GCSE

Geography B Geography for Enquiring Minds

J384/01: Our natural world

General Certificate of Secondary Education

Mark Scheme for June 2024

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of candidates of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, Cambridge Nationals, Cambridge Technicals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

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.

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 5 PRACTICE AND 5 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.

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:
    a. **To determine the level** – start at the highest level and work down until you reach the level that matches the answer
    b. **To determine the mark within the level**, consider the following

Descriptor	Award mark
On the borderline of this level and the one below	At bottom of level
Just enough achievement on balance for this level	Above bottom and either below middle or at middle of level (depending on number of marks available)
Meets the criteria but with some slight inconsistency	Above middle and either below top of level or at middle of level (depending on number of marks available)
Consistently meets the criteria for this level	At top of level

11. **Annotations**

Annotation	Meaning
BP	Blank page – the annotation must be used on all blank pages within an answer booklet (structured or unstructured) and on each page of an additional object where there is no candidate response
	Correct response
	Incorrect response
	Unclear
^	Information omitted
L1	Level 1
L2	Level 2
L3	Level 3
DEV	Development
PLC	Relevant place detail
BOD	Benefit of doubt
IRRL	Significant amount of material which doesn't answer the question
	Extendable vertical wavy line
C	Communicate findings
SEEN	Noted but no credit given

12. Subject Specific Marking Instructions

INTRODUCTION

Your first task as an Examiner is to become thoroughly familiar with the material on which the examination depends. This material includes:

- the specification, especially the assessment objectives
- the question paper and its rubrics
- the mark scheme.

You should ensure that you have copies of these materials.

You should ensure also that you are familiar with the administrative procedures related to the marking process. These are set out in the OCR booklet **Instructions for Examiners**. If you are examining for the first time, please read carefully **Appendix 5 Introduction to Script Marking: Notes for New Examiners**.

Please ask for help or guidance whenever you need it. Your first point of contact is your Team Leader.

USING THE MARK SCHEME

Please study this Mark Scheme carefully. The Mark Scheme is an integral part of the process that begins with the setting of the question paper and ends with the awarding of grades. Question papers and Mark Schemes are developed in association with each other so that issues of differentiation and positive achievement can be addressed from the very start.

This Mark Scheme is a working document; it is not exhaustive; it does not provide 'correct' answers. The Mark Scheme can only provide 'best guesses' about how the question will work out, and it is subject to revision after we have looked at a wide range of scripts.

Please read carefully all the scripts in your allocation and make every effort to look positively for achievement throughout the ability range. Always be prepared to use the full range of marks.

LEVELS OF RESPONSE QUESTIONS:

The indicative content indicates the expected parameters for candidates' answers but be prepared to recognise and credit unexpected approaches where they show relevance.

Using 'best-fit', decide first which set of level descriptors best describes the overall quality of the answer. Once the level is located, adjust the mark concentrating on features of the answer which make it stronger or weaker following the guidelines for refinement.

Highest mark: If clear evidence of all the qualities in the level descriptors is shown, the HIGHEST Mark should be awarded.

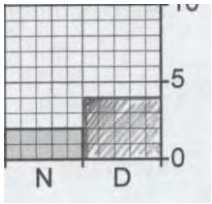
Lowest mark: If the answer shows the candidate to be borderline (i.e. they have achieved all the qualities of the levels below and show limited evidence of meeting the criteria of the level in question) the LOWEST mark should be awarded.

Middle mark: This mark should be used for candidates who are secure in the level. They are not 'borderline' but they have only achieved some of the qualities in the level descriptors.

Be prepared to use the full range of marks. Do not reserve (e.g.) highest level marks 'in case' something turns up of a quality you have not yet seen. If an answer gives clear evidence of the qualities described in the level descriptors, reward appropriately.

	AO1	AO2	AO3
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.
Thorough	A range of accurate knowledge that is relevant to the question.	A range of 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.
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 some relevant knowledge and understanding. Some accuracy in analysis through the application of some relevant knowledge and understanding. Partially supported evaluation through the application of some relevant knowledge and understanding. Partially supported judgement through the application of some relevant knowledge and understanding.
Basic	Limited knowledge that is relevant to the topic or question.	Limited understanding that is relevant to the topic or question.	Limited accuracy in interpretation through lack of application of relevant knowledge and understanding. Limited accuracy in analysis through lack of application of relevant knowledge and understanding. Un-supported evaluation through lack of application of knowledge and understanding. Un-supported judgement through lack of application of knowledge and understanding.

12.

Question			Answer	Mark	Guidance
1	(a)	(i)	 40mm (✓)	1	The bar does not need to be shaded. The bar does not need to cover the whole width.
1	(a)	(ii)	**B** hot and dry (✓)	1	
1	(a)	(iii)	Rainfall: Location B has a greater total rainfall/ is wetter/ Location A has a lower total rainfall/ is drier (✓). The monthly rainfall in Location B is always above (✓) 150 mm each month whereas in Location A it is always below 50 mm (✓). Temperature Location A and B are both hot/ warm (✓). Location A and B both have the same maximum temperature (✓) of 28°C (✓). The temperature in Location B fluctuates less (✓). Location A has a greater temperature range (✓) with A equalling 16°, whilst B is 3° (✓). B doesn't go below 25°C whereas A drops further (✓) to 12°C (✓).	4	4 x (✓) Credit each valid comparison. Data used to exemplify the comparison should also be credited. Must include a comparison of rainfall and temperature to award the maximum mark. Max 3 with no data. Do not credit Statements about summer and winter Do not double credit inverse ideas.

Question			Answer	Mark	Guidance
			Location A has seasonal variations, Location B does not (✓).		
1	(a)	(iv)	Wind speed/ direction/ duration Amount of sunshine Air pressure Humidity Frequency of flooding/ drought/ number of storms Latitude Altitude Amount of snow/ number of days of snow	1	Do not credit wind, sunshine, snow without further qualification. Only credit the first answer.

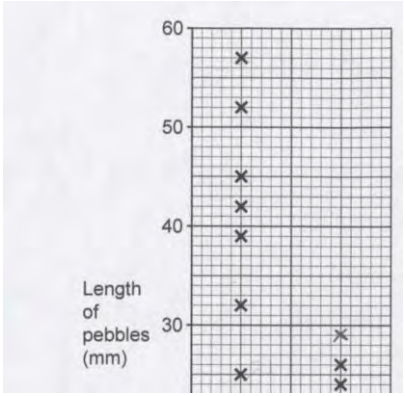
1	(b)		**Case study – natural weather hazard event** **Level 3 (5-6 marks)** An answer at this level demonstrates **thorough** knowledge of the responses to the chosen weather hazard (AO1) and a **thorough** understanding of those responses (AO2). This will be shown by including **well-developed** ideas about a range of responses. The answer must also include place-specific details for the named natural weather hazard event. Amount of relevant place-specific detail determines credit within level. **Level 2 (3-4 marks)** An answer at this level demonstrates **reasonable** knowledge of the responses to the chosen weather hazard (AO1) and a **reasonable** understanding of those responses (AO2). This will be shown by including **developed** ideas about some of the responses. Developed ideas but no place-specific details credited up to **bottom** of level. **Level 1 (1-2 marks)** An answer at this level demonstrates **basic** knowledge of the responses to the chosen weather hazard (AO1) and/ or a **basic** understanding of those responses (AO2). This will be shown by including **simple** ideas about the response(s) to the hazard. Simple ideas or appropriate named example only credited at **bottom** of level.	6	**Indicative content** Answer will depend upon the hazard chosen; likely to be flash flood/ tropical storm/ heatwave/ drought. Responses may include short-term evacuation, rescue and relief as well as longer-term rehabilitation and reconstruction or long-term improvements to preparation for future events. Example of a **well-developed** idea The airport in Tacloban re-opened three days after Typhoon Haiyan hit the city. This allowed emergency aid to arrive with 1 million food packs and 250,000 litres of water being distributed within the first two weeks. This helped to provide aid until larger ships could arrive in the area with HMS Illustrious bringing 500 tonnes of aid two weeks after the typhoon. Example of a **developed** idea Tacloban airport was reopened quickly after Typhoon Haiyan hit the city so that 1 million food packs and 250,000 litres of water could be distributed. Countries sent warships to provide more aid but they took more time to arrive. Example of a **simple** idea The airport was opened. Food and water could be distributed. Ships brought more aid later. Explanations of UK weather or tectonic hazards are limited to Level 2 – 3 marks. To be an appropriately named non-UK weather hazard it needs to be named or have a year (Typhoon Haiyan, Pakistan Flood – 2022).

			0 marks No response worthy of credit.		

Question			Answer	Mark	Guidance
2	(a)		Processes **not** caused by humans (✓) (that cause the Earth's climate to warm/cool). (Climate change that is natural) and not caused by people (✓). Changes to the Earth's climate that are caused by sunspots, volcanoes, or Milankovitch Cycles (✓).	1	No credit for repeat of the word 'natural' or the use of the word cycles or activities without further qualification.
2	(b)	(i)	4 m (✓)	1	Credit -4m Do not credit 4km
2	(b)	(ii)	3.5 km (✓)	1	No tolerance Do not credit 3.5cm or 3.5m
2	(b)	(iii)	Sea level rise (✓) could permanently flood low-lying coastal areas (DEV) which could mean people/ communities have to move to higher ground (DEV). Increased frequency of cyclones (✓) could cause coastal flooding (DEV) which could cause deaths. (DEV). Coastal erosion (✓) could reduce the land area of low-lying coasts (DEV) reducing area for homes/ farming/ food production (DEV). Changing rainfall patterns (✓) could threaten agricultural production (DEV) and flood people's houses. (DEV).	3	1 x (✓) and 2 x (DEV) Do not credit explanations of how climate change will lead to a rise in sea levels such as the melting of glaciers. Only credit the first environmental impact. Do not credit Wildlife, food chains, habitats Sinking islands Islands are destroyed, impacts or effects without further qualification.

Question			Answer	Mark	Guidance
2	(c)	(i)	**C** 45% (✓)	1	

2	(c)	(ii)	**Level 3 (5-6 marks)** An answer at this level demonstrates **thorough** knowledge of the theory that volcanic eruptions cause natural climate change (AO1) and a **thorough** understanding of how this occurs (AO2). This will be shown by including **well-developed** ideas about the theory. The response is clear and logically structured. The information presented is relevant and substantiated. **Level 2 (3-4 marks)** An answer at this level demonstrates **reasonable** knowledge of the theory that volcanic eruptions cause natural climate change (AO1) and a **reasonable** understanding of how this occurs (AO2). This will be shown by including **developed** ideas about the theory. 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 of the theory that volcanic eruptions cause natural climate change (AO1) and/ or a **basic** understanding of how this occurs (AO2). This will be shown by including **simple** ideas about the theory. 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. **0 marks** No response worthy of credit.	6	**Indicative content** Large volcanic eruptions release sulphur gases into the upper atmosphere, forming tiny (sulphate) aerosol particles that reflect sunlight back into space. This has a cooling effect on the earth's lower atmosphere. Volcanic eruptions release carbon dioxide into the atmosphere, however, over the past 200 years, this has had a very limited influence on global warming. Absorption or reflection of solar radiation is the key to the explanation. Example of a **well-developed** idea Volcanic eruptions release large amounts of carbon dioxide into the atmosphere, increasing the overall concentration. Carbon dioxide is a greenhouse gas that absorbs longwave radiation and reduces the amount of radiation that escapes into space. This leads to the temperature of the atmosphere increasing and causing the climate to change naturally. Example of a **developed** idea Volcanic eruptions release carbon dioxide into the atmosphere. This absorbs radiation from the sun so the atmosphere heats up and causes natural climate change. Example of a **simple** idea Volcanoes release carbon dioxide. The atmosphere heats up.

Question			Answer	Mark	Guidance
3	(a)	(i)	29 correctly plotted for Site 2 (✓)  	1	The centre of the cross should not touch the 28 or 30 lines. The mark does not need to be a cross. Do not credit if plotted in the wrong column.
3	(a)	(ii)	**C** 32 (✓)	1	
3	(a)	(iii)	Range Inter-Quartile range	1	
3	(b)	(i)	Arrow should point from left to right along the shoreline. One arrow can point up the beach from the bottom left (swash) with a second arrow perpendicular to the coastline (backwash).	1	The arrow needs to be between 45 degrees and 105 degrees.

3	**(b)**	**(ii)**	Compass rose, Scale Direction of (prevailing) wind, Location. Geology (of the cliff) Height of the groyne/ depth of sediment/ groyne profile Width of the beach. Length of the groyne. Direction of swash/ backwash Rate of erosion Type/ direction of wave High/ low tide mark Size/ roundness/ type of beach material The speed the sediment moves at	1	Do not credit labels without further qualification.

3	(c)		**CASE STUDY – a UK coastal landscape** **Level 3 (6-8 marks)** An answer at this level demonstrates **thorough** knowledge of how geology influences geomorphological processes at the coast (AO1) and a **thorough** analysis of how and why specific coastal landforms result and a judgement on the importance of geology (AO3). This will be shown by including **well-developed** ideas about a range of coastal landforms and how geology has influenced their formation. The answer must also include place-specific details for the named coastal landscape. Amount of relevant place-specific detail determines credit within level. **Level 2 (3-5 marks)** An answer at this level demonstrates **reasonable** knowledge of how geology influences geomorphological processes at the coast (AO1) and a **reasonable** analysis of how any why specific coastal landforms result and a judgement on the importance of geology (AO3). This will be shown by including **developed** ideas about coastal landforms and how geology has influenced their formation. Developed ideas but no place-specific details credited up to **bottom** of level. **Level 1 (1-2 marks)** An answer at this level demonstrates a **basic** knowledge of how geology influences geomorphological processes at the coast (AO1) and a **basic** analysis of how and why specific coastal landforms result and a judgement on the importance of geology (AO3). This will be shown by including **simple** ideas coastal landforms and how geology has influenced their formation. Simple ideas or appropriate named example only credited at **bottom** of level.	8	**Indicative content** Candidates could refer to the resistance of different rock types, the presence of joints and cracks, concordant or discordant coastlines, permeability, or the dip of bedding planes. This then needs to link to the impact on processes, likely to be the rate of erosion and weathering, and finally relate those to the creation of landforms such as cliffs, headlands/ bays, cave/ arch/ stack/ stump, cliffs/wave-cut platforms. Analysis can be implied by commenting on the rate of change Example of a **well-developed** idea Swanage Bay is formed by a band of weak rock (clay and sands) surrounded to the north by the resistant chalks of Ballard Point and to the south by the limestone of Durlston Head, which erode more slowly than the clays and sands forming two protruding headlands on either side of a more rapidly eroding bay. This shows that geology is very important as if the coast was made of rocks with the same resistance the landform could not form. Example of a **developed** idea Swanage Bay is made of clay with bands of harder chalk and limestone on either side of it. This is important as the hard and soft rocks erode at different rates with the soft rocks eroding more quickly to form a bay whilst the harder rock form headlands. Example of a **simple** idea Rock strength is important as bands of hard and soft rocks erode at different rates.

			0 marks No response worthy of credit.		Max Level 2 – 3 marks for a river case study/ non UK coastal landscape.

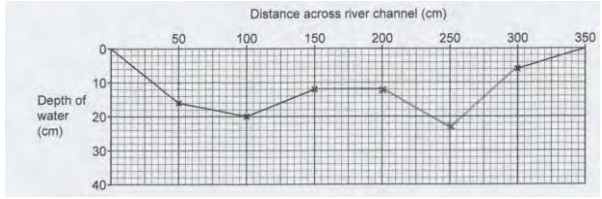
Question			Answer	Mark	Guidance
4	(a)		Features Drip tip/ pointed leaf shape (✓) Waxy/ shiny coating on leaf (✓) Slits in leaves (✓) Large leaves/ large number of leaves/ broad leaves/ long leaves/ wide leaves/ large surface area. (✓) Dark Green (✓) Long stems (✓) Purpose To help water run off/ makes it easier for water to run off (DEV) For wind/water to pass through the slits to reduce wind damage/water accumulation (DEV) To maximise the rate of photosynthesis/ amount of sunlight absorbed (DEV) To stop fungi growing on the leaf surface (DEV). To reduce the rates of water loss/ transpiration (DEV).	3	Only credit ideas on feature that can be seen in the photograph. 2 x (✓) and 1 x (DEV) Do not credit, Green Thick leaves/ stems Leaves funnel water to the roots Only credit a purpose linked to a correctly identified feature.
4	(b)	(i)	A Iron oxides are present which are red	1	
4	(b)	(ii)	Large amount of/ rapid/ constant/ continuous/ year-round leaf fall (✓). Rapid decomposition/ lots of decomposition (✓). Humid conditions (✓). Rapid nutrient recycling (✓). Large numbers of detritivores/ decomposers/ fungi (✓).	1	1 x (✓) Ensure that the candidate is explaining why the upper part of the soil profile is nutrient rich (speed of decomposition/ volume of nutrients) and not just describing what happens in any nutrient cycle.

4	**(b)**	**(iii)**	Deforestation would mean no leaf fall (✓) so no decomposition/ no nutrient recycling (DEV) so no fertile layer (DEV). Digging/ farming loosens the topsoil (✓) so it can be more easily washed away (DEV). Removal of vegetation may lead to leaching (✓) so soil becomes infertile (DEV). Deforestation exposes the soil to increased sunlight (✓) so it can dry out more easily (DEV). Mining can wash away the upper part of the soil profile (✓) leading to the increased sediment in the rivers (DEV).	2	(✓) (DEV) Credit can only be awarded for this question if an appropriate human activity is stated. Allow positive or negative impacts. Do not credit tourists causing footpath erosion. Do not credit soil being damaged/ degraded without further qualification about the type of damage that has been done to the soil.

4	(c)		**CASE STUDY – sustainable management of an area of tropical rainforest** **Level 3 (5-6 marks)** An answer at this level demonstrates **thorough** knowledge of one sustainable management example in an area of tropical rainforest (AO1) and a **thorough** evaluation of the effectiveness of that sustainable management (AO3). This will be shown by including **well-developed** ideas about the sustainable rainforest management. The answer must also include place-specific details for a named location where sustainable management is taking place. Amount of relevant place-specific detail determines credit within level. **Level 2 (3-4 marks)** An answer at this level demonstrates **reasonable** knowledge of one sustainable management example in an area of tropical rainforest (AO1) and a **reasonable** evaluation of the effectiveness of that sustainable management (AO3). This will be shown by including **developed** ideas about the sustainable rainforest management. Developed ideas but no place-specific details credited up to **bottom** of level. **Level 1 (1-2 marks)** An answer at this level demonstrates **basic** knowledge of one sustainable management example in an area of tropical rainforest (AO1) and a **basic** evaluation of the effectiveness of that sustainable management (AO3). This will be shown by including **simple** ideas about the sustainable rainforest management. Simple ideas or appropriate named example only credited at **bottom** of level.	6	**Indicative content** One attempt to sustainably manage the rainforest may include a range of strategies under the wider concept of Ecotourism, Community programmes, Biosphere reserves or Sustainable forestry. Examples of **well-developed** ideas: The Samasati Nature Retreat in Costa Rica is environmentally sustainable because trees are protected by constructing lodges between them to minimise the habitat destruction with afforestation projects used to provide locally sourced timber. This is successful as it reduces deforestation. It is economically sustainable as local people are employed at the retreat so that the local community benefit from the wages earned and can enjoy a higher quality of life. This makes the rainforest more valuable standing up than cut down. Examples of **developed** ideas: The Samasati Nature Retreat in Costa Rica uses sustainable techniques to help manage the rainforest. Trees are protected by constructing lodges between them, so they are not cut down and habitats protected. Local people are employed at the retreat so that the local community benefit and value the rainforest. Examples of **simple** ideas: Lodges are built in gaps in the trees. This is good as it helps to protect the animals. Max L2 (3 marks) for a polar case study.

			0 marks No response worthy of credit.		

Question			Answer	Mark	Guidance
5	(a)		Present data/ create a graph (✓) Use secondary data (✓) Analysing the data/ calculate a mean (✓) Writing conclusions/ (dis)prove the hypothesis (✓) Reviewing/evaluating the investigation (✓)	2	2 x (✓) The steps must follow the fieldwork step. Do not credit more measuring repeating the measurement to calculate a mean as this is two separate ideas and the list rule applies (Page 6).

5	**(b)**		I could have used a ruler when drawing my bar chart (✓) as this would have made my graph more accurate (DEV). I could have drawn located proportional symbols on a map (rather than a bar chart) (✓) as this would have let me see the results more easily (DEV). I could have selected a more appropriate scale for my line graph (✓) as this would have made it easier to read (DEV). By using a pie chart (✓) (instead of a bar graph) as it would have displayed the proportions of each variable more clearly (DEV). I drew a bar graph of the river depth, but a line graph (✓) would have been better as it is a visual representation of the riverbed (DEV). We could have added the size of pebbles to our beach profile (✓) to show how they varied at each change of angle (DEV). Adding colour to the graph (✓) would highlight the differences more clearly (DEV).	2	(✓) for identifying the improvement (DEV) for explaining why this would be an improvement.
5	**(c)**	**(i)**		2	(✓) for plotting both points correctly. (✓) for joining the plots with a ruler. The centre of each cross should not touch the line above or below it. The point does not need to be a cross.

5	**(c)**	**(ii)**	C 16cm	1	(✓)

5	(c)	(iii)	**Level 3 (6–8 marks)** The answer must include a **thorough** analysis of the methods used to collect the primary data (AO3) with a **thorough** evaluation of how the method could be improved (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)** The answer must include a **reasonable** analysis of the methods used to collect the primary data (AO3) with a **reasonable** evaluation of how the method could be improved (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 evidence. **Level 1 (1–2 marks)** The answer must include a **simple** analysis of the methods used to collect the primary data (AO3) with a **simple** evaluation of how the method could be improved (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 may not be clear. **0 marks** No response worthy of credit.	8	Indicative content: Answer can refer to any element of the data collection which would make the data more precise (accurate) or more representative (reliable). **Example of well-developed ideas** The method could be made more accurate by locating the ranging poles where the water meets the banks of the river. This means that the measuring tape will be closer to the water level so the meter stick is more likely to be perpendicular and the reading will be more precise, as the reading will be closer to the real distance. The method could also be more reliable by repeating the study at different times. The volume of water in rivers can change quickly and therefore a one-off measurement may not be representative of the flow of the river. **Example of developed ideas** The method could have been made more accurate by locating the ranging poles closer to the edge of the water. This means that the measuring tape would be in a more suitable place so you can make more accurate readings. Repeating the study at different times means that the data may be more representative. **Example of simple ideas** The method could be more accurate if the poles were located on the edge of the water. Do not credit the idea of secondary data as this is not the student's own data collection.

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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