



*Rewarding Learning*

General Certificate of Secondary Education  
2011

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## **Geography**

Unit 1:  
Understanding Our Natural World

Foundation Tier

**[GGG11]**

**MONDAY 13 JUNE, MORNING**

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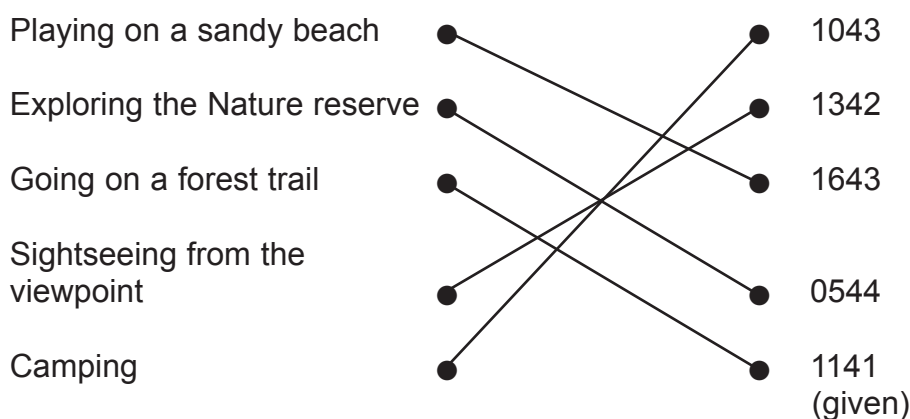
**MARK  
SCHEME**

### Theme A: The Dynamic Landscape

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- 1 (a) (i) The height of the land on the A149.  
Award [1] for 3 metres. (As defined by the GR for the spot height). [1]
- (ii) Straight line distance from the Parking to Pits Point.  
Answer is 4.6 km  
Award [1] for answers in the range 4.4 to 4.49 km or 4.71 to 4.8 km.  
Award [2] for answers in the range 4.5 to 4.7 km. [2]
- (iii) The direction of Blakeney Point from Weybourne  
Award [1] for *North West*. [1]

- (iv) Matching activities to their locations.



Award [1] per correct answer (one to be eliminated). [4]

- (b) (i) Labelling features of the Blakeney Point spit.

Key	
Letter on Fig. 1	Label
E	Direction of Longshore Drift
A	Mainland
D	Sand dunes (given)
C	Shingle
B	Salt Marshes

Award [1] per correct answer [4]

(ii) The meaning of the term **deposition**.

Award **[0]** for a response not worthy of credit.

Award **[1]** for a limited definition e.g.

- Dropping material.

Award **[2]** for a full definition e.g.

- When sand and other materials are moved and then dropped.
- Dropping material on the earth's surface for example by a river.

[2]

(iii) Completing sentences to compare constructive and destructive waves.

1. In **destructive** waves the backwash is much stronger than the swash.
2. **Constructive** waves are low and far apart.
3. Destructive waves are **more** frequent than constructive waves.
4. Constructive waves **build up** the beach.

Award **[1]** per correct answer.

[4]

(iv) Name two processes by which the coast is eroded.

Possible answers:

Corrasion/abrasion

Attrition

Corrosion/solution

Hydraulic pressure/action

Any two of the above answers are acceptable but not alternative names for the same process.

Award **[1]** per correct answer.

[2]

(c) (i) Describe how this method (groyne) of coastal protection works.

Award **[0]** for a response not worthy of credit.

Award **[1]** for a basic statement e.g.

- Fences built along the beach.

Award **[2]** for a valid statement and a consequence e.g.

- Fences built along the beach to stabilise sand/trap sand.
- Fences built along the beach to stop the effect of longshore drift.

Award **[3]** for a valid statement, consequence and elaboration e.g.

- Groynes are wooden walls built seawards on a beach e.g. every 50 metres, to stop the sand being washed away by longshore drift. The material is trapped behind the groynes at regular intervals along the beach and this helps retain the sand along the beach.
- Groynes are wooden fences built at right angles to the coast along a beach. They slow down longshore drift and encourage the deposition of sand building up the beach. However they can cause erosion further along the coast as beach material cannot move naturally by longshore drift.

[3]

- (ii) For a named area in the British Isles, describe one other method used to protect a coastline and state to what extent it is sustainable.

Area

Award **[1]** for coastal area in British Isles e.g. Dundrum Bay/ Newcastle.

[1]

Method

Answers will relate to chosen area but may focus on sea walls, gabions and beach nourishment. Other suggestions acceptable e.g. rock armour, rip rap etc. Only one method is required even in areas where the strategy includes a range of techniques.

Award **[0]** for a response not worthy of credit.

Award **[1]** for a basic statement e.g.

- Gabions have been built.
- Rock armour is used to spread wave energy.
- A sea wall has been built to protect buildings.

Award **[2]** for a valid statement and a consequence e.g.

- Gabions have been built to protect the recreation ground built over the river at the mouth of the River Shimna. These stabilise the coast and allow pedestrians access to the promenade.
- Rock armour spreads the energy of storm waves and has been used to protect the Royal County Down Golf Course.
- A sea wall has been built in Newcastle to protect seafront buildings. This was raised after a storm in 2002 and now has a curved shape to stop water splashing over the wall

Sustainability

Award **[0]** for a response not worthy of credit.

Award **[1]** for a valid statement and basic evaluation e.g.

- Groynes decay so are not sustainable for the future.
- Gabions are sustainable because they reduce erosion.
- Sea walls are not sustainable as they are costly to maintain.
- Rock armour is not sustainable as it causes erosion elsewhere.

Award **[2]** for a valid evaluative statement and justification e.g.

- Gabions are sustainable as they allow water to enter the cage and dissipate slowly rather than deflecting it back outwards.
- While the sea wall protects the buildings the waves are eroding the beach causing Newcastle beach to have less sand so this is not sustainable.
- Rock armour is not a sustainable method as it is reducing the sand available at Murlough Bay an ASSI.

[4]

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(d) (i) Completion of the table.

	Site 1	Site 2	Site 3	Site 4	Site 5
Average length of pebble in cm	13	11.75	11	9.5	8

Award **[1]** for 8.

[1]

(ii) 1. Describe the changes in the size of pebbles as you go downstream.

Award **[0]** for a response not worthy of credit.

Award **[1]** for a basic analysis e.g.

- The pebble size gets smaller downstream.

Award **[2]** for a comparative analytical comment with a minimum of one value e.g.

- The average pebble size decreases downstream by 5 cm.
- The load size decreases from 13 cm to 8 cm downstream.

[2]

2. Explain why this change occurs.

Award **[0]** for a response not worthy of credit.

Award **[1]** for a basic statement e.g.

- It is eroded.
- The load gets smaller as it is eroded.

Award **[2]** for a valid statement and a consequence e.g.

- The rocks hit each other causing erosion.
- The load gets smaller as it is bumped against the bed and banks.

Award **[3]** for a valid statement, consequence and elaboration e.g.

- As the load travels downstream, rocks hit against each other, a process called attrition. This means the edges of some rocks will get broken off making them smaller further from the source.

[3]

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- (e) Complete Table 2 by matching the correct statement to the number in Fig. 4. This will explain the formation of a waterfall.

Statement	Number from Fig. 4
Erosion of softer rock causes undercutting	2
The undercut rock collapses	4
The river flows over a layer of hard rock	1
Erosion leads to the formation of a plunge pool	3
The position of the waterfall moves backwards	5 (given)

[4]

- (f) (i) Cause of flooding on a river within the British Isles.  
Award [1] for a river in British Isles e.g. River Derwent (1999). [1]

Cause of flooding

Answer may address physical or human cause.

Award [0] for a response not worthy of credit.

Award [1] for a basic statement e.g.

- Heavy rainfall.
- Snow melt.
- Removal of peat.
- More houses built.

Candidates present some relevant information in a form and using a style of writing which suits its purpose. The text is reasonably legible. Spelling, punctuation and the rules of grammar are used with some accuracy so that meaning is reasonably clear. A limited range of specialist terms is used appropriately.

Award [2] for a valid statement and a consequence e.g.

- Heavy rainfall fell on ground which was already saturated from previous rainfall leading to flooding.
- The snow melt at this time of year gave extra flood water.
- Peat removal caused more surface water.

Candidates present relevant information in a form and using a style of writing which suits its purpose. The text is legible. Spelling, punctuation and the rules of grammar are used with considerable accuracy so that meaning is clear. A good range of specialist terms is used appropriately.

Award [3] for a valid statement, consequence and elaboration e.g.

- There was heavy rainfall (over 250 mm) 28 February–11 March on the North York Moors. This fell on already saturated ground leading to flooding.

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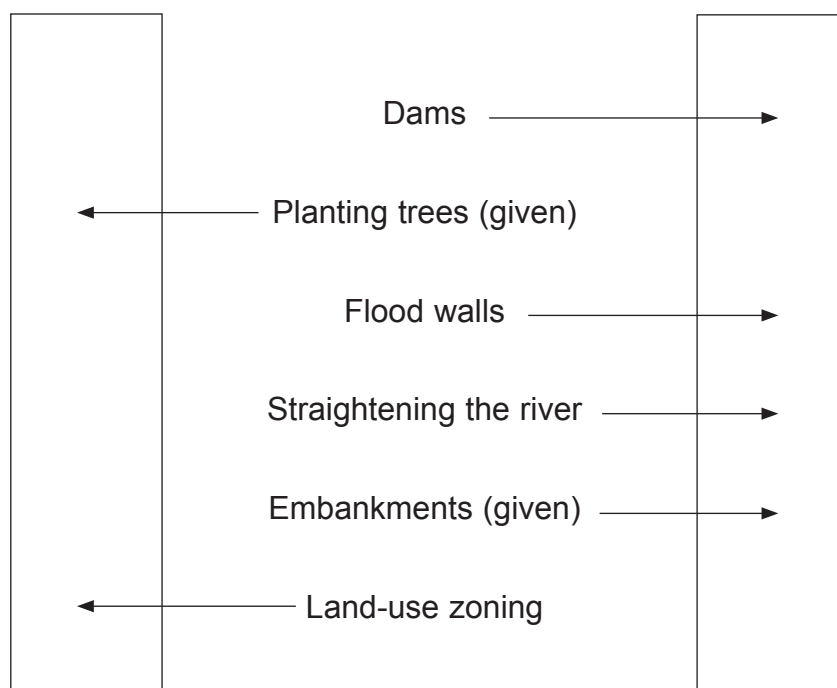
- There was over 250 mm rainfall in February–March which was added to by the melting snow at this time of year (Spring) leading to flooding.
- The removal of peat in the source area meant that the soil was able to hold less water resulting in quick saturation and flooding.
- Areas of the floodplain were being built on e.g. the new housing estate at Malton. The extra tarmac surfaces reduced infiltration and increased surface run off.

Candidates present and organise effectively relevant information in a form and style of writing which suits its purpose. The text is fluent and legible. Spelling, punctuation and the rules of grammar are used with almost faultless accuracy so that meaning is clear. A whole range of specialist terms is used skilfully and with precision. [3]

- (ii) Complete Fig. 5 by sorting the river management strategies into hard and soft engineering methods.

### Soft Engineering

### Hard Engineering



Award [1] per correct answer.

[4]

- (g) For a named river outside the British Isles, describe one method used to reduce the flood hazard.

River

Award [1] for a river outside the British Isles e.g. River Mississippi. [1]

Method to control flooding

Answer may address hard or soft engineering methods, e.g.

Award [0] for a response not worthy of credit.

Award **[1]** for a basic statement e.g.

- Levees were raised.
- The river channel was straightened.
- Dams were built.
- Trees were planted.
- Safe flood zones were created.

Candidates present some relevant information in a form and using a style of writing which suits its purpose. The text is reasonably legible. Spelling, punctuation and the rules of grammar are used with some accuracy so that meaning is reasonably clear. A limited range of specialist terms is used appropriately.

Award **[2]** for a valid statement and a consequence e.g.

- Levees were raised and strengthened to enclose the river channel.
- The river channel was straightened to create a fast flowing river channel to take away the water.
- Dams were built to control the flow of the river. Water can be released gradually reducing the likelihood of flooding.
- Trees were planted in the upper course of the river to intercept some of the rainfall.
- Safe flood zones were created by restricting building in many of the floodplain areas.

Candidates present information in a form and using a style of writing which suits its purpose. The text is legible. Spelling, punctuation and the rules of grammar are used with considerable accuracy so that meaning is clear. A good range of specialist terms is used appropriately.

Award **[3]** for a valid statement, consequence and elaboration e.g.

- Levees were raised 15 metres and were strengthened to enclose the river channel for a stretch of 3000 km so reducing the threat of flooding.
- The river channel was straightened. The meanders were cut through over a stretch of 1750 km creating a fast flowing river channel to take away the water.
- Over 100 dams were built to control the flow of the main tributaries, especially the River Ohio. Water can be released gradually reducing the likelihood of flooding.
- Afforestation – trees were planted in the upper course of the river especially in the Tennessee Valley to intercept some of the rainfall and stabilise the soil.
- Safe flood zones have been created by restricting building in many of the floodplain areas. At areas where housing had already been built e.g. Rock Island it was bought by the county and demolished.

Candidates present and organise effectively relevant information in a form and style of writing which suits its purpose. The text is fluent and legible. Spelling, punctuation and the rules of grammar are used with almost faultless accuracy so that meaning is clear. A whole range of specialist terms is used skilfully and with precision. [3]

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50



## Theme B: Our Changing Weather and Climate

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- 2 (a) (i) Name the type of cloud at X  
Cirrus [1]
- (ii) Name the type of cloud associated with thunderstorms  
Cumulo-nimbus [1]
- (b) (i) Diagram of a rain gauge with labels as shown  
 • Funnel  
 • Cylinder (2 x 1) = [2]
- (ii) Explain why the rain gauge must be sited away from buildings and trees.  
Award [0] for a response not worthy of credit.
- Level 1 [1]**  
Only one accurate statement  
e.g. for accurate readings
- Level 2**  
A statement and consequence  
e.g. so the readings are accurate and not protected by the buildings
- Level 3 [3]**  
A statement consequence and elaboration e.g.  
 • So that the rain gauge is not protected by the buildings which would reduce the amount of water collected and lead to inaccurate readings.  
 • So that the rain gauge does not receive extra water from drips from the trees leading to an increase in the water collected and an inaccurate reading.
- OR
- To ensure the readings are inaccurate and not protected by the buildings or trees and to stop the amount of evaporation taking place. [3]
- (c) (i) Name the lines shown on this weather map joining places with equal pressure.  
Isobars [1]
- (ii) State the weather system located over the British Isles.  
Anticyclone      Front      **Depression** [1]
- (iii) The temperature in Bristol will change as this weather system passes.
1. Describe how the temperature will change.  
Only one simple change required  
e.g. the temperature will go up **or** temperature will fall. [1]

2. Explain why the temperature will change.  
Only one required e.g. the temperature will go **either** up **or** down.  
Award **[0]** for a response not worthy of credit.

**Level 1**

A simple statement e.g. the temperature will rise after the front passes Bristol.

**Level 2**

A statement which refers to the warm front and warm sector **or** cold front and cold air passing across Bristol.

**Level 3**

An explanation which accurately links **either** the rising **or** falling temperatures at Bristol to the passing of either the warm front and warm sector with Tropical Maritime air mass **or** the passing of the cold front and cold Polar Maritime air (Answer could refer to the direction of cold air mass from NW). [3]

- (d) Weather affects both people and the economy. Complete Table 3 by writing People or Economy in the last column.

Weather element	People OR Economy
Strong winds	Economy
Warm, sunny weather	Economy (given)
Frost	Economy
Heavy rain	People

[3]

- (e) Describe how a volcanic eruption may change the climate.  
Award **[0]** for a response not worthy of credit.

**Level 1 [1]**

A brief statement e.g. the volcano ejects SO<sup>2</sup> or ash or water vapour etc.

Candidates present some relevant information in a form and using a style of writing which suits its purpose. The text is reasonably legible. Spelling, punctuation and the rules of grammar are used with some accuracy so that meaning is reasonably clear. A limited range of specialist terms is used appropriately.

**Level 2 [2–3]**

Some explanation is provided e.g. the SO<sup>2</sup> or ash ejected into the atmosphere by the volcano blocks out the sunlight or reflects Solar Radiation.

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Candidates present information in a form and using a style of writing which suits its purpose. The text is legible. Spelling, punctuation and the rules of grammar are used with considerable accuracy so that meaning is clear. A good range of specialist terms is used appropriately.

### Level 3 [4]

A fully elaborated explanation is provided e.g. the ash ejected into the atmosphere by the volcano blocks out the sunlight or the SO<sup>2</sup> forms sulphuric acid in the atmosphere which reflects Solar Radiation and these lower the temperature and so cools the climate.

Candidates present and organise effectively relevant information in a form and style of writing which suits its purpose. The text is fluent and legible. Spelling, punctuation and the rules of grammar are used with almost faultless accuracy so that meaning is clear. A whole range of specialist terms is used skilfully and with precision. [4]

- (ii) For a named country, describe one positive and one negative effect of climate change.

Name of country e.g. the UK – one mark for name of case study country. [1]

### Effects must be factually accurate to the named country

Positive and negative

Award [0] for a response not worthy of credit.

### Level 1

A simple accurate positive and negative effect which could be true of the named country.

e.g. Positive: higher crop yields or warmer summers

e.g. Negative: more pests and diseases or drier weather or more flooding.

### Level 2

An accurate factual statement on both the positive and negative effects, clearly linked to the named country

e.g. Positive: higher yields of crops such as sugar beet and maize due to the warmer summers

e.g. Negative: increased numbers of pests could attack crops and diseases such as malaria could affect people in southern England. [2 × 2 = 4]

Mark out of 2 [2] marks i.e. Positive Level 1 response and Positive Level 2 response etc.

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25

## Theme C: The Restless Earth

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- 3 (a) (i) Complete Table 1 by writing in the names of the first and last rocks in the table.

Name of rock
Granite [1]
Sandstone (given)
Slate [1]

[2]

- (ii) Choose one of the rocks from Table 4 and explain how it was formed.

Award [0] for a response not worthy of credit.

If any other rock is chosen, then award [2] maximum. Level 1 answer [1] will be a basic statement on how any rock might be made

e.g. it's made from molten rock that hardens.

Level 2 answers [2] will be an incomplete explanation of a certain rock's formation e.g. granite is made from molten rock which hardens under the ground.

Level 3 [3] answers will give a full explanation of how **either** granite, slate or sandstone is made. e.g. granite is made from molten rock which hardens under the ground, so it cools slowly allowing large crystals of minerals like quartz to fuse together. [3]

- (b) Order the statements to show how a lava plateau forms.

Lava pours out through fissures.	2
Pressure brought magma to the earth's crust.	1
Weathering occurs along the edges of the plateau, making it smaller over time.	4 (given)
The lava cools to form a wide flat plateau made of basalt.	3

[3]

- (c) (i) Name the group of islands to the north of Haiti.  
Islands named as Bahamas.

[1]

- (ii) Type of plate margin found at Port-au-Prince.

**Conservative** also award the mark if the correct answer has been circled.

[1]

(iii) State the meaning of the term **earthquake**.

Award **[0]** for a response not worthy of credit.

Award **[1]** for an incomplete definition e.g. a natural disaster.

Award **[2]** for a complete definition, e.g. a shaking of the earth started by a movement in the crust. [2]

(iv) Suggest two reasons why the quake in Haiti caused so many deaths.

Award **[0]** for a response not worthy of credit.

Level 1 **[1]** one stated reason to explain the deaths e.g. it happened near a city.

Level 2 **[2]** one reason with an elaboration or two stated reasons e.g. it happened near a city in the late afternoon (4.53 pm); e.g. as it happened near a city the earthquake caused many of the buildings there to collapse killing people. [2]

(v) Explain why plates move.

Award **[0]** for a response not worthy of credit.

The candidate should discuss the structure of the earth within the answer, noting the idea of crust, mantle and core. They should make reference to the fact that the core is very hot and causes convection currents in the mantle.

e.g. Level 1 **[1]** a simple reason e.g. because they sit on the mantle.

Level 2 **[2–3]** a more detailed, but incomplete explanation e.g. because they sit on the mantle which is moving as it is heated by the core **[3]**.

Level 3 **[4]** a full explanation e.g. because tectonic plates sit on the mantle, which is also moving due to convection currents generated by heat from the core at the centre of our planet. [4]

(d) Describe the cause and two impacts of an earthquake in the British Isles.

Award **[1]** for location of a valid earthquake in British Isles e.g. Market Rasen (in 2008). [1]

Award **[0]** for a response not worthy of credit.

Cause of the earthquake

**Level 1 [1]**

A valid statement

- A release of stress

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**Level 2 [2]**

A valid statement with elaboration

- A sudden release of stress along a nearby strike slip fault line.

Award maximum Level 1 marks, **[1]**, if the earthquake is **outside** the British Isles. [2]

Impacts

**Level 1 [1–2]**

One impact with elaboration or 2 general impacts e.g.

- Some people get hurt [1] and some buildings fell down [1]
- A man suffered broken bones when a chimney fell on him [2]

**Level 2**

The impacts with elaborations e.g.

- A stone cross fell from a church and hit the roof causing £10,000 damage. Several people were hurt like a man who suffered broken bones when a chimney fell on him.

Award maximum of Level 1 [2] marks if the chosen earthquake is outside the British Isles. [4]

**Total**

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MARKS**

25

**100**