



General Certificate of Secondary Education
2016

Geography

Unit 1:
Understanding Our Natural World

Foundation Tier

[GGG11]

TUESDAY 24 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

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MARKS

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

A list of potential answers is given on the exam paper so these are the only accepted answers.

Award [1] for each correct answer

Key	
1	Source
2	Watershed
3	Tributary (Given)
4	Confluence
5	Mouth

[4]

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

Award [1] for a simple definition,
e.g. A place where water runs into rivers.

Award [2] for a full definition,
e.g. It is the area of land that is drained by a river and its tributaries. [2]

- (b) (i) Using **Fig. 2**, describe changes in depth across the river channel.

Award [0] for a response not worthy of credit, e.g. It gets deeper.

Award [1] if candidates give a basic answer which might not use any figures from **Fig. 2**,
e.g. The river gets deeper on one side at position C.

Award [2] if candidates have made reference to the trend and will use some information/figures from **Fig. 2** accurately to help back up the statement,
e.g. The river gets deeper on the far side of the river (towards place C). The river here is 0.41 m but it is much shallower at place A where it is 0.21 m deep. [2]

- (ii) Complete the sentences below about the river meander shown in **Fig. 2**.

Award [1] for each correct answer.

- The fastest river speed or **velocity** can be found at channel position C.
 - This has the fastest flow because this site is on the **outside** of the river bend.
 - At place Y the river flow has caused **erosion** to take place.
 - At place X the river **slows** down and a **slip off slope** is formed.
- (5 × [1]) [5]

- (c) Describe **one** possible impact this flood had on people.

Answer should be clearly linked to the resource and the floods in Jedburgh. There should be a clear emphasis on people – with one clear argument based on reference to impact on drinking water, irrigation, silt, damage to property, risk of disease, injury or death, public health issues or insurance issues.

Award [1] for a simple statement that clearly addresses an impact of flooding on people, or an answer that does not refer to the resource,
e.g. Silt was left in homes/bridges were destroyed.

Award [2] for a statement that uses information from **Fig. 3** appropriately for an impact on people,
e.g. The river left silt which destroyed their belongings/bridges were destroyed causing people to be cut off from towns.

Award [3] for an answer that describes in some detail a possible impact that the flood could have had on people. There is a clear reference to the resource,
e.g. The river left silt which destroyed the belongings and furniture of local people and these were expensive to replace/bridges were destroyed causing people to be cut off and stopped people from being able to access local services or their place of work. [3]

- (d) For a named river outside the British Isles, describe **two** river management strategies used to reduce flooding.

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

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

Award Level 1 maximum for river inside the British Isles.

Level 1 ([1]–[2])

Candidates provide a limited factual account for one river management strategy,
e.g. levees were built along stretches of the Mississippi and these helped to stop the river from flooding.

Level 2 ([3]–[4])

Candidates provide a factual account of strategies used on a named river outside the British Isles. Answers at this level might have detailed reference made to only one river management strategy or candidates might have some limited information in relation to two separate strategies,
e.g. The US Corps of Engineers have tried to control the Mississippi by building or strengthening levees (hard engineering). The levee is built to a height of 15m above the usual water level but sometimes this is not high enough.
e.g. The US Corps of Engineers have tried to control the Mississippi by building or strengthening levees (hard engineering). The levee is built to a height of 15m. Washlands are also used to allow flood water to wash onto less valuable land.

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MARKS

Level 3 ([5]–[6])

Candidates provide detailed information about river management strategies used on a river outside the British Isles. Two strategies have clearly been addressed in some depth with specific case study elaboration of each to achieve a top Level 3 mark, e.g. The Mississippi river in the USA has been managed for over 100 years to improve navigation and prevent flooding. One hard engineering method used was levees. These were raised to 15 metres along 3000km of the river to keep water in the channel. In addition, a soft engineering method has been that the US Conservation Service spent \$25 million buying farmland which could be used as washlands so that flood water could wash onto less valuable land. [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 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. SPaG [4]

- (e) (i) Complete **Table 2** by drawing arrows to show the differences between constructive and destructive waves. One has been completed for you.

Constructive wave		Destructive wave
	Causes erosion	→ (Given)
←	Low wave height (about one metre high)	
←	Builds up sediment on the beach	
	Weak swash and strong backwash	→
	Waves are more frequent	→

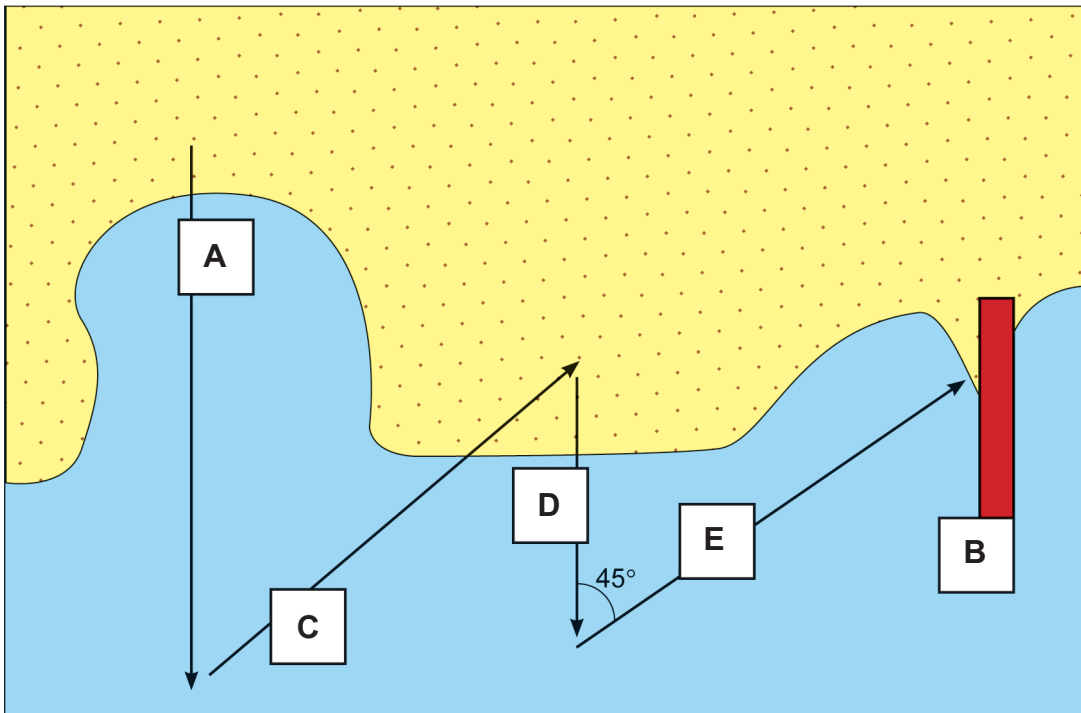
Award [1] for each correct answer.
(4 × [1])

[4]

- (ii) Study **Table 3** which shows the process of longshore drift. Use the statements from **Table 3** to add the correct labels onto **Fig. 4** to explain this process. One has been completed for you.

Award [1] for each correct answer as noted on the diagram below.

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MARKS



(4 × [1])

[4]

- (f) Underline the correct word in the sentences below to describe the formation of an arch.

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

Award [1] for each correct answer.

- A line of weakness in a cliff is widened by erosion/deposition.
- Processes such as hydraulic action/traction will cause caves to form.
- Caves are cut through by more erosion on headlands/bays.
- The roof of the arch will collapse to form an arch/a stack.

(4 × [1])

[4]

- (g) (i) Identify the coastal management strategies used in the photographs.

	Type of Coastal Management
Fig. 6a	Sea Wall
Fig. 6b	Gabions

Award [1] for each correct answer.

(2 × [1])

[2]

- (ii) State the purpose of a sea wall.

Award [1] for a basic explanation, e.g. sea walls protect the coast/stop erosion [1].

Award [2] for a more detailed answer of how sea walls work.

e.g. sea walls protect the built environment and can help to keep the sea out. [2]

- (h) (i) State **two** human activities which are in conflict at the coast.

Award [1] for identification of one human activity where conflict can exist.

Award [2] for identification of two competing human activities where conflict could exist.

The specification notes that the main human activities at the coast are:

Residential; tourism; transport; and industry. [2]

- (ii) With reference to a named place, describe this conflict.

If no reference to place award maximum 1 mark.

Award [1] for a basic answer that might describe a valid conflict without reference to place or further elaboration,

e.g. Tourists can sometimes use the beach and drop litter.

Award [2] for a more detailed answer that describes a valid conflict with clear reference to both sides of the conflict, with some reference to place and further elaboration,

e.g. Tourists can sometimes use Portrush beach and drop litter. This annoys the local residents as the litter can be blown into their gardens. [2]

- (i) For a named case study from the British Isles, explain how **one** coastal management strategy protects the coast.

Award [1] for a valid coastal location,

e.g. Newcastle [1]

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

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 to stop the sea from eroding the coast. Sometimes strategies will also involve the use of groynes and gabions as well.

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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 clear. A limited range of specialist terms is used appropriately.

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.

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])

Candidates provide detailed information 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. In 2007 a new Newcastle promenade development was built which included a sea wall which was built 1 metre higher than the old wall. The programme cost £4 million and it was designed to stop the sea from flooding the town.

In addition further measures such as gabion boxes, rock armour and groynes will be used in sensitive areas to try and reduce the erosive power of waves but also help the beach to build up more deposited material.

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 that meaning is clear. A wide range of specialist terms is used skilfully and with precision. [6]

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MARKS

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Theme B: Our Changing Weather and Climate

AVAILABLE
MARKS

- 2 (a) (i) Place a tick (✓) beside **three** reasons why thermometers should be placed in a Stevenson Screen. One has been completed for you.

Air can still flow
through (Given)

☒

Accurate results can
be obtained

☒

Painted white to
reflect any heat

☒

Stevenson Screen can
be located indoors

☐

Box provides shade

☒

[3]

- (ii) List **three** sources of data which can be used to create a weather forecast.

1. Satellite images
2. Weather balloons/weather stations
3. Buoys/ships

Award [1] for each correct answer.

[3]

- (b) (i) Underline the name of the settlement which is located within the warm sector of the depression in **Fig. 8**.

Enniskillen

Cardiff

Newcastle upon Tyne

[1]

- (ii) Rainfall in Cardiff will change as the depression passes.

1. Describe how rainfall will change. Only one simple change required, e.g. The rainfall will increase. [1]

2. Explain why rainfall will change.

Award [1] for an answer with a simple statement,
e.g. Clouds will form after the front passes.

Award [2] for an answer with a statement and a consequence,
e.g. Due to warmer air rising clouds will form after the front passes.

Award [3] for an answer with a statement, consequence and an elaboration,
e.g. At the cold front polar air will undercut tropical air forcing the air mass to rise. This will form cumulonimbus clouds and bring heavy rain. [3]

- (iii) State the meaning of the term **air mass**.

Award [1] for a simple definition,
e.g. It is a body of air.

Award [2] for a full definition,
e.g. An air mass is a body of air which takes on the moisture and temperature characteristics of the area in which it is situated. [2]

- (c) (i) State the difference between the greenhouse effect and global warming.

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Award [1] for an answer with a simple statement,
e.g. The greenhouse effect causes global warming.

Award [2] for an answer with a statement and a consequence on one of the two terms,
e.g. The greenhouse effect causes heat to be trapped leading to the Earth's temperature increasing.

Award [3] for an answer which states the difference between and shows understanding of the two terms,
e.g. Global warming is the rise in the Earth's global temperature. The greenhouse effect is one of the leading causes of global warming as greenhouse gases trap solar radiation. Human activity has led to an increase in greenhouse gases present within our atmosphere which has resulted in an increase in Earth's global temperature. [3]

- (ii) Natural climatic cycles contribute to climate change. Complete the following sentences to describe how this influences global temperatures.

1. The Earth's orbit varies between circular and more **elongated**.
2. This occurs every **100,000** years.
3. Research shows **warmer** periods have been followed by cooler periods.
4. For example the **Little Ice Age** followed a warmer period from AD 950–1300. [4]

- (d) Describe the effects of climate change on a named country you have studied.

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

Effects must be factually accurate to the named country.

Answers can refer to either positive or negative impacts or both.

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

Level 1 ([1])

A simple statement outlining one positive or negative effect which could be true of the named country,
e.g. Positive: higher crop yields .
e.g. Negative: more pests and diseases.

Level 2 ([2]–[3])

Two simple statements or one accurate statement with consequence,
e.g. Higher crop yields although there will also be more pests and diseases. [2]
e.g. Higher yields of crops such as sugar beet and maize due to the warmer summers. [3]

Level 3 ([4])

Two statements both with a consequence which can be either positive, negative or both,
 e.g. In the UK higher yields of crops such as sugar beet and maize due to the warmer summers can occur. However the warmer temperatures can also increase the number of pests which could attack crops. [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 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. SPaG [4]

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Theme C: The Restless Earth

AVAILABLE
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- 3 (a) Complete **Table 4** by writing the correct letter for each statement below under the correct rock type. One has been completed for you.

Table 4

IGNEOUS	METAMORPHIC
A (given)	B
D	C

[1] each

[3]

- (b) Study **Fig. 10** which shows some diagrams drawn by a student to show the stages in the formation of sedimentary rocks such as sandstone or limestone. Answer the question which follows.

Using **Fig. 10** explain the formation of sedimentary rocks.

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

Award [1] for a simple accurate statement,
e.g. Sediments build up in layers.

Award [2] for a statement with a consequence which refers to deposition of layers of sediment on the seabed and sediments being squeezed,
e.g. Sediments which have been eroded are deposited on the seabed and are squeezed so they build up in layers.

Award [3] for a statement with a consequence and elaboration which refers to the deposition of layers of sediment building up on the seabed and being compressed and compacted under their weight over time to form layered rock (answer may also refer to fossil shells etc being trapped in the layers),
e.g. Sediments which have been eroded from the rocks on the land are carried into the sea by rivers and are deposited on the seabed; these sediments are compressed and compacted under their own weight so air and moisture are squeezed out and so over a long time will build up in layers forming solid rock.

[3]

- (c) **Fig. 11** shows a volcanic plug in Myanmar, Asia. Answer the question which follows.

Explain how a volcanic plug is formed.

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

Award [1] for a simple accurate statement which refers to magma cooling or to a volcano,

e.g. A plug forms inside a volcano **or** a plug is formed when magma cools and hardens.

Award [2] for an accurate statement which has a consequence,

e.g. A plug forms inside a volcano when magma cools as it rises towards the surface and hardens into dolerite rock.

Award [3] for a developed explanation with elaboration which shows

understanding of the hardened magma being more resistant to erosion so that the plug stands out in the landscape,

e.g. A plug forms inside a volcano when magma cools as it rises towards the surface and hardens into dolerite rock; the sides of the volcano are eroded but the dolerite is more resistant and so stands out as the plug when the surrounding rock of the volcano is eroded. [3]

- (d) Study **Fig. 12** which shows the location of an earthquake in the Bristol Channel area on 20 February 2014. Answer the questions which follow.

- (i) This earthquake had a magnitude of 4.1. Name the scale which measures the magnitude of any earthquake.

Richter Scale/Mercalli Scale [1]

- (ii) Name the settlement closest to the epicentre of this earthquake.

Swansea [1]

- (iii) State the meaning of the term **seismograph**.

Award [1] for a simple definition,

e.g. A seismograph records an earthquake.

Award [2] for a detailed definition,

e.g. A seismograph records the shockwaves that occur during an earthquake/energy released/magnitude. [2]

- (e) Describe **two** effects of a named earthquake in the British Isles which you have studied.

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

Name of earthquake. Award [1] mark. [1]

Do not credit effects of an earthquake outside the British Isles.

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- Award [1] for a general effect of a named earthquake,
e.g. The Market Rasen earthquake in 2008 caused buildings to shake and fall.
or
e.g. A man was injured by falling debris in his bedroom.
- Award [2] for a detailed effect which includes case study detail relating to the effect or damage,
e.g. The Market Rasen earthquake in 2008 caused buildings such as the stone cross on the medieval church to fall,
e.g. A 19 year old man broke his pelvis when the chimney collapsed onto his bedroom.
(2 × [2]) [4]
- (f) Study **Fig. 13** which shows a poster giving information on earthquake preparation in California, USA. Answer the questions which follow.
- (i) Underline in the list below the % of homes which have been built to withstand earthquakes in California.
- 18% 20% 25% [1]
- (ii) Describe the change in the number of deaths worldwide due to earthquakes.
- Award [0] for a response not worthy of credit
- Award [1] for a simple statement of the pattern,
e.g. The number of deaths worldwide decreased from 2010 to 2012.
- Award [2] for a detailed description, quoting at least one figure from the resource,
e.g. The number of deaths worldwide decreased to only 700 by 2012 (from 32 120 in 2010). [2]
- (g) State one strategy and outline how it helped to reduce the number of deaths in a named earthquake you have studied in a MEDC.
- A strategy put in place to reduce the number of deaths in an earthquake in a MEDC.
- One mark for accurately naming an earthquake in a MEDC,
e.g. Kobe in Japan in 1995. [1]
- Award [0] for a response not worthy of credit.
- Award [1] for a simple statement of a strategy used to reduce deaths,
e.g. People were given instructions on what to store in earthquake kits **or**
e.g. Buildings were made earthquake proof so they didn't collapse **or**
e.g. People practised earthquake drills.

Award [2] for an accurate statement with a consequence explaining how a strategy helped to reduce the number of deaths,
 e.g. Making earthquake proof buildings stopped them falling on people as buildings had cross-beams (or springs and rubber pads) to absorb the shaking so that the buildings did not collapse and kill people **or**
 e.g. Educating people means people had made preparations and practised what to do in earthquake drills to evacuate and stay safe.

Award [3] for an accurate statement with consequences and elaboration.
 A fact/figure/place name related to the precaution taken at the named earthquake is required for level three,
 e.g. Making earthquake proof buildings such as the Kansai International airport stopped them falling on people as buildings had cross-beams, springs and rubber pads to absorb the shaking so that the buildings did not collapse and kill people **or**
 e.g. Educating people means people had made preparations and practised what to do to stay safe. At Kobe people had earthquake kits ready with a bucket to put out fires, a torch and helmets to protect them and to keep them safe. [3]

Total**AVAILABLE
MARKS**

25

108