

IGCSE Geography
Unit 3: Structure, Landforms and Landscape Processes

Recommended Prior Knowledge

An understanding of some geomorphological processes. An appreciation that different natural environments will present both challenges and opportunities for human activity. A good general knowledge, particularly of events in the news such as earthquakes and volcanic eruptions.

Context

It is recommended that this is the third of the units to be studied. The unit incorporates the interdependence of physical and human geography (2.3) by focusing upon the problems and benefits presented by different natural environments. Case studies of natural hazards are incorporated as appropriate. The skills gained in the study of this unit will have useful applications throughout.

Outline

The scheme of work presents opportunities to develop a wide range of diagrammatical skills and cartographical techniques. It offers opportunities for pupils to explain natural environments and to develop a broad appreciation of the processes that have shaped the physical world. The study of natural hazards makes use of topical events and shows pupils that Geography is both a current and dynamic subject. Suggested activities from the core texts are differentiated.

Learning Outcomes		Suggested Teaching Activities	Resources
2.1a	To show a basic understanding of plate tectonics.	Pupils draw a labelled diagram to show the structure of the earth. Pupils understand that there are two types of crust - oceanic and continental - and describe the differences between them.	The New Wider World Page 263 http://www.zephyrus.demon.co.uk/geography/resources/earth/tect.html
2.1a	To show a basic understanding of plate tectonics.	Pupils understand that the earth's crust is divided into plates and produce a map to show the plates and the direction of movement. Pupils define the key term – "plate boundary/margin". Pupils explain that the plates are moving due to convection currents in the mantle and discuss the evidence to support this. Pupils understand that plates can move in three directions and define key terms – "convergence", "divergence" and "plates sliding past each other".	The New Wider World Pages 264 and 265 www.zephyrus.demon.co.uk/geography/resources/earth/tect.html Question 3 Paper 1/2 October 2000

Learning Outcomes		Suggested Teaching Activities	Resources
2.1a	To show a basic understanding of plate tectonics. To describe the origin, characteristics and broad distribution of seismic activity and volcanic activity, fold mountains and rift valleys.	Pupils use atlas and Internet to research active volcanoes, recent earthquakes, fold mountains and rift valleys and mark these onto a map of plate boundaries. Pupils describe the relationship between these features and the plate boundaries.	<p>The New Wider World Pages 262 and 263</p> <p>Essential Mapwork Skills Pages 18 - 19</p> <p>http://www.geography.about.com/ (Go into Physical Geography, select Earthquakes and Plate Tectonics).</p> <p>http://volcano.und.nodak.edu/</p> <p>Question 3 Paper 1/2 October 2000</p>
2.1a	To show a basic understanding of plate tectonics. To describe the origin, characteristics and broad distribution of seismic activity and volcanic activity, fold mountains and rift valleys.	Pupils draw annotated diagrams to show the different types of plate boundaries and use their completed map to give examples of each. Pupils explain the following: volcanoes and earthquakes at a subduction zone, volcanoes at a diverging plate boundary and earthquakes at a conservative plate boundary. Pupils are also able to explain the formation of fold mountains and rift valleys at plate boundaries with appropriate examples and the use of labelled diagrams to show the features of each.	<p>The New Wider World Pages 264 - 265. Exercise 1 Page 276.</p> <p>Longman Geography for GCSE Pages 6 and 7</p> <p>http://www.geography.learnontheinternet.co.uk/topics/volcanoes.html</p> <p>http://www.geography.learnontheinternet.co.uk/topics/earthquakes.html</p> <p>http://www.zephyrus.demon.co.uk/virtualschool/index.htm</p> <p>Question 3 Paper 1/2 October 2000</p>
2.1a 2.3	To describe the origin, characteristics and broad distribution of seismic activity and volcanic activity, fold mountains and rift valleys. To demonstrate the inter-relationship of the natural environment and human activities by reference to natural hazards.	Pupils are introduced to the earthquake hazard and define key terms - earthquake, focus, epicentre, magnitude, seismic activity. Pupils produce a copy of the Richter Scale to understand how earthquake magnitude is measured. Pupils research a recent earthquake to include the causes and effects and present their ideas as a newspaper article. They should also discuss how people have responded to the	<p>The New Wider World Page 270 - 274. Exercise 3 Page 277.</p> <p>Longman Geography for GCSE Pages 10 to 13 Exercise 4 Page 23.</p> <p>http://pubs.usgs.gov/gip/earthq1/</p> <p>http://quake.usgs.gov/</p>

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		hazards (e.g. safety measures) and explain why the destruction caused by earthquakes of the same magnitude will vary in different parts of the world.	http://cgi.cnn.com/WORLD/meast/9806/27/turkey.quake/index.html http://www.georesources.co.uk/ http://www.geography.about.com/ (Go into Physical Geography, select Plate Tectonics and Earthquakes). http://www.georesources.co.uk/kobe.htm
2.1a 2.3	To describe the origin, characteristics and broad distribution of seismic activity and volcanic activity, fold mountains and rift valleys. To demonstrate the inter-relationship of the natural environment and human activities by reference to natural hazards.	Pupils are introduced to the volcanic hazard and produce a labelled diagram of a volcano with definitions of key terms. Pupils research the causes and effects of a recent volcanic eruption and also discuss how people have responded to the volcanic hazard e.g. prediction. Their ideas could be presented as a fact file. Pupils explain why people continue to live in volcanic areas despite the risk to include benefits e.g. fertile soil, tourism, geothermal energy etc.	The New Wider World Page 266 to 268 Exercise 2 Page 277. Longman Geography for GCSE Pages 8 and 9; 14 and 15; 18 and 19. Exercise 5 Page 23 Essential Mapwork Skills Pages 20 - 25 http://www.geography.learnontheinternet.co.uk/topics/volcanoes.html http://volcano.und.nodak.edu/ http://www.learner.org/exhibits/volcanoes http://boris.vulcanoetna.com/ Question 3 Paper 1/2 October 2000
2.1b	To describe and explain weathering processes.	Pupils define the key words - weathering and erosion and understand the differences between them. Pupils draw annotated diagrams and explain the main types of weathering to include: physical weathering (freeze-thaw, exfoliation and biological weathering) and chemical weathering (solution) and the factors that affect them including climate.	The New Wider World Pages 46. Exercise 2 Page 260.

Learning Outcomes	Suggested Teaching Activities	Resources
2.1b	To describe river processes. To describe and explain the landforms associated with these processes.	Pupils understand that a river has 3 roles - erosion, transport and deposition. Pupils define the processes of erosion (corrosion, corrasion, hydraulic action and attrition). Pupils describe, with the use of diagrams, how rivers transport material to include traction, saltation, suspension and solution. Pupils are able to explain the conditions under which rivers will deposit material. Pupils draw and annotate a diagram to show the long profile of a river and how volume, load and velocity will change with distance downstream.
2.1b	To describe river processes. To describe and explain the landforms associated with these processes.	Pupils produce fully annotated diagrams to explain the formation of the following river features: rapids, waterfalls, potholes, meanders (river cliffs and beaches), oxbow lakes, deltas, levees and floodplains and understand which are features of erosion and deposition.
2.1b	To describe river processes. To describe and explain the landforms associated with these processes.	Pupils use OS maps to measure <i>river gradients</i> in the different stages of a river and compare. Pupils describe and explain the differences. Pupils should be aware of the various methods to

The New Wider World Page 282.

Longman Geography for GCSE Pages 28 and 29

<http://www.geography.learnontheinternet.co.uk/topics/landuse.html>
(Go into Rivers, then Erosion)

<http://geography.about.com/library/weekly/aa031897.htm>

<http://www.geography.about.com/>
(Select Rivers and Streams for a number of related websites).

Question 3 Paper 1 and 2 June 2000

Question 2 Paper 3 November 1998

Question 2 Paper 3 June 2000

The New Wider World Page 283 - 285.
Exercises 5 and 6 Page 298.

Longman Geography for GCSE Pages 24 - 31.

<http://www.geography.about.com/science/geography/cs/riversandstreams/index.htm>
(Select Rivers for a number of related websites).

The New Wider World Page 292.

Longman Geography for GCSE Page 36 and 37 - OS map extracts. Question 6 Page 44

Learning Outcomes		Suggested Teaching Activities	Resources
		<p><i>show height on a map</i> and are able to give <i>bearings</i> from places of different height.</p> <p>Skills Based Exercise: Using map extract from Paper 3 June 2000 (Jamaica), pupils describe the changes in the Rio Grande - features and surrounding land uses.</p> <p>Pupils should be able to <i>describe relief and landscape</i> from a map using terms such as ridge, plateau, scarp, floodplain) and adjectives such as broad, flat, steep, deeply cut, gently sloping) -</p>	<p>Essential Mapwork Skills Pages 65 - 73</p> <p>Unit 1 (Pages 7 -8) Geography IGCSE and HIGCSE Book 4</p> <p>Unit 1 (Pages 9 -15) Geography IGCSE and HIGCSE Book 4</p> <p>Question 1 Paper 3 May 1998</p> <p>Question 2 Paper 3 November 1999</p> <p>Question 1 Paper 3 June 2000</p> <p>Question 1 Paper 3 November 1999.</p>
2.3	The inter-relationship of the natural environment and human activities by reference to natural landscapes, climate and natural hazards.	<p>Pupils brainstorm the causes and effects of river flooding and research a case study of a recent flood event. Introduce flood hydrographs at this point. Pupils write a report to show the various ways in which humans have responded to the flood hazard and present their own views to the question "Should rivers be allowed to flood?" Pupils explain the ways in which river valleys and deltas are used for human activities.</p>	<p>The New Wider World Page 286 to 295. Exercises 7 and 8 Page 298 and 299.</p> <p>Longman Geography for GCSE Pages 32 to 35 and 38 to 42. Questions 4 and 5 Page 44.</p> <p>http://www.geography.about.com</p> <p>(Select Rivers and Streams for a number of related websites).</p> <p>http://www.floodplain.org</p> <p>http://www.bbc.co.uk/education/gcsebitessize/geography/index.shtml</p> <p>(Select Water and Rivers then Floods and Storm Hydrographs)</p>

Learning Outcomes		Suggested Teaching Activities	Resources
			<p>http://www.bennett.karoo.net/topics/river.html (Select The Great Floods of 2000)</p> <p>Question 4 Papers 1 and 2 May 1999</p> <p>Question 3 Paper 3 November 1998</p>
2.1b	To describe coastal processes. To describe and explain the landforms associated with these processes.	Pupils define the term "coast". Pupils produce diagrams to show how waves are formed and understand that waves can be destructive and constructive (to include definitions of key terms such as swash and backwash). Refer back to processes of erosion and relate to the coast.	<p>The New Wider World Page 300. Exercise 1 Page 315.</p> <p>Longman for GCSE Page 48 and 49.</p> <p>http://www.angliacampus.com/tour/sec/geog/coastal/index.htm</p> <p>http://www.angliacampus.com/public/sec/geog/coastln/index.php</p> <p>http://www.geography.learnontheinternet.co.uk/topics/waves.html#wave</p> <p>Question 3 Papers 1 and 2 June 2000</p>
2.1b	To describe coastal processes. To describe and explain the landforms associated with these processes.	Pupils draw fully annotated diagrams to explain the formation of coastal erosion features including: cliffs, wave-cut platforms, caves, arches, stacks, headlands and bays.	<p>The New Wider World Page 300 to 301.</p> <p>Longman Geography for GCSE Page 48-49.</p> <p>Essential Mapwork Skills Pages 36-39</p> <p>http://www.georesources.co.uk/recintro.htm.</p> <p>http://www.geography.learnontheinternet.co.uk/topics/waves.html#headland</p> <p>http://www.angliacampus.com/tour/sec/geog/coastal/index.htm</p> <p>Question 2 Paper 3 October 2000</p>

Learning Outcomes		Suggested Teaching Activities	Resources
2.1b	To describe coastal processes. To describe and explain the landforms associated with these processes.	Pupils describe how waves transport material onshore, offshore and along a coastline. Pupils produce diagrams to illustrate the process of longshore drift.	The New Wider World Page 302 to 303. Longman Geography for GCSE Page 49.
2.1b	To describe coastal processes. To describe and explain the landforms associated with these processes.	Pupils draw fully annotated diagrams to explain when waves will deposit material and the formation of coastal deposition features to include: beaches, spits, bars, sand dunes and marsh. Pupils understand the role of wind in shaping sand dunes and how human activity can damage this ecosystem. Pupils describe the strategies to limit impact and explain why it is important to protect sand dunes. Skills Based Exercise: using map extract from Paper 3 June 2000 (Jamaica), pupils draw a <i>sketch map</i> of a selected stretch of coastline and describe the main features. Pupils <i>relate land use to physical features</i> by explaining the location of Port Antonio and describing its main land uses (give map evidence)	The New Wider World Page 306-309. Exercise 2 Page 315. Longman Geography for GCSE Page 52; 56-57. Essential Mapwork Skills Pages 45-47 and 112 to 118 Unit 1 (Page 16) Geography IGCSE and HIGCSE Book 4 http://www.georesources.co.uk/csintro.htm http://www.geography.learnontheinternet.co.uk/topics/marshes.html#dunes Question 3 Papers 1 and 2 November 1998 Question 1 Paper 3 June 2000
2.3	The inter-relationship of the natural environment and human activities by reference to natural landscapes, climate and natural hazards.	Pupils consider the need for and types of coastal protection and discuss their costs and benefits.	The New Wider World Page 304 and 306 - 307. Exercise 1 Page 315. Longman Geography for GCSE Page 56 - 57. Essential Mapwork Skills Pages 40 - 44 http://www.fortunecity.com/greenfield/ecolodge/25/erosion.htm