Rewarding Learning

General Certificate of Secondary Education
2018

Geography

Unit 1:
Understanding Our Natural World

Foundation Tier

[GGG11]

TUESDAY 22 MAY, AFTERNOON

MARK SCHEME

General Marking Instructions

Introduction

Mark schemes are intended to ensure that the GCSE examinations are marked consistently and fairly. The mark schemes provide markers with an indication of the nature and range of candidates' responses likely to be worthy of credit. They also set out the criteria which they should apply in allocating marks to candidates' responses. The mark schemes should be read in conjunction with these general marking instructions.

Assessment objectives

Below are the assessment objectives for GCSE Geography.

Candidates must show they are able to:

- recall, select and communicate their knowledge and understanding of places, environments and concepts (AO1);
- apply their knowledge and understanding in familiar and unfamiliar contexts (AO2); and
- select and use a variety of skills, techniques and technologies to investigate, analyse and evaluate questions and issues (AO3).

Quality of candidates' responses

In marking the examination papers, examiners should be looking for a quality of response reflecting the level of maturity which may reasonably be expected of a 15- or 16-year-old which is the age at which the majority of candidates sit their GCSE examinations.

Flexibility in marking

Mark schemes are not intended to be totally prescriptive. No mark scheme can cover all the responses which candidates may produce. In the event of unanticipated answers, examiners are expected to use their professional judgement to assess the validity of answers. If the answer is particularly problematic, then examiners should seek the guidance of the Supervising Examiner.

Positive marking

Examiners are encouraged to be positive in their marking, giving appropriate credit for what candidates know, understand and can do rather than penalising candidates for errors or omissions. Examiners should make use of the whole of the available mark range of any particular question and be prepared to award full marks for a response which is as good as might reasonably be expected of a 15- or 16-year-old GCSE candidate.

Awarding zero marks

Marks should only be awarded for valid responses and no marks should be awarded for an answer which is completely incorrect or inappropriate.

Types of mark schemes

Mark schemes for tasks or questions which require candidates to respond in extended written form are marked on the basis of levels of response which take account of the quality of written communication.

Other questions which require only short answers are marked on a point for point basis with marks awarded for each valid piece of information provided.

Levels of response
Tasks and questions requiring candidates to respond in extended writing are marked in terms of levels of response. In deciding which level of response to award, examiners should look for the 'best fit' bearing in mind that weakness in one area may be compensated for by strength in another. In deciding which mark within a particular level to award to any response, examiners are expected to use their professional judgement. The following guidance is provided to assist examiners.

- **Threshold performance:** Response which just merits inclusion in the level and should be awarded a mark at or near the bottom of the range.

- **Intermediate performance:** Response which clearly merits inclusion in the level and should be awarded a mark at or near the middle of the range.

- **High performance:** Response which fully satisfies the level description and should be awarded a mark at or near the top of the range.

Marking calculations
In marking answers involving calculations, examiners should apply the 'own figure rule' so that candidates are not penalised more than once for a computational error.

Quality of written communication
Quality of written communication is taken into account in assessing candidates' responses to all tasks and questions that require them to respond in extended written form. These tasks and questions are marked on the basis of levels of response. The description for each level of response includes reference to the quality of written communication.

For conciseness, quality of written communication is distinguished within levels of response as follows:

Level 1: Quality of written communication is limited
Level 2: Quality of written communication is satisfactory
Level 3: Quality of written communication is of a high standard.

In interpreting these level descriptions, examiners should refer to the more detailed guidance provided below.

Level 1 (Limited): 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 (Satisfactory): 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.

Level 3 (High Standard): 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 wide range of specialist terms is used skillfully and with precision.

Assessment of spelling, punctuation and the accurate use of grammar.
Marks for spelling, punctuation and the accurate use of grammar will be allocated to specific questions where there is a requirement for sufficient extended writing to enable the accurate application of Performance descriptions (see below). These marks will be identified to candidates on the question papers.

Performance descriptions

(i) Threshold performance
Candidates spell, punctuate and use the rules of grammar with reasonable accuracy in the context of the demands of the question. Any errors do not hinder meaning in the response. Where required, they use a limited range of specialist terms appropriately.

(ii) Intermediate performance
Candidates spell, punctuate and use the rules of grammar with considerable accuracy and general control of meaning in the context of the demands of the question. Where required, they use a good range of specialist terms with facility.

(iii) High performance
Candidates spell, punctuate and use the rules of grammar with consistent accuracy and effective control of meaning in the context of the demands of the question. Where required, they use a wide range of specialist terms adeptly and with precision.

As shown by the performance descriptions, SPaG marks are awarded in the context of the demands of the question. If the candidate's response does not address the question then no SPaG marks are available. However, if the candidate has attempted to answer the question but produced nothing of credit, SPaG marks may still be awarded.

Theme A: The Dynamic Landscape

AVAILABLE MARKS

1 (a) (i) State the height of the land shown by the spot height at the top of Rusey Cliff, GR 128935.

247 m [1]

(ii) State the straight line distance from the campsite near Ringford Farm GR 126926 to the bridge on the River Ottery at Trengune GR 189933.

6.2–6.4 km [2]

6.1–6.19 or 6.41–6.5 [1] [2]

(iii) State the direction of Pencannow Point GR 1397 from Boscastle GR 0990.

North East [1]

(iv) Complete **Table 1** by naming a river feature found at the locations given.

Table 1

Grid Reference	River Feature
GR 2092	Meander [1] or floodplain [1]
GR 0888	Waterfall/V shaped valley [1]

(2 × [1]) [2]

(v) Much of this coastline has been shaped by destructive waves. Complete **Table 2** to indicate three correct statements about destructive waves by placing a tick (✓) in the column provided.

Table 2

Statement about destructive waves	Tick 3 correct statements
They have a strong backwash compared to their swash	✓
They are long in relation to their height	
They are frequent (break at a rate of 15 per minute)	✓
They are gentle (break at a rate of 6–9 per minute)	
The are high in relation to their length	✓

(3 × [1]) [3]

AVAILABLE MARKS

(b) (i) Complete **Table 3** below by placing the statements in order to show how the arch shown in **Fig. 1** was formed. One has been completed for you.

Table 3

Statement	Order
Cracks in the rock are widened by wave actions to form a cave	**2**
A line of weakness in a cliff is widened by erosion	**1 (given)**
Eventually the cave will be eroded all the way through the cliff to form an arch	**4**
Over time the back wall of the cave is further eroded	**3**

(3 × [1]) [3]

(ii) Name the feature which will be formed when the roof of the arch collapses.

Stack [1]

(c) **Fig. 2** is a photograph of a wave cut platform at Pencannow Point, GR 1397.

Explain how a wave cut platform such as this is formed.

Award [0] for an answer not worthy of credit.

Level 1 ([1]–[2])
A simple correct statement about wave-cut platform formation or description of the feature,
e.g. It is formed by erosion. [1]
e.g. It is a flat area in front of cliffs formed by erosion. [2]

Level 2 ([3]–[4])
A partial explanation relating to wave-cut platform formation,
e.g. It is formed by erosion such as abrasion when the cliff is undercut and collapses leaving a flat area of rock at the base of the cliff. [3]

Level 3 ([5])
A fuller explanation of how a wave-cut platform is formed, referring to the repetitive process of erosion creating the flat area of the platform,
e.g. It is caused by erosion when a notch created by erosion, such as abrasion and hydraulic action, is further eroded undercutting the cliffs. The upper cliff is undercut and eventually collapses. This process is repeated to create a wave-cut platform a flat area of rock at the base of the cliff. [5]

(d) For a named case study in the British Isles, explain how one coastal management strategy protects the coast.
Award [1] for a correctly named coastal area in the British Isles with a management strategy, e.g. Newcastle, Co Down. [1]

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

AVAILABLE MARKS

Level 1 ([1]–[2])
Candidates provide a limited factual account of the coastal management strategy. Candidates might not make reference to a specific case study from the British Isles,
e.g. Coastal management strategies usually mean that councils will build sea walls. [1] Sometimes strategies will also involve the use of groynes and gabions. [2]

Level 2 ([3]–[4])
Candidates provide a factual account of the coastal management strategy for a specific case study from the British Isles,
e.g. In Newcastle, Co Down there have been a number of developments over the years which have been part of a sustainable strategy to manage the coast in Newcastle. The main features in recent years has been the building of a sea wall. [3] A sea wall was built in Newcastle to stop the sea from flooding the town. [4]

Level 3 ([5]–[6])
Candidates provide detailed information of the coastal management strategy for a specific case study from the British Isles. For top Level 3, two methods must be included. For bottom L3 two facts/figures must be included.
e.g. In Newcastle, Co Down there have been a number of developments to manage the coast. In 2007 a new sea wall was built 1 metre higher than the old wall. It cost £4 million and it was designed to stop the sea from flooding the town. [5] In addition groynes were used to trap sand and help the beach build up deposited material. [6]

Assessment of spelling, punctuation and the accurate use of grammar

If the answer does not address the question then no SPaG marks are available. If the candidate has attempted the question but produced nothing of credit, SPaG marks may still be awarded.

Threshold performance ([1])
Candidates spell, punctuate and use the rules of grammar with reasonable accuracy in the context of the demands of the question. Any errors do not hinder meaning in the response. Where required, they use a limited range of specialist terms appropriately.

Intermediate performance ([2]–[3])
Candidates spell, punctuate and use the rules of grammar with considerable accuracy and general control of meaning in the context of the demands of the question. Where required, they use a good range of specialist terms with facility.

High performance ([4])
Candidates spell, punctuate and use the rules of grammar with consistent accuracy and effective control of meaning in the context of the demands of the question. Where required, they use a wide range of specialist terms adeptly and with precision. [4]

AVAILABLE MARKS

(e) A drainage basin contains inputs, stores, transfers and outputs.

(i) Complete **Table 4** by drawing arrows to show which components of a drainage basin are stores and which are transfers. One has been completed for you.

Table 4

Store	Drainage Basin Component	Transfer
	Surface runoff →	
	Infiltration →	
←	Interception by vegetation	
	Groundwater flow	→ (Given)
	Percolation →	

(4 × [1]) [4]

(ii) Discharge is an example of an output in a drainage basin. State the meaning of the term **discharge**.

Award [1] for a simple statement,
e.g. The amount of water passing any point in a river.

Award [2] for a full definition,
e.g. The amount of water passing any point in a river in a certain time, normally measured in cubic metres of water per second (cumecs). [2]

(iii) Indicate with a tick (✓) how the situations listed in **Table 5** affect the amount of surface runoff in a drainage basin. One has been completed for you.

Table 5

Situation	Less surface runoff	More surface runoff
Lots of tarmac and concrete surfaces		✓
Heavy rainfall on steep slopes		(Given) ✓
Light rain falling on dry ground	✓	
Lots of trees	✓	

(3 × [1]) [3]

AVAILABLE MARKS

(f) Study **Fig. 3** which shows two river channel cross sections drawn by GCSE students using data collected on a field trip. Answer the questions which follow.

(i) Describe the change in channel shape between Site X and Site Y as shown in **Fig. 3**.

Level 1 ([1])
A basic valid statement,
e.g. The river is wider at Site Y.

Level 2 ([2]–[3])
A valid statement on the change in channel shape (wider and deeper) [2].
If the answer quotes up to 3 figures [3],
e.g. At Site X the river channel is quite narrow. Here the river is just 160 cm wide and 22 cm deep. This contrasts to Site Y where the river is wider, 1400 cm, and deeper [2],
e.g. At Site X the river channel is narrow and steep sided. Here the river is just 160 cm wide and 22 cm deep. This contrasts to Site Y where the river is wider and deeper. Here it is 1400 cm. [3]

Level 3 ([4])
A description which states that the river is deeper and wider and quotes two sets of figures,
e.g. At Site X the river channel is narrow and steep sided. Here the river is just 160 cm wide and 22 cm deep. This contrasts to Site Y where the river is wider and deeper. Here it is 1400 cm wide and is over 50 cm deep. [4]

(ii) State which Site, X or Y is likely to be close to the source of the river.

Site X [1]

(iii) Name and explain **one** type of erosion which causes the river channel shape to change.

Award [1] for a valid type of erosion, e.g. abrasion/hydraulic action/ solution. [1]

Explanation

If explanation is for a type of erosion different from the one named, mark up to a maximum of L2.

Award [1] for a basic statement relating to the chosen type of erosion,
e.g. Hydraulic action is the force of moving water.

Award [2] for a valid explanation and consequence of the chosen type of erosion,
e.g. Hydraulic action is when the force of water undermines the river banks.

Award [3] for a full explanation of the chosen type of erosion,
e.g. Hydraulic action erodes by the force of moving water. It undercuts the river banks on the outside of meanders and can also trap air in cracks in the rock causing it to break down, widening the river channel. [3]

(g) For a named river within the British Isles, explain why it flooded giving a human and a physical reason in your answer.

AVAILABLE MARKS

Award [1] for the name of a river in the British Isles,
e.g. Derwent. [1]
If river is not within British Isles mark explanation up to maximum of L2.

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

Level 1 ([1]–[2])
The cause/s of a river flooding are stated or described, but without explanation,
e.g. It flooded in England due to heavy rain [1], and peat extraction. [2]

Level 2 ([3]–[4])
The causes of flooding are described and some explanation is included, but no specific facts or figures are included relating to a river in the British Isles,
e.g. In England there was flooding. This was because of heavy rainfall at the time of the flood. Also, the rainfall fell onto ground that was almost full from previous rainfall events. Human factors also played a part as some areas had been built up.

Level 3 ([5]–[6])
The causes of flooding are described in detail with full explanations: referring to both physical and human causes, including two facts or figures relating to a river within the British Isles,
e.g. In March 1999 people near the River Derwent experienced flooding. At the time of the flood 250 mm of rain fell on the North York Moors and there was a lack of infiltration as this rainfall fell onto ground that was almost saturated from previous rainfall events. In addition areas of the flood plain were being urbanised, e.g. at Malton a new housing estate was built. This reduced infiltration and increased surface runoff. [6]

Assessment of spelling, punctuation and the accurate use of grammar

If the answer does not address the question then no SPaG marks are available. If the candidate has attempted the question but produced nothing of credit, SPaG marks may still be awarded.

Threshold performance ([1])
Candidates spell, punctuate and use the rules of grammar with reasonable accuracy in the context of the demands of the question. Any errors do not hinder meaning in the response. Where required, they use a limited range of specialist terms appropriately.

Intermediate performance ([2]–[3])
Candidates spell, punctuate and use the rules of grammar with considerable accuracy and general control of meaning in the context of the demands of the question. Where required, they use a good range of specialist terms with facility.

High performance ([4])
Candidates spell, punctuate and use the rules of grammar with consistent accuracy and effective control of meaning in the context of the demands of the question. Where required, they use a wide range of specialist terms adeptly and with precision. [4]

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AVAILABLE MARKS

2 (a) (i) Name the sources of data shown in **Fig. 4**.
Award [1] for each correct answer.

A **Weather Balloon (Given)**
B Geostationary/Polar Satellite (also accept satellite)
C Weather Buoy
(2 × [1]) [2]

(ii) State the difference between weather and climate.

Award [1]
A simple answer which defines either weather or climate,
e.g. Weather is the day to day changes in the atmosphere. [1]

Award [2]
An accurate statement which briefly defines both weather and climate,
e.g. Weather is the day to day changes in the atmosphere whereas climate is the average weather conditions. [2]

Award [3]
A detailed answer which defines both weather and climate,
e.g. Weather is the day to day changes in the conditions of the atmosphere for example temperature and rainfall. Climate is the average weather conditions taken over a long period of time. [3]

(b) (i) Complete **Fig. 5** by completing the name of the polar air mass.

Award [1] for correctly stating Polar Maritime [1]

(ii) Underline the correct word in each of the following sentences about air masses that affect the British Isles.

- A tropical maritime air mass comes from a **southeast/<u>southwest</u>** direction.
- Tropical continental air masses are **wet/<u>dry</u>** in character.
- Polar maritime is associated with bringing **<u>cold</u>/hot** weather to the British Isles.
- Tropical maritime air is **<u>more</u>/less** common than continental air. [4]

(c) (i) Complete **Table 6**, to show the weather being experienced at weather station **A** (Newcastle upon Tyne) on **Fig. 6**. One has been completed for you.

Table 6

Weather Element	**Weather conditions**
Temperature	**25°C (Given)**
Wind Speed	**1–2 Knots**
Wind Direction	**West**

[2]

AVAILABLE MARKS

(ii) State fully **one** reason why the weather system in **Fig. 6** brings high temperatures.

Award [1]
A simple statement,
e.g. The days are long **or** there are no clouds **or** high angle of sun. [1]

Award [2]
A statement with a consequence,
e.g. There are no clouds in the sky so the sun's rays reach the ground/ Anticyclones bring warm weather. [2]

Award [3]
In Newcastle upon Tyne the temperature is 25 °C. Temperatures are high as days are longer therefore allowing more time for solar radiation to heat the ground, which in turn heats the air/Anticyclones bring warm settled weather for a number of days. [3]

(d) State the meaning of the term global warming.

Level 1 ([1])
The temperature of the atmosphere is increasing. [1]

Level 2 ([2])
Should include the temperature's rising and man's role in it for [2],
e.g. Temperatures are rising due to pollution [2] [2]

(e) Explain **one** way in which a volcanic eruption may change the climate.

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

Award [1]
A brief statement only,
e.g. The volcano ejects SO_2 or ash or water vapour, etc.

Award [2]
Some explanation is provided,
e.g. The SO_2 or ash ejected by the volcano blocks out the sunlight or reflects solar radiation.

Award [3]
A fully elaborated explanation is provided,
e.g. The ash ejected into the atmosphere by the volcano blocks out the sunlight or the SO_2 forms sulfuric acid in the atmosphere which reflects solar radiation and this lowers the temperature and so cools the climate. [3]

(f) Explain **one** negative effect of climate change in a country that you have studied.

AVAILABLE MARKS

.
Any valid country (Credit Antarctica) [1]

Credit actual or potential negative effects of climate change

Negative effect:
If no country mentioned or positive effects mark Level 1.

Level 1 ([1])
The answer is a brief statement,
e.g. It will cause a lack of rainfall or it will cause sea levels to rise. [1]

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 the meaning is reasonably clear. A limited range of specialist terms is used appropriately.

Level 2 ([2]–[3])
The answer is a statement and consequence. If candidate includes one fact/figure they can access top of Level 2,
e.g. Sea levels will rise due to melting ice caps. This will cause coastal areas to flood [2]
e.g. Sea levels will rise due to melting ice caps. This will cause coastal areas to flood such as the Fens in the UK. [3]

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

Level 3 ([4])
The answer has a statement, consequence and elaboration. Some case study evidence should be evident for [4],
e.g. Sea levels will rise due to melting ice caps. This will cause coastal areas to flood. This would be particularly bad for people living in the eastern part of the UK such as the Fens because this will result in the loss of property and farmland. [4]

Candidates present and organise effectively relevant information in a form and using a 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 the meaning is clear. A wide range of specialist terms is used skilfully and with precision.

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Theme C: The Restless Earth

AVAILABLE MARKS

3 **(a)** Study **Fig. 8** which shows the structure of the Earth.

(i) Complete **Fig. 8** by identifying the layers of the Earth labelled **X** and **Y**.

Mantle = X Core = Y [2]

(ii) The crust of the Earth is divided into plates. Explain how plates move.

Award [1] for a brief accurate statement,
e.g. Plates can move because they float on the mantle or because of currents of magma below the plates.

Award [2] for a statement with a consequence,
e.g. Plates can move because they rest on the molten magma of the mantle which moves in convection currents.

Award [3] for a statement, consequence and elaboration which makes a link to the rising or falling currents,
e.g. Plates can move because they rest on the molten magma of the mantle which moves in convection currents so that where magma rises the plates were pulled apart (or where the magma sinks in a convection current the plates are dragged down and destroyed). [3]

(b) Study **Fig. 9** which shows the location of igneous rocks in Northern Ireland.

(i) Underline the correct word in each of the following sentences about igneous rocks.

Igneous rocks are found mainly in the **east**/**west** of Northern Ireland

Granite covers a **smaller**/**larger** area than basalt in Northern Ireland

Basalt is formed from **lava**/**fossils**

Granite has **larger**/**smaller** crystals than basalt. [4]

(ii) Complete **Table 7** by placing the statements in order to show how granite is formed. One has been completed for you.

Statement	Order
The magma begins to cool underground.	**2 (given)**
Granite is formed when the magma becomes hard.	**4**
As it cools crystals begin to form.	**3**
Molten magma is found deep in the mantle	**1**

[3]

AVAILABLE MARKS

(iii) Complete **Table 8** by matching the volcanic features found within the British Isles and their location. One has been completed for you.

Table 8

Volcanic feature	Location within the British Isles
Lava Plateau	Slemish mountain
Basalt columns	**Antrim (given)**
Volcanic plug	Giant's Causeway

[2]

(c) Study **Fig. 10** which shows information about an earthquake in Ecuador in April 2016.

(i) State the strength of this earthquake.

7.8 [1]

(ii) State the name of the city furthest away from the epicentre.

Guayaquil [1]

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

Award [1] for a brief statement,
Centre of the earthquake.

Award [2] for a more detailed statement,
The point on the Earth directly above the focus. Where the earthquake takes place/It is where the strongest shaking takes place. [2]

(iv) Ecuador is a LEDC. State fully **one** reason why there are likely to be more deaths from earthquakes in LEDCs compared to MEDCs.

Answers should focus on human factors, such as poor infrastructure, lack of co-ordinated medical care, poorly built housing, etc. If they stray to look at general reasons such as strength of the quake or time of day, then award Level 1 max. Higher population density in LEDC not acceptable.

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

Award [1] A simple statement which notes one relevant reason,
e.g. Houses in LEDCs are poorly built.

Award [2] A statement and consequence,
e.g. Houses in LEDCs are poorly built with unstable foundation. These collapse easily.

		AVAILABLE MARKS
	Award [3] A statement, consequence and elaboration, e.g. Houses in LEDCs are poorly built with unstable foundations. The buildings are made from heavy concrete blocks and slates on the roof that collapse during an earthquake. [3]	
(d)	Earthquakes have many impacts on people and property. Describe **one** impact of a named earthquake in a MEDC which you have studied. Named location of MEDC earthquake. No mark for named LEDC earthquake. Any valid MEDC earthquake, e.g. Japan 2011, New Zealand etc [1] **Impact (can be human or environmental)** **Award [1]** A brief impact, The earthquake off Japan's coast triggered a tsunami. **Award [2]** A statement and consequence, The earthquake off Japan's coast triggered a tsunami. This tsunami hit the nuclear plant flooding the generators. **Award [3]** A statement, consequence and elaboration containing 1 fact/figure, The earthquake off Japan's coast triggered a tsunami. This tsunami hit the Fukushima nuclear plant flooding the generators. 200,000 people had to evacuate as radiation levels were 8 times higher than normal. [3]	25
	Total	**108**