted by human activity (hunting, over-exploitation, deforestation and pollution) as well as by the introduction of alien invasive species.
There are both local and global threats to biodiversity	<ul style="list-style-type: none"> Global factors threaten biodiversity and ecosystems (demand for resources, rising affluence, climate change). Local threats are often related to economic development (tourism, pollution, urbanisation, farm expansion) and direct ecosystem exploitation, as well as local attitudes to ecosystems. (8)
Conservation of ecosystems is not universal	<ul style="list-style-type: none"> The link between economic development and ecosystem destruction/degradation versus conservation is complex (environmental Kuznets curve concept). Attitudes to conservation depend on perceptions of value (keystone versus iconic species, financial gains from conservation areas).

3.4.3 Managing biodiversity	<p>Enquiry question: How can ecosystems and biodiversity be managed successfully?</p>
Key idea	Detailed content
Decisions about ecosystem management are made by a range of players	<ul style="list-style-type: none"> The concept of sustainable yield is a way of determining the 'safe' use of ecosystems, and is used to inform decisions about conservation, management and development. The role of different players (individuals, interest groups, international organisations) is important in managing biodiversity but their views may conflict.
Both local and global approaches can be used in conservation	<ul style="list-style-type: none"> There is a spectrum of local strategies and policies (total protection, national parks, sustainable reserves) for managing biodiversity, each with advantages and disadvantages (🌐 place contexts in the biome chosen for 3.4.2). Global approaches and frameworks are also important (UNESCO Biosphere Reserves, CITES, Biodiversity Action Plans) but require funding, monitoring and policing to be successful.

3.4.3 Managing biodiversity (continued)	Enquiry question: How can ecosystems and biodiversity be managed successfully?
Key idea	Detailed content
Extreme measures may not be enough to save ecosystems and their species	<ul style="list-style-type: none"> • Ecosystem restoration and ex-situ conservation are the most extreme forms of conservation but these approaches are costly and may not be successful. • The future of biodiversity is uncertain due to a range of factors (funding for conservation, global demand for resources, future environmental change).

3.5 Topic B1: Energy Security

Overview

Energy is a key human need, but one that is demanded in increasing quantity globally. A wide variety of energy resources are used, both renewable and non-renewable, but their availability is usually determined by physical geography and supply is very uneven. A complex, but in some cases vulnerable, network of connections moves energy from areas of supply to the location of demand. Despite this, many people experience energy poverty. This topic allows a wide range of energy resources to be considered in terms of the impacts of their exploitation and use. It also includes a consideration of how future energy demands can be met while at the same time minimising the environmental consequences of energy use.

3.5.1 Energy supply, demand and security	Enquiry question: Why is energy security a key economic and development goal for countries?
Key idea	Detailed content
Energy sources can be classified in different ways, and their use varies widely	<ul style="list-style-type: none"> Energy sources can be classified in different ways (renewable, recyclable, non-renewable, primary or secondary) and energy use varies according to level of development. Access to and use of energy resources depends on a range of factors (physical availability, cost, technology, public perception, environmental priorities) and varies spatially.
As well as rising global demand, distribution of energy resources is uneven	<ul style="list-style-type: none"> Demand for energy is growing globally, especially in emerging and developing regions causing economic and social changes and with environmental implications. The physical distribution of energy resources means some regions have energy surpluses and some deficits (9) leading to global trade in energy and contrasting national energy mixes (🌐 developed, emerging and developing countries). (10)
Energy security varies, as does the security of pathways	<ul style="list-style-type: none"> There are variations in the degree of energy security between countries due to economic, reliability and resource factors (domestic versus foreign energy sources) (🌐 developed, emerging and developing countries). Energy pathways (pipelines, shipping routes, road, rail, transmission lines) can be disrupted by physical, economic and geopolitical events reducing security.

3.5.2 The impact of energy use	Enquiry question: What are the consequences of the continued reliance on fossil fuels to drive economic development?
Key idea	Detailed content
The future supply of affordable fossil fuels is uncertain	<ul style="list-style-type: none"> • There is uncertainty over global energy supply (peak oil and gas, data on oil reserves) and affordability (oil price fluctuations over time) with implications for some people. (11) • Fossil fuel demand depends on a range of factors (economic growth rates, population and affluence, switch to renewables, attitudes to the environment), which are uncertain.
Major energy players are key to supply continuity	<ul style="list-style-type: none"> • Players in energy supply (OPEC, TNCs and supermajors, state-owned companies) are important in terms of securing new energy supplies, trade and pathways and influencing energy prices. • The development of unconventional fossil fuels (tar sands, deep water oil, shale gas) have environmental and economic costs and benefits (🌐 Athabasca and USA).
Global energy demand has implications for the carbon cycle	<ul style="list-style-type: none"> • Fossil fuel use has implications for the carbon cycle (release of geological carbon into the atmosphere, ocean acidification) and global climate and the health of ecosystems. • Biofuels (biodiesel, bioethanol) are considered by some to be a 'carbon neutral' alternative to fossil fuels, but this is open to question as is their wider impact on land use and food supply (🌐 Indonesia).

3.5.3 Energy security and the future	Enquiry question: What are the advantages and disadvantages of alternative energy sources?
Key idea	Detailed content
Nuclear power is a contested energy source	<ul style="list-style-type: none"> • Global and regional trends in nuclear electricity use show differences in attitudes and perceptions to the energy source. • There are complex costs and benefits of nuclear power (low operational carbon emissions, high costs, waste management and decommissioning, geopolitical risks) (🌐 China or France).
Renewable energy alternatives are increasingly popular	<ul style="list-style-type: none"> • Renewable energy (wind, solar, HEP) is increasing in popularity and could help decouple economic growth from carbon emissions, but is often physically constrained. • Renewable sources have costs and benefits socially, economically and environmentally and in terms of security of supply (🌐 developed, emerging and developing countries). (12)

3.5.3 Energy security and the future (continued)	Enquiry question: What are the advantages and disadvantages of alternative energy sources?
Key idea	Detailed content
Radical approaches may be needed to balance energy demand with environmental concerns	<ul style="list-style-type: none"> • Radical technologies, including carbon capture and storage and alternative energy sources (hydrogen fuel cells, EVs) have potential, but the extent of this is unknown. • Energy conservation and efficiency (in homes, industry and transport) is an alternative approach that could help balance economic and environmental needs.

3.6 Topic B2: Water Conflicts

Overview

Water is a fundamental human resource for which there is no alternative. Water resources are largely determined by physical geography, which means availability varies spatially to a considerable extent. Humans interfere with the water cycle to access water resources but at the same time can alter both the quantity and quality of water resources available. Because water is so vital to human development efforts to secure supplies involve a wide range of technologies, the use of which has the potential to cause conflict and environmental impacts. Managing water supply to secure it for populations in need is a key goal for the future and there are contrasting approaches to achieving it.

3.6.1 Water supply geography	Enquiry question: What are the physical and human causes of water scarcity?
Key idea	Detailed content
Physical processes are important in water supply	<ul style="list-style-type: none"> The hydrological cycle is a closed system (inputs, outputs, stores, flows) driven by solar energy and gravitational potential energy. Local water supply (precipitation, surface and groundwater) is controlled by physical factors (climate, geology, surface processes). (9)
Water supply can be affected by human and physical changes	<ul style="list-style-type: none"> Water insecurity can be caused by physical factors (climate variability, coastal salt water encroachment). Human factors influence water quality and quantity and security (over-abstraction from rivers, lakes and aquifers, water contamination and pollution from farming and industry) (🌐 developed, emerging and developing countries).
Rising water demand is linked to development	<ul style="list-style-type: none"> Demand from domestic, industrial and agricultural sectors varies between countries, as do the sources of water used (rivers, lakes, aquifers) (🌐 developed, emerging and developing countries). (10) Rising demand (population growth, increasing affluence, food demand) is leading to increased risk of water insecurity in some locations but also uncertainty. (11)

3.6.2 Water insecurity	Enquiry question: What are the consequences and risks associated with water insecurity?
Key idea	Detailed content
Physical and economic water scarcity have different causes	<ul style="list-style-type: none"> • The global pattern of physical water stress/scarcity is closely related to physical factors and the global climate circulation. • Patterns of economic water scarcity are related to levels of development, and factors influencing the local price of water.
Water is a crucial component in economic and human development	<ul style="list-style-type: none"> • Water is a vital component of development (use for energy generation, industry and food production) and lack of water can hinder development progress (🌐 India or a Sahelian country). • Human health (disease incidence, LE, IMR) is affected by lack of access to clean water and sanitation, the pattern of which varies globally.
Water supply can be a source of conflict	<ul style="list-style-type: none"> • In water insecure regions, conflict can occur due to unsustainable use of water (groundwater mining, river extraction) and between competing users of the same source (🌐 Ganges and Nile). • Transboundary international water supplies can lead to conflict, especially in water-stressed regions and ones with pre-existing tensions.

3.6.3 Water conflicts and the future	Enquiry question: What are the most sustainable ways to meet present and future water demand?
Key idea	Detailed content
Major engineering schemes are used to manage water supply	<ul style="list-style-type: none"> • Large dams and reservoirs have economic, social and environmental impacts, especially when they are multi-purpose (water and energy supply, flood control, navigation) (🌐 developed, emerging and developing countries). • Water transfers from surplus to deficit regions have costs and benefits and may result in conflict (🌐 developed, emerging and developing countries). (12)
Desalination and water conservation are alternative approaches	<ul style="list-style-type: none"> • Desalination is an increasingly popular choice in areas of physical water scarcity but there are costs and environmental issues to be considered. • Water conservation (national schemes, household level, smart irrigation and grey water recycling) may represent a more sustainable approach to managing finite supply.

3.6.3 Water conflicts and the future (continued)	Enquiry question: What are the most sustainable ways to meet present and future water demand?
Key idea	Detailed content
Intermediate technology and water sharing can increase supply and reduce conflict	<ul style="list-style-type: none"> • In areas of low water supply and low incomes intermediate technology solutions in urban and rural areas may improve water supply and human wellbeing. • International agreements can be used to promote equitable sharing of transboundary water resources (Helsinki and Berlin rules) but these may be hard to implement.

3.7 Topic C1: Superpower Geographies

Overview

Superpowers and emerging powers develop by acquiring different types of geopolitical power and influence and have different characteristics. The pattern of dominance, and number of powerful countries, has changed over time. Superpowers and emerging superpowers have a very significant impact on the global economy, global politics and the environment, and there are implications for countries as patterns of power change over time. The spheres of influence between these powers are frequently contested, with geopolitical implications. This topic allows for a detailed investigation of patterns of geopolitical power in the past and today, and how these patterns may change in the future.

3.7.1 Superpowers and emerging powers	Enquiry question: What are superpowers and how have they changed over time?
Key idea	Detailed content
Geopolitical power stems from a range of characteristics of superpowers	<ul style="list-style-type: none"> • Superpowers, emerging and regional powers can be defined using contrasting characteristics (economic, political, military, cultural and demographic). • Mechanisms of maintaining power sit on a spectrum from 'hard' to 'soft' power, which vary in their effectiveness and these change in importance over time (🌐 USA).
Patterns of power change over time and can be uni-, bi- or multi-polar	<ul style="list-style-type: none"> • In the imperial era power was maintained by direct colonial control (British Empire, multi-polar world 1919-1939). • Multi-faceted, indirect influence (political, economic, military, cultural), including neo-colonial mechanisms, has become more important (Cold War era; emergence of China as a potential rival to the USA's hegemony).
Emerging powers vary in their influence, which can change rapidly over time	<ul style="list-style-type: none"> • A number of emerging countries, including the BRICS and other G20 members, are considered increasingly important to global economic and political systems (🌐 China or India). • Emerging countries have evolving strengths and weaknesses (economic, political, military, cultural and demographic) that might inhibit or advance their economic and geopolitical role in the future. (13) (14)

3.7.2 The role of superpowers	Enquiry question: What are the impacts of superpowers on the global economy, political systems and the environment?
Key idea	Detailed content
Superpowers have a significant influence over the global economic system	<ul style="list-style-type: none"> TNCs (public and state-led) are dominant economic forces in the global economy in terms of technology (patents) and trade patterns. Superpowers influence the global economy (promoting free trade and capitalism) through a variety of IGOs (World Bank, IMF, WTO, WEF).
Superpowers and emerging nations play a key role in international decision making	<ul style="list-style-type: none"> Superpowers and emerging nations play a key role in global action (crisis response, conflict), often through the UN and its agencies, but some are more willing to act than others. Alliances, both military (NATO, ANZUS) and economic (EU, NAFTA, ASEAN) are important in geostrategy and global influence.
Global environmental concerns are disproportionately influenced by superpower actions	<ul style="list-style-type: none"> Superpower resource demands (food, fossil fuels, minerals) can cause environmental degradation and their carbon emissions contribute disproportionately to global warming (🌐 China and USA). (15) Future growth in middle class consumption in emerging superpowers has implications for the availability and cost of key resources (rare earths, oil, staple grains and water) (🌐 India or China). (16)

3.7.3 Superpower futures	Enquiry question: What spheres of influence are contested by superpowers and what are the implications of this?
Key idea	Detailed content
Global influence is contested in a number of different economic and geographical spheres	<ul style="list-style-type: none"> Tensions can arise over the acquisition of physical resources where ownership is disputed or over perceived geographical spheres of influence. The global system of intellectual property rights can be undermined by counterfeiting, which strains trade relations and TNC investment.
Developing nations have changing relationships with powerful countries	<ul style="list-style-type: none"> Developing economic ties between emerging powers and the developing world (🌐 China and African nations) bring both opportunities and challenges. Cultural, political and economic tensions (🌐 Middle East) represent an ongoing challenge to superpowers and emerging powers due to complex geopolitical relations combined with vital energy resources.

3.7.3 Superpower futures (continued)	Enquiry question: What spheres of influence are contested by superpowers and what are the implications of this?
Key idea	Detailed content
Existing superpowers face ongoing economic restructuring, which challenges their power	<ul style="list-style-type: none"> • Economic problems (debt, unemployment, economic restructuring, social costs) represent an ongoing challenge to the USA and EU. • The economic benefits of maintaining global military power (naval, nuclear, air power, intelligence services) and space exploration are questioned by some existing powers.

3.8 Topic C2: Bridging the Development Gap

Overview

The development gap is a key global issue. As developed and emerging countries have grown more affluent, some countries, regions and groups of people have become relatively less well off. This topic allows for an exploration of what development means and how it can be measured. Theoretical frameworks can also be used to help explain development, or lack of it. The consequences of the development vary between different groups of people and in different locations so ethnic, religious, urban versus rural and gender disparities should be explored. Just as the causes of disparity are complex, the number of potential solutions is large and these can be investigated in terms of scale, funding, location, technology and motivation contrasts.

3.8.1 The causes of the development gap	Enquiry question: What is the nature of the global development gap and how has it arisen?
Key idea	Detailed content
Development progress can be measured in different ways	<ul style="list-style-type: none"> The global development gap can be measured using single indicators (GDP p.c. (nominal and PPP), LE) or indices (HDI, GDI) with each having pros and cons. (13) Development differences at a global scale reveal complex patterns, and national scale differences also exist. (14)
There are a range of explanations for the development gap	<ul style="list-style-type: none"> Theoretical frameworks can be used to help explain the development gap globally and nationally (Dependency theory, Core-Periphery relations, Modernisation theory). Patterns of trade and investment, and terms of trade, are important in understanding lack of economic development in some places.
Governments play a key role in development progress	<ul style="list-style-type: none"> The role of governance and political stability are important in explaining the lack of development progress made by some LDC countries (🌐 Haiti or Somalia). Government policies and investment (infrastructure, education), FDI and other factors can help explain why some NIC countries have made rapid development progress (🌐 China or South Korea).

3.8.2 The consequences of the gap	Enquiry question: What are the consequences of the development gap for different groups of people?
Key idea	Detailed content
Disadvantaged groups exist in all societies	<ul style="list-style-type: none"> The development gap has social, economic, environmental and political consequences for people in LDCs, whose basic needs are not met. The gender dimension of development has consequences for women in some countries (lack of political representation and freedom, health, income and education disparity).
Development disparities can lead to broader social and political problems	<ul style="list-style-type: none"> The causes of ethnic and/or religious disparities in development in some countries, and consequences (segregation, persecution) (🌐 South Africa or Myanmar). Stark development differences can lead to social unrest and new political movements with consequences for countries or regions.
Urban areas and NICs have made development progress but there are costs	<ul style="list-style-type: none"> Urban areas often exhibit dramatic differences in development and urban quality of life with multiple causes (🌐 Mumbai or Sao Paulo). Impressive poverty reduction in some emerging countries has led to social and economic improvements but often with an environmental and human health cost. (15)

3.8.3 Closing the gap	Enquiry question: How can the development gap be reduced and by whom?
Key idea	Detailed content
Aid and debt are important in explaining development progress	<ul style="list-style-type: none"> Aid in a variety of forms (bilateral, multilateral, NGOs) can be used to promote development but it may be 'tied' and reflect the motives of donors. The issue of debt and debt sustainability (structural adjustment and HIPC policies) is important in explaining development progress or lack of it (🌐 an HIPC country).
There are contrasting approaches to development, each with pros and cons	<ul style="list-style-type: none"> Small-scale, bottom-up development projects using intermediate technology or Fairtrade have pros and cons in terms of applicability and degree of development progress. Large-scale, top-down development projects can be used to 'kick-start' development but these have costs and benefits for different groups.

3.8.3 Closing the gap (continued)	Enquiry question: How can the development gap be reduced and by whom?
Key idea	Detailed content
Global development agendas have had mixed success	<ul style="list-style-type: none"> • Progress against the 2000-2015 Millennium Development Goals reveal significant differences in terms of overall development progress, and toward specific targets (🌐 progress of MDGs in a named country). (16) • The Post-2015 Development Agenda (Sustainable Development Goals) provides a global framework for national action towards sustainable development in the future.

Integrating geographical skills in Unit 3

The following are suggestions as to where the skills outlined in *Appendix 7: Geographical skills* can be taught in Unit 3:

(1)	Analysis of global and regional scale maps showing distribution of precipitation, temperature and air pressure.
(2)	Interpretation of satellite imagery to identify meso-scale weather systems (depressions, blocking highs, tropical cyclones and the ITCZ location).
(3)	Analysis and interpretation of synoptic charts showing depressions and anticyclones.
(4)	Analysis and interpretation of maps (GIS, satellite) showing tropical cyclone tracks and characteristics (precipitation, wind speed, predicted path and uncertainty cone).
(5)	Analysis and interpretation of long-term rainfall trend data (mean, moving average, range, anomalies).
(6)	Use and interpretation of global scale maps showing distribution of biomes.
(7)	Interpretation of nutrient cycle diagrams (Gersmehl) and food webs showing energy flow by trophic level.
(8)	Use of local and regional scale maps, satellite images and GIS to identify threats to ecosystems and patterns of destruction and degradation.
(9)	Analysis and interpretation of global and regional scale maps (choropleth, cartogram) showing physical water or energy supply.
(10)	Use and interpretation of data (water demand or energy demand) presented in graphical (simple and compound bar charts/pie charts, line graphs, kite diagrams, triangular graphs) and tabular form, including large and complex data sets.
(11)	Critical evaluation of data sources of future water or energy supply/demand (numerical, textual, images) to identify issues of reliability, sources of error, validity and bias and how this affects future projections.
(12)	Cost-benefit analysis to understand the impacts of large-scale water supply or energy supply schemes.
(13)	Construction and interpretation of composite indices to measures superpower status or levels of development.
(14)	Use and interpretation of Gini coefficients and Lorenz curves as measures of inequality.
(15)	Recognition and interpretation of correlation (positive, negative, strength, anomalies, best-fit) using scattergraphs and Spearman's rank correlation (including calculation) using either data relating to superpowers or development.
(16)	Use and interpretation of Chi-Squared tests to calculate significant differences between countries in terms of development or superpowers.

Unit 4: Researching Geography

IA2 compulsory unit

Externally assessed

4.1 Unit description

Unit 4 is an opportunity for students to study one option in depth. Students must select and study one of the following research options:

- Option 1: Tectonic Activity and Hazards
- Option 2: Feeding the World's People
- Option 3: Cultural Diversity: People and Landscapes
- Option 4: Human Health and Disease.

In a centre, students could study the same or different options.

The four options allow for students to focus on physical geography and processes, or choose an option with a greater human geography focus. People–environment interactions are present in all options.

The chosen option should be studied in depth; independent work and individual reading and research should be undertaken by students to build a portfolio of material that can be selected from and applied in the examination.

Students should choose, as part of their preparation and research, appropriate located examples and case studies from countries at all levels of development (developed, developing and emerging) and contrasting geographical locations to illustrate causes, processes, impacts and management themes.

4.2 Assessment information

- First assessment: January 2018.
 - The assessment is 1 hour and 30 minutes.
 - The assessment is out of 60 marks.
 - Students must answer **one** question out of a list of questions based on the **four** options they have studied.
 - Students will be given pre-release material of research focus questions relating to each of the four options.
-

4.3 Option 1: Tectonic Activity and Hazards

Overview

This is an in-depth physical geography topic. It builds on the global understanding developed in Unit 1 but requires more detailed knowledge and understanding of process. The first part of this topic is concerned with the processes causing tectonic hazards at different plate tectonic settings and requires detailed geological understanding. How tectonic disasters unfold should be considered in terms of process and in contrasting places by development level as well as tectonic setting. A detailed consideration should be given to how tectonic activity and its impacts can be managed, using theoretical frameworks to understand the importance and value of management before, during and after disaster strikes.

4.3.1 Tectonic processes	Enquiry question: Why are some locations more at risk from tectonic hazards than others?
Key idea	Detailed content
The global distribution of tectonic hazards can be explained by tectonic processes	<ul style="list-style-type: none">• The global distribution and causes of earthquakes, volcanic eruptions and tsunamis.• The distribution of tectonic plate boundaries (constructive, destructive and conservative; oceanic, continental and combined situations).• The causes of intra-plate earthquakes, and volcanoes caused by mid-plate mantle plumes at hotspots.
Theory underpins the understanding of tectonic hazards	<ul style="list-style-type: none">• The theory of plate tectonics (Earth's internal structure, mantle convection, sea floor spreading, subduction and slab pull).• The operation of plate tectonic processes at different plate margins (destructive, constructive, collision and conservative).• Physical processes that determine eruption type and magnitude and earthquake magnitude and focal depth (Benioff zone).
Physical processes explain the causes of tectonic hazards	<ul style="list-style-type: none">• Earthquake waves (P, S and L) cause crustal fracturing, ground shaking and secondary hazards (liquefaction, landslides).• Volcanic processes leading to lava and pyroclastic flows, ash fall, gas eruption and secondary hazards (lahars, jökulhlaup).• The causes of tsunami (sub-marine earthquake and sea bed and water column displacement) and their characteristics.

4.3.2 Impacts of tectonic hazards	Enquiry question: Why do some tectonic hazards develop into disasters and what is their impact?
Key idea	Detailed content
Tectonic hazards can be quantified in different ways	<ul style="list-style-type: none"> • Earthquakes can be measured by intensity (Mercalli scale) and magnitude (Moment Magnitude scale), which are important in understanding impacts. • Volcanic eruptions are measured using the VEI scale, which is influenced by eruption style and magma type in different tectonic settings. • Tsunami characteristics (size, speed, run-up height) are influenced by the nature of sea bed displacement and interactions with the sea bed approaching shorelines.
The relationship between hazard and disaster characteristics is important	<ul style="list-style-type: none"> • Definitions of natural hazard versus natural disaster, and different threshold levels for defining 'disaster'. • Trends in tectonic disaster impacts over time (number of recorded disasters, deaths, number affected, economic losses) globally and regionally. • Hazard profiles for earthquakes, volcanic eruptions and tsunami highlight differences in duration, speed of onset, areal extent and other characteristics.
Tectonic disasters have variable impacts for many reasons	<ul style="list-style-type: none"> • The impacts of contrasting events (tsunami, earthquake, eruption) in developed and developing world contexts. • The importance of socio-economic factors (education, housing type, healthcare access, income) and geographical factors (population density, isolation, urbanisation) in explaining impacts. • Governance is important in explaining vulnerability and resilience at national and community level.

4.3.3 Managing tectonic hazards	Enquiry question: How successful is the management of tectonic disasters?
Key idea	Detailed content
Prediction and forecasting are important elements of management	<ul style="list-style-type: none"> • Prediction and forecasting are important in hazard management, but the extent to which tsunamis, earthquakes and eruptions can be forecast is variable. • Prediction (tsunami and eruption) relies on complex and costly technology that may not be universally available. • Forecasting risk (hazard risk mapping) for areas prone to earthquakes is possible (ground shaking intensity, liquefaction risk) but differs from prediction.

Modifying the event and vulnerability are key parts of management	<ul style="list-style-type: none"> • The hazard management cycle and Park's model (applied to named disasters) provide frameworks for disaster management and increasing resilience. • Tectonic disasters can be mitigated by event modification (land-use zoning, hazard-resistant design, engineered defences) but costs and management are barriers to widespread adoption. • Vulnerability modification (monitoring, warning, evacuation, community preparedness and adaptation) can reduce losses.
The roles and attitudes of different players are important in risk assessment and reduction	<ul style="list-style-type: none"> • Loss modification (emergency and relief aid, insurance, community action) is important but its timing is crucial. • Disaster management is often a multi-agency response involving community, local, national and international players each with different roles. • Despite risks, there are complex reasons why people live and work in areas of known tectonic hazard risk, linked to opportunities in these areas.

4.4 Option 2: Feeding the World's People

Overview

Food supply and food security are key issues in many parts of the developing world, especially LDCs. However, food insecurity can be found in all countries. People around the world face a spectrum of food security problems ranging from famine to severe over-nutrition. Socio-economic factors are important in explaining these problems, but physical geography also plays a role especially in dryland areas where food productivity is low and falling. There are numerous ways to increase food supply and security ranging from large-scale solutions using advanced technology to improve farming, to intermediate, small-scale solutions focused on local communities. This topic allows for these to be considered in detail, using examples from across the world in countries at all levels of development.

4.4.1 Global food supply and insecurity	Enquiry question: How many people suffer from food insecurity problems and where are they located?
Key idea	Detailed content
Food security varies globally, and changes over time	<ul style="list-style-type: none"> The global and regional distribution of food security (availability, access, utilisation, stability) using annual FAO SOFI data and other data sources. Changes in food security over time (globally and countries), and the causes of this (harvest variation, food price changes, political or economic shocks). Progress towards international hunger targets (MDGs Target 1C and the 1996 World Food Summit target) and reasons for differences in progress.
A range of issues exist across the malnutrition spectrum	<ul style="list-style-type: none"> The causes of long-term chronic under-nutrition and micro-nutrient deficiency can be related to poverty, marginal land-use and lack of access to basic human needs. Short-term, acute hunger/starvation is associated with famine and other extreme events (disasters, war, forced migration). Over-nutrition is a growing problem in developed and emerging economies and has associated health risks (diabetes, heart disease).
Areas with marginal food supply can be found in a variety of locations	<ul style="list-style-type: none"> Economic, political and environmental reasons why hunger is concentrated in Sub-Saharan Africa and South Asia. Urban hunger in developing world cities caused by high living costs, informal economy incomes and the impact of food prices. 'Food deserts', urban hunger and the rise of food banks in developed world cities and the causes of these trends.

4.4.2 The causes of food supply inequalities	Enquiry question: What physical and human factors cause food insecurity?
Key idea	Detailed content
Drylands are especially challenging areas for food security	<ul style="list-style-type: none"> • The distribution of the world's drylands (defined by degree of aridity) and why climate and the physical environment make food production difficult. • The complex causes of desertification in drylands, including inappropriate farming, soil erosion, salinisation, long-term precipitation trends and population pressure. • The concept of carrying capacity and how it can be used to understand land degradation and declining food production.
Overproduction and over-nutrition are problems in some places	<ul style="list-style-type: none"> • The causes of over-production and food waste in some developed world countries and the impact of this on food prices and trade patterns. • The impact on diet and health of the proportion of income spent on food in the developed world (low and falling) versus the developing world (high). • Dietary changes and health issues associated with rapid nutrition transition in emerging and developing countries.
Trade plays a role in food security	<ul style="list-style-type: none"> • The costs and benefits of commercial farming of cash crops versus subsistence farming in terms of providing adequate food supply for families. • Fair trade has both advantages and disadvantages as an income-raising strategy for small developing world growers. • Trends in global food prices are affected by trade and prices of other commodities (oil) as well as food demand, and can have impacts on food security.

4.4.3 Managing food supply	Enquiry question: How effective are different management strategies in improving food supply and security?
Key idea	Detailed content
The Green and Gene farming revolutions have both attempted to increase food security	<ul style="list-style-type: none"> • The Green Revolution has helped food supply keep pace with demand in some locations but it has economic, social and environmental pros and cons. • The Green Revolution has had limited impact on Africa, and there are question marks over its ability to increase production in the future. • Genetically Modified crops have been widely adopted, but it is unclear whether they improve food security.
Attempts to increase production often focus on finding new land and increasing yields	<ul style="list-style-type: none"> • The issue of one country buying/leasing land in another ('land grabs') for food production has advantages and disadvantages for different groups. • Issues of sustainability are raised by both the expansion of the farmed area on land, and the expansion of aquaculture in the oceans. • Irrigation, both low-tech (wells, earth-dams) and high-tech (drip irrigation) have the potential to increase food production in dryland areas.
Different players and technologies have key roles in securing food supplies	<ul style="list-style-type: none"> • There are many players involved in attempts to increase food supply (NGOs, governments, agricultural institutions, TNCs) each with different roles and motives. • Intermediate technology solutions may increase food supply in marginal and dryland areas. • There is potential for improved food storage to minimise wastage and increase food availability if widely adopted.

4.5 Option 3: Cultural Diversity: People and Landscapes

Overview

This topic is focused on the meaning of culture and how it is reflected in both the diversity of people and the cultural landscape they produce and maintain. The topic should be studied by drawing on a range of examples of contrasting cultures by location and in places at different levels of development. Different attitudes to culture and cultural landscapes can be investigated, ranging from persecution to protection. The degree of cultural diversity found in places is highly variable, a result of historical reasons, modern socio-economic trends such as migration and urbanisation, and in some cases physical geography. The topic builds on the understanding of globalisation developed in Unit 1, to explore the impact of globalisation of culture in greater depth.

4.5.1 Cultures, landscapes and values	Enquiry question: What is the nature and value of culture and cultural landscapes?
Key idea	Detailed content
Culture, and cultural landscapes, can be defined in different ways	<ul style="list-style-type: none">• Definitions of culture in terms of human culture (ethnicities, beliefs, histories) and the complex origins of the word 'culture' and its meaning.• The relationship between culture and landscape, how landscapes are produced by cultures and meaning is ascribed to physical and human features.• Contrasts between traditional homogeneous cultural landscapes and more modern ones reflecting cultural diversity and mixing.
Culture can be threatened by deliberate actions	<ul style="list-style-type: none">• Historically, indigenous cultures were often deliberately marginalised and landscapes exploited, especially during the colonial era.• Threats to cultures from political actions and policies today, including attempts to suppress or destroy cultures (genocide).• Deliberate destruction of cultural landscapes as part of conflict or wider political policies.
Some cultures and their landscapes are more valued than others	<ul style="list-style-type: none">• Governments and global organisations (UNESCO) choose to protect places, and peoples, based on their attitudes and values.• Indigenous cultures often face difficulties protecting traditional land rights, wilderness areas and ways of life in the face of modern economic exploitation.• NGOs and community organisations, and in some cases governments, work to protect or restore the remaining rights of indigenous groups.

4.5.2 Cultural diversity	Enquiry question: How and why does cultural diversity vary spatially?
Key idea	Detailed content
Cultural diversity varies spatially at all scales	<ul style="list-style-type: none"> • Variations in cultural diversity between countries, explored using census (ethnicity, religion) and other demographic data sets. • Cultural diversity varies between wilderness, rural and urban locations, and is reflected in attitudes and values as well as ethnicity. • In urban areas homogeneous and heterogeneous areas exist, and cultural diversity is often greatest.
There is a range of explanations for these variations	<ul style="list-style-type: none"> • Physical isolation and inaccessibility, versus a high degree of connectedness, can help explain variations in cultural diversity. • There is variation in the degree to which host societies accept other cultures and allow cultural diversity to flourish. • Government policies towards immigration, open borders and cultural and religious freedom are important.
Migration is a key process in creating places with cultural diversity	<ul style="list-style-type: none"> • Migration, both local and international, is a key process in creating global hub cities with high degrees of cultural diversity. • Cultural diversity can lead to tensions in host societies, as well as spatial segregation and lack of cultural understanding. • Governments and other players (NGOs, education systems, individuals) have a role in promoting cultural harmony and cross-cultural understanding.

4.5.3 Globalisation and culture	Enquiry question: How does globalisation impact on cultures?
Key idea	Detailed content
Different players and processes promote globalisation	<ul style="list-style-type: none"> • The role of global media corporations in conveying dominant cultural values and attitudes, and influencing globalisation. • TNCs and their brands are important in terms of promoting global consumer culture, which may affect local products and traditions. • Westernisation and 'McDonaldisation' is perceived as a threat by some but an opportunity by others.
Tourism has had a significant impact on some cultures	<ul style="list-style-type: none"> • Trends in the growth of global tourism show that tourism has led to unprecedented cross-cultural contact. • The impact of tourism (mass and small-scale) on traditional cultures is both positive and negative (economically, socially and environmentally). • Ecotourism attempts to maximise the economic benefits of tourism and minimise its cultural impact.
Cultural globalisation varies in its impact and significance	<ul style="list-style-type: none"> • Cultural globalisation can occur in a localised context leading to hybrid forms of food, fashion, music and film. • Attempts have been made to protect some aspects of culture (food, film, music) from cultural globalisation with variable success. • There are contrasting views on the significance of globalisation on cultural diversity (hyperglobalisers, sceptics, transformationalists).

4.6 Option 4: Human Health and Disease

Overview

Despite global development over the last several decades there are significant differences in terms of health and life expectancy around the world. Health risks typically change during the development process so that different risks are present in developing, emerging and developed countries. Risks are related to socio-economic factors, but also to physical geography. Health risks can be local in nature, but there are also examples of global health risks, which can be related to the development of an increasingly interconnected world. Many different players are involved in managing health risks at all scales from global to community action. This topic allows examples to be drawn from across the spectrum of development to illustrate a wide variety of health risks, including those resulting from pollution, infectious disease and lifestyle. Models and theoretical frameworks are an important component of understanding.

4.6.1 Geography of disease and mortality	Enquiry question: What are the health risks facing human populations?
Key idea	Detailed content
Health geography reveals patterns at global to local scales	<ul style="list-style-type: none">• Global patterns of life expectancy and mortality suggest there are significant differences in health worldwide.• Overall disease burden can be measured using DALYs (disability-adjusted life years), which has a complex global pattern.• Within countries, there can be large differences in life expectancy and disease prevalence reflecting income, access to healthcare and other socio-economic factors.
Access to healthcare varies widely around the world	<ul style="list-style-type: none">• Per capita expenditure on healthcare varies around the world, as do healthcare professionals per 1000 people.• Healthcare systems vary from 'free at the point of use', to insurance-based schemes and paid-for systems – with differing costs and outcomes.• In the developing world, NGOs and global organisations (WHO, MSF) may be significant healthcare providers.
Pollution can create long- and short-term health risks	<ul style="list-style-type: none">• Indoor household pollution from open cooking fires is a significant health risk in many parts of the emerging and developing world, with women and children most at risk.• Urban air pollution and industrial pollution can lead to chronic health risks, usually concentrated in industrialising cities (environmental Kuznets curve model).• Pollution from industrial incidents (chemical, nuclear) can dramatically increase health risks in particular locations.

4.6.2 Pollution and health risks	Enquiry question: What are the causes of health risks in different places?
Key idea	Detailed content
Disease risk can be related to geographical features and pathways	<ul style="list-style-type: none"> • Diseases can be related to geographical features such as water bodies (malaria) and locations of vectors (Lyme disease, Chagas disease). • Health risks often rise following major natural disasters (cholera) due to the breakdown of sanitation, water and healthcare systems. • Modern globalised transport may increase the risk of pandemic spread (diffusion models) of communicable diseases (swine flu, SARs).
Poverty is a major factor in health risk	<ul style="list-style-type: none"> • Health risk from infectious disease is correlated with poverty (lack of access to healthcare, poor sanitation, lack of clean water supply). • Major epidemics (Ebola, HIV/AIDS) are more likely in area of high poverty and weak governance, making them hard to control. • The Epidemiological transition model suggests that health risk changes with development progress, but there are exceptions.
In the developed world, non-communicable disease is an increasing burden	<ul style="list-style-type: none"> • Obesity, diabetes and heart disease are increasingly problems in the developed world and emerging economies, linked to affluence and sedentary lifestyles. • Increased life expectancy and new treatments are increasing the burden of diseases of old age (dementia, cancer). • Developed countries face rising healthcare costs and a large economic burden on a shrinking working age population.

4.6.3 Managing local and global health risks	Enquiry question: How can health risks be managed?
Key idea	Detailed content
Different players are important in managing health risk	<ul style="list-style-type: none"> • TNCs ('Big Pharma') are important in the development of new drugs and treatments, but there are issues with cost and availability for those in need. • National agencies are important in terms of education and monitoring emerging risks. • Environmental management agencies (national) are important in monitoring pollution levels and warning of elevated health risks.
Global programmes have had success in reducing disease burden	<ul style="list-style-type: none"> • Global programmes to eradicate diseases (polio, smallpox) have been successful in some cases. • The WHO monitors global health risk and has an important role in global disease control. • In some cases diseases have re-emerged (TB), related to poverty and in some cases drug resistance.
Local management and education are important in reducing health risk	<ul style="list-style-type: none"> • Intermediate technology and low-tech solutions have a role in bringing healthcare to places which lack it. • NGOs are often the key provider of primary healthcare in isolated, low-income communities. • Community education programmes can raise awareness of risks and help improve health outcomes.

Assessment information

Assessment requirements

The Pearson Edexcel International Advanced Subsidiary in Geography consists of two externally-examined units.

The Pearson Edexcel International Advanced Level in Geography consists of two externally-examined units.

Please see the *Assessment availability and first award* section for information on when the assessment for each unit will be available from.

Unit	IAS or IA2	Assessment information	Number of raw marks allocated in the unit
Unit 1: Global Challenges	IAS	<p>Written examination.</p> <p>The assessment is 1 hour and 45 minutes.</p> <p>The assessment consists of two Sections A and B.</p> <p>A Resource booklet is provided for both sections.</p> <p>Calculators may be used in the examination.*</p> <p>Students must answer all questions in Section A and one question in Section B.</p> <p>Section A consists of data response and short-answer questions.</p> <p>Section B makes use of students' own ideas and consists of a choice of Topic 1: World at Risk or Topic 2: Going Global longer/guided essay questions.</p>	90 marks
Unit 2: Geographical Investigations	IAS	<p>Written examination.</p> <p>The assessment is 1 hour and 30 minutes.</p> <p>The assessment consists of Sections A, B and C.</p> <p>A Resource booklet is provided for Sections A and C.</p> <p>Calculators may be used in the examination.*</p> <p>Students must answer all questions in Sections A and B and one question in Section C.</p> <p>Section A consists of data response and short-answer questions on Topic 1: Crowded Coasts and Topic 2: Urban Problems, Planning and Regeneration.</p> <p>Section B consists compulsory short-answer questions on research and fieldwork investigation (familiar context).</p> <p>Section C consists of a choice of one unfamiliar context fieldwork question, broken down into short-answer questions, on either Topic 1: Crowded Coasts or Topic 2: Urban Problems, Planning and Regeneration.</p>	60 marks

Unit	IAS or IA2	Assessment information	Number of raw marks allocated in the unit
Unit 3: Contested Planet	IA2	<p>Written examination.</p> <p>The assessment is 2 hours.</p> <p>The assessment consists of two Sections A, B and C.</p> <p>A Resource booklet is provided.</p> <p>Calculators may be used in the examination.*</p> <p>Section A consists of longer/guided essay questions and a synoptic question on Topic A1: Atmosphere and Weather Systems and Topic A2: Biodiversity Under Threat.</p> <p>In Section B, students have a choice of one data response/essay question from two topics: Topic B1: Energy Security or Topic B2: Water Conflicts</p> <p>In Section C, students have a choice of one data response/essay question from two topics: Topic C1: Superpower Geographies or Topic C2: Bridging the Development Gap.</p>	90 marks
Unit 4: Researching Geography	IA2	<p>Written examination.</p> <p>Students must answer one question out of a list of questions based on the four options they have studied.</p> <p>Students will be given pre-release material of research focus questions relating to each of the four options.</p>	60 marks

Sample assessment materials

Sample papers and mark schemes can be found in the *Pearson Edexcel International Advanced Subsidiary/Advanced Level in Geography Sample Assessment Materials (SAMs)* document.

A full list of command words that will be used in the assessments can be found in *Appendix 11: Command word taxonomy*.

* Please see *Appendix 6: Use of calculators*.

Assessment objectives and weightings

		% in IAS	% in IA2	% in IAL
AO1	Demonstrate knowledge and understanding of places, environments, concepts, processes, interactions and change, at a variety of scales	48-52	30.7	39-41
AO2	Apply knowledge and understanding in different contexts to interpret, analyse and evaluate geographical information and issues	24.7	56	40-42
AO3	Use a variety of relevant quantitative, qualitative, research and fieldwork skills to: <ul style="list-style-type: none"> investigate geographical questions and issues interpret, analyse and evaluate data and evidence construct arguments and draw conclusions 	24	13.3	18-20

Relationship of assessment objectives to units for the International Advanced Subsidiary qualification

Unit number	Assessment objective		
	AO1	AO2	AO3
Unit 1	38-41%	19.3%	0%
Unit 2	10.7%	5.3%	24%
Total for International Advanced Subsidiary	48-52%	24.7%	24%

NB Totals have been rounded either up or down.

Relationship of assessment objectives to units for the International Advanced Level qualification

Unit number	Assessment objective		
	AO1	AO2	AO3
Unit 1	19-21%	9-11%	0%
Unit 2	5.3%	2.7%	12%
Unit 3	10%	20%	0%
Unit 4	5.3%	8%	6.7%
Total for International Advanced Level	39-41%	40-42%	18-20%

NB Totals have been rounded either up or down.

Assessment availability and first award

Unit	June 2017	January 2018	June 2018	January 2019	June 2019
1	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓
3	✗	✓	✓	✓	✓
4	✗	✓	✓	✓	✓
IAS award	✓	✓	✓	✓	✓
IAL award	✗	✓	✓	✓	✓

From January 2018, **all four units will be assessed** in January and June for the lifetime of the qualifications.

From January 2018 **IAL and IAS will both be awarded** in January and June for the lifetime of the qualifications.

Administration and general information

Entries, resitting of units and forbidden combinations

Entries

Details of how to enter students for the examinations for these qualifications can be found in our *International Information Manual*. A copy is made available to all examinations officers and is available on our website, qualifications.pearson.com.

Resitting of units

Students can resit any unit irrespective of whether the qualification is to be cashed in. If a student resits a unit more than once, only the better of the two most recent attempts of that unit will be available for aggregation to a qualification grade. Please refer to the *Entry, Aggregation and Certification* document on our website: qualifications.pearson.com/IAL-entry-certification-procedures.

Forbidden combinations

Students should be advised that, if they take two qualifications in the same subject, colleges, universities and employers are very likely to take the view that they have achieved only one of the two A Levels. Students or their advisers who have any doubts about subject combinations should check with the institution to which they wish to progress before embarking on their programmes.

Access arrangements, reasonable adjustments, special consideration and malpractice

Equality and fairness are central to our work. Our equality policy requires all students to have equal opportunity to access our qualifications and assessments, and our qualifications to be awarded in a way that is fair to every student.

We are committed to making sure that:

- students with a protected characteristic (as defined by the UK Equality Act 2010) are not, when they are undertaking one of our qualifications, disadvantaged in comparison to students who do not share that characteristic
- all students achieve the recognition they deserve for undertaking a qualification and that this achievement can be compared fairly to the achievement of their peers.

Language of assessment

Assessment of these qualifications will be available in English only. All student work must be in English.

We recommend that students are able to read and write in English at Level B2 of the Common European Framework of Reference for Languages.

Access arrangements

Access arrangements are agreed before an assessment. They allow students with special educational needs, disabilities or temporary injuries to:

- access the assessment
- show what they know and can do without changing the demands of the assessment.

The intention behind an access arrangement is to meet the particular needs of an individual student with a disability without affecting the integrity of the assessment. Access arrangements are the principal way in which awarding bodies comply with the duty under the Equality Act 2010 to make 'reasonable adjustments'.

Access arrangements should always be processed at the start of the course. Students will then know what is available and have the access arrangement(s) in place for assessment.

Reasonable adjustments

The Equality Act 2010 requires an awarding organisation to make reasonable adjustments where a student with a disability would be at a substantial disadvantage in undertaking an assessment. The awarding organisation is required to take reasonable steps to overcome that disadvantage.

A reasonable adjustment for a particular student may be unique to that individual and therefore might not be in the list of available access arrangements.

Whether an adjustment will be considered reasonable will depend on a number of factors, including:

- the needs of the student with the disability
- the effectiveness of the adjustment
- the cost of the adjustment; and
- the likely impact of the adjustment on the student with the disability and other students.

An adjustment will not be approved if it involves unreasonable costs to the awarding organisation, timeframes or affects the security or integrity of the assessment. This is because the adjustment is not 'reasonable'.

Special consideration

Special consideration is a post-examination adjustment to a student's mark or grade to reflect temporary injury, illness or other indisposition at the time of the examination/assessment, which has had, or is reasonably likely to have had, a material effect on a candidate's ability to take an assessment or demonstrate their level of attainment in an assessment.

Further information

Please see our website for further information about how to apply for access arrangements and special consideration.

For further information about access arrangements, reasonable adjustments and special consideration please refer to the JCQ website: www.jcq.org.uk.

Candidate malpractice

Candidate malpractice refers to any act by a candidate that compromises or seeks to compromise the process of assessment or which undermines the integrity of the qualifications or the validity of results/certificates.

Candidate malpractice in examinations **must** be reported to Pearson using a *JCQ Form M1* (available at www.jcq.org.uk/exams-office/malpractice). The form can be emailed to pqsmalpractice@pearson.com or posted to: Investigations Team, Pearson, 190 High Holborn, London, WC1V 7BH. Please provide as much information and supporting documentation as possible. Note that the final decision regarding appropriate sanctions lies with Pearson.

Failure to report malpractice constitutes staff or centre malpractice.

Staff/centre malpractice

Staff and centre malpractice includes both deliberate malpractice and maladministration of our qualifications. As with candidate malpractice, staff and centre malpractice is any act that compromises or seeks to compromise the process of assessment or which undermines the integrity of the qualifications or the validity of results/certificates.

All cases of suspected staff malpractice and maladministration **must** be reported immediately, before any investigation is undertaken by the centre, to Pearson on a *JCQ Form M2(a)* (available at www.jcq.org.uk/exams-office/malpractice).

The form, supporting documentation and as much information as possible can be emailed to pqsmalpractice@pearson.com or posted to: Investigations Team, Pearson, 190 High Holborn, London, WC1V 7BH. Note that the final decision regarding appropriate sanctions lies with Pearson.

Failure to report malpractice itself constitutes malpractice.

More-detailed guidance on malpractice can be found in the latest version of the document *JCQ General and vocational qualifications Suspected Malpractice in Examinations and Assessments*, available at www.jcq.org.uk/exams-office/malpractice.

Awarding and reporting

The Pearson Edexcel International Advanced Subsidiary in Geography will be graded on a five-grade scale from A to E. The Pearson Edexcel International Advanced Level in Geography will be graded on a six-point scale A* to E. Individual unit results will be reported. Only Units 1 and 2 will contribute to the International Advanced Subsidiary grade. All four units will contribute to the International Advanced Level grade.

The first certification opportunity for the Pearson Edexcel International Advanced Subsidiary in Geography will be in August 2017. The first certification opportunity for the Pearson Edexcel International Advanced Level in Geography will be in August 2018. A pass in an International Advanced Subsidiary subject is indicated by one of the five grades A, B, C, D, E, of which grade A is the highest and grade E the lowest. A pass in an International Advanced Level subject is indicated by one of the six grades A*, A, B, C, D, E, of which

grade A* is the highest and grade E the lowest. Students whose level of achievement is below the minimum judged by Pearson to be of sufficient standard to be recorded on a certificate will receive an unclassified U result.

Unit results

Students will receive a uniform mark between 0 and the maximum uniform mark for each unit.

The uniform marks at each grade threshold for each unit are:

Units 1 and 3

Unit grade	Maximum uniform mark	A	B	C	D	E
	120	96	84	72	60	48

Units 2 and 4

Unit grade	Maximum uniform mark	A	B	C	D	E
	80	64	56	48	40	32

Qualification results

The minimum uniform marks required for each grade:

International Advanced Subsidiary (cash-in code: XGE01)

Qualification grade	Maximum uniform mark	A	B	C	D	E
	200	160	140	120	100	80

Students with a uniform mark in the range 0–79 will be Unclassified (U).

International Advanced Level (cash-in code: YGE01)

Qualification grade	Maximum uniform mark	A	B	C	D	E
	400	320	280	240	200	160

Students with a uniform mark in the range 0–159 will be Unclassified (U).

To be awarded an A*, students will need to achieve an A for the International Advanced Level qualification (at least 320 uniform marks) **and** at least 90% of the total uniform mark available across the IA2 units combined (at least 180 uniform marks).

Student recruitment and progression

Pearson follows the JCQ policy concerning recruitment to our qualifications in that:

- they must be available to anyone who is capable of reaching the required standard
- they must be free from barriers that restrict access and progression
- equal opportunities exist for all students.

Prior learning and other requirements

There are no prior learning or other requirements for these qualifications.

Students who would benefit most from studying these qualifications are likely to have a Level 2 qualification such as an International GCSE or GCSE in Geography.

Progression

Students can progress from these qualifications to:

- undergraduate studies in Geography
- further education or employment.

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Appendix 1: Codes

Type of code	Use of code	Code
Unit codes	Each unit is assigned a unit code. This unit code is used as an entry code to indicate that a student wishes to take the assessment for that unit. Centres will need to use the entry codes only when entering students for their examination.	Unit 1: WGE01/01 Unit 2: WGE02/01 Unit 3: WGE03/01 Unit 4: WGE04/01
Cash-in codes	The cash-in code is used as an entry code to aggregate the student's unit scores to obtain the overall grade for the qualification. Centres will need to use the entry codes only when entering students for their qualification.	International Advanced Subsidiary – XGE01 International Advanced Level – YGE01
Entry codes	The entry codes are used to: <ul style="list-style-type: none"> • enter a student for the assessment of a unit • aggregate the student's unit scores to obtain the overall grade for the qualification. 	Please refer to the <i>Pearson Information Manual</i> , available on our website.

Appendix 2: Pearson World Class Qualification design principles

Pearson's World Class Qualification design principles mean that all Edexcel qualifications are developed to be **rigorous, demanding, inclusive and empowering**.



We work collaboratively to gain approval from an external panel of educational thought-leaders and assessment experts from across the globe. This is to ensure that Edexcel qualifications are globally relevant, represent world-class best practice in qualification and assessment design, maintain a consistent standard and support learner progression in today's fast-changing world.

Pearson's Expert Panel for World-Class Qualifications is chaired by Sir Michael Barber, a leading authority on education systems and reform. He is joined by a wide range of key influencers with expertise in education and employability.

"I'm excited to be in a position to work with the global leaders in curriculum and assessment to take a fresh look at what young people need to know and be able to do in the 21st century, and to consider how we can give them the opportunity to access that sort of education." Sir Michael Barber.

Endorsement from Pearson's Expert Panel for World Class Qualifications for the International Advanced Subsidiary (IAS)/International Advanced Level (IAL) development process

December 2015

"We were chosen, either because of our expertise in the UK education system, or because of our experience in reforming qualifications in other systems around the world as diverse as Singapore, Hong Kong, Australia and a number of countries across Europe.

We have guided Pearson through what we judge to be a rigorous world class qualification development process that has included, where appropriate:

- extensive international comparability of subject content against the highest-performing jurisdictions in the world
- benchmarking assessments against UK and overseas providers to ensure that they are at the right level of demand
- establishing External Subject Advisory Groups, drawing on independent subject-specific expertise to challenge and validate our qualifications.

Importantly, we have worked to ensure that the content and learning is future oriented, and that the design has been guided by Pearson's Efficacy Framework. This is a structured, evidenced process which means that learner outcomes have been at the heart of this development throughout.

We understand that ultimately it is excellent teaching that is the key factor to a learner's success in education but as a result of our work as a panel we are confident that we have supported the development of Edexcel IAS and IAL qualifications that are outstanding for their coherence, thoroughness and attention to detail and can be regarded as representing world-class best practice."

Sir Michael Barber (Chair)
Chief Education Advisor, Pearson plc

Dr Peter Hill
Former Chief Executive ACARA

Professor Jonathan Osborne
Stanford University

Professor Dr Ursula Renold
Federal Institute of Technology, Switzerland

Professor Janice Kay
Provost, University of Exeter

Jason Holt
CEO, Holts Group

Professor Lee Sing Kong
Dean and Managing Director, National Institute of Education International, Singapore

Bahram Bekhradnia
President, Higher Education Policy Institute

Dame Sally Coates
Director of Academies (South), United Learning Trust

Professor Bob Schwartz
Harvard Graduate School of Education

Jane Beine
Head of Partner Development, John Lewis Partnership

All titles correct as at December 2015.

Appendix 3: Transferable skills

The need for transferable skills

In recent years, higher-education institutions and employers have consistently flagged the need for students to develop a range of transferable skills to enable them to respond with confidence to the demands of undergraduate study and the world of work.

The Organisation for Economic Co-operation and Development (OECD) defines skills, or competencies, as 'the bundle of knowledge, attributes and capacities that can be learned and that enable individuals to successfully and consistently perform an activity or task and can be built upon and extended through learning.'^[1]

To support the design of our qualifications, the Pearson Research Team selected and evaluated seven global 21st-century skills frameworks. Following on from this process, we identified the National Research Council's (NRC) framework ^[2] as the most evidence-based and robust skills framework, and have used this as a basis for our adapted skills framework.

The framework includes cognitive, intrapersonal skills and interpersonal skills.



The skills have been interpreted for this specification to ensure they are appropriate for the subject. All of the skills listed are evident or accessible in the teaching, learning and/or assessment of the qualifications. Some skills are directly assessed. Pearson materials will support you in identifying these skills and developing these skills in students.

The table overleaf sets out the framework and gives an indication of the skills that can be found in geography and indicates the interpretation of the skill in this area. A full subject interpretation of each skill, with mapping to show opportunities for student development is given on the subject pages of our website: qualifications.pearson.com

¹ OECD – *Better Skills, Better Jobs, Better Lives* (OECD Publishing, 2012)

² Koenig, J. A. (2011) *Assessing 21st Century Skills: Summary of a Workshop*, (National Academies Press, 2011)

Cognitive skills	Cognitive processes and strategies	<ul style="list-style-type: none"> • Critical thinking • Problem solving • Analysis • Reasoning/argumentation • Interpretation • Decision making • Adaptive learning • Executive function 	<p>Being able to break a geographical issue down into individual components and making logical, evidence-based connections about the causes and effects of interrelationships between components.</p>
	Creativity	<ul style="list-style-type: none"> • Creativity • Innovation 	
Intrapersonal skills	Intellectual openness	<ul style="list-style-type: none"> • Adaptability • Personal and social responsibility • Continuous learning • Intellectual interest and curiosity 	<p>Planning, developing and applying their learning of the real world through fieldwork.</p>
	Work ethic/conscientiousness	<ul style="list-style-type: none"> • Initiative • Self-direction • Responsibility • Perseverance • Productivity • Self-regulation (metacognition, forethought, reflection) • Ethics • Integrity 	
	Positive core self-evaluation	<ul style="list-style-type: none"> • Self-monitoring/self-evaluation/self-reinforcement 	
Interpersonal skills	Teamwork and collaboration	<ul style="list-style-type: none"> • Communication • Collaboration • Teamwork • Cooperation • Empathy/perspective taking • Negotiation 	<p>Able to communicate the geographical concepts behind a given scenario to peers and teachers and be able to answer questions verbally or in written forms using appropriate geographical terminology.</p>
	Leadership	<ul style="list-style-type: none"> • Responsibility • Assertive communication • Self-presentation 	

Appendix 4: Level 3 Extended Project qualification

What is the Extended Project?

The Extended Project is a standalone qualification that can be taken alongside International Advanced Level (IAL) qualifications. It supports the development of independent learning skills and helps to prepare students for their next step – whether that be higher education or employment. The qualification:

- is recognised by higher education for the skills it develops
- is worth half of an International Advanced Level (IAL) qualification at grades A*–E
- carries UCAS points for university entry.

The Extended Project encourages students to develop skills in the following areas: research, critical thinking, extended writing and project management. Students identify and agree a topic area of their choice for in-depth study (which may or may not be related to an IAL subject they are already studying), guided by their teacher.

Students can choose from one of four approaches to produce:

- a dissertation (for example an investigation based on predominately secondary research)
- an investigation/field study (for example a practical experiment)
- a performance (for example in music, drama or sport)
- an artefact (for example creating a sculpture in response to a client brief or solving an engineering problem).

The qualification is non-examination assessment based and students are assessed on the skills of managing, planning and evaluating their project. Students will research their topic, develop skills to review and evaluate the information, and then present the final outcome of their project.

The Extended Project has 120 guided learning hours (GLH) consisting of a 40-GLH taught element that includes teaching the technical skills (for example research skills) and an 80-GLH guided element that includes mentoring students through the project work. The qualification is 100% internally assessed and externally moderated.

How to link the Extended Project with geography

The Extended Project creates the opportunity to develop transferable skills for progression to higher education and to the workplace through the exploration of either an area of personal interest or a topic of interest from within the geography qualification content.

Through the Extended Project, students will develop skills that support their study of geography, including:

- conducting, organising and using research
- independent reading in the subject area
- planning, project management and time management
- defining a hypothesis to be tested in investigations
- collecting, handling and interpreting data and evidence
- evaluating arguments and processes, including arguments in favour of alternative interpretations of data and evaluation of experimental methodology
- critical thinking

In the context of the Extended Project, critical thinking refers to the ability to identify and develop arguments for a point of view or hypothesis and to consider and respond to alternative arguments. This supports the development of evaluative skills, through evaluating geographical data, and using qualitative and quantitative evidence to support informed judgements and propose evidence-based solutions to geographical issues.

Types of Extended Project related to geography

Students may produce a dissertation on any topic that can be researched and argued, for example a controversial geographical issue such as landscape management or public opinion on re-branding or re-imaging of an urban or rural area.

A dissertation might involve an investigation such as:

- the impact of changes to the built environment in a chosen urban or rural area
- an investigation into the success of coastal management approaches in a chosen area.

The dissertation uses secondary research sources to provide a reasoned defence or a point of view, with consideration of counter-arguments.

An alternative might be an investigative project or field study involving the collection of data from primary research, for example:

- a study of the impact of human activity on a glaciated area
- a survey of historical change in an area.

A field study might consider an issue that lends itself to primary research, for example an investigation into local perceptions of the impact of a regeneration project in a rural or urban area.

Using the Extended Project to support breadth and depth

In the Extended Project, students are assessed on the quality of the work they produce and the skills they develop and demonstrate through completing this work. Students should demonstrate that they have extended themselves in some significant way beyond what they have been studying in geography. Students can demonstrate extension in one or more dimensions:

- **deepening understanding** – where a student explores a topic in greater depth than in the specification content. This could be an in-depth exploration of a sub-topic within a topic area
- **broadening skills** – where a student learns a new skill. This might be learning a new statistical technique that can be used in the analysis of either primary or secondary data collected by the student
- **widening perspectives** – where the student's project spans different subjects. A student studying geography with business may wish to research the impact of tourism on a particular region or locality.

A wide range of information to support the delivery and assessment of the Extended Project, including the specification, teacher guidance for all aspects, an editable scheme of work and exemplars for all four approaches, can be found on our website.

Appendix 5: Glossary

Term	Definition
Assessment objectives	The requirements that students need to meet to succeed in the qualification. Each assessment objective has a unique focus, which is then targeted in examinations or coursework. Assessment objectives may be assessed individually or in combination.
External assessment	An examination that is held at the same time and place in a global region.
International Advanced Subsidiary	Abbreviated to IAS.
International Advanced Level	Abbreviated to IAL.
International A2 (IA2)	The additional content required for an IAL.
JCQ	Joint Council for Qualifications. This is a group of UK exam boards which develop policy related to the administration of examinations.
Linear	Linear qualifications have all assessments at the end of a course of study. It is not possible to take one assessment earlier in the course of study.
Modular	Modular qualifications contain units of assessment. These units can be taken during the course of study. The final qualification grade is worked out from the combined unit results.
Raw marks	Raw marks are the actual marks that students achieve when taking an assessment. When calculating an overall grade, raw marks often need to be converted so that it is possible to see the proportionate achievement of a student across all units of study.
Uniform Mark Scale (UMS)	Student actual marks (or raw marks) will be converted into a UMS mark so that it is possible to see the proportionate result of a student. Two units may each be worth 25% of a total qualification. The raw marks for each unit may differ, but the uniform mark will be the same.
Unit	A modular qualification will be divided into a number of units. Each unit will have its own assessment.

Appendix 6: Use of calculators

Students may use a calculator in assessments for these qualifications. Centres are responsible for making sure that calculators used by their students meet the requirements given in the table below.

Students must be familiar with the requirements before their assessments for these qualifications.

<p>Calculators must be:</p> <ul style="list-style-type: none"> • of a size suitable for use on a desk • either battery or solar powered • free of lids, cases and covers that contain printed instructions or formulae. 	<p>Calculators must not:</p> <ul style="list-style-type: none"> • be designed or adapted to offer any of these facilities: <ul style="list-style-type: none"> ○ language translators ○ symbolic algebraic manipulation ○ symbolic differentiation or integration ○ communication with other machines or the internet • be borrowed from another candidate during an examination for any reason* • have retrievable information stored in them. This includes: <ul style="list-style-type: none"> ○ databanks ○ dictionaries ○ mathematical formulae ○ text.
<p>The candidate is responsible for the following:</p> <ul style="list-style-type: none"> • the calculator's power supply • the calculator's working condition • clearing anything stored in the calculator. 	

*An invigilator may give a student a calculator.

Further information can be found in the JCQ documents *Instructions for conducting examinations* and *Information for candidates for written examinations*, available at www.jcq.org.uk/exams-office.

Appendix 7: Geographical skills

Competence in using geographical skills should be developed during study of compulsory and optional topics. While the relative balance of quantitative and qualitative methods and skills will differ between topics, students must be introduced to a roughly equal balance of quantitative and qualitative methods and skills across the specification as a whole. This specification requires students to use the geographical, mathematical and statistical skills previously acquired at GCSE/International GCSE. In addition, all of these skills listed below are compulsory and may be assessed across any of the areas of study.

This specification requires students to:

- understand the nature and use of different types of geographical information, including qualitative and quantitative data, primary and secondary sources of data, images, factual text and discursive/creative material, digital data, numerical and spatial data and innovative forms of data, including crowd-sourced and 'big data' and including dot maps, kite diagrams, linear and logarithmic scales, dispersion diagrams, aerial/oblique/ground/satellite images, and GIS
- collect, analyse and interpret such information, and demonstrate the ability to understand and apply suitable analytical approaches for the different information types, including **qualitative approaches** such as coding and sampling **and quantitative approaches** such as measures of dispersion, measures of correlation and association from the following statistical tests: t-tests, Spearman's rank, Chi-Squared, Gini coefficient, Lorenz curve
- undertake informed and critical questioning of data sources, analytical methodologies, data reporting and presentation, including the ability to identify sources of error in data and to identify the misuse of data
- communicate and evaluate findings, draw well-evidenced conclusions informed by wider theory, and construct extended written argument about geographical matters.

This specification requires students to demonstrate all of the following skills:

Qualitative data

- a) Use and understand a mixture of methodological approaches, including using interviews.
Interpret and evaluate a range of source material including textual and visual sources, **such as** oral accounts, newspapers, creative media, social media, aerial/oblique/ground photographs, sketches and drawings.
- b) Understand the opportunities and limitations of qualitative techniques such as coding and sampling, and appreciate how they actively create particular geographical representations.
- c) Understand the ethical and socio-political implications of collecting, studying and representing geographical data about human communities.

Quantitative data

- a) Understand what makes data geographical and the geospatial technologies (e.g. GIS) that are used to collect, analyse and present geographical data.
- b) Demonstrate an ability to collect and to use digital, geo-located data, and to understand a range of approaches to the use and analysis of such data.

Use, interpret and analyse geographical information including dot maps, kite diagrams, linear and logarithmic scales, dispersion diagrams, satellite images, GIS.

- c) Understand the purposes and difference between the following and be able to use them in appropriate contexts:
- i descriptive statistics of central tendency and dispersion, including Gini coefficient, Lorenz curve
 - ii descriptive measures of difference and association from the following statistical tests: t-tests, Spearman's rank, Chi-Squared; inferential statistics and the foundations of relational statistics, including measures of correlation and lines of best fit on a scatter plot
 - iii measurement, measurement errors, and sampling.

Appendix 8: Geographical investigation

IAS students must complete a minimum of **two** days of fieldwork (excluding research time). Centres will be required to provide evidence of this fieldwork in the form of a written fieldwork statement. See *Appendix 9: Fieldwork statement*. Students are required to carry out fieldwork in relation to Topic 1: Crowded Coasts **or** Topic 2: Urban Problems, Planning and Regeneration. Research and fieldwork will be assessed in Unit 2 examination paper – Sections B and C.

It is crucial that students have access to appropriate opportunities for meaningful research. Teachers must also ensure that the fieldwork activities and environments experienced by students enable them to develop and demonstrate the full range, variety and diversity of fieldwork skills required.

Good practice should allow for students to follow the geographical investigation process and for students to be fully engaged in the decision-making processes in relation to their research and fieldwork investigation.

Geographical investigation process		
Pre-fieldwork, planning and research	(1) Identification of the question for investigation	Consideration of the possible fieldwork opportunities and questions that could be investigated in the chosen coastal or urban environment, including practical considerations of accessibility and manageability in the time available.
	(2) Contextualising the investigation	Researching relevant secondary information sources and background information (internet, magazines, books and others), GIS, and relevant models/theories in order to help finalise a working hypothesis and/or key questions to investigate.
Primary fieldwork data collection	(3) Methodology and design	Consideration of fieldwork locations and numbers of sites; group or individual data collection; consideration of appropriate sampling procedures (systematic versus random versus stratified) and sample size. Consideration of health and safety and completing risk assessments. Development of recording sheets for measurement and observation.
	(4) Primary data collection, equipment and recording	Use of appropriate quantitative and qualitative data collection methods to provide a sufficient range of data to help answer the aims of the investigation decided upon in (2). Ongoing consideration of methods to ensure accuracy and reliability and identify potential errors.

Geographical investigation process		
Presentation, analysis, conclusions and evaluation	(5) Data processing, analysis and presentation	Data collation and analysis using suitable numerical and statistical methods (including the use of ICT for processing and dissemination e.g. spreadsheets; use of ICT and/or hand-drawn graphical skills to present information in suitable graphical, diagrammatic and cartographic ways. Simple statistics may be relevant, e.g. measures of central tendency, spread and cumulative frequency.
	(6) Explanation and conclusions	Reviewing the results of primary fieldwork data and secondary research to provide explanations and form conclusions linked to the original hypotheses/key questions, utilising evidence and reasoned chains of argument.
	(7) Critically reflecting on the results and process	A critical reflection on the fieldwork data, methods used, knowledge gained and how this could be applied to other fieldwork contexts. Consideration of the accuracy, validity and reliability of the conclusions.

Appendix 9: Fieldwork statement

Pearson Edexcel International Advanced Subsidiary in Geography (XGE01)	
Centre name:	Centre number:
All students must carry out two days of fieldwork outside of the classroom and school grounds.	
Details of fieldwork	
Fieldwork day 1 Fieldwork date: _____ Location: _____ Number of students: _____ Summary of geographical issues/questions investigated:	Fieldwork day 2 Fieldwork date: _____ Location: _____ Number of students: _____ Summary of geographical issues/questions investigated:

Head teacher declaration

I declare that the fieldwork days recorded above have been carried out in accordance with the geography fieldwork requirements.

Head teacher name:			
Head teacher signature:		Date:	

Appendix 10: Definitions and acronyms

Terms used in this specification and their definition.

Term	Definition
Developed country	Country with very high human development (VHHD)
Developing country	Country with low human development (LHD), a poor country
Emerging country	Country with high and medium human development (HMHD), recently emerging country
Megacity	Urban area with a population of over 10 million

Acronyms used in this specification and their definition.

Term	Definition
ANZUS	Australia, New Zealand, United States Security Treaty
ASEAN	Association of Southeast Asian Nations
BRICS	Brazil, Russia, India, China and South Africa
CH ₄	Methane
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CO ₂	Carbon dioxide
DALYs	Disability adjusted life years
ENSO	El Niño Southern Oscillation
EU	European Union
EV	Electric vehicle
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
GDI	Gender-related Development Index
GDP	Gross Domestic Product
GIS	Geographical Information System
G20	Group of Twenty (also known as the G-20 or G20) is an international forum for the governments and central bank governors from 20 major economies
HDI	Human Development Index
HEP	Hydroelectric power
HIPC	Heavily Indebted Poor Countries
HIV/AIDS	Human Immunodeficiency Virus Infection/Acquired Immune Deficiency Syndrome
IGO	Intergovernmental Organisation

Term	Definition
IMF	International Monetary Fund
IMR	Infant Mortality Rate
IPCC	Intergovernmental Panel on Climate Change
ITCZ	Inter-tropical Convergence Zone
LDC	Less Developed Country
LE	Life expectancy
MDGs	Millennium Development Goals
MSF	Médecins Sans Frontières
NAFTA	North American Free Trade Agreement
NATO	North Atlantic Treaty Organization
NGO	Non-governmental Organisation
NIC	Newly industrialised country
NOx	Mono-nitrogen oxides
OPEC	Organization of the Petroleum Exporting Countries
PPP	Purchasing Power Parity
SARS	Severe Acute Respiratory Syndrome
SOFI	State of Food Insecurity
TB	Tuberculosis
TTIP	Transatlantic Trade and Investment Partnership
TNC	Trans-National Corporation
UNESCO	United Nations Educational, Scientific and Cultural Organization
UN	United Nations
VEI	Volcanic Explosivity Index
WEF	World Economic Forum
WHO	World Health Organization
WTO	World Trade Organization

Appendix 11: Command word taxonomy

This table lists the command words that could be used in the examinations for this qualification and their definitions.

Command word	Definition
Analyse	Use geographical skills to investigate an issue by systematically breaking it down into individual components and making logical, evidence-based connections about the causes and effects or interrelationships between the components.
Assess	Use evidence to determine the relative significance of something. Give balanced consideration to all factors and identify which are the most important.
Calculate	Produce a numerical answer, showing relevant working.
Compare	Find the similarities and differences of two elements given in a question. Each response must relate to both elements, and must include a statement of their similarity/difference.
Complete	Create a graphical representation of geographical information by adding detail to a resource that has been provided.
Define	State the meaning of a term.
Describe	Give an account of the main characteristics of something or the steps in a process. Statements in the response should be developed but do not need to include a justification or reason.
Discuss	Use evidence to build an argument about an issue. Present more than one side of that argument to create a written debate, identifying both positive and negative points to reach an evaluative conclusion.
Evaluate	Measure the value or success of something and ultimately provide a balanced and substantiated judgement/conclusion. Review information and then bring it together to form a conclusion, drawing on evidence such as strengths, weaknesses, alternatives and relevant data.
Examine	Assimilate, consider and review information (either supplied as a resource, or from existing knowledge and understanding of a topic). It may then require some form of decision or judgement to be made, drawing on any evidence provided and consideration of the topic.
Explain	Provide a developed, reasoned explanation of how or why something occurs. An extended response explanation requires a depth of understanding to be demonstrated through the justification/exemplification of points identified.
Identify/give/ name/state	Recall or select one or more pieces of information.
Sketch/calculate	Perform a procedure as instructed relevant to the context of the question.

Command word	Definition
Suggest	For an unfamiliar scenario, provide a reasoned explanation of how or why something may occur. A suggested explanation requires a justification/exemplification of a point that has been identified.
Summarise	Give the main points relating to data, information or a resource, providing the opportunity to consider the most and/or least significant.
To what extent	Give the main arguments for and against a point of view to create a written debate with a conclusion that is justified and supported by evidence.

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