

Sample Question Paper

GCSE Geography B

J386/01 Our Natural World

Time allowed: 1 hour 15 minutes

You can use:

- a ruler (cm/mm)
- a scientific or graphical calculator



Please write clearly in black ink. **Do not write in the barcodes.**

Centre number

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Candidate number

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First name(s) _____

Last name _____

INSTRUCTIONS

- Use black ink. You can use an HB pencil, but only for graphs and diagrams.
- Write your answer to each question in the space provided. If you need extra space use the lined pages at the end of this booklet. The question numbers must be clearly shown.
- Answer **all** the questions.
- Where appropriate, your answer should be supported with working. Marks might be given for using a correct method, even if your answer is wrong.

INFORMATION

- The total mark for this paper is **70**.
- The marks for each question are shown in brackets [].
- Quality of extended response will be assessed in questions marked with an asterisk (*).
- Spelling, punctuation and grammar (SPaG) and the use of specialist terminology will be assessed in questions marked with a pencil (✎).
- This document has **16** pages.

ADVICE

- Read each question carefully before you start your answer.

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SECTION A

Weather Hazards and Changing Climate

1

(a) Two tropical air masses affect weather in the UK.

Complete the table to describe their characteristics.

Name of air mass	Tropical continental	
Where it comes from		Sea
Typical weather	Warm and dry	

[2]

(b) State **two** reasons why anticyclones bring clear skies.

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..... [2]

(c) Define resilience to climate change.

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..... [1]

(d) The images show vulnerability to climate change.



Outline why some places are more at risk from climate change than others.

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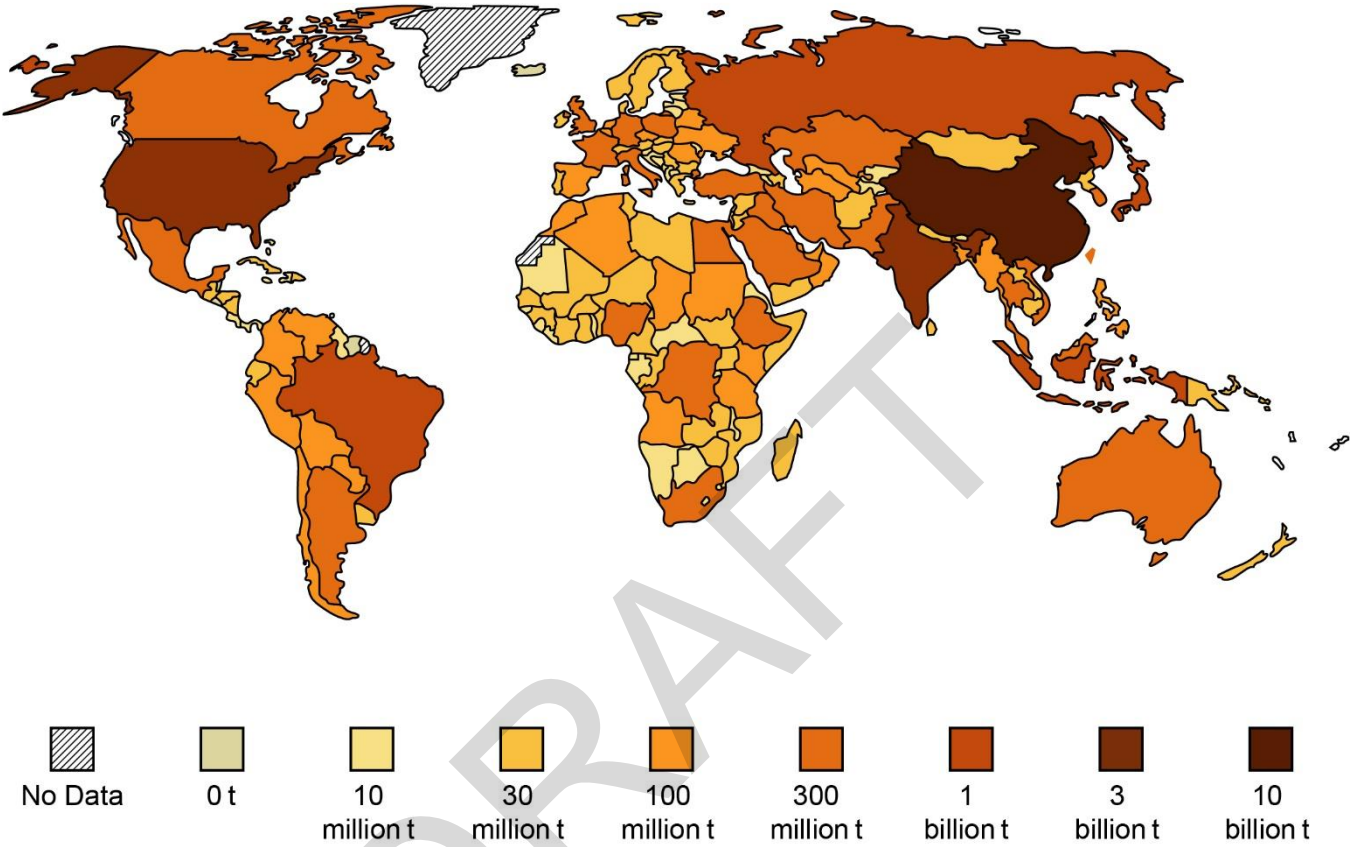
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(e) The map shows global greenhouse gas emissions in 2021.

Greenhouse gas emissions, 2021



Describe the global pattern of global greenhouse gas emissions in 2021.

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..... [3]

(f)* Explain how the Paris Agreement aims to mitigate climate change.

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[6]

 Spelling, punctuation and grammar and the use of specialist terminology **[3]**

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Dynamic Landscapes

2

(a) The table shows the number of earthquakes in one area from 2014 to 2024.

Year	Number of earthquakes
2014	86
2015	90
2016	103
2017	97
2018	110
2019	76
2020	102
2021	108
2022	94
2023	107
2024	84

(i) What is the most suitable type of graph to show the data in the table?

- A climate graph
- B line graph
- C pictogram
- D pie chart

Write the letter in the box.

[1]

(ii) Explain how tectonic plates move.

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..... [4]

(b) The OS map extract shows part of the South Coast of England.



(i) What is the straight-line distance between Mupe Rocks (845796) and Worbarrow Tout (868795)?

- A 1.6 km
- B 2.0 km
- C 2.4 km
- D 2.8 km

Write the letter in the box.

[1]

(ii) State the four-figure grid reference for Durdle Door.

..... [1]

(iii) State the coastal landform found in grid square 8279.

- A arch
- B headland
- C spit
- D stack

Write the letter in the box.

[1]

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(c) The photograph shows an upland area in the UK.



Describe how the landscape in the photograph is characteristic of an upland area.

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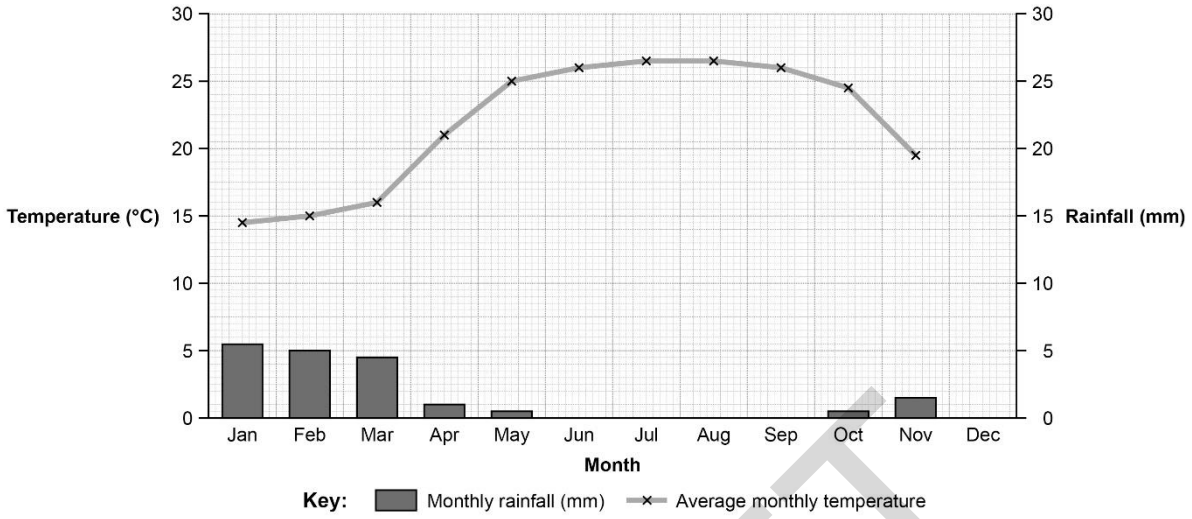
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..... [3]

Sustaining Ecosystems

3

(a) The climate graph shows the rainfall and temperature for a global ecosystem.



(i) Use the data in the table to complete the graph.

Month	Rainfall (mm)	Temperature (°C)
December	6	12

[2]

(ii) Describe the climate shown on the graph.

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..... **[2]**

(b) The table shows deforestation for a tropical rainforest in 2016 and 2020.

Year	Tropical Rainforest Deforestation (hectares per year)
2016	185,200 hectares
2020	73,000 hectares

(i) What is the percentage decrease in 2020 from 2016?

- A 33%
- B 61%
- C 63%
- D 85%

Write the letter in the box.

[1]

(ii) Explain how nutrients are recycled in the tropical rainforest.

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[3]

(c) Explain why polar ecosystems are important for bioprospecting.

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[4]

SECTION B

Familiar fieldwork

You have completed physical geography fieldwork for GCSE geography.

Your fieldwork question:

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4

(a) Describe why your fieldwork enquiry question was suitable to investigate.

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..... [2]

(b) Explain **one** limitation of a **primary** data collection method that you used.

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(c) Justify the use of **secondary** data in your fieldwork enquiry.

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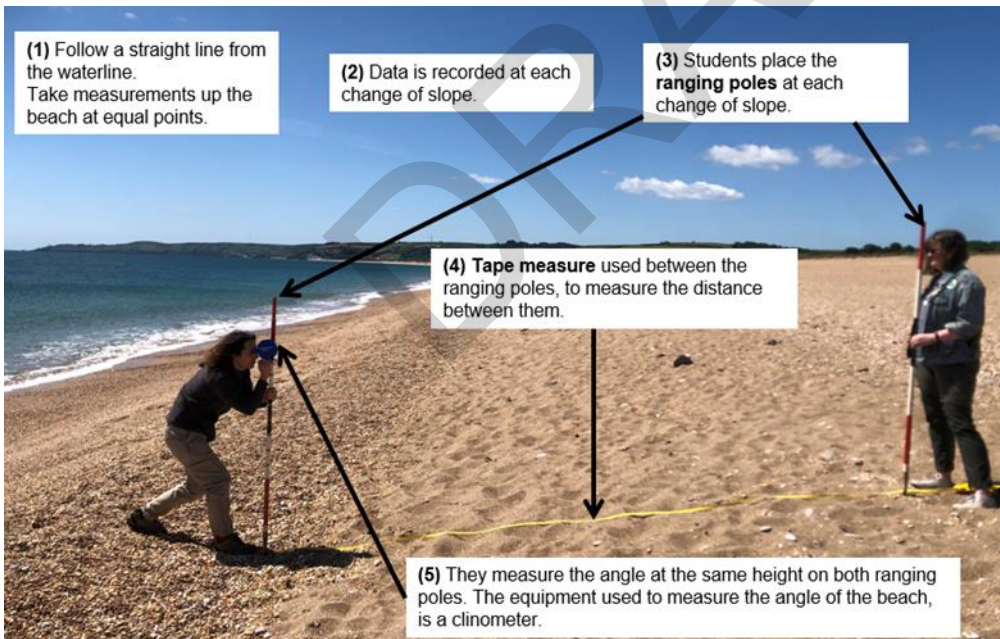
Unfamiliar fieldwork

Fig 1. Photograph of Slapton Sands, in South Devon.

This is a beach, formed by longshore drift and the deposition of sediment. The sediment is a mix of sand and shingle (small stones). The gradient or slope of the beach is shallow due to waves, which are low energy. This means that waves build up the beach overtime.



Fig 2. Photograph of students measuring the profile of the beach. The profile is the shape of the beach from the waterline to the high tide mark.



The clinometer measures the angle of the beach.



This is a **clinometer**; one person holds it and looks through this section.

The other person takes the reading of the slope angle from the clear window.

5 Students carried out a physical geography fieldwork investigation. They visited a coastal area shown in **Fig. 1**, to complete a beach profile survey. They wanted to understand if the beach slope changed and why this might happen.

(a) **Fig. 2** an annotated photograph, explains how students collected the beach profile data. They used ranging poles and a clinometer and recorded the data in a booklet.

Suggest how the student could make sure their data collection techniques produced reliable data.

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..... [2]

(b) The results of the beach profile survey are shown in **Fig 3**.

Fig 3. The results of the beach profile survey. The data collected includes the distance over which the recordings were measured (total horizontal distance in metres) and the angle of the slope of the beach (degrees).

The data recorded included the total horizontal distance and the beach slope angle.

Data recorded	Angle (degrees)	Total horizontal distance (metres)
1	9	2.96
2	10	5.92
3	7	8.90
4	9	11.86
5	8	14.83
6	10	20.25
7	11	23.58
8	15	28.22

What is the mean angle of the beach?

- A 8.8
- B 9.8
- C 9.9
- D 10.0

Write the letter in the box.

[1]

(c)* Using information from **Figs. 1 to 3**, suggest a conclusion to the enquiry question ‘How do geomorphic processes influence the shape of the beach’.

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END OF QUESTION PAPER

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Copyright Information

Figure CCP7.1 in Ometto, J.P., K. Kalaba, G.Z. Anshari, N. Chacón, A. Farrell, S.A. Halim, H. Neufeldt, and R. Sukumar, 2022: Cross-Chapter Paper 7: Tropical Forests. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 2369–2410, doi:10.1017/9781009325844.024.

Total greenhouse gas emissions, excluding land use and forestry, 2016. Source: CAIT Climate Explorer via Climate Watch Our World In Data. <https://ourworldindata.org/uploads/2020/04/total-ghg-emissions-excluding-lufc-2048x1446.png>
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Cairo, Egypt Climograph, Desert, <https://earthobservatory.nasa.gov/biome/biodesert.php>. NASA's Earth Observatory

Photographs of Slapton Sands, in South Devon; and students measuring the profile of the beach, copyright © Field Studies Council

Invicta Clinometer Mk 2', The Average Scientist, <https://theaveragescientist.co.uk/product/invicta-clinometer-mk-2/>. Reproduced with permission

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Sample Mark Scheme

GCSE Geography B

J386/01 Our Natural World

MARK SCHEME

Duration: 1 hour 15 minutes

MAXIMUM MARK 70

Version:

Last updated:

(FOR OFFICE USE ONLY)

This document has 30 pages

MARKING INSTRUCTIONS

PREPARATION FOR MARKING

RM ASSESSOR

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: *RM Assessor Online Training*; *OCR Essential Guide to Marking*.
2. Make sure that you have read and understood the mark scheme and the question paper for this unit. These are posted on the RM Cambridge Assessment Support Portal <http://www.rm.com/support/ca>
3. Log-in to RM Assessor and mark the **required number** of practice responses (“scripts”) and the **number of required** standardisation responses.

YOU MUST MARK 10 PRACTICE AND 10 STANDARDISATION RESPONSES BEFORE YOU CAN BE APPROVED TO MARK LIVE SCRIPTS.

MARKING

1. Mark strictly to the mark scheme.
2. Marks awarded must relate directly to the marking criteria.
3. The schedule of dates is very important. It is essential that you meet the RM Assessor 50% and 100% (traditional 40% Batch 1 and 100% Batch 2) deadlines. If you experience problems, you must contact your Team Leader (Supervisor) without delay.
4. If you are in any doubt about applying the mark scheme, consult your Team Leader by telephone or the RM Assessor messaging system, or by email.
5. **Crossed Out Responses**
Where a candidate has crossed out a response and provided a clear alternative then the crossed out response is not marked. Where no alternative response has been provided, examiners may give candidates the benefit of the doubt and mark the crossed out response where legible.

Rubric Error Responses – Optional Questions

Where candidates have a choice of question across a whole paper or a whole section and have provided more answers than required, then all responses are marked and the highest mark allowable within the rubric is given. Enter a mark for each question answered into RM assessor, which will select the

highest mark from those awarded. *(The underlying assumption is that the candidate has penalised themselves by attempting more questions than necessary in the time allowed.)*

Multiple Choice Question Responses

When a multiple choice question has only a single, correct response and a candidate provides two responses (even if one of these responses is correct), then no mark should be awarded (as it is not possible to determine which was the first response selected by the candidate).

When a question requires candidates to select more than one option/multiple options, then local marking arrangements need to ensure consistency of approach.

Contradictory Responses

When a candidate provides contradictory responses, then no mark should be awarded, even if one of the answers is correct.

Short Answer Questions (requiring only a list by way of a response, usually worth only **one mark per response**)

Where candidates are required to provide a set number of short answer responses then only the set number of responses should be marked. The response space should be marked from left to right on each line and then line by line until the required number of responses have been considered. The remaining responses should not then be marked. Examiners will have to apply judgement as to whether a 'second response' on a line is a development of the 'first response', rather than a separate, discrete response. *(The underlying assumption is that the candidate is attempting to hedge their bets and therefore getting undue benefit rather than engaging with the question and giving the most relevant/correct responses.)*

Short Answer Questions (requiring a more developed response, worth **two or more marks**)

If the candidates are required to provide a description of, say, three items or factors and four items or factors are provided, then mark on a similar basis – that is downwards (as it is unlikely in this situation that a candidate will provide more than one response in each section of the response space.)

Longer Answer Questions (requiring a developed response)

Where candidates have provided two (or more) responses to a medium or high tariff question which only required a single (developed) response and not crossed out the first response, then only the first response should be marked. Examiners will need to apply professional judgement as to whether the second (or a subsequent) response is a 'new start' or simply a poorly expressed continuation of the first response.

6. Always check the pages (and additional objects if present) at the end of the response in case any answers have been continued there. If the candidate has continued an answer there, then add a tick to confirm that the work has been seen.

7. Award No Response (NR) if:
- there is nothing written in the answer space

Award Zero '0' if:

- anything is written in the answer space and is not worthy of credit (this includes text and symbols).

Team Leaders must confirm the correct use of the NR button with their markers before live marking commences and should check this when reviewing scripts.

8. The RM Assessor **comments box** is used by your team leader to explain the marking of the practice responses. Please refer to these comments when checking your practice responses. **Do not use the comments box for any other reason.** If you have any questions or comments for your team leader, use the phone, the RM Assessor messaging system, or e-mail. **Do not refer to any confidential content in email.**
9. Assistant Examiners will send a brief report on the performance of candidates to their Team Leader (Supervisor) via email by the end of the marking period. The report should contain notes on particular strengths displayed as well as common errors or weaknesses. Constructive criticism of the question paper/mark scheme is also appreciated.
10. For answers marked by levels of response:

Read through the whole answer from start to finish, using the Level descriptors to help you decide whether it is a strong or weak answer. The indicative content in the Guidance column indicates the expected parameters for candidates' answers, but be prepared to recognise and credit unexpected approaches where they show relevance. Using a 'best-fit' approach based on the skills and geographical content evidenced within the answer, first decide which set of level descriptors, Level 1, Level 2 or Level 3, best describes the overall quality of the answer.

Once the level is located, award the higher or lower mark:

The higher mark should be awarded where the level descriptor has been evidenced and all aspects of the communication statement (in italics) have been met.





The lower mark should be awarded where the level descriptor has been evidenced but aspects of the communication statement (in italics) are missing.

In summary:

The skills and geographical content determines the level.

The communication statement determines the mark within a level.

11. Annotations

Annotation	Meaning
	Tick
	Cross
	Unclear
BOD	Benefit of the doubt
IR	Irrelevant
L1	Level one
L2	Level two
L3	Level three
NAQ	Not answered question
OFR	Own figure rule
SEEN	Noted but no credit given.
TV	Too vague
	Omission mark
BP	Blank page

Highlighting is also available to highlight any points on the script.

BP to be inserted on every blank page.

SEEN to be inserted in every question space where NR is the mark.

12. Subject Specific Marking Instructions

Levels of response	AO1	AO2	AO3	Quality of extended response
Comprehensive	A range of detailed and accurate knowledge that is fully relevant to the question.	A range of detailed and accurate understanding that is fully relevant to the question.	Detailed and accurate interpretation through the application of relevant knowledge and understanding. Detailed and accurate analysis through the application of relevant knowledge and understanding. Detailed and substantiated evaluation through the application of relevant knowledge and understanding. Detailed and substantiated judgement through the application of relevant knowledge and understanding.	There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.
Thorough	A range of accurate knowledge that is relevant to the question.	A range of detailed and accurate understanding that is relevant to the question.	Accurate interpretation through the application of relevant knowledge and understanding. Accurate analysis through the application of relevant knowledge and understanding. Supported evaluation through the application of relevant knowledge and understanding. Supported judgement through the application of relevant knowledge and understanding.	There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.
Reasonable	Some knowledge that is relevant to the question.	Some understanding that is relevant to the question.	Some accuracy in interpretation through the application of relevant knowledge and understanding. Some accuracy in analysis through the application of relevant knowledge and understanding. Partially supported evaluation through the application of relevant knowledge and understanding. Partially supported judgement through the application of relevant knowledge and understanding.	The information has some relevance and is presented with limited structure. The information is supported by limited evidence.


Basic	Limited knowledge that is relevant to the topic or question.	Limited understanding that is relevant to the question.	Limited accuracy in interpretation through the application of relevant knowledge and understanding. Limited accuracy in analysis through the application of relevant knowledge and understanding. Un-supported evaluation through the application of relevant knowledge and understanding. Un-supported judgement through the application of relevant knowledge and understanding.	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.
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Question		Answer	Mark	Guidance									
1	(a)	<table border="1"> <tr> <td>Name of air mass</td> <td>Tropical continental</td> <td>Tropical maritime</td> </tr> <tr> <td>Where it comes from</td> <td>Land</td> <td>Sea</td> </tr> <tr> <td>Typical weather</td> <td>Warm and dry</td> <td>Warm and wet</td> </tr> </table>	Name of air mass	Tropical continental	Tropical maritime	Where it comes from	Land	Sea	Typical weather	Warm and dry	Warm and wet	2	3 x 1 (✓) = 2 marks 2 x 1 (✓) = 1 mark 1 x 1 (✓) = 1 mark
Name of air mass	Tropical continental	Tropical maritime											
Where it comes from	Land	Sea											
Typical weather	Warm and dry	Warm and wet											
1	(b)	Sinking air / high pressure (✓) Moist air cannot rise to form clouds / condensation cannot take place (✓) Air sinks, it warms up, leading to warm and dry weather (✓)	2	2 x 1 (✓)									
1	(c)	To anticipate, prepare for, and respond to climate change (✓) To anticipate, adapt to and manage climate risk (✓)	1	1 x 1 (✓) for accuracy of definition									
1	(d)	Some places are closer to the equator where it is hotter and can experience drought (✓) Some places are on low lying coastlines, so are more vulnerable to flooding (✓) More extreme weather events in some areas lead to drought / flooding / forest fires (✓)	3	3 x 1 (✓) for valid reason why some places are more at risk than others Potential ideas for credit: Forest management (reducing deforestation, tree plant programmes) Climate resilient crops Infrastructure (water supplies)									

Question		Answer	Mark	Guidance
		<p>Polar and high mountain regions are warming faster, leading to melting of glaciers / ice sheets, increasing flood risk (✓).</p> <p>Increased flooding in some areas destroys crops and leads to famine (✓).</p> <p>Rapid urbanisation / building on flood plains so areas are vulnerable to flooding (✓).</p> <p>Deforestation takes place in some areas decreasing soil fertility (✓).</p> <p>Governments / local scale management to reduce the risks from climate change (✓).</p>		
1	(e)	<p>Uneven global pattern of greenhouse gas emissions (✓), which are higher in the northern hemisphere such as Asia / North America (✓)(C).</p> <p>Uneven global pattern of greenhouse gas emissions (✓). China is the highest, followed by USA, and India (✓)(C).</p> <p>Some continents have lower emissions of greenhouse gases (✓). An example would be Africa where emissions are no higher than 1-3 billion tonnes (✓)(C).</p>	Max 3	<p>2 x 1 (✓) for valid descriptions of greenhouse gas emissions.</p> <p>1 x 1 (C) for communicating the answer in an appropriate and logical way. Must be one valid description to achieve the communication mark.</p> <p>No communication mark if there is not a pattern/general point and specific detail.</p>
1	(f)*	<p>Level 3 (5-6 marks)</p> <p>An answer at this level demonstrates thorough knowledge of the Paris Agreement (AO1) and a thorough understanding of how it aims to mitigate climate change (AO2).</p>	6	<p>Indicative content</p> <p>Accurate knowledge and understanding of the Paris Agreement.</p> <p>Example of a well-developed idea</p>

Question	Answer	Mark	Guidance
	<p>This will be shown by including well-developed ideas about the aims of the Paris Agreement.</p> <p><i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p> <p>Level 2 (3-4 marks) An answer at this level demonstrates reasonable knowledge of the Paris Agreement (AO1) and a reasonable understanding of how it aims to mitigate climate change (AO2).</p> <p>This will be shown by including developed ideas about the aims of the Paris Agreement.</p> <p><i>There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.</i></p> <p>Level 1 (1-2 marks) An answer at this level demonstrates basic knowledge of the Paris Agreement (AO1) and a basic understanding of how it aims to mitigate climate change (AO2).</p> <p>This will be shown by including simple ideas about the Paris Agreement.</p> <p><i>The information is basic and communicated in an unstructured way. The information is supported by</i></p>		<p>The Paris Agreement is a legally binding international treaty between 195 countries that was first agreed at COP21 in 2015. One of its aims is a long-term temperature goal to keep global temperature rise below 2°C above pre-industrial levels, preferably aiming for 1.5°C. To do this, each country involved has to agree to reducing their greenhouse gas emissions by both technology and preservation of carbon sinks such as forests. Each country must regularly report on their emission levels and what they have put in place to reduce them.</p> <p>Example of a developed idea The Paris Agreement was made in 2015 when countries around the world agreed to reduce their carbon emissions to try to keep global temperature rise below 2°C. Each country has to report on their emissions and what they are doing to reduce them.</p> <p>Example of a simple idea The agreement is to lower gases going into the sky. Lots of countries signed it, to stop the world getting hotter.</p>

Question		Answer	Mark	Guidance
		<p><i>limited evidence and the relationship to the question may not be clear.</i></p> <p>0 marks No response worthy of credit.</p>		
		 <p>Spelling, punctuation and grammar and the use of specialist terminology (SPaG) are assessed using the separate marking grid in Appendix 1.</p>	3	

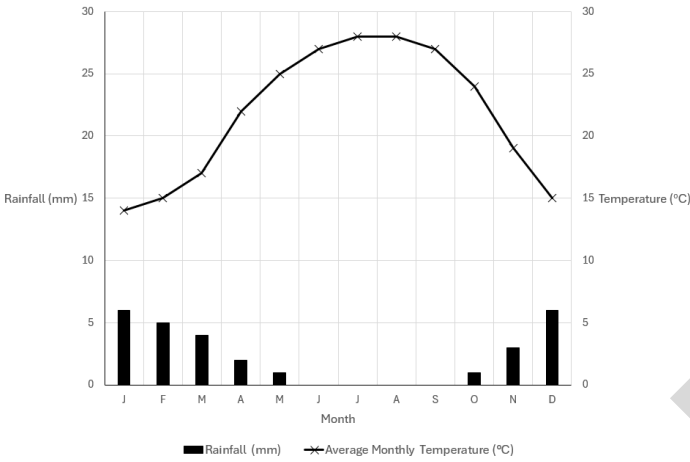
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Question			Answer	Mark	Guidance
2	(a)	(i)	B: line graph	1	1 x 1 (✓)
2	(a)	(ii)	Slab pull (✓) at convergent plate margins (✓) the older, denser oceanic plate subducts/sinks (DEV) into the mantle due to gravity, pulling the rest of the plate along with it (DEV). Ridge push (✓) at divergent plate boundaries (✓) new crust is formed from cooling magma (DEV) and older, denser crust slides away from the ridge, so the plates move apart (DEV).	Max 4	2 x 1 (✓) valid references to either slab pull or ridge push 2 x 1 (DEV) for explanation of how the plates move by slab pull or ridge push
2	(b)	(i)	C: 2.4 km (✓)	1	1 x 1 (✓)
2	(b)	(ii)	8080	1	1 x 1 (✓)
2	(b)	(iii)	B: Headland		1 x 1 (✓)
2	(c)		Potential characteristics include: Steep sided slopes (✓) Higher altitude (✓) Weathered rocks (✓) Presence of a waterfall (✓) Hard rock (✓)	Max 3	3 x 1 (✓) for each valid characteristic of an upland area No DEV required

Question		Answer	Mark	Guidance
		Vegetation which can survive low temperatures (✓)		
2	(d)*	<p>Case Study: River Basin - human activity influencing geomorphic processes.</p> <p>Level 3 (5–6 marks) An answer at this level demonstrates a thorough knowledge of geomorphic processes (AO1). There will be a thorough evaluation of whether human activity has influenced the geomorphic processes in the river basin (AO3) to come to a reasonable judgement of the extent to which the statement is agreed with (AO3).</p> <p>This will be shown by including well-developed ideas both about the geomorphic processes and how human activity has influenced the geomorphic processes.</p> <p>The answer must include place-specific details for the river basin.</p> <p><i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p> <p>Level 2 (3–4 marks)</p>	6	<p>Case study will be marked using 3 levels.</p> <p>Case study: responses will depend on candidate's area of study.</p> <p>Indicative content Human activities including management strategies could include: Flood barriers/dams – silting up, restriction of sediment replenishment River realigning/straightening – restriction of meanders therefore, horizontal and/or lateral erosion Channelisation – increased velocity, impact on erosion, decreased bedload, impact on deposition. Building on flood plains – increased surface runoff and discharge influences rates of erosion. Afforestation/deforestation – absorbs or provides more water to river basin influencing processes.</p> <p>Example of a well-developed idea: The Wye Valley has been affected by human and physical processes. Human activity has taken place to protect the 200,000 plus people who live in the Wye and Usk Valley in towns such as</p>

Question	Answer	Mark	Guidance
	<p>An answer at this level demonstrates some reasonable knowledge of geomorphic processes (AO1). There will be a reasonable evaluation of whether human activity has influenced the geomorphic processes in the river basin (AO3) to come to a basic judgement of the extent to which the statement is agreed with (AO3).</p> <p>This will be shown by including developed ideas either about the geomorphic processes or how human activity has influenced the geomorphic processes.</p> <p>Developed ideas but no place-specific detail credited up to bottom of level.</p> <p><i>There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.</i></p> <p>Level 1 (1–2 marks) An answer at this level demonstrates basic knowledge of geomorphic processes (AO1). There may be a basic evaluation or judgement of whether human activity has influenced the geomorphic processes in the river basin (AO3).</p>		<p>Hereford and Chepstow from flooding. This includes zoning so construction is not permitted in certain areas. This means that there will be less surface run off and less erosion.</p> <p>Afforestation has taken place in the Wye Valley. Whilst this has reduced the height of the floods by 20% due to increased storage in vegetation, it reduces the flow of the river and decreases the rate of deposition and the natural formation of levees.</p> <p>Stabilising the river channel reduces the risk of flooding downstream. However, it reduces the rate of erosion which in turn reduces the amount of sediment being transported downstream. This means that there would be less sediment available to create floodplains.</p> <p>Example of a developed idea The Wye Valley has been affected by human and physical processes. Human activity has taken place to protect people who live in the Wye Valley.</p> <p>Trees have been planted in the Wye Valley. These reduce the flood risk but reduce the flow of the river and the rate of deposition.</p>

Question		Answer	Mark	Guidance
		<p>This will be shown by including simple ideas about the geomorphic processes or how human activity has influenced the geomorphic processes.</p> <p><i>The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the question may not be clear.</i></p> <p>0 marks No response or no response worthy of credit.</p>		<p>Stabilising the river reduces the risk of flooding downstream. However, it reduces the rate of erosion, which in turn reduces the amount of sediment being transported downstream.</p> <p>Example of a simple idea One way people have affected the river is by planting trees to stop flooding.</p> <p>They could also take away the bends in the river and make it straighter.</p> <p>Credit max L2 3 marks.</p>

Question			Answer	Mark	Guidance
3	(a)	(i)		2	<p>1 x 1 for correctly plotting the December rainfall bar (✓).</p> <p>1 x 1 for correctly plotting the December temperature point and joining the line (✓).</p>
3	(a)	(ii)	<p>Very low rainfall (✓)</p> <p>Only 28mm total rainfall (✓)</p> <p>Four months of the year are completely dry (✓)</p> <p>Temperature doesn't go below 12°C (✓)</p> <p>Hottest in July and August 28°C (✓)</p> <p>Coollest in December 12°C (✓)</p>	Max 2	<p>2 x 1 (✓) for valid descriptions of the temperature and rainfall shown on the graph.</p> <p>No double credit.</p> <p>Do not credit direct contradictions in the same part of the answer.</p> <p>No credit for mentioning seasons as they are not shown on the graph (could be northern or southern hemisphere).</p>
3	(b)	(i)	B: 61% (✓)	1	1 x 1(✓)

Question		Answer	Mark	Guidance
3	(b)	(ii)	Max 3	<p>3 x 1 mark for each valid explanation of how nutrients are recycled in the tropical rainforest (✓).</p> <p>Must focus on trees/leaves for (re)cycling within the tropical rainforest.</p>
3	(c)	<p>Biological substances are found and have the potential to be developed into products (✓). These products are then used in medicines and cosmetics which are commercially valuable (✓). Biological samples from the Norwegian coast (e.g. invertebrates and fungi) could be used to develop antibiotics and anti-cancer drugs (DEV). Antarctic algae are used in cosmetics as they help in the wound healing process by increasing the rate of cell growth (DEV).</p> <p>OR</p> <p>Substances found through bioprospecting can be used in cosmetics containing Antarctic algae (✓). These substances help in the wound healing process by increasing the rate of cell growth (DEV).</p>	Max 4	<p>2 x 1 (✓) for any valid point which links polar ecosystems with a bioprospecting approach.</p> <p>2 x 1 (DEV) for explaining why polar ecosystems are important for bioprospecting.</p>

Question		Answer	Mark	Guidance
		<p>Researchers have found that Antarctic krill from the polar ecosystem, are able to turn microplastics into nanoplastics (✓) through their digestive systems this may be useful in breaking down synthetic materials (DEV).</p> <p>Some Antarctic fish species have an antifreeze glycoprotein (✓). This circulates in their bloodstream and stops them from freezing (✓). This substance has many commercial uses, such as extending the expiry date on frozen food (DEV). The protein can also be used in surgery to freeze human tissue (DEV).</p>		
3	(c)*	<p>Case study of Arctic or Antarctic: Local conservation to sustainably manage the polar environment.</p> <p>Level 3 (5-6 marks) An answer at this level demonstrates thorough knowledge of local conservation measures (AO1) with a thorough evaluation of how successful they are (AO3).</p> <p>This will be shown by including well-developed ideas about local conservation measures and how successful they are.</p>	6	<p>Case study will be marked using 3 levels</p> <p>Indicative content Arctic Local conservation measures could include National Wildlife Areas (NWAs).</p> <p>Example of a well-developed idea The Ninginganiq National Wildlife Area in Canada was set up in 2010 with the focus of providing habitats for marine mammals such as polar bears and seabirds such as King Eiders as well as protecting the largest known concentration of Bowhead whales. The National Wildlife Area is</p>

Question	Answer	Mark	Guidance
	<p>The answer must include place-specific details for the named conservation measures.</p> <p><i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p> <p>Level 2 (3–4 marks) An answer at this level demonstrates reasonable knowledge of local conservation measures (AO1) with a reasonable evaluation of how successful they are (AO3).</p> <p>This will be shown by including developed ideas about local conservation measures and how successful they are.</p> <p>Developed ideas but no place-specific detail credited up to bottom of level.</p> <p><i>There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.</i></p> <p>Level 1 (1–2 marks) An answer at this level demonstrates basic knowledge of local conservation measures (AO1)</p>		<p>located on the east coast of Baffin Island and contains many important cultural sites, including historical Inuit settlements.</p> <p>The conditions create an ideal feeding habitat for Bowhead whales between August and September, and up to 147 Bowhead whales have been seen in the bay at one time. Any activity that could affect the Bowhead whales such as fishing, and tourism is prohibited in all NWAs to sustainably manage the polar environment.</p> <p>A permit must be obtained to access the NWA or to take part in any activity there such as tourism or shipping. This is to protect the cultural and historical sites as well as the Bowhead whales, in order to sustainably manage the NWA.</p> <p>Example of a developed idea: The Ninginganiq National Wildlife Area in Canada provides habitats for marine mammals such as polar bears and seabirds as well as protecting Bowhead whales. The National Wildlife Area contains many important cultural and historical sites.</p> <p>The conditions create an ideal feeding habitat for Bowhead whales between August and September.</p>

Question	Answer	Mark	Guidance
	<p>with a basic evaluation of how successful they are (AO3).</p> <p>This will be shown by including simple ideas about local conservation measures and how successful they are.</p> <p><i>The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the question may not be clear.</i></p> <p>0 marks No response or no response worthy of credit.</p>		<p>Any activity that could affect the Bowhead whales such as fishing is not allowed.</p> <p>A permit must be obtained to access the NWA or to take part in any activity there such as tourism or shipping.</p> <p>Example of a simple idea The Wildlife Area protects the Bowhead whales so they can feed there.</p> <p>People need permission to visit the Wildlife Area.</p> <p>Indicative Content Antarctica: Local conservation measures could include Union Glacier, Antarctic Logistics & Expeditions.</p> <p>Example of a well-developed idea Union Glacier is a private camp located in the southern Ellsworth Mountains. Antarctic Logistics & Expeditions (ALE) attempt to manage the polar environment sustainably by only operating from November to January each year and housing 70 tourists in this period. The camp is dismantled at the end of each season, this could be seen as unsustainable as the camp is re-made each year.</p>

Question			Answer	Mark	Guidance
					<p>Tourists sleep in double-walled sleeping tents. These are heated by the 24-hour sunlight and have wooden floors that provide insulation from the snow.</p> <p>Tourists are asked to limit showering to every 2-3 days to conserve water. Disinfectant hand sanitiser is used in the dining hall and toilets and all human waste is removed from Union Glacier camp in an attempt to sustainably manage the polar environment.</p> <p>Travel to Antarctica involves a short flight which would release CO₂ emissions. However, when in Antarctica there are a number of specially adapted vehicles which are used with the aim of protecting the polar environment and being more sustainable.</p> <p>Example of developed idea: Union Glacier camp located in Antarctica. Tourists can visit between November and January each year. The camp is made each year.</p> <p>Tourists sleep in double-walled sleeping tents that are heated by the sunlight and have wooden flooring to provide insulation.</p>

Question			Answer	Mark	Guidance
					<p>Tourists are asked to limit showering to save water. Hand sanitiser is used for hygiene. Human waste is removed from Union Glacier camp.</p> <p>Tourists would fly to Antarctica which releases emissions.</p> <p>Example of simple idea: Tourists sleep in tents with wooden flooring.</p> <p>Tourists can't shower often. Waste is removed from the camp.</p> <p>Tourists would fly to Antarctica.</p> <p>Credit max L2 3 marks for global agreements / treaties</p>

Question		Answer	Mark	Guidance
4	(a)	<p>Familiar Fieldwork</p> <p>It was suitable because:</p> <p>You could study the process of longshore drift (✓).</p> <p>You could study beach profiles (✓).</p> <p>You could study the effectiveness of coastal defences / coastal management (✓).</p> <p>You could look at how geomorphic processes affect coastal / river landforms (✓).</p> <p>You could study how the river changes downstream (✓).</p> <p>You can measure velocity of the river (✓).</p> <p>There is management of erosion around a meander (✓).</p> <p>There has been flooding here before (✓).</p>	Max 2	<p>2 x 1 (✓) for valid reasons why the enquiry question was suitable for investigation.</p> <p>Potential ideas for credit:</p> <ul style="list-style-type: none"> • A named landform characteristic • Any relevant fieldwork models (Bradshaw Model or Zingg's shape classification) • A named physical process • A named management technique
4	(b)	<p>Examples of river fieldwork:</p> <p>It was hard to establish the channel width (✓) because the top of the banks were not always accessible (✓).</p> <p>It was hard to keep the tape measure straight (✓) which could give inaccurate readings (✓).</p> <p>The depth of the water was variable with large stones in some places but not in others (✓).</p> <p>The equipment was simple and it was not always possible to hold the ruler vertically (✓).</p> <p>We used a dog biscuit to measure velocity but they sometimes disintegrated before reaching the desired distance (✓).</p>	Max 2	<p>2 x 1 (✓) for valid reasons why collected data may have not been accurate or reliable.</p> <p>This needs to link directly to the primary data collection method.</p> <p>The explanation needs to address the limitation in the data collection:</p> <p>inaccuracy</p> <p>lack of reliability</p> <p>bias</p> <p>sampling</p> <p>poor choice of site</p> <p>timings</p> <p>frequency</p>

Question		Answer	Mark	Guidance
		<p>We have measured velocity once only (✓) and repeated measurements would give us more accurate results (✓).</p> <p>Examples of coastal fieldwork:</p> <p>We estimated wave height (✓) which can be subjective and inaccurate (✓).</p> <p>We have not used a sampling method for collecting beach material (✓) which could affect how reliable the data is (✓).</p> <p>We have measured longshore drift only once (✓); repeated measurements would give us more accurate results (✓).</p> <p>We collected 3 sediment samples (✓); the collection of them in specific places and in larger amounts would give more accurate results (✓).</p> <p>We counted the number of waves that broke on the beach (✓). We could have used a stopwatch and timed for 1 minute to get more accurate results (✓).</p>		<p>reliability of equipment</p> <p>human error</p>
4	(c)	<p>We used Google Earth/Google maps/OS maps (✓) to examine the location of our fieldwork and plan our enquiry (✓).</p> <p>We used environmental agency flood maps (✓) that showed that in the area there was a 1 in 100 years risk of flooding (✓).</p> <p>The Met Office rainfall data (✓) to determine potential flood risk (✓).</p>	Max 2	<p>2 x 1 (✓) for valid justification of chosen secondary data.</p> <p>Secondary data must be relevant to physical geography fieldwork enquiry.</p>

Question		Answer	Mark	Guidance
		We included tide times into our planning (✓) to ensure that data could be collected by the groynes (✓). We used beach profile data from a fieldwork centre (✓) to compare with the primary data we collected (✓).		

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Question		Answer	Mark	Guidance
5	(a)	<p>Unfamiliar Fieldwork Ranging pole not pushed into the sand (✓). Ranging pole held straight (✓). Tape measure straight between the ranging poles and resting on the sand (✓). Clinometer measuring the same point on both ranging poles (✓). Repeat readings to ensure the same result (✓).</p>	Max 2	2 x 1 (✓)
5	(b)	C: 9.9	1	1 x 1 (✓)
5	(c)*	<p>Unfamiliar fieldwork: A conclusion to the enquiry question 'How do geomorphic processes influence the shape of the beach'.</p> <p>Level 3 (5 - 6 marks) The answer must include a thorough use of the fieldwork data and information (AO4) to include a thorough analysis (AO3) and come to a reasonable conclusion that answers the question (AO3).</p> <p>This will be shown by including well-developed ideas.</p> <p><i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p>	6	<p>Indicative content Reference to the figures could include: Material on the beach varies in size (Fig. 1) as waves erode the material. Prevailing wind and influence on longshore drift, which can help build up the beach (Fig. 1). Low energy waves depositing sediment on the beach (Fig. 1). The angle of the beach varies but shows a gradual rise from the waterline as the waves have deposited sediment (Fig. 3).</p> <p>Interpretation of photographs and use of data from figures for AO4 marks.</p> <p>Generic fieldwork should be credited at Level 1.</p>

Question	Answer	Mark	Guidance
	<p>Level 2 (3 – 4 marks) The answer must include a reasonable analysis of the fieldwork data and information (AO4) with a reasonable conclusion to help answer the question (AO3).</p> <p>This will be shown by including developed ideas.</p> <p><i>There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.</i></p> <p>Level 1 (1 – 2 marks) The answer will include a basic analysis of the fieldwork data and information (AO4) to come to a basic conclusion answering the question (AO3).</p> <p>This will be shown by including simple ideas.</p> <p><i>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.</i></p> <p>0 marks No response or no response worthy of credit.</p>		<p>Candidates who answer the question well but refer to human geography fieldwork max L1-2.</p> <p>Example of well-developed ideas: A beach is formed by deposition as the waves deposit the material being carried. The waves are coming from the southwest and their strength varies according to the wind. This creates longshore drift, forming the beach.</p> <p>The photograph in Fig. 1 shows a wide beach with varying sediment sizes. This shows that the waves deposit material at different points depending on their weight. Lighter sandy material is carried further up the beach.</p> <p>The measurements of the beach angle in Fig. 3 show variation but a gradual increase in slope. Although they are low energy / constructive waves, they still deposit more than erode and so there is a gentle beach angle.</p> <p>Geomorphic processes (mainly deposition) strongly influence the shape of Slapton Sands, as they are building up this wide sandy beach.</p> <p>Example of developed ideas: The photograph in Fig. 1 shows a wide beach, which is formed by waves which are low energy. The beach angles in Fig. 3 show it being built up gradually. The waves drop more than they erode.</p>

Question			Answer	Mark	Guidance
					<p>The waves are coming from the southwest and their strength varies according to the wind.</p> <p>The natural processes at the coast help to shape it - mainly the waves.</p> <p>Example of simple ideas: The beach is made up of sand and the waves make this. Not everything on the beach is the same size. It is flat in the picture.</p>

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Appendix 1**Spelling, punctuation and grammar and the use of specialist terminology (SPaG) assessment grid**

<i>High performance 3 marks</i>
<ul style="list-style-type: none"> • 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
<i>Intermediate performance 2 marks</i>
<ul style="list-style-type: none"> • 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
<i>Threshold performance 1 mark</i>
<ul style="list-style-type: none"> • 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
<i>0 marks</i>
<ul style="list-style-type: none"> • 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

Awarding Spelling, Punctuation and Grammar and the use of specialist terminology to scripts with a scribe cover sheet

- a. If a script has a **scribe cover sheet** it is vital to check which boxes are ticked and award as per the instructions and grid below:
- Assess the work for SPaG in accordance with the normal marking criteria. The initial assessment must be made as if the candidate had not used a scribe and was eligible for all the SPaG marks.
 - Check the cover sheet to see what has been dictated and therefore what proportion of marks is available to the candidate.
 - Convert the SPaG mark to reflect the correct proportion using the conversion table given below.

SPaG mark awarded	Mark if candidate eligible for one third (e.g. grammar only)	Mark if candidate eligible for two thirds (e.g. grammar and punctuation only)
0	0	0
1	0	1
2	1	1
3	1	2

Word processed scripts

- If a script has a **word processor cover sheet** attached to it, the candidate **can** still access SPaG marks unless the cover sheet states that the checking functionality is enabled, in which case no SPaG marks are available.
- If you have any queries please contact the OCR Special Requirements Team at srteam@ocr.org.uk

Other

If the script has a **transcript, Oral Language Modifier, Sign Language Interpreter** or a **Practical Assistant cover sheet**, award SPaG as normal.