Curriculum Overview – Geography

Introduction

This document outlines **the curriculum and key considerations** including:

- Aims and purpose
- Alignment with the whole school provision and curriculum intent
- A summary programme of study which includes sequencing of taught content

We use the National Curriculum as our statutory foundation and broadly share its principles and aims including:

- 'To provide students with an introduction to the essential knowledge that they need to be educated citizens. To introduce students to the best that has been thought and said and help engender an appreciation of human creativity and achievement'.
- To prepare students to be confident in themselves, to have a fulfilled and successful life beyond our school – one where they contribute positively to society.
- Our statutory curriculum is just one element in the education of every child. There is time and space in the school day and in each week, term, and year to range beyond statutory specifications.
- Provision of a framework of core knowledge around which teachers can develop exciting and stimulating lessons to promote the development of students' knowledge, understanding and skills as part of the wider school curriculum.
- The wider school curriculum includes an extensive range of opportunities and activities that are routinely available to students, are inclusive and reflect our diverse community.

Numeracy and literacy

Teachers should take opportunities to develop students' mathematical fluency, spoken language, reading, writing and vocabulary within their specific discipline and in line with the expectations laid out in our school curriculum statement.

Purpose of study

A high-quality geography education should inspire in students a curiosity and fascination about the world and its people that will remain with them for the rest of their lives. Teaching should equip students with knowledge about diverse places, people, resources and natural and human environments, together with a deep understanding of the Earth's key physical and human processes. As students progress, their growing knowledge about the world should help them to deepen their understanding of the interaction between physical and human processes, and of the formation and use of landscapes and environments. Geographical knowledge, understanding and skills provide the frameworks and approaches that explain how the Earth's features at different scales are shaped, interconnected and change over time. *(DFE 2013)*

Wolfreton Curriculum Intent

Our Geography curriculum is underpinned by our Intent statement:

Place Matters – without Geography you are nowhere

To inspire a curiosity about the changing world in which we live. Geography is engaging, interesting, relevant and dynamic. Students will be challenged to think creatively and sustainably in order to address and solve world issues.

Curriculum Aims

The Wolfreton curriculum for Geography aims to ensure that all students:

- Develop contextual knowledge of the location of globally significant places and their defining physical and human characteristics
- Develop communication skills that allow them to explain process and evaluate arguments
- Conduct fieldwork and research, interpret data from a range of sources and have a good grasp of map skills
- Understand and are able to articulate how they have a part to play in the world
- Develop a fascination about the wider world that will remain with them for the rest of their lives
- Have an understanding about how the world works and a thirst to expand this understanding

Building on prior learning

By the end of Key Stage 2, students should have knowledge and understanding beyond the local area to include the United Kingdom and Europe, North and South America. This should include the location and characteristics of a range of the world's most significant human and physical features. They should have developed their use of geographical knowledge, understanding and skills to enhance their locational and place knowledge.

- **Locate the world's countries, using maps** to focus on Europe (including the location of Russia) and North and South America, concentrating on their environmental regions, key physical and human characteristics, countries, and major cities
- **Name and locate counties and cities of the United Kingdom**, geographical regions and their identifying human and physical characteristics, key topographical features (including hills, mountains, coasts and rivers), and land-use patterns; and understand how some of these aspects have changed over time
- **Identify the position and significance of latitude,** longitude, Equator, Northern Hemisphere, Southern Hemisphere, the Tropics of Cancer and Capricorn, Arctic and Antarctic Circle, the Prime/Greenwich Meridian and time zones (including day and night)
- **Understand geographical similarities and differences** through the study of human and physical geography of a region of the United Kingdom, a region in a European country, and a region within North or South America
- Students can **describe and understand physical geography**, including: climate zones, biomes and vegetation belts, rivers, mountains, volcanoes and earthquakes, and the water cycle

- Students can **describe and understand human geography**, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water
- Students should be able to **use maps, atlases, globes and digital/computer mapping** to locate countries and describe features studied
- Students should be able to **use the eight points of a compass, four and six-figure grid references, symbols and key** (including the use of Ordnance Survey maps) to build their knowledge of the United Kingdom and the wider world
- Students can **use fieldwork** to observe, measure, record and present the human and physical features in the area using a range of methods, including sketch maps, plans and graphs, and digital technologies.

What are the knowledge and skills gaps?

- Map skills – these can be inconsistent between students - some are very well developed, but others are more limited
- Reading and using grid references
- Data interpretation, using maps and graphs
- Geographical enquiry – recording and presenting data and findings
- Geographical enquiry – applying disciplinary knowledge to evaluate evidence and inform decisions

Curriculum Structure

At Wolfreton, we design our curriculum to develop students' **knowledge of key geographical concepts that thread throughout our seven-year curriculum** from Year 7 to Year 13. These concepts are interwoven throughout our Key Stage 3 and Key Stage 4 schemes of learning and provide students with **a framework to make synoptic links** between the different topics they encounter.

Key Geographical Concepts

- Geographical skills
- Place
- Systems
- Globalisation
- Resources
- Development
- Sustainability
- Risk

Content Area	Subject Content	Geographical Skills
Locational knowledge	**Extend their locational knowledge and deepen their spatial awareness** of the world's countries using maps of the world to focus on, • Africa • Russia • Asia (including China and India) • The Middle East **Focus on their environmental regions**, • Polar • Hot deserts **Key physical and human characteristics, countries and major cities**	**Cartographic skills:** • Use and understand gradient, contour and spot height on OS maps and other isoline maps (e.g. weather charts, ocean bathymetric charts) • Interpret cross sections and transects • Use and understand coordinates, scale and distance • Describe and interpret geo-spatial data presented in a GIS framework (e.g. analysis of flood hazard using the interactive maps on the Environment Agency website) **Graphical skills:** • Select and construct appropriate graphs and charts to present data, using appropriate scales and including bar charts, pie charts, pictograms, line charts, histograms with equal class intervals • Interpret and extract information from different types of graphs and charts including any of the above and others relevant to the topic (e.g. triangular graphs, radial graphs, wind rose diagrams, proportional symbols) • Interpret population pyramids, choropleth maps and flow-line maps **Numerical skills:** • Demonstrate an understanding of number, area and scale and the quantitative relationships between units • Design fieldwork data collection sheets and collect data with an understanding of accuracy, sample size and procedures, control groups and reliability • Understand and correctly use proportion and ratio, magnitude, frequency (e.g. 1:200 flood events) and logarithmic scales • Draw informed conclusions from numerical data **Statistical skills:** • Use appropriate measures of central tendency, spread and cumulative frequency (median, mean, range, quartiles and inter-quartile range, mode and modal class)
Place Knowledge	**Understand geographical similarities, differences and links** between places through the study of human and physical geography of a region **within Africa**, and of a region within Asia	
Physical geography	**Understand,** through the use of detailed place-based exemplars at a variety of scales, **the key processes in physical geography relating to:** • Geological timescales and plate tectonics • Rocks, weathering and soils • Weather and climate, including the change in climate from the Ice Age to the present • Glaciation, hydrology and coasts	
Human Geography	**Understand,** through the use of detailed place-based exemplars at a variety of scales, **the key processes in human geography relating to:** • Population and urbanisation • International development • Economic activity in the primary, secondary, tertiary and quaternary sectors; and the use of natural resources • Understand how human and physical processes interact to influence, and change landscapes, environments and the climate; and how human activity relies on effective functioning of natural systems	

Content Area	Subject Content	Geographical Skills
Geographical skills and fieldwork	• **Build on their knowledge of globes, maps and atlases** and apply and develop this knowledge routinely in the classroom and in the field. Interpret Ordnance Survey maps in the classroom and the field, including using grid references and scale, topographical and other thematic mapping, and aerial and satellite photographs. • **Use Geographical Information Systems (GIS)** to view, analyse and interpret places and data. • **Use fieldwork** in contrasting locations to collect, analyse and draw conclusions from geographical data, using multiple sources of increasingly complex information.	• Calculate percentage increase or decrease and understand the use of percentiles • Describe relationships in bivariate data: sketch trend lines through scatter plots; draw estimated lines of best fit; make predictions; interpolate and extrapolate trends • Be able to identify weaknesses in selective statistical presentation of data **Literary skills:** • Developing subject specific vocabulary to enable students to identify and name key features and processes • Using language effectively to describe trends and patterns • Explaining how human and physical processes lead to features and phenomena • Examining source materials to support explanations of specific processes and phenomena • Assessing differing viewpoints and/or evidence to form judgements

Vocabulary

Having a rich, ambitious, broad vocabulary is vital for students to succeed, both in school and throughout their lives.

Tier 1 vocabulary is the simplest. These are the words we use in everyday conversation, such as “put”, “get”, “walk”, etc. On the other side of the spectrum, Tier 3 vocabulary is the subject-specific vocabulary of a particular discipline. These are words that aren’t used outside of the context of a specific subject, or have a different meaning in one subject versus another. In the middle of these two tiers is Tier 2 vocabulary. Tier 2 vocabulary are challenging, ambitious words that don’t usually crop up in day-to-day conversation. These are the words that allow us to access academic texts, such as high-level literature, newspaper articles and exam papers.

At Wolfreton, Tier 3 and Tier 2 vocabulary is explicitly taught across our school curriculum. The Tier 3 vocabulary is indicated for each topic in the curriculum sequencing below. The following Tier 2 words are developed and used throughout our geography curriculum.

Tier 2 geographical vocabulary, developed throughout Key Stage 3 and Key Stage 4:
Cause, effect, response, source, resource, primary, secondary, social, economic, environmental, political,
identify, name, state, give, define, describe, compare, explain, examine, assess, evaluate, discuss,
sustainability, development, impact, consequences, scale, global, interconnections,
frequency, trend, anomaly, evidence, distribution, calculate, complete, complete, justify, outline, suggest, to what extent

Curriculum Sequencing

Key Stage 3: Year 7 – Long Term Planning

	Autumn term	Spring term	Summer term
Knowledge	**Map Skills** • What is geography? • Direction and sketch maps – the Great Barrier Reef • Scale and distance – Antarctica • Measuring distance – The Ganges • 4 figure grid references – Rio de Janeiro • 6 figure grid references – Victoria Falls • Measuring height – Mt St Helens • Cross sections – Mt St Helens • Map symbols – Bridlington **Hazards** • Categorising hazards and exploring hazard risk • Structure of the earth • Earthquakes, plate margins, earthquake distribution and preparation • The causes, effects, and responses to the Nepal earthquake • Volcanic features and hazards • The causes, effects, and response to the Eyjafjallajökull eruption • The formation of tropical storms • The causes, effects, and responses to Hurricane Irma • Tsunami formation • The causes, effects and responses to the Sulawesi tsunami • Yellowstone supervolcano • Wildfires	**Geography of the UK** • The location of the UK • Features between Land's End and John O'Groats • Climate of the UK • Population of the UK • Migration to the UK • Jobs in the UK • UK economy • UK in the wider world • Local Geography • Local Geography 2 • The UK demographic transition model • Temperate deciduous forests **Extreme Environments** • The physical geography of Antarctica • Human life in Antarctica • How animals adapt to the conditions of Antarctica • Antarctica's importance and the Antarctic treaty • The physical geography of tropical rainforests • Rainforest tribes and threats • Tropical rainforest importance • The physical geography of mountain ranges • Mount Everest decision making exercise • The physical characteristics of avalanches, the causes and effects • The physical geography of hot deserts • Animal adaptations in hot deserts	**Asia** • The physical geography of Asia • India monsoon • Tourism in China • Hong Kong homes • The opportunities and challenges of tourism in Thailand • The hazardous environment of Indonesia • Fashion in Asia • Population demographics in Cambodia (the Khmer Rouge) • Technology in Japan • The Rohingya crisis • Hazards in the Philippines • Singapore's economy • Contrasting environments – North Korea and South Korea **Weather and Climate** • Weather and climate and the effects on human activities • Forecasting the weather • Rain and cloud formation • Microclimates of Wolfreton • Weather across the world • Extreme weather across the world • Extreme weather in the UK • Tornado formation, the global distribution of tornadoes and tornadoes in North America (Tornado Alley) • Tornado impacts, monitoring, preparing, and planning

			• The opportunities provided by tornado - storm chasers • The causes and effects of drought • The causes and effects of the 2018 heatwave
Skills – links to the disciplinary concepts	• **Read and interpret a range of graphs, maps and images** • **Understand how to apply these skills:** to be able to use and interpret a range of resources and apply their knowledge to a range of commands.	• **Examine information to be able to explain and evaluate contemporary issues.** • **Understand how to apply these skills:** to being able to use and interpret a range of resources and apply their knowledge to a range of commands.	• **Examine information to be able to explain and evaluate contemporary issues.** • **Understand how to apply these skills:** to be able to use and interpret a range of resources and apply their knowledge to a range of commands.
Tier 3 Vocabulary	**Map Skills** • human geography • physical geography • environmental geography • lines of latitude • scale • distance • cross section **Hazards** • natural hazard • tectonic hazard • conservative • constructive • collision • destructive • atmospheric hazard • hazard risk • HIC / LIC • Urbanisation • distribution • focus • seismic waves • epicentre • subsistence farmers • caldera • glacier • tropical storm • tsunami • wave shoaling • super volcano • fissures • geothermal • geyser • hot spot	**Geography of the UK** • physical geography • human geography • relief • climate • population density • migration • immigrant • emigrant • refugee • economic migrant • internal migrant • primary sector • secondary sector • tertiary sector • quaternary sector • economic distribution • poverty **Extreme Environments** • precipitation • climate • katabatic winds • elevation • adaptation • physical changes • behavioural changes • indigenous • biodiversity • avalanche • powder • slab • distribution	**Asia** • monsoon • tourism • ethical tourism • population pyramid • civil war • communism • superpower • multi-hazardous environment • development **Weather and Climate** • weather • climate • air pressure • convectional rainfall • relief rainfall • frontal rainfall • cirrus • cumulus • stratus • nimbus • cloud seeding • prevailing winds • aspect • altitude • latitude • microclimate • extreme weather • drought • heatwave • tornado • hurricane
Assessment	**Key Marked Piece:** • GCSE style questions based on topic (Map Skills) **Key Marked Piece:** • GCSE style questions based on topic (Hazards)	**Mid-Year Exam** • GCSE style questions based on topics taught so far this year including Map Skills, Hazards and Geography of the UK. **Key Marked Piece:** • GCSE style questions based on topic (Extreme Environments)	**Key Marked Piece:** • GCSE style questions based on topic (Asia) **End of Year Exam:** • GCSE style questions based on topics taught this year including Map Skills, Hazards, Geography of the UK, Extreme Environments and Asia.

Key Stage 3: Year 8 – Long Term Planning

	Autumn term	Spring term	Summer term
Knowledge	**Russia** • Introduction to Russia • Russia with Simon Reeve • Climate in Russia • Animal adaptations • Population decrease • Yakutia migration • Russia World Cup • Chernobyl • The Nenets • Threats to the Taiga Forest • Russia and conflict • Russia's natural resources • Tourism in Russia • The Space Race **Geography of the Environment** • Introduction to environmental geography • Climate change • Australia bushfires • Carbon future • Wind farms • Oceans and plastic pollution • Sustainable tourism • Wilderness areas under threat • Landmines • The Mariana Trench • Climate change in Bangladesh • Dharavi slums (waste pollution) • Pollution in China	**The Middle East** • Location of the Middle East • Perceptions of the Middle East • The Syrian Refugee crisis • Oil in the Middle East • Wealth in the Middle East • Poverty in Dubai • Qatar World Cup • Afghanistan • Afghanistan. Then and now • Israel and Palestine conflict • Is Dubai a sustainable city? • Population distribution in the Middle East **Glaciation** • What are glaciers? • Glacial erosion • Glacial deposition • Living in a glacial environment • People and glacial landforms • Lake District tourism • Norwegian fjords • Glaciers and climate change • Tundra (adaptations) • Alaska • Geographical Information Systems (GIS) – glaciation past and present	**Global Development** • Introduction to development • World development • Population • Causes of poverty in Sierra Leone • Squatter settlements • Mexico migration • Poverty in a HIC (Las Vegas) • Reducing the development gap • Windrush migration • Colonialism in Haiti and India • Globalisation • Tesco as a TNC • Globalisation and Nike • Fast fashion **Plastic Pollution** • The Great Pacific Garbage Patch • Plastic pollution • Kenya tourism and plastic • Dealing with plastic waste • UK plastic waste management • Planning plastics fieldwork • Plastics fieldwork in school • Plastics fieldwork – fieldtrip • Plastics DME • Drowning in plastic • Plastic pollution in Vietnam • Henderson Island
Skills – links to the	• Examine information to be able to explain and evaluate contemporary issues.	• Examine information to be able to explain and evaluate contemporary issues.	• Examine information to be able to explain and evaluate contemporary issues.

disciplinary concepts	• **Understand how to apply these skills:** to be able to use and interpret a range of resources and apply their knowledge to a range of commands.	• **Understand how to apply these skills:** to be able to use and interpret a range of resources and apply their knowledge to a range of commands.	• **Understand how to apply these skills:** to be able to use and interpret a range of resources and apply their knowledge to a range of commands.
Tier 3 Vocabulary	**Russia** • biome • adaptation • population density • population pyramid • migration • push factor • pull factor • taiga forest • natural resource **Geography of the Environment** • environmental geography • climate change • global warming • primary impacts • secondary impacts • bushfires • carbon footprint • renewable • turbine • sustainable tourism • wilderness	**The Middle East** • Glaciation • ice age • glacial period • interglacial period • Pleistocene • glacier • glaciation • accumulation • ablation • glacial budget • system • erosion • plucking • abrasion • freeze thaw • corrie • tarn • pyramidal peak • aretes • transportation • bulldozing • deposition • till • erratic • moraine • drumlin	**Global Development** • absolute poverty • relative poverty • Human Development Index (HDI) • population • population distribution • squatter settlement • migration • immigrant • emigrant • forced migration • refugee • development gap • aid • colonialism • colonies • imperialist • reparations • globalisation • interdependence • Transnational Corporation (TNC) • trade • culture • communication **Plastic Pollution** • pollution • sustainable • micro plastics
Assessment	**Two-part assessment:** • Section A – prior learning (multiple choice) • Section B – GCSE style questions based on topic (Russia) **Two-part assessment:** • Section A – prior learning (multiple choice) • Section B – GCSE style questions based on topic (Geography of the Environment)	**Two-part assessment:** • Section A – prior learning (multiple choice) • Section B – GCSE style questions based on topic (The Middle East) **Two-part assessment:** • Section A – prior learning (multiple choice) • Section B – GCSE style questions based on topic (Glaciation)	**Two-part assessment:** • Section A – prior learning (multiple choice) • Section B – GCSE style questions based on topic (Global Development) **Two-part assessment:** • Section A – prior learning (multiple choice) • Section B – GCSE style questions based on topics taught this year (End of Year Exam)

Key Stage 3: Year 9 – Long Term Planning

	Autumn term	Spring term	Summer term (starting GCSE)
Knowledge	**Natural resources** • What is a natural resource? • Water as a resource • Food as a resource – where does our food come from? • Energy as a resource • What is renewable energy? • Fracking – The Future? • Sustainable schools – Eco-friendly Education? • Renewable cities – Copenhagen • Conflict in the South China Sea • Water conflict in Bolivia • Water conflict in The Aral Sea • Beef - farming. Should we be vegetarian? • Food insecurity in Somalia • Is shrimp farming sustainable? **The Tropics** • Introduction and the Great Barrier Reef • Borneo and endangered animals • The Citarum River • The Maldives • Bolivia • Somalia pirates • Equator from the air • India • Jamaica tourism • Middle East • The geography of cruise ships	**Africa** • Introduction to Africa • Africa population • African countries development • Climates and biomes of Africa • The Sahel • Poverty in Ghana • Urbanisation in Ethiopia • Trade between China and Africa • Semi-arid grasslands • Drought in the Horn of Africa • Maasai tribe • Mount Nyiragongo eruption • Rwanda genocide **Issue Evaluation Decision Making Exercise (DME)** Students will use analytical skills to complete a decision making exercised based on tourism in Bridlington. • Bridlington tourism • Positives of Bridlington tourism • Negatives of Bridlington tourism • DME Bridlington tourism	**Coasts** • Students will understand that the UK has a range of diverse landscapes. • Students will investigate the physical processes shaping the coast • They will understand coastal landforms are the result of rock type, structure, and physical processes • They will find out about different management strategies can be used to protect coastlines from the effects of physical processes – Holderness Coast example **Rivers** • Students investigate how the shape of river valleys change as rivers flow downstream. • Students will explore the range of different physical processes which create river landforms. • They will evaluate a variety of management strategies which can be used to protect river landscapes from the effects of flooding – York example
Skills – links to the disciplinary concepts	• **Examine information to be able to explain and evaluate contemporary issues.**	• **Examine information to be able to explain and evaluate contemporary issues.**	• **Examine information to be able to explain and evaluate contemporary issues.**

	• **Understand how to apply these skills:** to be able to use and interpret a range of resources and apply their knowledge to a range of commands.	• **Understand how to apply these skills:** to be able to use and interpret a range of resources and apply their knowledge to a range of commands.	• **Understand how to apply these skills:** to be able to use and interpret a range of resources and apply their knowledge to a range of commands.
Tier 3 Vocabulary	**Natural Resources** • natural resources • renewable • non-renewable • water surplus • water deficit • imports • exports • food miles • carbon footprint • fracking • sustainable • food insecurity **Exploring the Tropics** • coral reef • coral • coastal protection • coral bleaching • biodiversity • pollution • atoll • globalisation • interdependence • megacity • mitigation • adaptation • hotspot • plume	**Africa** • colonies • imperialist • Human Development Index (HDI) • biome • hot desert • savanna • rainforest • deciduous woodland • Sahel • desertification • poverty • urbanisation **Issue Evaluation** • tourism • the multiplier effect • social • economic • environmental • demographics • stakeholders	**Coasts** • fetch • swash • backwash • constructive wave • destructive wave • weathering • mass movement • erosion • transportation • deposition • coastal management • hard engineering • soft engineering • conflict **Rivers** • erosion • transportation • deposition • meander • oxbow lake • flood plain • levee • estuary • flood risk • infiltration • surface runoff • flood risk
Assessment	**Two-part assessment:** • Section A – prior learning (multiple choice) • Section B – GCSE style questions based on topic (Natural Resources) **Two-part assessment:** • Section A – prior learning (multiple choice) • Section B – GCSE style questions based on topic (Tropics)	**Two-part assessment:** • Section A – prior learning (multiple choice) • Section B – GCSE style questions based on topic (Africa)	**Two-part assessment:** • Section A – prior learning (multiple choice) • Section B – GCSE style questions based on topic (Coasts) **Two-part assessment:** • Section A – prior learning (multiple choice) • Section B – GCSE style questions based on topics taught this year (End of Year Exam)

Key Stage 4 Year 10 – Long Term Planning - AQA GCSE Geography

	Autumn term	Spring term	Summer term
Knowledge	**Natural Hazards** • Natural hazards pose risks to people and property. **Tectonic hazards** • Physical processes that lead to earthquakes and volcanic eruptions • Effects and responses to earthquakes in a LIC (Haiti) and a HIC (New Zealand) • Management strategies to reduce the effects of tectonic hazards **Weather hazards** • Global atmospheric circulation determines weather patterns and climate • Tropical storms develop as a result of specific physical conditions • Tropical storms have significant effects on people and environments – Typhoon Haiyan example • The UK is affected by a number of weather hazards • Extreme weather events in the UK have impacts on human activity – Storm Jorje example **Climate change** • Climate change is the result of human and physical factors and has a range of effects • Managing climate change involves both mitigation and adaptation	**Living World** • Ecosystems exist at a range of scales and involve interaction between living and non-living components. **Tropical rainforests** • Tropical rainforests have distinctive environmental characteristics • Deforestation has economic and environmental impacts – Amazon example • Tropical rainforests need to be managed to be sustainable **Hot deserts** • Hot deserts have distinctive environmental characteristics • Development of hot deserts creates opportunities and challenges – Thar Desert example • Areas on the fringe of hot deserts are at the risk of desertification – Sahel example	**Urban issues and challenges** **The urban world** • A growing percentage of the world's population live in urban areas • Urban growth creates opportunities and challenges for LIC and NEE countries – Rio de Janeiro, Brazil example **Urban change in the UK** • Urban change in UK cities leads to a range of social, economic and environmental opportunities and challenges – London example **Sustainable urban development** • Urban sustainability requires management of resources and transport **Paper 3 Fieldwork** • Theoretical fieldwork techniques and purpose

Skills – links to the disciplinary concepts	• Use of qualitative and quantitative data from both primary and secondary sources to obtain, illustrate, communicate, interpret, analyse and evaluate geographical information. • Applying cartographic (atlas and OS maps) and graphical skills to recognise and describe distributions and patterns.	• Use of qualitative and quantitative data from both primary and secondary sources to obtain, illustrate, communicate, interpret, analyse and evaluate geographical information. • Applying graphical skills to recognise and describe distributions and patterns through a variety of graphs and maps.	• Use of qualitative and quantitative data from both primary and secondary sources to obtain, illustrate, communicate, interpret, analyse and evaluate geographical information. • Applying graphical skills to recognise and describe distributions and patterns through a variety of graphs and maps. • Applying numerical skills to collect, analyse and draw conclusions from data.
Vocabulary	See Appendix – Key Stage 4 Vocabulary and Key Terms		
Assessment	Two-part assessment: • Section A – GCSE past exam questions based on previous topic (Rivers) • Section B – GCSE past exam questions based on current topic (Tectonic Hazards) Two-part assessment: • Section A – GCSE past exam questions based on previous topic (Coasts) • Section B – GCSE past exam questions based on current topic (Weather and Climate)	Two-part assessment: • Section A – GCSE past exam questions based on previous topic (Hazards) • Section B – GCSE past exam questions based on current topic (Ecosystems and Tropical Rainforests) Two-part assessment: • Section A – GCSE past exam questions based on previous topic (Weather and Climate) • Section B – GCSE past exam questions based on current topic (Hot Deserts)	Two-part assessment: • Section A – GCSE past exam questions based on previous topic (Hot Deserts) • Section B – GCSE past exam questions based on current topic (Urbanisation and Rio de Janeiro) Two-part assessment: • Section A – GCSE past exam questions based on previous topic (Urbanisation and Rio de Janeiro) • Section B – GCSE past exam questions based on current topic (London and Freiburg) • End of Year Exam (Full Paper 1)

Key Stage 4: Year 11 – Long Term Planning - AQA GCSE Geography

	Autumn term	Spring term	Summer term
Knowledge	**Changing Economic World** **The development gap** • Global variations in economic development and quality of life • A range of strategies exist for reducing the global development gap **Case study: Nigeria, an NEE** • Nigeria is experiencing rapid economic development which leads to social, environmental and cultural change **The changing UK economy** • Major changes in the UK economy have affected employment patterns and regional growth and will continue to do so in the future	**Resource Management** **Resource management** • Food, water and energy are fundamental to human development • The changing demand and provision of resources in the UK creates opportunities and challenges **Energy management** • Demand for energy resources is rising globally but supplies can be insecure, creating conflict • Different strategies can be used to increase energy supply – Amazon gas and Tung-Kabri, Kenya examples	**UK Physical Landscapes (recap from Y9)** The UK has a range of diverse landscapes. **UK coastal landscapes** • The coast is shaped by physical processes • Coastal landforms are the result of rock type, structure and physical processes • Different management strategies can be used to protect coastlines from the effects of physical processes – Holderness Coast example **UK river landscapes** • The shape of river valleys changes as rivers flow downstream • River landforms are the result of different physical processes • Different management strategies can be used to protect river landscapes from the effects of flooding – York example **Paper 3 Fieldwork and pre-release material** • Theoretical fieldwork techniques and purpose • Preparation for the synoptic decision-making exercise (DME)
Skills – links to the disciplinary concepts	• Use of qualitative and quantitative data from both primary and secondary sources to obtain, illustrate, communicate, interpret, analyse and evaluate geographical information.	• Use of qualitative and quantitative data from both primary and secondary sources to obtain, illustrate, communicate, interpret, analyse and evaluate geographical information.	• Use of qualitative and quantitative data from both primary and secondary sources to obtain, illustrate, communicate, interpret, analyse and evaluate geographical information.

	• Applying graphical skills to recognise and describe distributions and patterns through a variety of graphs and maps.	• Applying graphical skills to recognise and describe distributions and patterns through a variety of graphs and maps.	• Applying cartographic (atlas and OS maps) and graphical skills to recognise and describe distributions and patterns. • Applying graphical skills to recognise and describe distributions and patterns through a variety of graphs and maps.
Vocabulary	See Appendix – Key Stage 4 Vocabulary and Key Terms		
Assessment	Two-part assessment: • Section A – GCSE past exam questions based on previous topic (Urbanisation) • Section B – GCSE past exam questions based on current topic (The Development Gap and Nigeria) Two-part assessment: • Section A – GCSE past exam questions based on previous topic (The Development Gap and Nigeria) • Section B – GCSE past exam questions based on current topic (The UK Economy)	Two-part assessment: • Section A – GCSE past exam questions based on previous topic (The UK Economy) • Section B – GCSE past exam questions based on current topic (Resource Management) Two-part assessment: • Section A – GCSE past exam questions based on previous topic (Resource Management) • Section B – GCSE past exam questions based on current topic (Energy) • Full Paper 2 Exam.	Two-part assessment: • Section A – GCSE past exam questions based on previous topic (Energy) • Section B – GCSE past exam questions based on current topic (Coasts) Two-part assessment: • Section A – GCSE past exam questions based on previous topic (Coasts) • Section B – GCSE past exam questions based on current topic (Rivers) • Full Paper 3 Exam after the DME is released.

Key Stage 5: Year 12 – Long Term Planning - AQA A Level Geography

	Autumn term	Spring term	Summer term
Knowledge	**Coasts** **Coasts as natural systems** • Systems in physical geography **Systems and processes** • Sources of energy in coastal environments • Sediment sources, cells and budgets • Geomorphological processes • Distinctively coastal processes **Coastal landscape development** • Study of a variety of landscapes from beyond the United Kingdom (UK) but may also include UK examples. • Origin and development of landforms and landscapes of coastal erosion: • Origin and development of landforms and landscapes of coastal deposition • Estuarine mudflat/saltmarsh environments and associated landscapes • Eustatic, isostatic and tectonic sea level change • Coastlines of emergence and submergence • Recent and predicted climatic change and potential impact on coasts. • The relationship between process, time, landforms and landscapes in coastal settings. **Coastal management**	**Hazards** **The concept of hazards in a geographical context** • Nature forms and potential impacts of natural hazards **Plate tectonics** • Earth structure and internal energy sources • Plate tectonic theory of crustal evolution • Characteristic processes • Associated **Volcanic hazards** • The nature of vulcanicity and its relation to plate tectonics • Impacts • Short and long-term responses • Impacts and human responses as evidenced by a recent volcanic event. **Seismic hazards** • The nature of seismicity and its relation to plate • Impacts • Short and long-term responses • Impacts and human responses as evidenced by a recent seismic event. **Storm hazards**	**Fieldwork and Skills** **Qualitative skills and quantitative skills** **Qualitative data** • use and understanding of a mixture of methodological approaches, including interviews • interpretation and evaluation of a range of source material including textual and visual sources • understanding of the opportunities and limitations of qualitative techniques such as coding and sampling, and appreciation of how they actively create particular geographical representations • understanding of the ethical and socio-political implications of collecting, studying and representing geographical data about human communities. **Quantitative data** • understanding of what makes data geographical and the geospatial technologies (eg GIS) that are used to collect, analyse and present geographical data • an ability to collect and use digital and geo-located data, and understand a range of approaches to use and analyse such data

	• Human intervention in coastal landscapes.
	• Traditional approaches to coastal flood and erosion risk
	• Sustainable approaches to coastal flood risk and coastal erosion management
	
	Quantitative and qualitative skills
	• Students must engage with a range of quantitative and relevant qualitative skills, within the theme landscape systems. These should include observation skills, measurement and geospatial mapping skills and data manipulation and statistical skills applied to field measurements.
	
	Case studies
	• Case study(ies) of coastal environment(s) at a local scale
	• Case study of a contrasting coastal landscape beyond the UK
	
	Changing places
	
	The nature and importance of places
	• The concept of place and the importance of place in human life and experience.
	• Insider and outsider perspectives on place.
	• Categories of place
	• Factors contributing to the character of places
	
	Changing places – relationships, connections, meaning and representation
		• The nature of tropical storms and their underlying causes.
		• Forms of storm hazard
		• Impacts
		• Short and long-term responses
		• Impacts and human responses as evidenced by two recent tropical storms in contrasting areas of the world.
		
		Fires in nature
		• Nature of wildfires.
		• Conditions favouring intense wild fires
		• Causes of fires
		• Impacts
		• Short and long-term responses
		• Impact and human responses as evidenced by a recent wild fire event.
		
		Case studies
		• **Case study** of a multi-hazardous environment beyond the UK
		• **Case study** at a local scale of a specified place in a hazardous setting
		
		Contemporary urban environments
		
		Urbanisation
		• Urbanisation and its importance in human affairs.
		• Economic, social, technological, political and demographic processes associated with urbanisation and urban growth.
			• understanding of the purposes and difference between the following and to use them in appropriate contexts:
			  ○ descriptive statistics of central tendency and dispersion
			  ○ descriptive measures of difference and association, inferential statistics and the foundations of relational statistics
			  ○ measurement, measurement errors, and sampling
			  ○ understanding of the ethical and socio-political implications of collecting, studying and representing geographical data about human communities.

	• Local place and contrasting place and encompassing local, regional, national, international and global scales
	
	Relationships and connections
	• The impact of relationships and connections on people and place with a particular focus on:
	  ○ people's lived experience of the place in the past and at present
	  ○ changing demographic and cultural characteristics
	  ○ economic change and social inequalities.
	• How the demographic, socio-economic and cultural characteristics of places are shaped
	• The characteristics and impacts of external forces operating at different scales from local to global
	• How past and present connections, within and beyond localities, shape places and embed them in the regional, national, international and global scales.
	
	Meaning and representation
	• The importance of the meanings and representations attached to places by people
	• How humans perceive, engage with and form attachments to places and how they present and represent the world to others
	• How external agencies, including government, corporate bodies and
		• Urban change: deindustrialisation, decentralisation, rise of service economy.
		• Urban policy and regeneration in Britain since 1979.
		
		Urban forms
		• Contemporary characteristics of mega/world cities.
		• Urban characteristics in contrasting settings.
		• New urban landscapes.
		
		Social and economic issues associated with urbanisation
		• Issues associated with economic inequality, social segregation and cultural diversity in contrasting urban areas.
		• Strategies to manage these issues.
		
		Urban climate
		• The impact of urban forms and processes on local climate and weather.
		• Urban temperatures
		• Pollution reduction policies.
		
		Urban drainage
		• Urban precipitation, surfaces and catchment characteristics
		• Issues associated with catchment management in urban areas. The development of sustainable urban drainage systems (SUDS).	

	community or local groups make attempts to influence or create specific place-meanings • How places may be represented in a variety of different forms • How both past and present processes of development can be seen to influence the social and economic characteristics of places **Quantitative and qualitative skills** • Students must engage with a range of quantitative and qualitative approaches across the theme as a whole. Quantitative data, including the use of geospatial data, must be used to investigate and present place characteristics, particular weight must be given to qualitative approaches involved in representing place, and to analysing critically the impacts of different media on place meanings and perceptions. The use of different types of data should allow the development of critical perspectives on the data categories and approaches. **Place studies** • **Local place study** exploring the developing character of a place local to the home or study centre. • **Contrasting place study** exploring the developing character of a contrasting and distant place.	• River restoration and conservation in damaged urban catchments with reference to a specific project. **Urban waste and its disposal** • Urban physical waste generation • Comparison of incineration and landfill approaches to waste disposal in relation to a specified urban area. **Other contemporary urban environmental issues** • Environmental problems in contrasting urban areas: atmospheric pollution, water pollution and dereliction. • Strategies to manage these environmental problems. **Sustainable urban development** • Impact of urban areas on local and global environments. • Contemporary opportunities and challenges in developing more sustainable cities. • Strategies for developing more sustainable cities. **Case studies** **Case studies** of two contrasting urban areas to illustrate and analyse key themes set out above.	
Skills – links to the	Core skills	Core skills	Core skills

disciplinary concepts	• Use and annotation of illustrative and visual material: base maps, sketch maps, OS maps (at a variety of scales), diagrams, graphs, field sketches, photographs, geospatial, geo-located and digital imagery. • Use of overlays, both physical and electronic. • Literacy – use of factual text and discursive/creative material and coding techniques when analysing text. • Numeracy – use of number, measure and measurement. • Questionnaire and interview techniques. Cartographic skills • Atlas maps. • Weather maps – including synoptic charts (if applicable) . • Maps with located proportional symbols. • Maps showing movement – flow lines, desire lines and trip lines. • Maps showing spatial patterns – choropleth, isoline and dot maps. Graphic skills • Line graphs – simple, comparative, compound and divergent. • Bar graphs – simple, comparative, compound and divergent. • Scatter graphs, and the use of best fit line. • Pie charts and proportional divided circles. • Triangular graphs. • Graphs with logarithmic scales.	• Use and annotation of illustrative and visual material: base maps, sketch maps, OS maps (at a variety of scales), diagrams, graphs, field sketches, photographs, geospatial, geo-located and digital imagery. • Use of overlays, both physical and electronic. • Literacy – use of factual text and discursive/creative material and coding techniques when analysing text. • Numeracy – use of number, measure and measurement. • Questionnaire and interview techniques. Cartographic skills • Atlas maps. • Weather maps – including synoptic charts (if applicable) . • Maps with located proportional symbols. • Maps showing movement – flow lines, desire lines and trip lines. • Maps showing spatial patterns – choropleth, isoline and dot maps. Graphic skills • Line graphs – simple, comparative, compound and divergent. • Bar graphs – simple, comparative, compound and divergent. • Scatter graphs, and the use of best fit line. • Pie charts and proportional divided circles. • Triangular graphs. • Graphs with logarithmic scales.	• Use and annotation of illustrative and visual material: base maps, sketch maps, OS maps (at a variety of scales), diagrams, graphs, field sketches, photographs, geospatial, geo-located and digital imagery. • Use of overlays, both physical and electronic. • Literacy – use of factual text and discursive/creative material and coding techniques when analysing text. • Numeracy – use of number, measure and measurement. • Questionnaire and interview techniques. Cartographic skills • Atlas maps. • Weather maps – including synoptic charts (if applicable) . • Maps with located proportional symbols. • Maps showing movement – flow lines, desire lines and trip lines. • Maps showing spatial patterns – choropleth, isoline and dot maps. Graphic skills • Line graphs – simple, comparative, compound and divergent. • Bar graphs – simple, comparative, compound and divergent. • Scatter graphs, and the use of best fit line. • Pie charts and proportional divided circles. • Triangular graphs. • Graphs with logarithmic scales.

	• Dispersion diagrams. Statistical skills • Measures of central tendency – mean, mode, median. • Measures of dispersion – range, inter-quartile range and standard deviation. • Inferential and relational statistical techniques to include Spearman's rank correlation and Chi-square test and the application of significance tests. ICT skills • Use of remotely sensed data. • Use of electronic databases. • Use of innovative sources of data such as crowd sourcing and 'big data'. • Use of ICT to generate evidence of many of the skills provided above such as producing maps, graphs and statistical calculations.	• Dispersion diagrams. Statistical skills • Measures of central tendency – mean, mode, median. • Measures of dispersion – range, inter-quartile range and standard deviation. • Inferential and relational statistical techniques to include Spearman's rank correlation and Chi-square test and the application of significance tests. ICT skills • Use of remotely sensed data. • Use of electronic databases. • Use of innovative sources of data such as crowd sourcing and 'big data'. Use of ICT to generate evidence of many of the skills provided above such as producing maps, graphs and statistical calculations.	• Dispersion diagrams. Statistical skills • Measures of central tendency – mean, mode, median. • Measures of dispersion – range, inter-quartile range and standard deviation. • Inferential and relational statistical techniques to include Spearman's rank correlation and Chi-square test and the application of significance tests. ICT skills • Use of remotely sensed data. • Use of electronic databases. • Use of innovative sources of data such as crowd sourcing and 'big data'. • Use of ICT to generate evidence of many of the skills provided above such as producing maps, graphs and statistical calculations.
Vocabulary	See Appendix – Key Stage 5 Vocabulary and Key Terms		
Assessment	• Coasts assessment • Changing places assessment	• Hazards assessment • Contemporary urban assessment	• Physical mock exam [coasts and hazards] • Human mock exam [changing places and contemporary urban environments]

Key Stage 5: Year 13 – Long Term Planning - AQA A Level Geography

	Autumn term	Spring term	Summer term
Knowledge	Water and carbon cycles Water and carbon cycles as natural systems • Systems in physical geography	NEA Investigation requirements • be based on a research question or issue defined and developed by the student	Revision Coasts Hazards Water and Carbon Cycles

	The water cycle • Global distribution and size of major stores of water • Processes driving change in the magnitude of these stores over time and space , including flows and transfers • Drainage basins as open systems – inputs and outputs • Runoff variation and the flood hydrograph. • Changes in the water cycle over time to include natural variation **The carbon cycle** • Global distribution, and size of major stores of carbon • Factors driving change in the magnitude of these stores over time and space • Changes in the carbon cycle over time, to include natural variation and human impact • The carbon budget and the impact of the carbon cycle upon land, ocean and atmosphere, including global climate. **Water, carbon, climate and life on Earth** • The key role of the carbon and water stores and cycles in supporting life on Earth with particular reference to climate. • The relationship between the water cycle and carbon cycle in the atmosphere. • The role of feedbacks within and between cycles and their link to climate change and implications for life on Earth.	individually to address aims, questions and/or hypotheses relating to any part of the specification content • involve research of relevant literature sources and an understanding of the theoretical or comparative context for a research question/hypothesis • incorporate the observation and recording of field data and/or evidence from field investigations that is of good quality and relevant to the topic under investigation • involve justification of the practical approaches adopted in the field including frequency/timing of observation, sampling and data collection approaches • draw on the student's own research, including their own field data and/or secondary data, and their experience of field methodologies of the investigation of core human and physical processes • demonstrate knowledge and understanding of the techniques appropriate for analysing field data and information and for representing results, and show ability to select suitable quantitative or qualitative approaches and to apply them • demonstrate the ability to interrogate and critically examine field data in order to comment on its accuracy and/or the extent to which it is representative, and use the experience to extend geographical understanding	**Changing Places** **Contemporary Urban Environments** **Global Systems and Global Governance**

	• Human interventions in the carbon cycle designed to influence carbon transfers and mitigate the impacts of climate change. **Quantitative and qualitative skills** • Students must engage with a range of quantitative and relevant qualitative skills, within the theme water and carbon cycles. Students must specifically understand simple mass balance, unit conversions and the analysis and presentation of field data. **Case studies** • Case study of a tropical rainforest setting to illustrate and analyse key themes in water and carbon cycles and their relationship to environmental change and human activity. • Case study of a river catchment(s) at a local scale to illustrate and analyse the key themes above, engage with field data and consider the impact of precipitation upon drainage basin stores and transfers and implications for sustainable water supply and/or flooding. **Global systems and global governance** **Globalisation** • Dimensions of globalisation • Factors in globalisation **Global systems**	• require the student to independently contextualise, analyse and summarise findings and data, and to draw conclusions, by applying existing knowledge, theory and concepts to order and understand field observations and identify their relation to the wider context • involve the writing up of field results clearly, logically and coherently using a range of presentation methods and extended writing • demonstrate the ability to answer a specific geographical question drawing effectively on evidence and theory to make a well-argued case • require evaluation and reflection on the investigation including showing an understanding of the ethical dimensions of field research. **Independence** Independence is compulsory in the following stages of the investigation: • defining and developing a question or issue to address aims, questions and/or hypotheses relating to any aspect of the specification • drawing on research, including field data and if relevant, secondary data which must be sourced by the student • contextualising, analysing and summarising findings and data • presenting data and drawing conclusions.	

	• Form and nature of economic, political, social and environmental interdependence in the contemporary world. • Issues associated with interdependence International trade and access to markets • Global features and trends in the volume and pattern of international trade and investment associated with globalisation. • Trading relationships and patterns between large, highly developed economies • Differential access to markets associated with levels of economic development and trading agreements and its impacts on economic and societal well-being. • The nature and role of transnational corporations (TNCs) • World trade in at least one food commodity or one manufacturing product. • Analysis and assessment of the geographical consequences of global systems to specifically consider how international trade and variable access to markets underly and impacts on students' and other people's lives across the globe. Global governance • The emergence and developing role of norms, laws and institutions in regulating and reproducing global systems. • Issues associated with attempts at global governance		

	Global governance • The emergence and developing role of norms, laws and institutions in regulating and reproducing global systems. • Issues associated with attempts at global governance **The 'global commons'** • The concept of the 'global commons'. The rights of all to the benefits of the global commons. Acknowledgement that the rights of all people to sustainable development must also acknowledge the need to protect the global commons. **Antarctica as a global common** • An outline of the contemporary geography, including climate, of Antarctica (including the Southern Ocean as far north as the Antarctic Convergence) • Threats to Antarctica • Critical appraisal of the developing governance of Antarctica. • The role of NGOs in monitoring threats and enhancing protection of Antarctica. • Analysis and assessment of the geographical consequences of global governance for citizens and places in Antarctica and elsewhere **Globalisation critique** • The impacts of globalisation to consider the benefits of growth, development, integration,		

	stability against the costs in terms of inequalities, injustice, conflict and environmental impact. Quantitative and qualitative skills • Students must engage with a range of quantitative and qualitative approaches across the theme as a whole		
Skills – links to the disciplinary concepts	Core skills • Use and annotation of illustrative and visual material: base maps, sketch maps, OS maps (at a variety of scales), diagrams, graphs, field sketches, photographs, geospatial, geo-located and digital imagery. • Use of overlays, both physical and electronic. • Literacy – use of factual text and discursive/creative material and coding techniques when analysing text. • Numeracy – use of number, measure and measurement. • Questionnaire and interview techniques. Cartographic skills • Atlas maps. • Weather maps – including synoptic charts (if applicable) . • Maps with located proportional symbols. • Maps showing movement – flow lines, desire lines and trip lines. • Maps showing spatial patterns – choropleth, isoline and dot maps.	Core skills • Use and annotation of illustrative and visual material: base maps, sketch maps, OS maps (at a variety of scales), diagrams, graphs, field sketches, photographs, geospatial, geo-located and digital imagery. • Use of overlays, both physical and electronic. • Literacy – use of factual text and discursive/creative material and coding techniques when analysing text. • Numeracy – use of number, measure and measurement. • Questionnaire and interview techniques. Cartographic skills • Atlas maps. • Weather maps – including synoptic charts (if applicable) . • Maps with located proportional symbols. • Maps showing movement – flow lines, desire lines and trip lines. • Maps showing spatial patterns – choropleth, isoline and dot maps.	Core skills • Use and annotation of illustrative and visual material: base maps, sketch maps, OS maps (at a variety of scales), diagrams, graphs, field sketches, photographs, geospatial, geo-located and digital imagery. • Use of overlays, both physical and electronic. • Literacy – use of factual text and discursive/creative material and coding techniques when analysing text. • Numeracy – use of number, measure and measurement. • Questionnaire and interview techniques. Cartographic skills • Atlas maps. • Weather maps – including synoptic charts (if applicable) . • Maps with located proportional symbols. • Maps showing movement – flow lines, desire lines and trip lines. • Maps showing spatial patterns – choropleth, isoline and dot maps.

	Graphic skills • Line graphs – simple, comparative, compound and divergent. • Bar graphs – simple, comparative, compound and divergent. • Scatter graphs, and the use of best fit line. • Pie charts and proportional divided circles. • Triangular graphs. • Graphs with logarithmic scales. • Dispersion diagrams. Statistical skills • Measures of central tendency – mean, mode, median. • Measures of dispersion – range, inter-quartile range and standard deviation. • Inferential and relational statistical techniques to include Spearman's rank correlation and Chi-square test and the application of significance tests. ICT skills • Use of remotely sensed data. • Use of electronic databases. • Use of innovative sources of data such as crowd sourcing and 'big data'. • Use of ICT to generate evidence of many of the skills provided above such as producing maps, graphs and statistical calculations.	Graphic skills • Line graphs – simple, comparative, compound and divergent. • Bar graphs – simple, comparative, compound and divergent. • Scatter graphs, and the use of best fit line. • Pie charts and proportional divided circles. • Triangular graphs. • Graphs with logarithmic scales. • Dispersion diagrams. Statistical skills • Measures of central tendency – mean, mode, median. • Measures of dispersion – range, inter-quartile range and standard deviation. • Inferential and relational statistical techniques to include Spearman's rank correlation and Chi-square test and the application of significance tests. ICT skills • Use of remotely sensed data. • Use of electronic databases. • Use of innovative sources of data such as crowd sourcing and 'big data'. Use of ICT to generate evidence of many of the skills provided above such as producing maps, graphs and statistical calculations.	Graphic skills • Line graphs – simple, comparative, compound and divergent. • Bar graphs – simple, comparative, compound and divergent. • Scatter graphs, and the use of best fit line. • Pie charts and proportional divided circles. • Triangular graphs. • Graphs with logarithmic scales. • Dispersion diagrams. Statistical skills • Measures of central tendency – mean, mode, median. • Measures of dispersion – range, inter-quartile range and standard deviation. • Inferential and relational statistical techniques to include Spearman's rank correlation and Chi-square test and the application of significance tests. ICT skills • Use of remotely sensed data. • Use of electronic databases. • Use of innovative sources of data such as crowd sourcing and 'big data'. • Use of ICT to generate evidence of many of the skills provided above such as producing maps, graphs and statistical calculations.
Vocabulary	See Appendix – Key Stage 5 Vocabulary and Key Terms		
Assessment	• Physical mock exam [water and carbon, coasts and hazards]	• Physical mock exam [water and carbon, coasts and hazards]	

	• Human mock exam [global systems and global governance, changing places and contemporary urban environments]	• Human mock exam [global systems and global governance, changing places and contemporary urban environments]	

Appendix – Key Stage 4 Vocabulary and Key Terms - Definitions

Natural Hazards

- Hazard risk - The probability or chance that a natural hazard may take place.
- Natural hazard - A natural event (for example an earthquake, volcanic eruption, tropical storm, flood) that threatens people or has the potential to cause damage, destruction and death.

Tectonic Hazards

- Conservative plate margin - Tectonic plate margin where two tectonic plates slide past each other.
- Constructive plate margin - Tectonic plate margin where rising magma adds new material to plates that are diverging or moving apart.
- Destructive plate margin -Tectonic plate margin where two plates are converging or coming together and oceanic plate is subducted. It can be associated with violent earthquakes and explosive volcanoes.
- Earthquake - A sudden or violent movement within the Earth's crust followed by a series of shocks.
- Immediate responses - The reaction of people as the disaster happens and in the immediate aftermath.
- Long-term responses - Later reactions that occur in the weeks, months and years after the event.
- Monitoring - Recording physical changes, such as earthquake tremors around a volcano, to help forecast when and where a natural hazard might strike.
- Plate margin - The margin (or boundary) between two tectonic plates.
- Planning - Actions taken to enable communities to respond to, and recover from, natural disasters, through measures such as emergency evacuation plans, information management, communications and warning systems.
- Prediction - Attempts to forecast when and where a natural hazard will strike, based on current knowledge. This can be done to some extent for volcanic eruptions (and tropical storms), but less reliably for earthquakes.
- Primary effects - The initial impact of a natural event on people and property, caused directly by it, for instance the ground buildings collapsing following an earthquake.
- Protection - Actions taken before a hazard strikes to reduce its impact, such as educating people or improving building design.
- Secondary effects - The after-effects that occur as indirect impacts of a natural event, sometimes on a longer timescale, for instance fires due to ruptured gas mains resulting from the ground shaking.
- Tectonic hazard - A natural hazard caused by movement of tectonic plates (including volcanoes and earthquakes).
- Tectonic plate - A rigid segment of the Earth's crust which moves across the heavier, semi-molten rock below. Continental crust is less dense, but thicker than oceanic crust.
- Volcano - An opening in the Earth's crust from which lava, ash and gases erupt.

Weather Hazards

- **Economic impact** - The effect of an event on the wealth of an area or community.
- **Environmental impact** - The effect of an event on the landscape and ecology of the surrounding area.
- **Extreme weather** - When a weather event is significantly different from the average or usual weather pattern, and is especially severe or unseasonal. This may take place over one day or a period of time. A severe snow blizzard or heatwave are two examples of extreme weather in the UK.
- **Global atmospheric circulation** - The worldwide system of winds, which transports heat from tropical to polar latitudes. In each hemisphere, air also circulates through the entire depth of the troposphere which extends up to 15 km from the Earth's surface.
- **Immediate responses** - The reaction of people as the disaster happens and in the immediate aftermath.
- **Long-term responses** - Later reactions that occur in the weeks, months and years after the event.
- **Management strategies** - Techniques of controlling, responding to, or dealing with an event.
- **Monitoring** - Recording physical changes, such as tracking a tropical storm by satellite, to help forecast when and where a natural hazard might strike.
- **Planning** - Actions taken to enable communities to respond to, and recover from, natural disasters, through measures such as emergency evacuation plans, information management, communications and warning systems.
- **Prediction** - Attempts to forecast when and where a natural hazard will strike, based on current knowledge. This can be done to some extent for tropical storms.
- **Primary effects** - The initial impact of a natural event on people and property, caused directly by it, for instance buildings being partially or wholly destroyed by a tropical storm.
- **Protection** - Actions taken before a hazard strikes to reduce its impact, such as educating people or improving building design.
- **Secondary effects** - The after-effects that occur as indirect impacts of a natural event, sometimes on a longer timescale, for instance impact on access to potable water can lead to spread of disease.
- **Social impact** - The effect of an event on the lives of people or community. Tropical storm (hurricane, cyclone, typhoon) - An area of low pressure with winds moving in a spiral around the calm central point called the eye of the storm. Winds are powerful and rainfall is heavy.

Climate Change

- **Adaptation** - Actions taken to adjust to natural events such as climate change, to reduce potential damage, limit the impacts, take advantage of opportunities, or cope with the consequences.
- **Climate change** - A long-term change in the Earth's average temperature and weather patterns.
- **Mitigation** - Action taken to reduce or eliminate the long-term risk to human life and property from natural hazards, such as building earthquake-proof buildings or making international agreements about carbon reduction targets.
- **Orbital changes** - Changes in the pathway of the Earth around the Sun.
- **Quaternary period** - The period of geological time from about 2.6 million years ago to the present. It is characterised by the appearance and development of humans and includes the Pleistocene and Holocene Epochs.

Ecosystems

- **Abiotic** - Relating to non-living parts of an ecosystem.
- **Biotic** - Relating to living parts of an ecosystem.
- **Consumer** - An animal that eats animals and/or plant matter.
- **Decomposer** - An organism such as a bacterium or fungus, that breaks down dead tissue, which is then recycled to the environment
- **Ecosystem** - A community of plants and animals that interact with each other and their physical environment.
- **Food chain** - The connections between different organisms (plants and animals) that rely on one another as their source of food.
- **Food web** - A complex interconnection of all the food chains in an ecosystem.
- **Nutrient cycling** - A set of processes whereby organisms extract minerals necessary for growth from soil or water, before passing them on through the food chain - and ultimately back to the soil and water
- **Global ecosystem** - A very large ecological area on the earth's surface, with fauna and flora (animals and plants) adapting to their environment. Examples include tropical rainforest and hot desert.
- **Producer** - An organism that is able to absorb energy from the sun through photosynthesis.

Tropical Rainforest

- **Biodiversity** - The variety of life in the world or a particular habitat.
- **Commercial farming** - Farming to sell produce for a profit to retailers or food processing companies.
- **Debt reduction** - A political agreement where countries are relieved of some of their debt in return for protecting their rainforests.
- **Deforestation** - The chopping down and removal of trees to clear an area of forest.
- **Ecotourism** - A type of tourism that involves responsible travel to natural areas that helps to conserve the environment, sustain the wellbeing of the local people, and may involve education. It is usually carried out in small groups and has minimal impact on the local ecosystem.
- **Logging** - The business of cutting down trees and transporting the logs to sawmills.
- **Mineral extraction** - The removal of solid mineral resources from the earth. These resources include ores, which contain commercially valuable amounts of metals (eg iron and aluminium), precious stones (eg diamonds), building stones (eg granite), and solid fuels (eg coal and oil shale).
- **Selective logging** - The cutting out of trees which are mature or inferior, to encourage the growth of the remaining trees in a forest or wood.
- **Soil erosion** - Removal of topsoil faster than it can be replaced, due to natural (water and wind action), animal, and human activity. Topsoil is the top layer of soil and is the most fertile because it contains the most organic, nutrient-rich materials.
- **Subsistence farming** - A type of agriculture producing food and materials for the benefit only of the farmer and his family.
- **Sustainability** - Actions and forms of progress that meet the needs of the present without reducing the ability of future generations to meet their needs.

Hot Deserts

- **Appropriate technology (or intermediate technology)** - Technology that is suited to the needs, skills, resources, knowledge and wealth of local people in the environment in which they live.
- **Biodiversity** - The variety of life in the world or a particular habitat.
- **Desertification** - The process by which land becomes drier and degraded, as a result of climate change or human activities, or both.
- **Hot desert** - An ecosystem that is characterised by high average temperatures and very low precipitation.
- **Mineral extraction** - The removal of solid mineral resources from the earth. These resources include ores, which contain commercially valuable amounts of metals (eg iron and aluminium), precious stones (eg diamonds), building stones (eg granite), and solid fuels (eg coal and oil shale).
- **Over-cultivation** - Exhausting the soil by over-cropping the land.
- **Overgrazing** - Grazing too many livestock for too long on the land, so vegetation cover is depleted and is unable to recover.

Urban Issues and Challenges

- **Brownfield site** - Land that has been used, abandoned and now awaits some new use. Commonly found across urban areas, particularly in the inner city.
- **Dereliction** - Abandoned buildings and wasteland.
- **Economic opportunities** - Chances for people to improve their standard of living through employment.
- **Greenfield site** - A plot of land, often in a rural or on the edge of an urban area that has not yet been subject to any building development.
- **Inequalities** - Differences between poverty and wealth, as well as in peoples' wellbeing and access to things like jobs, housing and education. Inequalities may occur in housing provision, access to services, access to open land, safety and security.
- **Integrated transport system** - When different transport methods connect together, making journeys smoother and therefore public transport more appealing. Better integration should result in more demand for public transport and should see people switching from private car use to public modes of transport, which should be more sustainable. It may also lead to a fall in congestion due to less road users.
- **Mega-cities** - An urban area with a total population in excess of ten million people.
- **Migration** - When people move from one area to another with the intention of settling there.
- **Natural increase** - The birth rate minus the death rate of a population.
- **Pollution** - The presence of chemicals, noise, dirt or other substances which have harmful or poisonous effects on an environment.
- **Rural-urban fringe** - A zone of transition between the built-up area and the countryside, where there is often competition for land use. It is a zone of mixed land uses, from out-of-town shopping centres and golf courses to farmland and motorways.
- **Sanitation** - Measures designed to protect public health, including the provision of clean water and the disposal of sewage and waste.
- **Social deprivation** - The degree to which an individual or an area is not able to access services, decent housing, adequate income and local employment.
- **Social opportunities** - Chances for people to improve their quality of life, for instance access to education and health care.
- **Squatter settlement** - An area of poor-quality housing, at times lacking in amenities such as water supply, sewerage and electricity, which often develops spontaneously on land not owned by the occupants.

- **Sustainable urban living** - A sustainable city is one in which there is minimal damage to the environment, the economic base is sound with resources allocated fairly and jobs secure, and there is a strong sense of community, with local people involved in decisions made. Sustainable urban living includes several aims including the use of renewable resources, energy efficiency, use of public transport, accessible resources and services.
- **Traffic congestion** - Occurs when there is too great a volume of traffic for roads to cope with, so traffic jams form and traffic slows to a crawl.
- **Urban greening** - The process of increasing and preserving open space such as public parks and gardens in urban areas.
- **Urbanisation** - The process by which an increasing percentage of a country's population comes to live in towns and cities. Rapid urbanisation occurs in many LICs and NEEs.
- **Urban regeneration** - The revival of old parts of the built up area by either installing modern facilities in old buildings (known as renewal) or opting for redevelopment (i.e. demolishing existing buildings and starting afresh).
- **Urban sprawl** -The unplanned growth of urban areas into the surrounding rural areas.
- **Waste recycling** - The process of extracting and reusing useful substances found in waste.

The Changing Economic World

- **Birth rate** - The number of births in a year per 1000 of the total population.
- **Commonwealth** - The Commonwealth is a voluntary association of 56 independent and equal sovereign states, which were mostly territories of the former British Empire. It is home to 2.5 billion citizens. Member states have no legal obligation to one another. Instead, they are united by language, history, culture, and their shared values of democracy, human rights, and the rule of law.
- **Death rate** - The number of deaths in a year per 1000 of the total population.
- **De-industrialisation** - The decline of a country's traditional manufacturing industry due to exhaustion of raw materials, loss of markets and increasing competition from NEEs.
- **Demographic Transition Model** - A model showing how populations change over time in terms of their birth rates, death rates and total population size.
- **Development** - The progress of a country in terms of economic growth, the use of technology and human welfare.
- **Development gap** - The widening difference in standards of living and wellbeing between the world's economically richest and poorest countries (between HICs and LICs).
- **European union** - An international organisation of 27 European countries, formed to reduce trade barriers and increase cooperation among its members. Seventeen of these countries also share the same type of money: the euro. A person who is a citizen of a European Union country can live and work in any of the other 26 member countries without needing a work permit or visa. The UK formally left the EU in 2020.
- **Fairtrade** - Is a system that ensures producers in LICs and NEEs are given a fairer price for the goods they produce. Often this is from farm products like cocoa, coffee or cotton. The increased price improves income, workers' rights and working conditions, and reduces exploitation.
- **Globalisation** - The process which has created a more connected world, with increases in the movements of goods (trade) and people (migration and tourism) worldwide.

- Gross National Income (GNI) - A measurement of economic activity that is calculated by dividing the gross (total) national income by the size of the population. GNI takes into account not just the value of goods and services, but also the income earned from investments overseas.
- Human Development Index (HDI) - A method of measuring development which combines GDP per capita, life expectancy and adult literacy to give an overview. This combined measure of development uses economic and social indicators to produce an index figure that allows comparison between countries.
- Industrial structure - The relative proportion of the workforce employed in different sectors of the economy (primary, secondary, tertiary and quaternary).
- Infant mortality - The average number of deaths of children under 1 year of age, per 1000 live births, per year.
- Information technologies - Computer, internet, mobile phone and satellite technologies – especially those that speed up communication and the flow of information.
- Intermediate technology - Technology that is suited to the needs, skills, resources, knowledge and wealth of local people in the environment in which they live. In LICs it is often simple, easily learned and easily maintained technology.
- International aid - Money, goods and services given by the government of one country or a multilateral institution such as the World Bank or International Monetary Fund to help the quality of life and economy of another country.
- Life expectancy - The average number of years a person might be expected to live.
- Literacy rate - The percentage of people who have basic reading and writing skills.
- Microfinance loans - Very small loans which are given to people in the LICs to help them start a small business.
- North-south divide (UK) - Economic and cultural differences between Southern England (the South-East, Greater London, the South-West and parts of the East) and Northern England (the North-East, West and Yorkshire and the Humber). There are clear differences in health conditions, house prices, earnings, and political influence.
- Post-industrial economy - The economy of many economically developed countries where most employment is now in service (tertiary) industries.
- Science and business parks - Business Parks are purpose built areas of offices and warehouses, often at the edge of a city and on a main road. Science parks are often located near university sites, and high-tech industries are established. Scientific research and commercial development may be carried out in co-operation with the university.
- Service industries (tertiary industries) - The economic activities that provide various services - commercial (shops and banks), professional (solicitors and dentists), social (schools and hospitals), entertainment (restaurants and cinemas) and personal (hairdressers and fitness trainers).
- Trade - The buying and selling of goods and services between countries.
- Transnational Corporation (TNC) - A company that has operations (factories, offices, research and development, shops) in more than one country. Many TNCs are large and have well-known brands.

Resource Management

- Agribusiness - Application of business skills to agriculture.
- Carbon footprint - A measurement of all the greenhouse gases we individually produce, through burning fossil fuels for electricity, transport etc, expressed as tonnes (or kg) of carbon-dioxide equivalent.
- Energy mix - The range of energy sources of a region or country, both renewable and non-renewable.

- **Food miles** - The distance food is transported from the producer to consumers.
- **Fossil fuel** - A natural fuel such as coal or gas, formed in the geological past from the remains of living organisms.
- **Local food sourcing** - A method of food production and distribution that is local, rather than national and/or international. Food is grown (or raised) and harvested close to consumers' homes, then distributed over much shorter distances.
- **Organic produce** - Food which is produced using environmentally and animal friendly farming methods on organic farms. Artificial fertilisers are banned and farmers develop fertile soil by rotating crops and using compost, manure and clover. It must be free of synthetic additives like pesticides and dyes.
- **Resource management** - The control and monitoring of resources so that they do not become depleted or exhausted.

Energy

- **Biomass** - Renewable organic materials, such as wood, agricultural crops or wastes, especially when used as a source of fuel or energy. Biomass can be burned directly or processed into biofuels such as ethanol and methane.
- **Energy conservation** - Reducing energy consumption through using less energy and becoming more efficient in using existing energy sources.
- **Energy exploitation** - Developing and using energy resources to the greatest possible advantage, usually for profit.
- **Energy security** - Uninterrupted availability of energy sources at an affordable price.
- **Fossil fuel** - A natural fuel formed in the geological past from the remains of living organisms, such as coal or natural gas.
- **Geothermal energy** - Energy generated by heat stored deep in the Earth.
- **Hydro(electric) power** - Electricity generated by turbines that are driven by moving water.
- **Nuclear power** - The energy released by a nuclear reaction, especially by fission or fusion. Nuclear energy uses fuel made from mined and processed uranium to make steam and generate electricity.
- **Renewable energy sources** - A resource which is not diminished when it is used; it recurs and cannot be exhausted, such as wind and tidal energy.
- **Solar energy** - The Sun's energy exploited by solar panels, collectors or cells to heat water or air or to generate electricity.
- **Sustainable development** - Development that meets the needs of the present without limiting the ability of future generations to meet their own needs.
- **Sustainable energy supply** - Energy that can potentially be used well into the future without harming future generations. Sustainable energy is the combination of energy savings, energy efficiency measures and technologies, as well as the use of renewable energy sources.
- **Wind energy** - Electrical energy obtained from harnessing the wind with windmills or wind turbines.

Coasts

- **Abrasion** - The wearing away of cliffs by sediment flung by breaking waves.
- **Arch** - A wave-eroded passage through a small headland. This begins as a cave formed in the headland, which is gradually widened and deepened until it cuts through.
- **Attrition** - Erosion caused when rocks and boulders transported by waves bump into each other and break up into smaller pieces.
- **Bar** - Where a spit grows across a bay, a bay bar can eventually enclose the bay to create a lagoon. Bars can also form offshore due to the action of breaking waves.

- Beach - The zone of deposited material that extends from the low water line to the limit of storm waves. The beach or shore can be divided in the foreshore and the backshore.
- Beach nourishment - The addition of new material to a beach artificially, through the dumping of large amounts of sand or shingle.
- Beach reprofiling - Changing the profile or shape of the beach. It usually refers to the direct transfer of material from the lower to the upper beach or, occasionally, the transfer of sand down the dune face from crest to toe.
- Cave - A large hole in the cliff caused by waves forcing their way into cracks in the cliff face.
- Chemical weathering - The decomposition (or breakdown) of rock caused by a chemical change within that rock; sea water can cause chemical weathering of cliffs.
- Cliff - A steep high rock face formed by weathering and erosion along the coastline.
- Deposition - Occurs when material being transported by the sea is dropped due to the sea losing energy.
- Dune regeneration - Action taken to build up dunes and increase vegetation to strengthen the dunes and prevent excessive coastal retreat. This includes the re-planting of marram grass to stabilise the dunes, as well as planting trees and providing boardwalks.
- Erosion - The wearing away and removal of material by a moving force, such as a breaking wave.
- Gabion - Steel wire mesh filled with boulders used in coastal defences.
- Groyne - A wooden barrier built out into the sea to stop the longshore drift of sand and shingle, and so cause the beach to grow. It is used to build beaches to protect against cliff erosion and provide an important tourist amenity. However, by trapping sediment it deprives another area, down-drift, of new beach material.
- Hard engineering - The use of concrete and large artificial structures by civil engineers to defend land against natural erosion processes.
- Headlands and bays - A rocky coastal promontory made of rock that is resistant to erosion; headlands lie between bays of less resistant rock where the land has been eroded back by the sea.
- Hydraulic power - The process by which breaking waves compress pockets of air in cracks in a cliff. The pressure may cause the crack to widen, breaking off rock.
- Longshore drift - The zigzag movement of sediment along a shore caused by waves going up the beach at an oblique angle (wash) and returning at right angles (backwash). This results in the gradual movement of beach materials along the coast.
- Managed retreat - Allowing cliff erosion to occur as nature taking its course: erosion in some areas, deposition in others. Benefits include less money spent and the creation of natural environments. It may involve setting back or realigning the shoreline and allowing the sea to flood areas that were previously protected by embankments and seawalls.
- Mass movement - The downhill movement of weathered material under the force of gravity. The speed can vary considerably.
- Mechanical weathering - Weathering processes that cause physical disintegration or break up of exposed rock without any change in the chemical composition of the rock, for instance freeze thaw.
- Rock armour - Large boulders dumped on the beach as part of the coastal defences.
- Sand dune - Coastal sand hill above the high tide mark, shaped by wind action, covered with grasses and shrubs.
- Sea wall - A concrete wall which aims to prevent erosion of the coast by providing a barrier which reflects wave energy.
- Sliding - Occurs after periods of heavy rain when loose surface material becomes saturated and the extra weight causes the material to become unstable and move rapidly downhill, sometimes in an almost fluid state.
- Slumping - Rapid mass movement which involves a whole segment of the cliff moving down-slope along a saturated shear-plane or line of weakness.
- Soft engineering - Managing erosion by working with natural processes to help restore beaches and coastal ecosystems.

- Spit - A depositional landform formed when a finger of sediment extends from the shore out to sea, often at a river mouth. It usually has a curved end because of opposing winds and currents.
- Stack - An isolated pillar of rock left when the top of an arch has collapsed. Over time further erosion reduces the stack to a smaller, lower stump.
- Transportation - The movement of eroded material.
- Wave cut platform - A rocky, level shelf at or around sea level representing the base of old, retreated cliffs.
- Waves - Ripples in the sea caused by the transfer of energy from the wind blowing over the surface of the sea. The largest waves are formed when winds are very strong, blow for lengthy periods and cross large expanses of water.

Rivers

- Abrasion - Rocks carried along by the river wear down the river bed and banks.
- Attrition - Rocks being carried by the river smash together and break into smaller, smoother and rounder particles.
- Cross profile - The side-to-side cross-section of a river channel and/or valley.
- Dam and reservoir - A barrier (made on earth, concrete or stone) built across a valley to interrupt river flow and create a human-made lake (reservoir) which stores water and controls the discharge of the river.
- Discharge - The quantity of water that passes a given point on a stream or riverbank within a given period of time.
- Embankments - Raised banks constructed along the river; they effectively make the river deeper so it can hold more water. They are expensive and do not look natural, but they do protect the land around them.
- Estuary - The tidal mouth of a river where it meets the sea; wide banks of deposited mud are exposed at low tide.
- Flood - Occurs when river discharge exceeds river channel capacity and water spills out of the channel onto the floodplain and other areas.
- Flood plain - The relatively flat area forming the valley floor on either side of a river channel, which is sometimes flooded.
- Flood plain zoning - This attempts to organise the flood defences in such a way that land that is near the river and often floods is not built on. This could be used for pastoral farming, playing fields etc. The areas that rarely get flooded would therefore be used for houses, transport and industry.
- Flood relief channels - Building new artificial channels which are used when a river is close to maximum discharge. They take the pressure off the main channels when floods are likely, therefore reducing flood risk.
- Flood risk - The predicted frequency of floods in an area.
- Flood warning - Providing reliable advance information about possible flooding. Flood warning systems give people time to remove possessions and evacuate areas.
- Fluvial processes - Processes relating to erosion, transport and deposition by a river.
- Gorge - A narrow, steep sided valley, often formed as a waterfall retreats upstream.
- Hard engineering - Involves the building of entirely artificial structures using various materials such as rock, concrete and steel to reduce, disrupt or stop the impact of river processes.
- Hydraulic action - The force of the river against the banks can cause air to be trapped in cracks and crevices. The pressure weakens the banks and gradually wears it away.

- Hydrograph - A graph which shows the discharge of a river, related to rainfall, over a period of time.
- Interlocking spurs - A series of ridges projecting out on alternate sides of a valley and around which a river winds its course.
- Lateral erosion - Sideways erosion by a river on the outside of a meander channel. It eventually leads to the widening of the valley and contributes to the formation of the flood plain.
- Levees - Embankment of sediment along the bank of a river. It may be formed naturally by regular flooding or be built up by people to protect the area against flooding.
- Long profile - The gradient of a river, from its source to its mouth.
- Meander - A pronounced bend in a river.
- Ox-bow lake - An arc-shaped lake which has been cut off from a meandering river.
- Precipitation - Moisture falling from the atmosphere - as rain, hail, sleet or snow.
- Saltation - Particles bouncing down the river bed.
- Soft engineering - Involves the use of the natural environment surrounding a river, using schemes that work with the river's natural processes. Soft engineering is usually much cheaper and offers a more sustainable option as it does not interfere directly with the river's flow.
- Solution - Soluble particles are dissolved into the river.
- (Channel) straightening - Removing meanders from a river to make the river straighter. Straightening the river (also called channelising) allows it to carry more water quickly downstream, so it doesn't build up and is less likely to flood.
- Suspension - Fine solid material held in the water while the water is moving.
- Traction - The rolling of boulders and pebbles along the river bed.
- Vertical erosion - Downward erosion of a river bed.
- Waterfall - Sudden descent of a river or stream over a vertical or very steep slope in its bed. It often forms where the river meets a band of softer rock after flowing over an area of more resistant material.

Appendix – Key Stage 5 Vocabulary and Key Terms - Definitions

Terms featured across the specification

- **Adaptation** - Action taken by human to reduce their vulnerability or exposure to impacts.
- **Causes** - Reasons for the form/character of a phenomenon – for example why a process occurs or why a phenomenon displays its characteristic features.
- **Challenges** - Difficult, large-scale problems that require solutions.
- **Characteristics** - The key features and properties of a phenomenon.
- **Consequences** - The results of an action, change or process. These may be many and various and can be positive or negative in their geographical impacts.
- **Contrasting** - Where two or more phenomena differ from one another in one or more significant ways.
- **Distribution** - The geographical locations of specified phenomenon/phenomena, most often shown on a map. A distribution may or may not present as a recognisable pattern.
- **Dynamic equilibrium** - A state of balance in a constantly changing natural system, the operation of which attempts to balance inputs with outputs.
- **Economic -** Connected with the economy and therefore related to production, distribution and consumption of goods and services. Conventionally measured in money terms and connected with employment, industry, income and human welfare.
- **Environmental -** Concerned with the environment – water, air and land, and the organisms which occupy it (including humans) and natural resources obtainable from it.
- **Factors -** The underlying causes of a phenomenon and the elements which influence it.
- **Impacts** - The results/outcomes of events, actions or processes on people and the environment. They can be positive or negative.
- **Implications** - What happens or might happen as a result/consequence of specific events, actions or processes.
- **Issues -** Matters which cause concern to people about which there may be differing views, and which may be sources of conflict.
- **Lifestyle** - The way in which people normally live their lives. Lifestyles vary both within and between places.
- **Management** - The design and implementation of policies and strategies to run human systems and influence natural systems in order to minimise or reduce impacts or problems and enhance outcomes. Management involves deliberation, planning and action.
- **Mitigation** - Any actions or measures taken to reduce or offset the adverse impacts or severity of a process or event.
- **Negative feedback** - A cyclical sequence that decreases/diminishes an initial change in a natural system and tends to return the system to a state of equilibrium or balance.
- **Opportunities** - Situations where change might be achievable and a better situation reached.
- **Patterns** - Regularities in the occurrence or distribution of phenomena. Geographically, often shown on a map.
- **Political** - Concerned with the distribution and exercise of power over human affairs, the promotion of different viewpoints and policies, the resolution of any such differences and the consequent decisions and their implementation.
- **Positive feedback** - A cyclical sequence that increases or amplifies an initial change in a natural system.
- **Problems** - Difficulties, risks or issues that worry people and indicate that responses are required.
- **Process** - A sequence of actions, changes or functions that causes a change to take place and bring about a result.
- **Resilience** - The ability to withstand and recover quickly from difficulties, disruption, adversity or crisis.

- **Response** - The ways in which people react to events or possible events – some responses are individual, some are collective; some are planned, some are unplanned.
- **Scale** - The area or scope of a phenomenon or focus of study – for example: local, regional, national, international and global.
- **Social** - Connected with people, their quality of life, health, education, lifestyles and welfare.
- **Strategies** - Overarching views and approaches designed to manage a system, problem or issue.
- **Sustainable** - That which is capable of being maintained into the foreseeable future without prejudice to its own continuation and damage to the environment.
- **System** - A set of interrelated components that work together in which there are inputs and outputs of energy and materials. Natural systems tend towards dynamic equilibrium which balances inputs and outputs of energy and materials.

Water and carbon cycles

- **Atmosphere -** The mixture of gases that surround the Earth whose main constituents are nitrogen and oxygen.
- **Biosphere -** That portion of the Earth's outer sphere where life forms are found.
- **Carbon budget** - The relative amounts of carbon that are transferred in a given time period between the various stores of carbon.
- **Carbon cycle** - The combination of processes by which carbon is transferred between the main carbon stores.
- **Carbon sequestration** - The long-term storage of carbon. This process occurs naturally in oceans and sediments. It can also refer to the human process of capturing carbon dioxide from the atmosphere and storing it.
- **Cryosphere** - The frozen water component of the Earth's outer layers, including ice caps, glaciers and snow cover
- **Drainage basin** - The area of land from which precipitation is drained by a river and its tributaries.
- **Evapo-transpiration** - The combined processes of evaporation and transpiration transferring water from the Earth's surface to the atmosphere.
- **Groundwater** - The store of water beneath the Earth's surface in soil and rock in pore and fissure space.
- **Hydrosphere** - That portion of the Earth's surface layers contain water, including ice, groundwater, lakes and rivers, oceans and water vapour and droplets in the atmosphere.
- **Lithosphere** - The crust and upper mantle comprising the outermost solid layer of the Earth.
- **Runoff** - Water transferred from river basins to oceans, principally via river channels.
- **Sere** - A stage in the succession of plant and animal communities in an ecosystem. Seres are named after the character of their starting locations; lithosere (starting on bare rock), hydrosere (starting in fresh water), psammosere (starting in sand) and halosere (starting in saline conditions).
- **Stemflow** - Precipitation that is intercepted by vegetation and reaches the ground by flowing down stems, stalks and trunks.
- **Variation** - How far and how frequently a phenomenon differs from the norm or the average.
- **Water abstraction** - The process of taking or extracting water from natural sources for different uses by human populations.
- **Water balance** - The balance, in a drainage basin, between the inputs of water, mainly precipitation, and the outputs of water, mainly run-off, flows of groundwater and evapotranspiration.
- **Water cycle** - The continuous series of processes by which water is transferred between the main water stores.

Coastal systems and landscapes

- **Barrier beach -** A narrow, elongated sand ridge rising above sea level, parallel to the shore and separated from it by a lagoon.
- **Cavitation -** Collapse of bubbles in waves crashing into and then receding from cliffs and other solid rock features causing energetic pressure waves which break up the rock and enlarge joints and fissures in the rock.
- **Coastline of emergence -** A coastline that has experienced a fall in sea level or tectonic uplift of the land surface.
- **Coastline of submergence** - A coastline that has experienced a rise in sea level or tectonic sinking of the land surface.
- **Constructive wave -** Waves having a long wave length, low wave height and low frequency. The swash tends to be more powerful than the backwash and hence they are associated with the build-up of beach material.
- **Dalmatian coasts -** A submergent landscape of ridges and valleys that runs parallel to the coast and features islands and sea inlets – named after the landscape of Dalmatia on the eastern coastline of the Adriatic Sea.
- **Destructive wave** - Waves having a short wave length, high wave height and high frequency. The backwash tends to be more powerful than the swash and hence they are associated with the removal of beach material.
- **Eustatic sea level change -** A fall or rise in sea level, resulting from changes in the volume of water in the oceans – usually connected with global changes in the volume of ice caps and ice sheets.
- **Fjord** - A glacial trough flooded due to a rise on sea level.
- **High energy coast** - A coastline with high energy waves where erosion processes typically dominate over deposition processes.
- **Isostatic sea level change** - A fall or rise in sea level resulting from the land rising or falling relative to the sea.
- **Littoral drift (or longshore drift)** - The process whereby waves approach the shore at an angle and the difference in the direction of swash and backwash transports material along the coast.
- **Low energy coast** - A coastline with relatively low energy waves where deposition rates typically dominate over erosion rates.
- **Mudflat** - A coastal expanse of mud deposits exposed at low tide but inundated by high tides.
- **Offshore bar** - A ridge of sediment parallel to the coast formed of material eroded by destructive waves and transported offshore.
- **Raised beach** - A former beach occupying a higher level than current sea level and deposited when sea levels were higher than at present for a sustained period of time.
- **Rias** - A non-glaciated river valley submerged following a rise in sea level.
- **Saltmarsh** - An ecosystem formed on tidal mudflats largely compromising of salt-tolerant plants. It is an example of a halosere.
- **Sediment budget** - The balance between the input and output of sediment on a stretch of coast, commonly termed a sediment cell.
- **Sediment cell** - A stretch of coast in which sediments are transferred by various processes between different stores, tending to form a self-contained coastal system. The understanding of sediment cells helps in coastal management.
- **Tectonic sea level change** - A fall or rise in sea level, resulting from changes in land surface levels and configuration associated with tectonic processes.
- **Tides** - The cyclical rise and fall of the level of the sea in response to the gravitational attractions of the moon and sun.
- **Tombolo** - A ridge of beach sediment that has extended to join a former island to the mainland.
- **Wave quarrying** - This involves high energy waves hitting rock faces with sufficient force to enlarge joints and remove particles of rock through vibration.
- **Weathering** - Sub-aerial processes occurring above the waterline leading to the disintegration and decomposition of rock and thus influencing the nature of landforms and the character of the landscape.

Hazards

- **Acid rain -** Acidic precipitation that has negative impacts on natural ecosystems and is associated with air pollution.
- **Coastal flooding -** Dry and low-lying land is submerged by seawater.
- **Convection currents** - The circular motions of upper mantle layers responsible for sea floor spreading and driven by upwelling mantle material.
- **Gravitational sliding -** The movement of tectonic plates as a result of gravity.
- **Island arc -** A linear chain of volcanic island associated with an ocean trench where subduction is taking place.
- **Lava flow -** Molten rock flowing on the surface. Acidic lava tends to be more viscous and solidifies nearer to source than basaltic lava which generally flows over greater distance before solidifying.
- **Liquefaction -** Loosely packed, water-logged sediments at or near the ground surface lose cohesion and behave as a liquid rather than a solid because of shaking during an earthquake.
- **Lithosphere -** The crust and upper mantle that form the outermost solid layers of the Earth.
- **Magma plume -** A rising column of hot rock in the mantle.
- **Magnitude -** The overall strength or 'size' of a hazard.
- **Mudflow (lahar) -** A mix of volcanic ash and rainwater or meltwater that travels downslope.
- **Multi-hazardous environment** - An environment prone to experiencing combinations of seismic, volcanic, atmospheric or wildfire hazard.
- **Nuées ardentes (Pyroclastic flows)** - Dense, fast-moving flows of hot gas (over 800 °C) and rocks that move rapidly downslope at speeds over 700 km/hr. These terms are often used interchangeably but some vulcanologists confine the term nuées ardentes to flows comprising only of hot gases.
- **Pyroclastic and ash fallout** - Airborne particles of varying sizes that have been ejected from volcanic vents into the atmosphere before falling to the surface.
- **Ridge push** - A driving force for the movement of tectonic plates that occurs at mid-ocean ridges as a result of gravitational forces causing downward movement away from the ridge.
- **Rift valley** - A steep sided valley formed by the downward displacement of crust due to separation of tectonic plates.
- **Sea-floor spreading** - The formation of a new oceanic crust which occurs through the upwelling of magma at mid ocean ridges and its outward movement from such ridges.
- **Seismicity** - The processes associated with earthquakes in a given area. The frequency and intensity of such processes. Shockwave A wave of energy spreading outward from the focus of an earthquake.
- **Slab pull** - A driving force for the movement of tectonic plates occurring at subduction zones as a result of sinking of the crust there.
- **Storm surge** - A temporary, localised rise in sea level as a result of atmospheric pressure changes and storm wind direction.
- **Tephra** - Rock fragments and particles, eg pyroclastic material, ejected during a volcanic eruption and subsequently deposited on the earth's surface.
- **Tsunami** - One or more high magnitude sea wave caused by an earthquake or other offshore underwater disturbance such as slippage of submarine slopes.
- **Vulcanicity** - The processes associated with active volcanoes in a given area. The frequency and intensity of such processes.
- **Wild fire** - An uncontrolled fire occurring in open country or wilderness regions.

Global systems and global governance

- **Benefits -** The advantages/positive impacts of something (social, economic, environmental, etc).
- **Geopolitics** - How relationships between geographical, economic and political factors impact on political decisions and international relations and therefore affect the use and control of territory and resources.
- **Global commons** - A region, resource or natural property of Earth beyond the exclusive control of individual nation states and requiring common governance and management by the international community.
- **Global governance -** The system and institutions that coordinate the behaviour of international agencies, facilitate cooperation, resolve disputes and improve global decision-making.
- **Globalisation** - The process whereby individual national economies, societies and cultures are increasingly integrated through advances in communication and transport technology, international trade and movement of peoples.
- **International trade** - The exchange of capital, goods and services across international borders. An individual country's exports are outbound to other countries; imports are inbound from other countries.
- **Labour** - A factor of production incorporating human effort and ingenuity into the production, trade and consumption of goods and services.
- **Latin America** - A commonly used term to describe the countries in the Americas found to the south of the continental United States, including Central America, South America and the islands of the Caribbean where the dominant languages derive from Latin (mainly Spanish and Portuguese). Some see the use of this term as problematic due to its use homogenising the region and using a characterisation of language that originates from colonisation.
- **Non-governmental organisation (NGO)** - A non-profit, voluntary citizens group with a common interest in pursuing political goals, organised on a local, national or international scale.
- **Norms** - The shared values, traditions and customs that govern individual and group behaviour in a society.
- **Sub-Saharan Africa** - A term collectively describing countries in Africa located mainly south of the Sahara Desert. The dividing line has origins in colonial ideas of race, separating the predominately Arab states of North Africa, which colonists considered to be more developed from the rest of Africa. This term replaced racist phrases such as 'Black Africa' that were used up until the 1950s.
- **Transnational corporation (TNC)** - Large businesses that operate in several different countries and commonly allocate different productions functions to different types of country – for example in terms of assembly, research and development, and decision taking.
- **United Nations (UN)** - An international organisation founded in 1945 consisting of 193 member states with the aim of maintaining international peace, security and cooperation. It self-defines as "one place where the world's nations can gather together, discuss common problems and find shared solutions."
- **United National Environment Programme (UNEP)** - A global authority for the environment with programmes focusing on climate, nature, pollution and sustainable development. UNEP's mission is "to inspire, inform, and enable nations and people to improve their quality of life without compromising that of future generations."

Changing places

- **Community group -** An organised collection of people with shared interests and aims often concerning aspects of public life.
- **Endogenous factor** - These constitute the characteristics of the place itself, including aspects such as climate, topography, land use, the built environment and social and economic characteristics, all of which contribute to peoples' experience of the place and their sense of place.
- **Exogenous factor** - These constitute external agents and processes that affect the character of a place and the experiences of those who live there. They include the activities of central governments, decision taking by business and public agencies, and the operation and effect of the national and international economy.
  Experienced place - A place in which a person has actually spent time and directly experienced its characteristics.
- **Far place** - A place that a person perceives as being physically distant. The place may be viewed as being different to that of their own experienced place.
- **Identities** - A combination of physical, psychological and behavioural traits that contribute to a person's self-awareness and how others perceive them. This is in part shaped by where they live and/or their place of birth.
- **Insider perspective** - A viewpoint from an individual who typically lives in a place and therefore has frequent, direct experience of that place, and understands the social and cultural norms.
- **Media place -** A place that has a meaning for a person as a result of exposure to images and information about that place via TV, radio, print, film or online.
- **Near place** - A location that a person perceives as being physically close, whether spatially or through easy access. Often this place is inextricably linked to the place the individual is located.
- **Outsider perspective** - A viewpoint from an individual who is not from a place or who doesn't live there and has little experience of the place. Such individuals may not understand the social norms of the society.
- **Perspective** - A particular attitude or view towards a place. This can be influenced by media representation and/or personal experience.
- **Place** - An area on the Earth's surface which is identified as distinct by the people who live in it or visit it, and which has meaning for them. Such meaning can and may well be shared by different groups of people.
- **Representation** - How a place is portrayed by the views, statements and communications of others. This may be through formal sources such as census data or through informal sources such as media reportage and imagery or verbalisation by others.

Contemporary urban environments

- **Counter-urbanisation -** The movement of population and economic activity away from large urban centres into smaller urban settlements or rural areas.
- **Cultural diversity -** This existence of a variety of different groups of people with contrasting beliefs, values, norms and behaviour within a society and the area it occupies.
- **Decentralisation -** The movement of population and industry away from the urban centre to outlying areas. This generic process contributes to both suburbanisation and counter-urbanisation.
- **Deindustrialisation** - Long term decline of manufacturing industry leading to significant social and economic change – as seen in the UK in the second half of the 20th century.
- **Demographic -** Relating to the structures and characteristics of populations and the processes they experience eg migration.

- Dereliction - The state of buildings, infrastructure and land having been abandoned and become dilapidated through lack of care and maintenance.
- Edge city - A modern urban form with a concentration of shops, offices and entertainment, which has emerged as an identifiable urban centre beyond the original city boundary. Edge cities are characteristic of societies and regions with high levels of personal mobility and available space such as in the south-western United States.
- Fortress development - An urban area designed around surveillance, protection and exclusion measures, all designed to increase security. Gated communities are an example of a fortress development.
- Gentrified area - An area of a city that has been transformed from a run-down state and low property values to the opposite – improved housing occupied by higher income groups leading to changing and increased commercial activity in the area and higher property values.
- Liveability - Aspects of urban living which make life more comfortable. It is affected by personal safety, political stability, natural amenities such as green space, cultural life, employment opportunities, political stability or basic safety.
- Megacity - A city or urban agglomeration with a population of more than 10 million people.
- Particulates - Tiny particles, such as dust or soot, largely given off when fossil fuels such as coal or oil are burned.
- Regeneration - The process of urban or rural improvement, which may be economic, social or environmental or any combination thereof.
- Social cohesion - The extent to which groups of people are connected, integrated and share common values.
- Social segregation - The extent to which groups of people are separated from the larger population and from each other due to factors such as income, wealth, ethnicity, religion, class or age.
- Suburbanisation - The outward expansion of existing urban area by the movement of people, services and employment towards the edges of an urban area, facilitated by the development of public transport networks and increased personal mobility.
- Sustainable cities - Cities that are able to adapt to, mitigate and promote economic, social and environmental change, meeting the needs of their populations and improving their lives without leaving a burden on future generations.
- Sustainable urban drainage systems (SUDS) - An approach to managing rainfall by using natural process in the landscape to reduce flooding, control flooding and provide amenities for the community.
- Urban heat island effect - The area around and above an urban area that experiences significantly warmer average temperatures than the surrounding rural areas.
- Urban policy - Strategies by local or central government to manage the development of urban areas and reduce problems they experience.
- Urban resurgence - The movement of population and economic activity back into an area that was previously in decline, reviving the area.
- Waste stream - The complete flow of waste from its source through to recovery, recycling or disposal.
- World city (global city) - Cities that have influence on a global scale by virtue of their history, size, connectivity and role in the global economic system. The most prominent criterion is the financial status and global commercial power.