



Rewarding Learning

**General Certificate of Secondary Education
2015**

Geography

Unit 1:
Understanding Our Natural World

Foundation Tier

[GGG11]

TUESDAY 19 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) Complete the key to Fig. 1 in Table 1.

Key
Watershed
Precipitation or rainfall
Throughflow/Groundwater flow/Percolation
Tributary (given)
Confluence

(4 × [1])

[4]

(ii) Draw a line to match each method of transfer to its description.

Method of transfer of rainwater	Description
Overland Flow	Rain falls on the ground and sinks into the soil and travels through the soil to the river
Throughflow	Rain sinks deep into the ground and down into the rocks and travels through the rocks to the river
Channel Flow (given)	Rain falls on the surface and travels along the surface into the river
Groundwater Flow	Rain falls into the river channel and flows on down the river to the sea

(3 × [1])

[3]

(b) Using Fig. 2 to help you, explain the formation of a waterfall.

AVAILABLE
MARKS

Level 1 ([1])

A brief accurate statement,

e.g. The hard rock makes a waterfall, the river runs over a hard rock and drops down, the soft rock is eroded, the water falls into a plunge pool.

Level 2 ([2]–[3])

Accurate reasons relating to undercutting of the hard rock and the fall of water into a plunge pool,

e.g. There is a layer of hard rock over a layer of softer rock and the softer rock is more easily eroded so it is undercut and a step is formed by erosion processes of abrasion (corrasion) and hydraulic action; the river falls into a plunge pool and the hard rock overhangs this pool.

Level 3 ([4])

Accurate reasons with use of terms and links to the collapse of the overhang,

e.g. There is a layer of hard rock over a layer of softer rock which is more easily eroded so it is undercut; a step is formed by erosion processes of abrasion (corrasion) and hydraulic action; the river falls into a plunge pool and the overhanging hard rock eventually collapses due to this undercutting. [4]

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 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]

- (c) (i) Describe the change in the average size of the load carried down the river as shown in **Table 2**.

Award [1] for a simple statement of the pattern or a list of values at two sites,

e.g. The load gets smaller downstream.

e.g. At site 1 the load size is 75 mm and at site 5 it is 31 mm.

Award [2] for a statement of the pattern and at least one figure,

e.g. The load gets smaller downstream so that it is only 31 mm by site 5.

Award [3] for for a statement of the pattern and at least two figures,

e.g. The load gets smaller downstream; it falls from 75 mm at site 1 and it is only 31 mm by site 5. [3]

If units of measurement missing award Level 2.

- (ii) Explain how the river's load becomes more rounded downstream.

The answer should refer to the process of attrition.

Award [1] for a brief statement,

e.g. The stones/pebbles are eroded.

Award [2] for a reason which refers to the rocks becoming more rounded and smooth,

e.g. The angular stones/pebbles are eroded because they bump into each other and into the channel bed and banks so they break up and the sharp edges are knocked off.

Award [3] for a well elaborated reason using accurate terminology,

e.g. The angular stones/pebbles are eroded because they bump into each other and into the channel bed and banks so they break up into smaller particles and the sharp edges are knocked off so they become more rounded; this process is called attrition. Accept abrasion for max Level 2 [3]

(d) (i) State the meaning of the term **floodplain**.

Award [1] for a simple statement,
e.g. An area of flat land beside a river.

Award [2] for a more developed definition,
e.g. An area of flat land beside a river which is sometimes covered with
water (when river overflows its channel). [2]

(ii) Explain **one** human cause of flooding on a named river within the British
Isles which you have studied.

Name of river in the British Isles,
e.g. The River Valency at Boscastle or River Derwent. [1]

Award [1] for a brief explanation of an appropriate human cause.
Note: if physical cause is fully described – maximum Level 1,
e.g. More building of houses, etc. on the floodplain.
e.g. Deforestation or peat cutting on the hills.

Award [2] for an explanation of an appropriate human cause,
e.g. Peat was removed and so its sponge effect was lost; this meant the
soil could not hold all the rain and it travelled quickly into the river.

Award [3] for an appropriate human cause explained and elaborated
with a fact/figures/place related to the named river,
e.g. On the River Derwent in 1999, peat was cut on the North York
Moors and so its sponge effect was removed; this meant the soil lost its
capacity to hold all the rain and it travelled quickly into the river causing
the River Derwent to burst its banks. [3]

(e) (i) Complete **Table 3** by drawing arrows to show whether the impact of
flooding is on people or the environment.

People	Impact	Environment
←	Floods fill up reservoirs to supply drinking water	
←	Roads and railways are washed away	
← (given)	Floods provide fertile farmland for crops to grow	
←	Buildings are destroyed	
	Wild animals may drown	→

(4 × [1])

[4]

- (ii) Name a river outside the British Isles which you have studied. Describe **one** hard and **one** soft engineering measure used to manage its floods.

Name of river,
e.g. The Mississippi or other river **not** in the British Isles. [1]
Award Level 1 if river is within the British Isles.

Level 1 ([1]–[2])

Brief accurate statements which may only deal with one type of strategy or good answers about a river **in** the British Isles are limited to Level 1,
e.g. Levees were used to prevent floods.
e.g. Levees are man-made embankments which were used to prevent floods.
e.g. Trees were planted on the hills around the drainage basin.

Level 2 ([3]–[4])

Accurate descriptions of both strategies,
e.g. Levees are a hard engineering measure used to keep water in the river channel; they are high embankments so that the river level can rise but the channel will not overflow in times of floods; trees were planted as soft engineering and they intercept rain and so less water flows into the River Mississippi.

Level 3 ([5]–[6])

Accurate descriptions of both strategies with two facts/figures/places relating to the named river,
e.g. Levees are a hard engineering measure which help to keep rising water levels in the river channel; they are high embankments so that the river level can rise high in times of floods; the banks were built up to 15 m high for 3000 km along the banks of the river (but they failed in 2001 as the river level rose higher than 15 m).
e.g. Trees were planted in the Tennessee Valley as a soft engineering measure to reduce flooding by increasing the interception of rain so that less water reaches the River Mississippi which helps to reduce floods in places like St. Louis. [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 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]

- (f) Complete **Table 4** below by placing the statements in order to show how the stacks shown in **Photograph 1** were formed.

Table 4

Order
3
5
1 (given)
2
4

(4 × [1]) [4]

- (g) Suggest **two** ways people and their activities could harm the environment along a stretch of coastline such as this.
 e.g. Tourists want hotels near the sea but this destroys the coastline.
 e.g. Roads must be built to resorts destroying the natural beauty of the coast.
 e.g. Hotels built for tourists create visual (or other) pollution.

(2 × [1]) [2]

- (h) (i) Explain why a stretch of coastline may need to be protected against erosion by the sea.

Award [1] for a general statement,
 e.g. The coastline may have valuable buildings.
 e.g. There may be hotels along the coast.

Award [2] for a more developed reason,
 e.g. The coastline may have valuable buildings such as an oil terminal.
 e.g. There may be hotels along the coast which needs to be maintained to attract tourists. [2]

- (ii) Complete **Table 5** to show whether sea walls or groyne would be best for protecting the coast in each situation.

Method (Sea wall or Groyne)
Groyne
Sea wall (given)
Groyne
Sea wall

(3 × [1]) [3]

(iii) Name **one** method of protection used on a coastline other than sea walls or groynes.

Give one **advantage** and one **disadvantage** of your method.

Award [1] for method – Note: must not be sea walls or groynes. [1]

Award [1] for gabions or beach nourishment.

Accept rock armour/boulder barrier/managed retreat.

Gabions

Advantage

Gabions are cages of small stones [1] which are relatively cheap to purchase [1].

Disadvantage

The cages do not last [1] because they will rust [1].

Beach nourishment

Advantage

Beach nourishment creates a better quality beach [1] which will attract tourists [1].

Disadvantage

Beach nourishment requires expensive dredging [1] and will be an ongoing process [1].

(2 × [2])

[4]

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AVAILABLE
MARKS

Theme B: Our Changing Weather and Climate

AVAILABLE
MARKS

- 2 (a) (i) State the meaning of the term **weather**.

Award [1] for a basic statement,
e.g. A list of weather elements, for example rainfall and temperature.

Award [2] for a more developed statement,
e.g. The day to day condition of the atmosphere. [2]

- (ii) Underline the weather element measured by the instrument shown in **Photograph 2**.

Wind speed **Wind direction** **Temperature** [1]

- (iii) Explain how this instrument records the weather element.

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

Award [1] for a simple statement,
e.g. The cups spin around.

Award [2] for a statement with a consequence,
e.g. The anemometer/instrument is placed in the air, the cups catch the wind and spin around.

Award [3] for a statement, consequence and elaboration.
e.g. The anemometer/instrument is ideally attached to a high pole. This ensures that it gets the full force of the wind. The cups catch the wind and spin around. The reading is displayed on the instrument (in knots/mph). [3]

- (b) List **three** sources of data other than weather buoys which can be used to create a weather forecast.

Any **three** from:
land based stations, balloons, weather ships, satellites.
(3 × [1]) [3]

(c) Underline the correct answer to complete the statement.

The direction from weather buoy E to D is north / south / west (**given**).

There are 5 / 6 / 7 weather buoys located around the Irish coast.

Weather buoy D / B / C is the most easterly.

The distance between weather buoys D and E is 150 / 300 / 400 km.

The majority of weather buoys are located off the east / west / north coast of Ireland.

(4 × [1]) [4]

(d) (i) Underline the type of pressure system situated over the British Isles as shown in Fig. 5.

Anticyclone Air pressure Depression [1]

(ii) Complete Table 6 to show the weather being experienced at weather station A on Fig. 5.

Weather conditions
2
Clear sky
1–2 knots
West

(4 × [1]) [4]

(iii) Explain the low temperature experienced at station A in this weather system on 25th January.

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

Award [1] for a simple statement,
e.g. The days are short or there are no clouds/clear sky/winter.

Award [2] for a statement with a consequence,
e.g. There are no clouds in the sky so heat escapes quickly.

Award [3] for a statement, consequence and elaboration,
e.g. Due to the lack of cloud cover heat will escape quickly. The Sun's rays are not strong enough in the winter to heat the ground during the day. [3]

- (e) Explain how investing in public transport and congestion charging can influence the rate of climate change. You should refer to a place in your answer.

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

Level 1 ([1])

A simple accurate statement referring to either investing in public transport and/or congestion charging as ways to deal with climate change.

This means there will be fewer cars on the road. [1]

Level 2 ([2]–[3])

A statement with a consequence which refers to investing in public transport and congestion charging as ways to deal with climate change. Award top Level 2 if one strategy fully explained,

e.g. Congestion charging may stop people taking their cars into towns and cities; public transport such as buses and trams can help cut down the number of cars on the road. [2]

This is good as it cuts down on the levels of greenhouse gases that are responsible for global warming. [3]

Level 3 ([4])

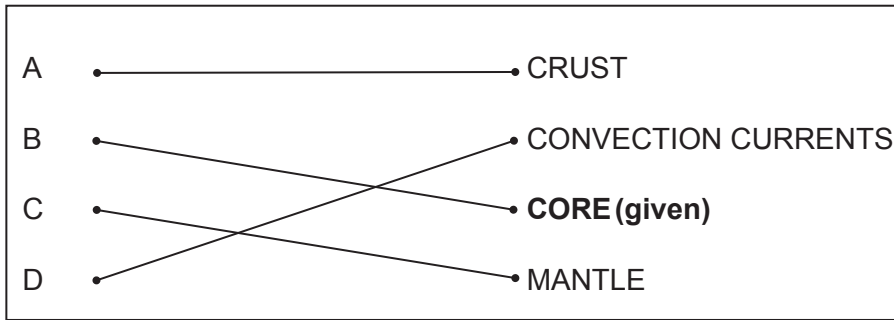
Award [4] for detailed statements with consequences which refer to investing in public transport and congestion charging as ways to deal with climate change. One place required for Level 3.

e.g. Congestion charging was introduced in London in 2007. This had the effect of reducing the number of people taking their cars into London; public transport such as buses and trams can help cut down the number of cars on the road. This is good as it cuts down on the levels of greenhouse gases, such as nitrous oxide, emitted into the atmosphere that are responsible for global warming. [4]

Theme C: The Restless Earth

AVAILABLE MARKS

3 (a) (i) Using Fig. 6 match up each letter to the correct term.



(3 × [1])

[3]

(ii) Complete Table 7 by inserting either TRUE or FALSE beside the statement.

TRUE or FALSE
TRUE (given)
FALSE
TRUE
FALSE
TRUE

(4 × [1])

[4]

(b) (i) Underline the type of plate boundary shown on Fig. 7.

Constructive Conservative Destructive

[1]

(ii) Explain why volcanoes occur at this plate boundary.

Do not accept answers referring to earthquakes.

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

Award [1] for a simple statement,
e.g. The plates move towards each other at this boundary.

Award [2] for a statement and a consequence,
e.g. As the plates move they collide with each other. As they do, magma from the Earth's crust is forced up through the volcano.

Award [3] for a detailed answer that explains what is happening at a destructive boundary,
e.g. Volcanoes occur here as one plate is forced under another plate. This is a destructive plate boundary. The plate is melted due to heat and pressure and turns to magma. The pressure forces the magma to escape through a volcano.

[3]

- (iii) Using **Fig. 7**, complete **Fig. 8** by drawing a bar to show the number of earthquakes on South Island.

[1] for accurately drawing bar for 11 earthquakes.

[1] for correct shading. [2]

- (c) (i) Underline the name of the rock type to which basalt belongs.

Sedimentary **Igneous** **Metamorphic** [1]

- (ii) Explain how **one** volcanic feature within the British Isles **other** than basalt columns was formed.

Accept lava plateau or volcanic plug.

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

Lava plateau [1]

Award [1] for a basic explanation that could relate to any igneous feature, e.g. Molten material cools to make the plateau.

Award [2] for a more detailed explanation that stops short of all steps in the formation, e.g. Molten material comes to the Earth's surface, flowing onto a flat surface rather than making a volcano shape, and cools to make a plateau.

Award [3] for a full explanation of the formation of a lava plateau, e.g. Molten magma from the mantle rises to the surface, where it can come through lines of weakness in the crust called fissures; large outpourings of lava occur, which will harden into large lava plateaux made of basalt. [3]

or

Volcanic plug

Award [1] for a simple explanation that could relate to any igneous feature, e.g. It is made from magma.

Award [2] for a more detailed explanation that stops short of all steps in the formation, e.g. A plug is made from magma which hardens as it rises to form a volcano.

Award [3] for a full explanation of the formation of a volcanic plug, e.g. A plug is made from magma which hardens as it rises inside the vent to form a volcano and the surrounding rock is eroded leaving the hard rock behind. This is the volcanic plug.

If basalt columns explained award to max. Level 1.

(d) Describe **one** short and **one** long term impact of an earthquake on the environment of a LEDC you have studied.

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MARKS

Name of LEDC earthquake,
e.g. Indian Ocean, Haiti, etc.

[1]

Accept any valid alternatives.

No mark for MEDC earthquake [0]

If no LEDC named or candidate does an MEDC earthquake then bottom Level 2.

Credit answers referring to impacts on people to maximum Level 1 only.

Level 1 ([1]–[2])

A simple statement referring to short and/or long term impacts on the environment,

e.g. A large wave travelled across the ocean. [1]

e.g. A large wave travelled across the ocean and flooded many coastal areas. [2]

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 ([3]–[4])

A more detailed answer referring to both short term and long term impacts on the environment. One may be covered in more detail than the other,
e.g. The earthquake triggered a large tidal wave that circled the Indian Ocean. The seabed rose up causing sea levels to rise. Many coastal ecosystems were flooded and took months to recover. [3]

The Earth vibrated due to the energy released by this movement and the release of energy shortened the Earth's day. [4]

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 ([5]–[6])

A very detailed answer referring to both short term and long term impacts on the environment. One fact/figure needed for [5]. Two facts/figures needed to access [6],

e.g. In the short term the 9.0 earthquake triggered a large tidal wave which reached 30m in some places. It circled the Indian Ocean affecting all the countries with a coastline there. In the long term many coastal ecosystems around the Indian Ocean, such as mangroves and forests, were flooded, as well as coral reefs destroyed. These will take months or possibly years to recover. [6]

Answers relating to the shortening of the length of the day and energy released are also valid.

(The Earth vibrated by 1 cm due to the energy released by this plate movement and the release of energy shortened the Earth's day by 2.68 microseconds).

[6]

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.

Total

**AVAILABLE
MARKS**

25

108