Rewarding Learning

General Certificate of Secondary Education
2014

Geography

Unit 1:
Understanding Our Natural World

Foundation Tier

[GGG11]

TUESDAY 13 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 skilfully 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) Study the Ordnance Survey extract of part of the east coast of England. Answer the questions which follow.

(i) State the height of the land shown by the spot height at Potter Heigham GR 418199.

3 m [1]

(ii) Underline the direction of Eccles on Sea GR 4029 from Winterton-on-Sea GR 4919.

north west should be underlined [1]

(iii) State the straight line distance from the car park at Winterton-on-Sea GR 498198 to the parking at Sea Palling GR 427274.

Award [1]
10.1–10.19 or 10.41–10.5 km

Award [2]
10.2–10.4 km [2]

(iv) Winterton-on-Sea (GR 4919) has a wide sandy beach. Explain how a beach like this was formed.

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

Level 1 ([1])
A limited explanation which makes reference to a beach being a depositional feature or formed by waves, e.g. A beach is formed by deposition or a beach is formed by waves.

Level 2 ([2]–[3])
An explanation which makes clear reference to a beach being formed by deposition by constructive waves, e.g. A sandy beach is formed by constructive waves depositing sand on a coastline.

Level 3 ([4])
A thorough explanation which covers the processes involved in forming a beach and elaboration on the nature of the beach or its location.
A sandy beach is formed by deposition in the inter-tidal area between high and low tide where sand is pushed onto the beach by constructive waves. On sandy beaches the backwash of the waves removes material forming a gently sloping beach.
Reference to the contribution of longshore drift is acceptable as this section of coastline has groynes. [4]

(b) (i) Suggest why the cafe owner might disagree with the local council about the need for coastal defences.

Award [1] for an answer which focuses on only one viewpoint, e.g. the council might say that it would be too expensive to build defences.

Award [2] for an answer which briefly addresses both points of view, e.g. The council might claim that it would be too expensive to build defences.

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The café owner would disagree and want defences put in place as otherwise his café will be eroded by the sea.
Award [3] for an answer which addresses both viewpoints with elaboration, e.g. The planners might claim that it would be too expensive to build defences such as a sea wall as this area has few buildings to protect. However the café owner would disagree and want defences put in place as otherwise his café will be eroded by the sea and would lose his livelihood and not be able to support his family. [3]
Accept valid alternative answers.

(ii) Beaches are eroded by destructive waves. State **two** facts about **destructive waves**.

Award [1] for each valid statement, e.g. Destructive waves have a strong backwash compared to their swash/they are high in relation to their length/they are frequent waves (break at a rate close to 15 per minute)
(2 × [1]) [2]

(c) (i) Name **one** other method which can be used to protect a beach from erosion and explain how it works.

Accept any valid method of beach protection, e.g. Groynes. [1]

How it works
Award [0] for an answer 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 trap sand/stop the effect of longshore drift.

Award [3] for a valid statement, consequence and elaboration, e.g. Groynes are wooden fences built seawards on a beach roughly 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 on the beach. [3]

(ii) Identify **three** pieces of map evidence, other than the beach, which suggest that Sea Palling (GR 4227) is used by tourists.

Award [1] for each valid piece of map evidence, e.g. campsite/caravan site/Parking/IRB Station/cycle route/picnic site.
(3 × [1]) [3]

(iii) Suggest **two** problems that may be caused by visitors to a beach.

Award [1] for each valid problem, e.g. pollution/dropping litter/pressure on facilities/erosion/conflict with locals.
(2 × [1]) [2]

AVAILABLE MARKS

(d) (i) Complete **Table 1** to provide a key for **Fig 3**.

Table 1

Key	
1	**Interception**
2	Surface runoff (given)
3	**Percolation**
4	Throughflow (given)
5	**Groundwater flow**
6	River (given)

(3 × [1]) [3]

(ii) State the meaning of the term **drainage basin**.

Award [1] for a simple definition, e.g. the area around a river.

Award [2] for a full definition, e.g. The areas of land drained by a river and all its tributaries. [2]

(iii) Explain how heavy rain could affect surface runoff.

Award [1] for a simple statement, e.g. There will be an increase in the amount of surface runoff.

Award [2] for a statement with a consequence connecting precipitation to surface runoff. If there is heavy rainfall the ground will become saturated so water may not soak away quickly, causing more surface runoff. [2]

(e) (i) Using **Table 2** describe the changes in the river channel with increasing distance from the source.

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

Level 1 ([1])
Candidates give a basic analytical statement, e.g. The river channel gets wider downstream.

Level 2 ([2]–[3])
The candidates refer to at least two aspects of the channel and use data from the table to illustrate their answer for level 2, e.g. The river gets wider downstream increasing from 0.66 m near the source to 8.50 m 9 km downstream. It also gets 0.22 m deeper along this stretch. Candidate must use data to reach level 2.

Level 3 ([4])
The candidates describe the changes in width, depth and cross-sectional area and illustrates their answer with data from the table. E.g. The river gets wider and deeper downstream for example it increases from a width of 0.66 m near the source to 8.50 m 9 km downstream. It also gets 0.22 m deeper, being 0.07 m deep 0.30 km from the source, 0.16 m deep 1.30 km downstream and increasing to 0.29 m 9 km downstream. The increase in width and depth downstream means that the cross-sectional area also increases downstream from 0.05 to 2.47 m^2. [4]

AVAILABLE MARKS

(ii) Name and explain one type of erosion which causes the river channel shape to change along a river.

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

Explanation
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]

(f) **(i)** Explain **one** physical cause of the flooding in Morpeth.

Award [1] for a basic statement, e.g. heavy rainfall in the Cheviot Hills. If enough hint of physical cause – award [1] even though human cause.

Award [2] for a valid statement with consequence, e.g. A severe storm led to heavy rainfall, 80 mm in 48 hours causing the river to flood.

Award [3] for a full explanation with elaboration, e.g. A very bad storm led to 80 mm of rain in 48 hours in the Cheviot Hills. The heavy rainfall could not soak away so it quickly ran into streams which flowed into the River Wansbeck which burst its banks. [3]

(ii) Describe fully **one** possible impact of the flood on local people.

Award [1] for a basic statement, e.g. A B&B was flooded.

Award [2] for a more detailed statement, e.g. A B&B was flooded and the owners lost trade.

Award [3] for an expanded statement, e.g. A B&B was flooded. This means the owners lost trade and will have the expense of cleaning their property/They may not be able to afford insurance in the future and could go out of business. [3]

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

Award [1] for name of River outside the British Isles, e.g. Mississippi. [1]

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

Level 1 ([1]–[2])
Candidate states one or two methods used, e.g. levees were used to prevent flooding.

AVAILABLE MARKS

Level 2 ([3]–[4])
Candidate describes two measures used with brief elaboration for each or one method in good detail and the other simply stated, e.g. Levees were used to prevent flooding. These are structures placed along the banks of the river to keep floodwater in the channel. The river channel was also straightened to allow water to drain away quickly.

Level 3 ([5]–[6])
Candidate describes at least two methods in detail with specific case study elaboration, e.g. The levees were raised to 15 metres along 3000 km of the river Mississippi to keep water in the channel. In addition meanders were straightened over a 1750 km stretch to allow flood water to drain away quickly reducing the flood risk. [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 to answer 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 quesiton. 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 quesiton. 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 considerable accuracy and general 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) Study **Fig. 5** which shows different cloud types. Answer the questions which follow.

(i) Underline the correct word to complete the sentences below. One has been completed for you.

Cumulonimbus/Cirrus clouds bring heavy rain. (given)

Cumulonimbus/**Cirrus** clouds are thin and wispy in appearance.

Cumulus clouds can reach up to **4**/12 km in height.

Cumulonimbus clouds are found at the warm/**cold** front of a depression. [3]

(ii) State the unit of measurement used to measure cloud cover.

Oktas or eighths [1]

(iii) Complete **Table 3** by placing the statements in the correct order (1–5) to explain why cumulonimbus clouds bring rain. One has been completed for you.

Table 3

Statement	Correct order
As the warm air rises it cools.	3
Water droplets join together to form raindrops.	5
Warm tropical air and cold polar air meet in the Atlantic Ocean.	1 (given)
Condensation can now occur.	4
The warm air rises above the cold air.	2

(4 × [1]) [4]

AVAILABLE MARKS

(b) Study **Fig. 6** which shows a wind vane. Answer the questions which follow.

(i) Underline the correct weather element that this instrument records.

Wind speed **Cloud cover** **<u>Wind direction</u>** [1]

(ii) Explain how a wind vane works.

Award [1] for a simple statement relating to how it works, e.g. it spins around when the wind blows or it shows us where the wind comes from.

Award [2] for a more detailed statement that indicates how a weather vane works, e.g. as the wind vane turns the pointer or arrow will indicate the direction the wind is coming from. The compass points are usually on the wind vane to help us see the wind direction.

Award [3] for a very detailed statement that indicates how a weather vane works, e.g. the wind vane has a pointer/arrow that can spin around. As the back of the arrow/pointer has a larger surface area it will force the front of the pointer/arrow to face into the wind. This happens because the front of the pointer/arrow has a smaller surface area. Most wind vanes have the points of the compass below the pointer. [3]

(iii) Suggest one reason why a wind vane needs to be located in a high place.

Award [1] for a simple reason, e.g. so it can catch the wind.

Award [2] for a more detailed reason, e.g. a wind vane should be located in a high place because here there are no obstacles or barriers in the way so we can get an accurate reading of where the wind is blowing from. [2]

(c) Study **Fig. 7** which shows a weather system over the British Isles. Answer the questions which follow.

(i) Underline the type of weather system shown in **Fig. 7**.

<u>Depression</u> **Anticyclone** **Hurricane** [1]

(ii) Using **Fig. 7** to help you, complete **Fig. 8** by drawing the bar for Cork.

[1] for drawing the bar at 4˚C
[1] for full shading [2]

AVAILABLE MARKS

(iii) Explain why Cardiff has the highest temperature.

Award [1] for a simple statement, e.g. there is warm air present or Cardiff is in the middle of the depression.

Award [2] for a statement with a consequence, e.g. there is warm air present because Cardiff is in the warm sector.

Award [3] for a statement, consequence with elaboration, e.g. within the warm sector we have a tropical maritime air mass which brings warm air from the south. As Cardiff is in the warm sector of the depression, temperature will be highest. [3]

(d) Deforestation of the rainforest is one cause of climate change.

Explain how reducing deforestation of the rainforest can help deal with climate change. You should refer to a place in your answer.

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

This question requires candidates to look at strategies to reduce the rate of deforestation and how it can impact on climate change.

If candidates talk about other strategies such as Kyoto Agreement, renewable energy or use of public transport the maximum of [2].

Level 1 ([1])
A simple statement which may only focus on deforestation or climate change, e.g. Trees store carbon dioxide [1] or Less carbon dioxide will go into the atmosphere [1]

Level 2 ([2]–[3])
A more detailed statement which begins to talk about deforestation strategies and how they can reduce climate change.

Trees help to store carbon dioxide, so it is important not to cut them down or burn them. [2] In many countries attempts are being made to stop burning them as this releases carbon dioxide into the atmosphere. Carbon dioxide is a greenhouse gas that leads to global warming. [3]

Level 3 ([4]–[5])
A very detailed statement about deforestation strategy/strategies which reduces climate change. A clear reference to place for [5].

Trees help to store carbon dioxide, so it is important not to cut them down or burn them. In many countries attempts are being made to stop burning them as this releases carbon dioxide into the atmosphere. Carbon dioxide is a greenhouse gas that leads to global warming which is responsible for the heating of our atmosphere. In the USA a policy called REDD aims to compensate tropical countries which conserve their tropical rainforests. This initiative will save many hectares of rainforest from being cut down. [5]

Assessment of spelling, punctuation and the accurate use of grammar.

AVAILABLE MARKS

If the answer does not address the quesiton then no SPaG marks are available. If the candidate has attempted to answer 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 deamands 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 considerable accuracy and general 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] 29

AVAILABLE MARKS

3 (a) (i) Label **X** and **Y** on **Fig. 9** to name the two layers.

X = Core/inner core **Y** = Mantle [2]

(ii) Complete the sentences below to explain how plates are able to move. Choose your answers from the list below.

1 The plates of the crust rest on molten **magma** in the mantle.

2 **Convection** currents move molten magma and drag the **plates** apart.

3 Magma **rises** in the gap to create new crust.

4 Where these currents sink they drag the plates **downwards** into the mantle so that the rocks of the crust are destroyed. [5]

(b) (i) Identify the following features labelled A, B and C on **Fig. 10**. Choose your answers from the list below.

Label	Feature
A	Ocean Trench
B	Volcano
C	Earthquake focus

[3]

(ii) Explain how earthquakes are caused at a destructive plate boundary.

Award [1] for a brief statement, e.g. Plates collide and cause an earthquake.

Award [2] for a statement and consequence, e.g. Plates collide and stress or pressure builds up due to friction between the plates so the plates move and this causes an earthquake.

Award [3] for a full explanation, e.g. Two plates collide and stress or pressure builds up due to friction between the plates so the plates move suddenly and shake the rock sending out shock waves creating an earthquake. [3]

(c) Earthquakes have many impacts on people and property. Describe **two** impacts of a named earthquake you have studied.

Named location of earthquake may be in a LEDC or MEDC such as the Indonesian earthquake which caused the Indian Ocean tsunami in 2004 or Kobe, Japan 1995. [1]

Award [1] for a basic statement, e.g. Many people died in countries around the Indian Ocean **or** people died in the tsunami **or** many buildings fell killing people.

		AVAILABLE MARKS
	Award [2] for a statement with a consequence, e.g. There were many deaths from this earthquake in many countries around the Indian Ocean because of the tsunami **or** the sea level rose due to a tsunami so that water supplies were contaminated. Award [3] for a statement, consequence with elaboration specific to the named earthquake, e.g. There were up to 200 000 deaths from this earthquake in many countries around the Indian Ocean as far away as India and Sri Lanka because of the tsunami **or** the sea level rose due to the tsunami so that water supplies were contaminated as in the Maldives where people had to leave 17 low-lying coral islands at the coast. (3 × [2]) [6]	
(d)	Name an area of basalt columns you have studied and explain their formation. Award [0] for a response not worthy of credit. **Level 1 ([1])** A brief statement which may have no named area, e.g. lava poured out and cooled into columns [1] or magma poured out from the mantle [1] **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 ([2]–[3])** A statement and consequences, e.g. At the Giant's Causeway magma poured out from the mantle through cracks of fissures in the crust [2]; this lava then cooled and contracted and hardened into basalt [3] 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 ([4]–[5])** A statement, consequence and elaboration for a named area, e.g. At the Giant's Causeway magma poured out from the mantle through cracks or fissures in the crust; the lava cooled and contracted into hexagonal or pentagonal columns [4] and hardened into basalt which was then exposed by erosion at the coast over many years (50 million years). [5] [5] 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 skilfully and with precision.	25
	Total	**108**