

# **GCSE**

# Geography B (Geography for enquiring minds)

Unit J384/01: Our natural world

General Certificate of Secondary Education

Mark Scheme for June 2018

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All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

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# **Annotations**

Annotation	Meaning
BP	Blank page
SEEN	Noted but no credit given
<b>✓</b>	Tick
?	Unclear
×	Cross
^	Omission mark
L1	Level 1
L2	Level 2
L3	Level 3
L4	Level 4
DEV	Development
PLC	Relevant place detail
BOD	Benefit of doubt
IRRL	Tick
С	Communicate findings
2	Not Relevant

Question	Answer	Mark	Guidance
1 (a)	A weather event that is significantly different from the average/ usual weather pattern ( <li>A weather event that can cause a threat to life (</li> <li>A weather event that can cause damage (to property) (</li>	1	Do not credit Weather that it is extreme Examples with no attempt to define the key word.
(b)	Warm water moves eastwards instead of westwards (✓) Warmer temperatures occur in South America (✓) Easterly winds are weaker across the Pacific Ocean (✓) Lack of cold water along coast of South America (✓) Trade winds swap direction/ Westerly (✓) Low pressure (✓) More rainfall in South America (✓) Drought (✓) Increased risk of flooding (✓) Increased risk of mud slides (✓)	3	3 x 1 (✓) for valid points interpreted from the resource suggesting how South America may be affected during an El Niño year  Credit Impacts on the Central and South Pacific Changes in weather in South America, as they can be inferred from understanding Fig. 1. Winds may either weaken or reverse direction  Do not credit A second contradictory idea without making it clear that 2 different parts of South America are affected.
(c)	A: Bar graph (✓)	1	<ul><li>(✓)</li><li>Mark any clear indication of an answer.</li><li>If two answers are given, then award 0.</li></ul>

J384/01 Mark Scheme June 2018

Question	Answer	Mark	Guidance
Question (*d)	Level 3 (6–8marks)  An answer at this level demonstrates thorough knowledge (AO1) and reasonable understanding (AO2) of the technological developments that are used to mitigate the impacts of a tectonic hazard. There will be a thorough analysis of the technological developments used to mitigate the impacts of a tectonic hazard (AO3). This will be shown by including well-developed ideas about the technological developments used to mitigate the impacts of a tectonic hazard. There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.  Level 2 (3–5 marks)  An answer at this level demonstrates reasonable knowledge (AO1) and basic understanding (AO2) of the technological developments that are used to mitigate the impacts of a tectonic hazard. There will be a reasonable analysis of the technological developments used to mitigate the impacts of a tectonic hazard. There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.  Level 1 (1–2 marks)  An answer at this level demonstrates basic knowledge (AO1) and basic understanding (AO2) of the technological developments used to mitigate the impacts of a tectonic hazard. There will be a basic understanding (AO2) of the technological developments that are used to mitigate the impacts of a tectonic hazard. There will be a basic analysis of the technological developments used to mitigate the impacts of a tectonic hazard. There will be a basic analysis of the technological developments used to mitigate the impacts of a tectonic hazard. The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence may not be clear.	Mark 8	Indicative Content Responses could include: Building design Prediction Early warning systems  Note that all technological developments must be hazard-appropriate  Example of a well-developed idea: Early warning systems involve automatic texts that are activated if seismometers detect potential earthquakes. Although the technology only gives a few seconds warning it can be enough for people to hide under tables protecting themselves from falling rubble. The disadvantage of this system is it is very expensive and may be impractical for an LIDC where not everyone may own such a device.  Example of a developed idea: In Iceland. seismographs are used to monitor volcanic eruptions. If abnormal movement is detected, warnings are sent out to everyone via mobile phones.  Example of a simple idea: Monitoring the volcano using seismometers to detect if their might an eruption and action can be taken.  Max 3 marks if a non-tectonic hazard is

J384/01 Mark Scheme	June 2018
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Question		Answer	Mark	Guidance
		0 marks		
		No response worthy of credit.		

Ques	stion	Answer	Mark	Guidance
2	(a)	B: Large-scale, long-term changes in average temperature and weather patterns (✓)	1	<ul><li>(✓)</li><li>Mark any clear indication of an answer.</li><li>If two answers are given, then award 0.</li></ul>
	(b)	There are cycles/ fluctuations in the data (✓) between 75,000 and 120,000 years in length (DEV). The cooling is relatively gradual with more sudden warming (✓) (C)  There are around cycles of cooling and warming (✓) between about 3°C above current temperature and -9°C below current temperature (DEV). The warming is relatively rapid (✓) (C)  The overall trend shows a fluctuating change in temperature (✓). 125,000 years ago, there was a warm climate with a temperature of 2°C above present compared to -9°C below present, 140,000 years ago (DEV) This happens every 75,00 to 120,000 years (✓) (C)	4	2 x 1 (✓) for describing the trend 1 x 1 (DEV) for appropriate use of data 1 x 1 (C) for communicating the answer in an appropriate and logical order  Ensure that the data used is temperature change from present.  Credit A rapid increase in temperature A rapid decrease in temperature  Do not credit A gradual increase in temperature A gradual decrease in temperature
	(c)	The painting shows what the temperature was like when it was painted (✓) The River Thames is frozen which we don't see now (✓) The climate has got warmer since the painting was created (✓)	2	2 x 1 for valid explanations of how the painting could be used as evidence for climate change  Development awarded with (✓) as a further valid explanation  Do not credit The River Thames was frozen The climate has changed

J384/01 Mark Scheme June 2018

Question	Answer	Mark	Guidance
(d)	Level 3 (5-6 marks) An answer at this level demonstrates thorough understanding why climate change is considered to be a global issue (AO2).  This will be shown by including well-developed ideas about climate change and why it is considered to be a global issue.  Level 2 (3-4 marks) An answer at this level demonstrates reasonable understanding why climate change is considered to be a global issue (AO2).  This will be shown by including developed ideas about climate change and why it is considered to be a global issue.  Level 1 (1-2 marks) An answer at this level demonstrates basic understanding why climate change is considered to be a global issue (AO2).  This will be shown by including simple ideas about climate change and why it is considered to be a global issue.  0 marks No response worthy of credit.	6	Indicative Content A range of social, economic and environmental impacts should be considered worldwide, such as: Impacts of sea level rise Increase in extreme weather events  The global nature of causes of climate change and the release of CO <sub>2</sub> from countries around the world.  The reduction of CO <sub>2</sub> requires co-operation from countries all around the world.  Example of a well-developed idea: If temperatures become too high, then places such as Tuvalu may become uninhabitable due to sea level rise. This may cause migration as people are forced to move, leading to overcrowding in the areas they are travelling to. This can lead to food shortages with products having to be exported in from other locations.  Example of a developed idea: Global warming causes polar ice caps to melt which flood low-lying islands in other parts of the world.  Example of a simple idea: Polar ice caps melt and sea level rises.

Que	estion	Answer	Mark	Guidance
3	(a)	C: Isoline (✓)	1	<b>(</b> ✓)
	(b)	Lowland (✓) Flat (✓) Plain (✓)	1	(✓) Do not allow coastal plain
	(c)	The majority of the upland areas are found in the north (✓) and the west (✓) of the UK.  The majority of upland areas are found in the north (✓) of the UK with the highest upland areas being in Scotland (✓) (C)	3	2 x 1 (✓) for describing the distribution of upland areas 1 x 1 (C) for communicating the answer in an appropriate and logical order  Mark where upland areas are located, do not award marks for where they are not located.  Communication mark awarded if the answer deals has a UK wide distribution first and a smaller sub-division of the UK afterwards or vice versa.
	(d)	The rate at which different rock types erode:  Bar graph (✓)  The rate of erosion of rocks at one place over time:  Line graph (✓)  The different rock types found in a river deposit:  Pie chart (✓)	2	3 correct = 2 marks (✓) 1 or 2 correct = 1 mark (✓)

Question	Answer	Mark	Guidance
(e)	Case study – UK river basin	6	Indicative Content
			Geology
	Level 3 (5-6 marks)		River landforms (appropriate) – e.g. waterfall,
	An answer at this level demonstrates <b>thorough</b> knowledge of the		gorge.
	geology and resultant landforms in the chosen UK river basin (AO1)		Meanders are an acceptable landform but
	with a <b>thorough</b> understanding of the influence of geology in the		need to be linked to the geology of the area
	formation of river landforms within the chosen river basin (AO2). This		to reach Level 2.
	will be shown by including well-developed ideas about the influence		
	of geology in the formation of river landforms within the chosen river		Example of a <b>well-developed</b> idea:
	basin.		In the upper course of a river where there is a
	The answer must also include place-specific details for the named		layer of hard rock (e.g. dolerite) overlying a
	river basin.		layer of soft rock (e.g. limestone), the vertical
			erosion processes will wear away the soft
	Level 2 (3-4 marks)		rock more quickly, deepening the river bed
	An answer at this level demonstrates <b>reasonable</b> knowledge of the		and creating a steep drop called a waterfall.
	geology and resultant landforms in the chosen UK river basin (AO1)		The softer rock is eroded more quickly
	with a <b>reasonable</b> understanding of the influence of geology in the		creating an overhang of harder rock. This
	formation of river landforms within the chosen river basin (AO2). This		happens at High Force waterfall on the River
	will be shown by including <b>developed</b> ideas about the influence of		Tees.
	geology in the formation of river landforms within the chosen river		
	basin. Developed ideas but no place-specific details credited up to		Example of a <b>developed</b> idea:
	bottom of level.		Waterfalls are formed where a layer of hard
			rock lies on top of a layer of soft rock. The
	Level 1 (1-2 marks)		river erodes the soft rock, leaving a steep
	An answer at this level demonstrates <b>basic</b> knowledge of the		drop called a waterfall.
	geology and resultant landforms in the chosen UK river basin (AO1)		
	with a <b>basic</b> understanding of the influence of geology in the		Example of a <b>simple</b> idea:
	formation of river landforms within the chosen river basin (AO2). This		Waterfalls are formed where hard rock lies on
	will be shown by including <b>simple</b> ideas about the influence of		top of soft rock.
	geology in the formation of river landforms within the chosen river		100
	basin.		Maximum Level 1 for a non-UK river.
	Simple ideas or appropriate named example only gradited at hatter		
	Simple ideas or appropriate named example only credited at <b>bottom</b> of level.		
	OI IEVEI.		

Ques	stion	Answer	Mark	Guidance
		0 marks		
		No response worthy of credit.		

Ques	stion	Answer	Mark	Mark Guidance
4	(a)	C: The interdependence of plants and animals with the environment they live in (✓)	1	( <b>✓</b> )
	(b)	Short roots (*) Grow very slowly (*) Small leaves (*) Low/ short / small (*) Ability to stop growing (*) Small surface area to volume ratio (*) Compact (*) Short growing season (*) Survive with low levels of nutrients (*) Survive with low levels of water (*) Rapid reproduction (*)	2	2 x 1 (✓) for valid feature of Arctic flora  Do not credit  Can survive in cold conditions .
	(c)	C: The sea ice has decreased most rapidly between 2000 and 2015 (✓)	1	(~)
	(d)	There are fewer nutrients in the soil/ not very fertile (✓) Thin layer of topsoil / organic matter / humus (✓) Torrential / heavy rain leaching them out of the soil (✓) Soils become acidic (✓) Nutrients are taken up by plants quickly (✓) Lack of nutrients from weathered rock/ deep subsoil (✓) Undisturbed soil (✓)	3	3 x 1 (✓) for appropriate suggestions as to why tropical rainforest soils are considered to be amongst the poorest in the world  Credit  Answers that are linked to nutrient cycling in the rainforest.  Do not credit Soil erosion  Human activities making the soil poorer

Question	Answer	Mark	Guidance
(e)	Case study: sustainable management of an area of tropical rainforest	6	Indicative Content  Case study: can be at local or regional scale
	Level 3 (5-6 marks) An answer at this level demonstrates thorough knowledge of one way in which an area of tropical rainforest is being sustainably managed (AO1) with a thorough evaluation of the effectiveness of		Examples could include: ecotourism, community programmes, biosphere reserves, sustainable forestry
	the sustainable management (AO3). This will be shown by including <b>well-developed</b> ideas about one way in which an area of tropical rainforest is being sustainably managed and its effectiveness. The answer must also include place-specific details for the named management scheme.		Example of a <b>well-developed</b> idea: The Puerto Nariño ecotourism scheme uses fishermen to help monitor the river ecosystems in the rainforest. This is quite effective as the number of fish have increased as the fishermen know the river
	Level 2 (3-4 marks) An answer at this level demonstrates <b>reasonable</b> knowledge of one way in which an area of tropical rainforest is being sustainably managed (AO1) with a <b>reasonable</b> evaluation of the effectiveness of the sustainable management (AO3). This will be shown by including <b>developed</b> ideas about one way in which an area of tropical		and are well placed to spot illegal fishermen who might be threatening the habitat. The scheme has not been fully successful as there have been some fishermen who decided to fish illegally themselves.
	rainforest is being sustainably managed and its effectiveness.  Developed ideas but no place-specific details credited up to <b>bottom</b> of level.		Example of a <b>developed</b> idea: In Puerto Nariño the fishermen are employed to help stop illegal fishing and this has been quite successful as there has been an
	Level 1 (1-2 marks) An answer at this level demonstrates basic knowledge of one way in which an area of tropical rainforest is being sustainably managed (AO1) with a basic evaluation of the effectiveness of the sustainable		increase in the number of species.  Example of a <b>simple</b> idea: Scientists monitor the number of species.
	management (AO3). This will be shown by including <b>simple</b> ideas about one way in which an area of tropical rainforest is being sustainably managed and its effectiveness. Simple ideas or		Credit River areas in tropical rainforest
	appropriate named example only credited at <b>bottom</b> of level. <b>0 marks</b>		Only mark the first strategy that the candidate identifies. This could be multiple techniques within one strategy, for instance, in an
	No response worthy of credit.		ecotourism resort they may use local sourced wood, buffer zones and restricted areas.

Question		Answer		Guidance
5	(a)	Longshore drift is moving sand South (✓)  There is a much greater drop on the south side of the groyne than the north side (✓)  The highest drop on the south side is 54cm but only 32cm on the north side (DEV)  The difference in the drop between the North and South side of the groyne is varied (✓)  The drop ranges from 14cm to 22 cm (DEV)  The largest difference is groyne 5/ the smallest difference is at groyne 1 and 4 (✓)  The drop on the North side of the groyne is more consistent that the drop on the South side (✓)  There is no relationship between the position on the beach and the size of the drop (✓)	4	2 x 1 (✓) for describing the pattern of data shown.  1 x 1 (DEV) for using data from the table  1 x 1 (C) for communicating the answer in an appropriate and logical order.  Do not credit  The difference in drop between the North and South side of the groyne is consistent.
	(b)	Largest mean sediment size is to the south/south west of the shoreline shown/ the (four) smallest sites for sediment size are all towards the north of the shore (✓) Only the two sites furthest south have a mean sediment size above 2.5 (✓) The smallest variation in sediment size is towards the north of the beach (✓) The largest sediment size is at the 2 <sup>nd</sup> most southerly site (✓)	2	2 x 1 (✓) for valid points about the pattern of beach sediment size along the shore  Development awarded with (✓) as a further valid explanation  No credit for Up/ down Top/ bottom  Data can be used to exemplify a valid pattern only.
	(c)	Insert a scale (✓) Add units for the mean sediment size (✓) Show the precise values for each location (✓) Distance between sites (✓) Direction of longshore drift/ prevailing wind (✓) Presence/ absence of sea defences (✓) More even interval in the key (✓) Location (✓) Title (✓)	1	<ul> <li>(✓) for valid suggestion for a way Fig. 4 could be adapted</li> <li>Credit data presentation techniques rather than data collection techniques (more sites).</li> </ul>

Question	Answer	Mark	Guidance	
(d*)	Own Fieldwork	8	This question will be marked using 3 levels:	
	Level 3 (6–8 marks)  An answer at this level demonstrates a thorough evaluation (AO3) of the primary data collection methods used with a thorough judgement as to the extent of their success (AO3).  This will be shown by including well-developed ideas. There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.  Level 2 (3–5 marks)  An answer at this level demonstrates a reasonable evaluation (AO3) of the primary data collection methods used with a reasonable judgement as to the extent of their success (AO3). This will be shown by including developed ideas. There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some		Indicative content  Evaluation of the success of data collection methods, this could include both positive and negative reflections, allowing the candidate to make a judgement on its success.  Examples of well-developed ideas: To a large extent our data collection methods were successful. We measured the velocity of the river at different locations along the rivers course; we did this five times and took a mean	
			at each location which increased the accuracy of the results, this was important to produce more secure analysis and conclusions.  However a limitation is that at times the float used to measure velocity got caught in the stones in the river bed, this meant that human intervention was required and would have affected the final mean.	
	evidence.  Level 1 (1–2 marks)  An answer at this level demonstrates a basic evaluation (AO3) of the primary data collection methods used with a basic judgement as to the extent of their success (AO3). This will be shown by including simple ideas. The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence		Examples of <b>developed</b> ideas: I feel our data collection was successful. We measured the velocity of the river; we did this five times to increase the accuracy of the results. This was an effective method as I was able to compare the velocity at different points along the river which helped answer the overall question. However at times the float used to measure velocity got caught in the stones.	
	may not be clear.  0 marks  No response or no response worthy of credit.		Examples of <b>simple</b> ideas: We floated an orange down the river and timed how long it took. This worked well as we could work out the rivers' speed.	

Question		Answer	Mark	Guidance	
			Spelling, punctuation and grammar and the use of specialist terminology (SPaG) are assessed using the separate marking grid in Appendix 1.	3	

#### Appendix 1

### Spelling, punctuation and grammar and the use of specialist terminology (SPaG) assessment grid

## High performance 3 marks

- Learners spell and punctuate with consistent accuracy
- Learners use rules of grammar with effective control of meaning overall
- Learners use a wide range of specialist terms as appropriate

# Intermediate performance 2 marks

- Learners spell and punctuate with considerable accuracy
- Learners use rules of grammar with general control of meaning overall
- Learners use a good range of specialist terms as appropriate

## Threshold performance 1 mark

- Learners spell and punctuate with reasonable accuracy
- Learners use rules of grammar with some control of meaning and any errors do not significantly hinder overall
- Learners use a limited range of specialist terms as appropriate

#### 0 marks

- The learner writes nothing
- The learner's response does not relate to the question
- The learner's achievement in SPaG does not reach the threshold performance level, for example errors in spelling, punctuation and grammar severely hinder meaning

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