Geography Specification B - Unit 1 - Dynamic Planet What's changed?

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EDEXCEL MODULAR GCSE GEOGRAPHY B (LAST ASSESSMENT IN 2013)

SPECIFICATION AND ASSESSMENT AT A GLANCE

Specification overview

This unit has three sections. Section A is compulsory, and Sections B and C contain optional topics.
Section A – Introduction to the Dynamic Planet – Compulsory topics: Restless Earth, Climate and Change, Battle for the Biosphere and Water World. (32 marks)
Section B – Small-scale Dynamic Planet – Optional topics: complete one of either Coastal Change and Conflict or River Processes and Pressures. (9 marks)
Section C – Large-scale Dynamic Planet – Optional topics: complete **one** of either Oceans on the Edge or Extreme Climates. (12 marks)

Assessment overview

1-hour tiered written examination • Total of 53 marks (up to 3 marks for SPaG) • Jan and June 2013 series

Section	Topic			Detailed content	Page
Section A: Introduction to the Dynamic Planet	Topic 1: Restless Earth	1.1 How and why do Earth's tectonic plates move?	a Earth's interior has a layered structure, with different composition and physical properties; the Earth's core generates heat and convection currents drives plate motion.	Interpreting a cross-section of the Earth, with details (temperature, density, composition, physical state) of layered structure (including the asthenosphere); using rock samples to contrast continental and oceanic crust. Considering the core's internal heat source (through radioactive decay), and how this generates convection which drives plate motion and generates Earth's magnetic field.	11
			b There are conservative, constructive and destructive plate boundaries, each with characteristic volcanic and earthquake hazards	Mapping the distribution of the three plate margin types, and naming major plates. Examining the causes of contrasting volcanic (volcano type, magma type and explosivity) and earthquake hazards (shallow versus deep; magnitude) at contrasting example locations, eg Iceland and Indonesia.	11
		1.2 What are the effects and management issues resulting from tectonic hazards?	a Volcanic and earthquake hazards affect people in different ways and at contrasting locations.	Contrasting earthquake effects in named locations eg the 2005 Kashmir versus 1989 Loma Prieta earthquakes. Impacts on property versus people. Contrasting economic and social volcanic hazard impacts in one developing and one developed world example location.	12
			b Management of volcanic and earthquake hazards, at contrasting locations, ranging from shortterm relief to long-term planning, preparation and prediction.	Examining the issue of prediction, warning and evacuation in relation to volcanic and earthquake hazards. Contrasting hazard resistant design in the developed and developing world. Evaluating the role of immediate response and relief efforts linked to a named tectonic hazard event, for example the Izmit earthquake in 1999.	12
	Topic 2: Climate and Change	2.1 How and why has climate changed in the past?	a Climate has changed in the past through natural causes, on timescales ranging from millions to hundreds of years.	Using graphs to examine past climate changes on different timescales, eg ice ages in the Quaternary and UK climate since Roman times. Briefly considering the natural causes of climate change including orbital changes, volcanic activity and solar output.	13
			b Natural climate change in the past has affected people and ecosystems.	Examining the impact of a short-term, historical event such as the Little Ice Age on people and farming. Considering the role of geological climate events in past extinction events, eg the extinction of megafauna at the end of the last ice age.	13
		2.2 What challenges might our future climate present us with?	a The Earth's climate today appears to be changing as a result of human activity, and future climates are uncertain.	Examining the sources of carbon dioxide emissions (activities and countries), plotting their rise since the mid 19th century. Considering the role of human activities in producing carbon dioxide and other greenhouse gases and how they lead to the enhanced greenhouse effect.	13
			b Future climates are likely to present major challenges, to the UK and especially to people in the developing world.	A brief consideration of the range of projections for global temperature and sea level rise. Examining the range of possible economic and environmental impacts of future climate change in the UK, and in a named developing country, eg Bangladesh.	13
	Topic 3: Battle for the Biosphere	3.1 What is the value of the biosphere?	a The distribution of global biomes reflects climate as well as other localised factors.	Defining a biome, and them mapping the distribution of major biomes across the planet. Considering the role of temperature and precipitation in biome location, plus local factors such as altitude	14
			b The biosphere acts as a life support system, providing a wide range of goods and services.	The biosphere has a crucial role in providing services, such as regulating the composition of the atmosphere, in maintaining soil health, and regulating the hydrological cycle. The biosphere provides humans with a range of goods such as food, medicines (gene pool) and raw materials.	14
		3.2 How have humans affected the biosphere and how might it be conserved?	a The biosphere is being degraded by human actions.	Using an example, eg Amazonia, to consider the role of human activity in direct destruction of the biosphere, eg deforestation, mining, conversion to farmland or over fishing. Degradation of the biosphere by indirect means, eg climate change induced stress.	14
			b Management measures, at a variety of scales, are being used to conserve the biosphere and make human use of it more sustainable.	Examining contrasting examples of biosphere conservation, such as a global framework, eg RAMSAR or CITES, UK National Parks, a tropical forest reserve. Examining how the principles of sustainability can be applied to a named small-scale example of biosphere management.	14
	Topic 4: Water World	4.1 Why is water important to the health of the planet?	a The hydrological cycle regulates water supply and links the atmosphere, biosphere and lithosphere.	Investigating the role of the biosphere and the lithosphere in regulating the hydrological cycle and ensuring water supply. Workings of the hydrological cycle, as a system.	15
			b Changes to the hydrological cycle can affect both human and ecosystem health.	Investigating the impact of unreliable and insufficient water supply on humans, using a case study from a vulnerable area, eg South-eastern Australia or the Sahel. Considering the impact of climate change on the hydrological cycle and ecosystems, in areas which may experience increased aridity	15
		4.2 How can water resources be sustainably managed?	a There are many threats to maintaining a healthy hydrological cycle.	Considering the consequences of human interference on water quality, eg river pollution. Examining located examples of human interference which disrupt water supply eg deforestation, over abstraction of groundwater and reservoir construction.	15
			b There is a range of strategies, at a variety of scales, designed to manage water resources more sustainably using different levels of technology.	Considering the costs and benefits of large scale water management projects, eg The Three Gorges dam, or Colorado River. Examining the role of named small-scale intermediate technology solutions such as water harvesting in the developing world.	15
Section B: Small-scale Dynamic Planet	Topic 5: Coastal Change and Conflict	5.1 How are different coastlines produced by physical processes?	a Geological structure and rock type have a major influence on coastal development and landforms.	Contrasts between a named soft rock coast and a named hard rock coast in terms of cliff profiles, cliff features and erosional land forms. Investigating concordant and discordant coasts (headlands and bays), and the influence of joints and faults.	16
			b Marine processes, sub-aerial processes, mass movement and climate change are also important.	Investigating how wave action erodes cliffs, and how wave type influences beach profile; how longshore drift forms characteristic landforms. Investigating how sub-aerial processes of weathering and mass movement influence landforms, and how rising sea levels and increased storm activity may affect coasts in the future.	16
		5.2 Why does conflict occur on the coast, and how can this be managed?	a Physical processes lead to coastal change and retreat, which threatens people and property and generates conflicting views.	Examining an example of rapid coastal retreat, eg Holderness or the Dorset Coast to identify how physical processes and causing coastal problems and threats. Exploring the conflicting views of how the case study coast should be managed.	16
			b There is a range of coastal management options from traditional hard engineering to more modern holistic approaches.	Investigating the costs and benefits of traditional coastal engineering structures. Considering the costs and benefits of more radical approaches such as 'do nothing' and 'strategic realignment' linked to Integrated Coastal Zone Management (ICZM) and whether they are sustainable.	16
	Topic 6: River Processes and Pressures	6.1 How do river systems develop?	a River systems develop characteristic landforms and channel shapes along their long profile, from source to mouth.	Investigating landform contrasts in upper courses, mid-courses and lower courses of rivers. Investigating how channel shape and characteristics change along a long profile for a named river.	17
			b These characteristics result from processes of erosion, transport and deposition, with geology and slope processes also playing a role.	Investigating the role of erosion processes, transport and deposition in river landform formation. Investigating the influence of geology and slope processes on river valley shape and sediment load.	17
		6.2 Why do rivers flood and how can flooding be managed?	a River flooding has natural causes, but flooding may be made worse by human activities, including those causing climate change.	Investigating the different factors that cause river flooding through the concept of the flood hydrograph. Examining how human actions can alter hydrograph shape and increase flood risk through urbanisation and land use change eg deforestation.	17
			b Flood management involves both traditional hard engineering and more modern, integrated and sustainable approaches.	Investigating existing flood defences and the impacts of flooding for a case study such as Carlisle (2004), York (2002) or River Severn (2007). Comparing one traditional flood management schemes, eg York, with one sustainable approach, eg River Skerne, and assessing costs versus benefits.	17
Section C: Large-scale Dynamic Planet	Topic 7: Oceans on the Edge	7.1 How and why are some ecosystems threatened with destruction?	a Human activities are degrading and destroying marine ecosystems on a global scale.	Investigating the global pattern of human use of one named marine ecosystem, such as coral reefs, the continental shelf or mangrove swamps. Assessing the global pattern of threats to this marine ecosystem, through human activities such as overfishing, tourism and pollution.	18
			b Unsustainable use of marine ecosystems leads to the disruption of food webs and nutrient cycles and can lead to extinction	Investigating the processes that disrupt marine food webs, eg overfishing and cause nutrient cycles to be disrupted, eg eutrophication, siltation. Examining the role of climate change in adding additional stress to threatened marine ecosystems, eg bleaching, warming oceans or sea level rise.	18
		7.2 How should ecosystems be managed sustainably?	a The pressure to use marine ecosystems is growing, due to rising populations and resource demand, creating difficult choices for humans.	Using a local-scale, named case study to investigate the growing localised pressures on a named marine ecosystem. Examining the extent to which different local groups have conflicting views on how the chosen ecosystem should be managed.	18
			b Sustainable management is needed locally and globally, if the oceans are to be protected from further degradation.	Assessing two local case studies of marine management, eg sustainable management in St Lucia, management of fish stocks in the North Sea, marine reserves. Assessing the role of global actions to maintain ocean health.	18
	Topic 8: Extreme Climates	8.1 What are the challenges of extreme climates?	a Extreme climates are located in polar regions and hot arid areas; each has key physical characteristics.	Investigating the climate of one named extreme environment either polar, eg Alaska, Siberia, or hot arid, eg the Sahel or Kalahari. Examining how flora and fauna are successfully adapted to the chosen climate, but are also vulnerable to change.	19
			b People adapt to the challenges of extreme climates in a variety of ways.	Investigating the adaptations people make in one named extreme polar or hot arid climate, such as farming methods, building styles, clothing, transport, energy use. Considering the uniqueness and value of the culture of peoples living in the chosen extreme climate.	19
		8.2 How can extreme environments be managed and protected from the threats they face?	a Extreme climates are under threat from a range of processes, which include climate change.	Investigating the threats to people and natural systems in one named polar or hot arid extreme climate area, such as cultural dilution through tourism, pollution though resource exploitation, and land degradation through poor land management. Investigating how climate change could threaten people and natural systems, eg melting, desertification or species migration, in the chosen area.	19
			b Sustainable management is needed locally and globally, if extreme environments are to survive.	Assessing a range of local actions, eg intermediate technology, adaptation to changing climates for a named polar or arid extreme climate area. Assessing the role of global actions to protect extreme environments from the threat of climate change.	19

EDEXCEL LINEAR GCSE GEOGRAPHY B (FIRST ASSESSMENT IN 2014)

SPECIFICATION AND ASSESSMENT AT A GLANCE

Specification overview

This unit has three sections. Section A is compulsory, and Sections B and C contain optional topics.
Section A – Introduction to the Dynamic Planet – Compulsory topics: Restless Earth, Changing Climate, Battle for the Biosphere and Water World. (48 marks)
Section B – Small-scale Dynamic Planet – Optional topics: complete one of either Coastal Change and Conflict or River Processes and Pressures. (15 marks)
Section C – Large-scale Dynamic Planet – Optional topics: complete **one** of either Oceans on the Edge or Extreme Environments. (15 marks)

Assessment overview

1-hour 15-minute tiered written examination • Total of 78 marks (up to 6 marks for SPaG) • June series

Section	Topic			Detailed content	Page
Section A: Introduction to the Dynamic Planet	Topic 1: Restless Earth	1.1 How and why do the Earth's tectonic plates move?	a The Earth's interior has a layered structure, with different composition and physical properties; the Earth's core generates heat and convection currents drive plate motion.	Interpret a cross-section of the Earth, with details (temperature, density, composition, physical state) of layered structure (including the asthenosphere); using rock samples to contrast continental and oceanic crust. Examine the core's internal heat source (through radioactive decay) and how this generates convection, which drives plate motion and generates the Earth's magnetic field.	11
			b There are conservative, constructive and destructive plate boundaries, each with characteristic volcanic and earthquake hazards.	Explain the distribution of the three plate boundary types and identify major plates. Examine the causes of contrasting volcanic (volcano type, magma type and explosivity) and earthquake hazards, including tsunami (shallow versus deep, magnitude) at contrasting example locations, e.g. Iceland and Indonesia.	11
		1.2 What are the effects and management issues resulting from tectonic hazards?	a Volcanic and earthquake hazards affect people in different ways and at contrasting locations.	Investigate the primary and secondary impacts of earthquakes in two named locations, e.g. the 2005 Kashmir versus 1989 Loma Prieta earthquakes. To include reasons for contrasting impacts on property and people. Examine the primary and secondary economic and social impacts of one volcanic event.	12
			b Management of volcanic and earthquake hazards, at contrasting locations, ranging from shortterm relief to long-term planning, preparation and prediction.	Examine the role of prediction, warning and evacuation in relation to volcanic and earthquake hazards. Contrasting hazard-resistant design in the developed and developing world. Evaluate the role of immediate response and relief efforts linked to a named tectonic hazard event, for example the Izmit earthquake in 1999.	12
	Topic 2: Changing Climate	2.1 How and why has climate changed in the past?	a Climate has changed in the past through natural causes, on timescales ranging from hundreds to millions of years.	Examine past climate change on different timescales, including the 'Ice Ages' in the Quaternary Period and UK climate since Roman times. Explore the natural causes of climate change, including asteroid collisions, orbital changes, volcanic activity and variations in solar output.	13
			b Natural climate change in the past has affected people and the environment.	Examine the impact of a short-term historical event on people and the environment, e.g. the 'Little Ice Age'. Consider the impact of major climatic changes in geological time, e.g. the mass extinction of megafauna at the end of the Quaternary Period.	13
		2.2 What challenges might our future climate present us with?	a The climate of the UK appears to be changing as a result of global changes caused by human activity	Investigate the climate of the UK today, including temperature, rainfall and seasonality, and consider why they might change in the future, including reference to ocean currents and air masses. Examine how human activities produce rising levels of carbon dioxide and methane and how these contribute to the enhanced greenhouse effect.	13
			b Future climates are uncertain but likely to present major economic and environmental challenges to the UK and, especially, to people in the developing world.	Consider a range of projections for global temperature change and sea level rise, including reasons for the uncertainty. Examine the possible economic and environmental impacts of future climate change for the UK and in one named developing country, e.g. Bangladesh.	13
	Topic 3: Battle for the Biosphere	3.1 What is the value of the biosphere?	a The distribution of global biomes reflects climate as well as other localised factors.	Define the terms 'eco-system' and 'biome', and map the distribution of major biomes across the planet. Evaluate the role of temperature and precipitation in explaining biome location, plus local factors including altitude and soils.	14
			b The biosphere acts as a 'life support system', and produces a wide range of goods.	Explain how the biosphere regulates the composition of the atmosphere, maintains soil health and influences the hydrological cycle. Investigate how the biosphere provides humans with a range of goods, including food, medicines and raw materials.	14
		3.2 How have humans affected the biosphere and how might it be conserved?	a The biosphere is being degraded by human actions.	Consider the role of human activity in the direct destruction of tropical rainforests, including deforestation for timber, mining and conversion to agricultural land. Examine how degradation of the biosphere takes place by indirect means, including the impact of climate change on tropical rainforests.	14
			b Management measures, at a variety of scales, are being used to conserve the biosphere and make human use of it moresustainable.	Examine two contrasting examples of biosphere conservation, including one global-scale approach, e.g. Ramsar or the Convention on International Trade in Endangered Species (CITES), and one national or local approach, e.g. UK National Parks, a tropical rainforest reserve. Examine the challenges of producing sustainable outcomes in economic, social and environmental terms and the possible tensions.	14
	Topic 4: Water World	4.1 Why is water important to the health of the planet?	a The hydrological cycle regulates water supply and links the atmosphere, biosphere and lithosphere.	Investigate the role of the biosphere and the lithosphere in regulating the hydrological cycle and ensuring water supply. Explain how the hydrological cycle works, as a system of interlinked stores and transfers, including the processes of evaporation, condensation, precipitation and run-off.	15
			b Changes to the hydrological cycle can affect both human and eco-system health.	Examine the impact of climate change on the hydrological cycle, including rainfall reliability and groundwater levels, in areas which already experience aridity. Investigate the impact of unreliable and insufficient water supply on humans, using a case study from a vulnerable area, e.g. the Sahel.	15
		4.2 How can water resources be managed sustainably?	a There are many threats to maintaining a healthy hydrological cycle.	Consider the consequences of human activities on water quality, including sewage disposal, industrial pollution and intensive agriculture. Examine located examples of human activities which disrupt water supply, including deforestation, overabstraction of groundwater and reservoir construction.	15
			b There is a range of strategies, at a variety of scales, designed to manage water resources more sustainably using different levels of technology.	Consider the costs and benefits of largescale water management schemes in the developed world and the developing world, e.g. Colorado River and The Three Gorges dam. Examine the role of named small-scale intermediate technology solutions, such as water harvesting in the developing world.	15
Section B: Small-scale Dynamic Planet	Topic 5: Coastal Change and conflict	5.1 How are different coastlines produced by physical processes?	a Geological structure and rock type have a major influence on coastal development and landforms.	Investigate the contrasts between a named soft rock coast and a named hard rock coast in terms of cliff profiles, cliff features and erosional land forms. Compare concordant and discordant coasts (headlands and bays) and assess the influence of rock type, joints and faults.	16
			b Marine processes, sub-aerial processes, mass movement and climate change are also important.	Investigate how destructive waves, subaerial processes and mass movement create a range of erosional landforms, including cliffs, wave-cut platforms, caves, arches and stacks and how constructive waves, deposition and longshore drift create beaches, bars and spits. Explore the possible consequences of climate change on marine erosion and deposition, including an increased frequency of storms and rising sea level.	16
		5.2 Why does conflict occur on the coast and how can this be managed?	a Physical processes lead to coastal change and retreat, which threatens people and property and generates conflicting views.	Investigate a coastline experiencing rapid coastal retreat, e.g. Holderness, to examine why rates of erosion vary and the threats posed to people and the environment by rapid erosion. Explore the conflicting views of how the case study coastal area should be managed.	16
			b There is a range of coastal management options from traditional hard engineering to more modern holistic approaches.	For a named coastline, investigate the costs and benefits of traditional hard engineering structures, including groynes and sea walls. Consider the costs and benefits of soft engineering, including beach replenishment, and more radical approaches including 'do nothing' and 'strategic realignment' linked to Integrated Coastal Zone Management (ICZM).	16
	Topic 6: River Processes and Pressures	6.1 How do river systems develop?	a River systems develop characteristic landforms and channel shapes along their long profile, from source to mouth.	Explain landform contrasts between the upper courses, mid courses and lower courses of rivers. Investigate how channel shape and characteristics change along a long profile for a named river, including width, depth, velocity and gradient.	17
			b These characteristics result from processes of erosion, transport and deposition, with geology and slope processes also playing a role.	Investigate the role of erosion processes, transport and deposition in river landform formation, including meanders, interlocking spurs, waterfalls, flood plains, levees and oxbow lakes. Investigate the influence of geology and slope processes on river valley shape and sediment load.	17
		6.2 Why do rivers flood and how can flooding be managed?	a River flooding has natural causes but flooding may be made worse by human activities, including those causing climate change.	Investigate the factors that cause rivers to flood, using hydrographs of two contrasting rivers, one with a short lag time and one with a long lag time. Examine how human actions can alter hydrograph shape and increase flood risk through urbanisation and land use change, e.g. deforestation.	17
			b Flood management involves both traditional hard engineering and more modern, integrated and sustainable approaches.	Investigate the impacts of flooding and the effectiveness of flood defences for a case study, e.g. Carlisle (2004), York (2002), River Severn (2007). Compare one traditional, hard engineering, flood management scheme, e.g. York, with one soft engineering approach, e.g. River Skerne, and assess their respective costs and benefits.	17
Section C: Large-scale Dynamic Planet	Topic 7: Oceans on the Edge	7.1 How and why are some eco-systems threatened with destruction?	a Human activities are degrading and destroying marine eco-systems on a global scale.	Investigate the global pattern of either coral reefs or mangrove swamps, and how it has changed in the past 50 years. Examine the global threats to this marine eco-system to explain its changed distribution through human activities including overfishing, pollution and waste disposal from both land and ocean sources, tourism and coastal development.	18
			b Unsustainable use of marine eco-systems leads to the disruption of food webs and nutrient cycles and can lead to extinction.	Investigate physical processes in marine eco-systems, including marine food webs and nutrient cycles. Examine how these processes can be disrupted through overfishing, eutrophication and siltation, as well as the impacts of climate change, including bleaching and species migration.	18
		7.2 How should eco-systems be managed sustainably?	a The pressure to use marine eco-systems is growing, due to rising populations and resource demand, creating difficult choices for humans.	Investigate the growing local pressures on a named and located marine eco-system. Examine the conflicting views about how the chosen eco-system should be managed.	18
			b Sustainable management is needed locally and globally if the oceans are to be protected from further degradation	Compare two located case studies of marine management, e.g. sustainable management in St Lucia, management of fish stocks in the North Sea, marine reserves to establish the tensions between achieving economic and environmental sustainability. Assess the role of global actions to maintain ocean health, e.g. the International Convention for the Prevention of Pollution from Ships (MARPOL) and marine protected areas.	18
	Topic 8: Extreme Environments	8.1 What are the challenges of extreme climates?	a Extreme climates are located in polar regions and hot arid areas; each one has key physical characteristics and they are fragile environments.	Investigate the climate of polar **and** hot arid areas, including precipitation, temperature range, seasonality and variability. Examine why these are fragile environments and how flora and fauna have successfully adapted to the extreme climates but are also vulnerable to change.	19
			a People adapt to the challenges of extreme environments in a variety of ways.	Investigate the adaptations people make in extreme environments, including farming methods, building styles, clothing, transport, energy use. Examine the culture and uniqueness of peoples living in extreme environments and the value of this culture to others.	19
		8.2 How can extreme environments be managed and protected from the threats they face?	a Extreme environments are under threat from a range of processes, including climate change.	Investigate the threats to people and natural systems in extreme environments, including out-migration because of limited economic opportunities, cultural dilution through tourism, pollution though resource exploitation and land degradation through poor land management. Investigate how climate change could threaten natural systems, including melting of permafrost, loss of sea ice, desertification and species migration and the **impact of these on traditional economies**.	19
			b Sustainable management is needed locally and globally if communities in extreme environments are to survive.	Assess a range of local actions, e.g. intermediate technology and adaptation to changing climates, and assess their effectiveness in achieving a sustainable future for local communities. Assess the role of global actions to protect extreme environments from the threat of climate change.	19

UNIT 1

Change in content | Content deleted | Change in assessment | New content | Red text highlights specific change | Clarification