Oxford Cambridge and RSA

Accredited

GCSE (9–1) Geography B (Geography for Enquiring Minds)

J384/01 Our Natural World

Sample Resource Booklet for Summer 2022 only
Please ensure you have referred to the Changes for 2022 qualification web page

Version 1.2

Time allowed: 1 hour

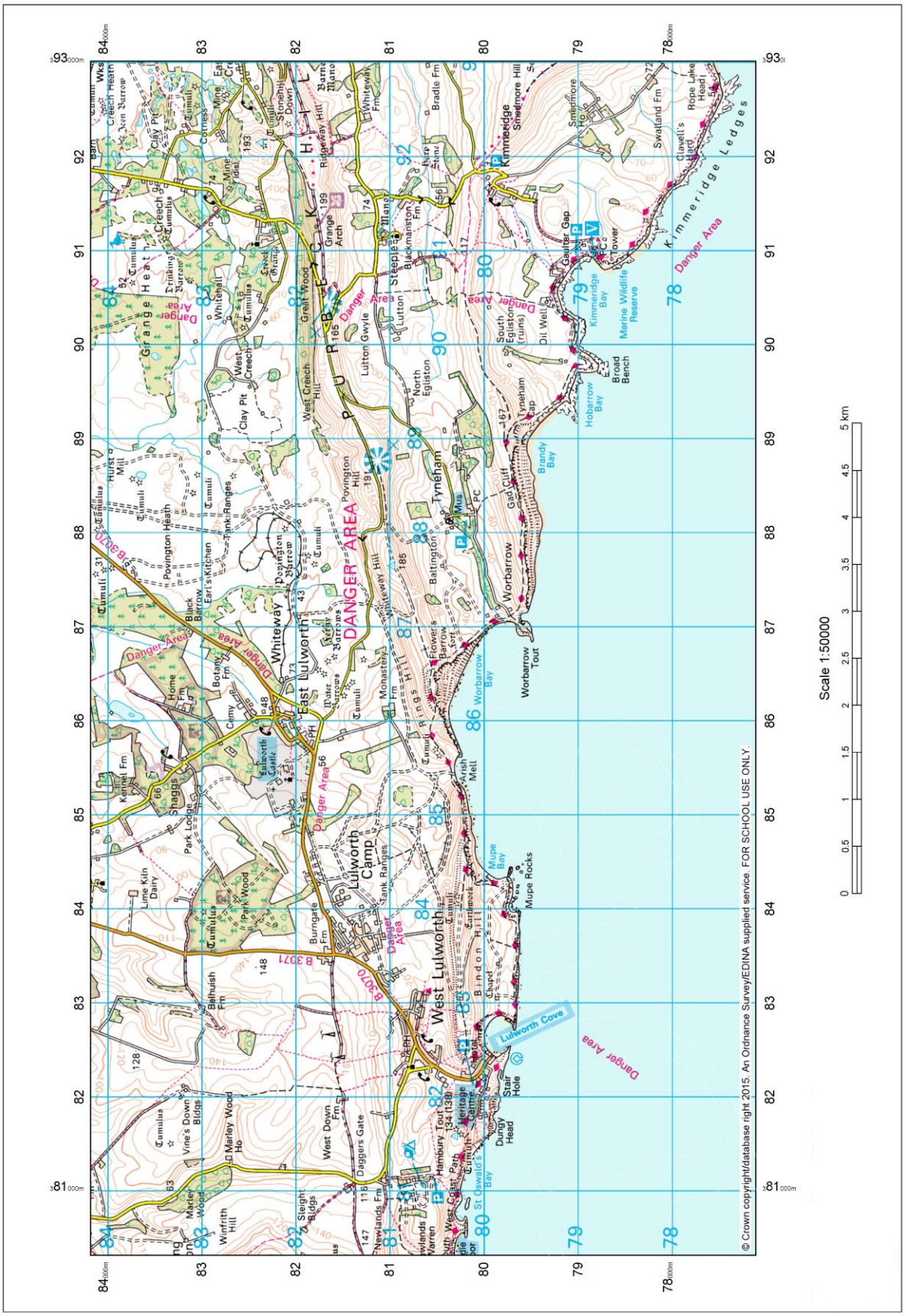
INSTRUCTIONS FOR CANDIDATES

- Do **not** send this Resource Booklet for marking. Keep it in the centre or recycle it.

INFORMATION TO EXAMS OFFICER/INVIGILATOR

- This document consists of **8** pages.

Fig. 1 An OS map extract showing part of the South coast of England.

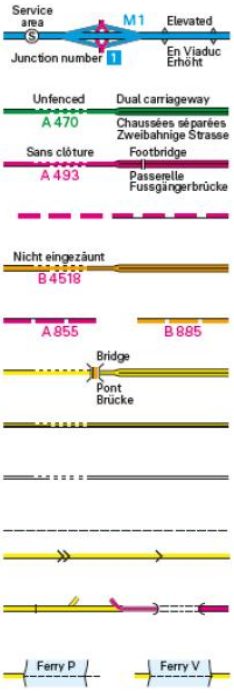


Ordnance Survey

OS Landranger / 1:50 000 Scale Colour Raster

Communications

ROADS AND PATHS — VOIES DE COMMUNICATION — STRASSEN UND WEGE



Not necessarily rights of way

Motorway (dual carriageway)
Autoroute (chaussées séparées) avec aire de service et échangeur numéroté
Autobahn (zweibahnig) mit Servicestation und Anschlussstelle sowie Nummer der Anschlussstelle

Primary Route
Itinéraire principal
Fernstrasse

Primary routes form a network of recommended through routes which complement the motorway system

Main road
Route principale
Hauptstrasse

Road under construction
Route en construction
Strasse im Bau

Secondary road
Route secondaire
Nebenstrasse

Narrow road with passing places
Route étroite avec voies de dépassement
Enge Strasse mit Ausweichstellen

Road generally more than 4m wide
Route généralement de plus de 4m de largeur
Strasse, im allg.über 4m breit

Road generally less than 4m wide
Route généralement de moins de 4m de largeur
Strasse, im allg.unter 4m breit

Other road, drive or track
Autre route, allée ou sentier
Sonstige Strasse, Zufahrt oder Feldweg

Path — Sentier — Fussweg

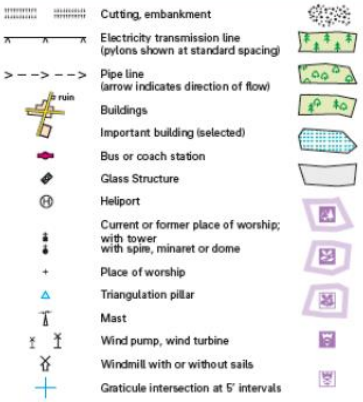
Gradient: steeper than 20% (1 in 5), 14% to 20% (1 in 7 to 1 in 5)
Pente: Supérieure à 20% (1 pour 5), 14% à 20% (1 pour 7 à 1 pour 5)
Steigung über 20%, 14% bis 20%

Gates — Barrières — Schranken
Road tunnel — Tunnel routier — Strassentunnel

Ferry (passenger) — Bac pour piétons — Personenfähre
Ferry (vehicle) — Bac pour véhicules — Autofähre

General Information

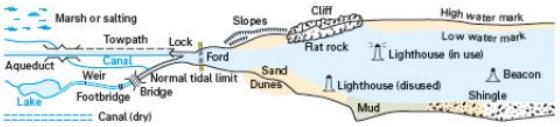
LAND FEATURES



Cutting, embankment
Electricity transmission line (pylons shown at standard spacing)
Pipe line (arrow indicates direction of flow)
Buildings
Important building (selected)
Bus or coach station
Glass Structure
Heliport
Current or former place of worship; with tower with spire, minaret or dome
Place of worship
Triangulation pillar
Mast
Wind pump, wind turbine
Windmill with or without sails
Graticule intersection at 5' intervals

Landfill site or slag/spoil heap
Coniferous wood
Non-coniferous wood
Mixed wood
Orchard
Park or ornamental ground
Forestry Commission land
National Trust-always open
National Trust-limited access, observe local signs
National Trust for Scotland - always open
National Trust for Scotland - limited access, observe local signs

WATER FEATURES — Contour values in lakes are in metres



HEIGHTS

Contours are at 10 metres vertical interval
Heights are to the nearest metre above mean sea level

Surface heights are to the nearest metre above mean sea level. Where two heights are shown, the first is the height of the natural ground in the location of the triangulation pillar, and the second (in brackets) to a separate point which is the highest natural summit.

Tourist Information

TOURIST INFORMATION — RENSEIGNEMENTS TOURISTIQUES — TOURISTENINFORMATION

Viewpoint
Point de vue
Aussichtspunkt

Visitor centre
Centre pour visiteurs
Besucherzentrum

Walks / Trails
Promenades
Wanderwege

Nature reserve
Réserve naturelle
Naturschutzgebiet

Parking
Parking
Parkplatz

Youth hostel
Auberge de jeunesse
Jugendherberge

Golf course or links
Terrain de golf
Golfplatz

Garden
Jardin
Garten

Camp site/caravan site
Terrain de camping/Terrain pour caravanes
Campingplatz/Wohnwagenplatz

Selected places of tourist interest
Endroits d'un intérêt touristique particulier
Ausgewählter Platz von touristischem Interesse

Information centre, all year / seasonal
Office de tourisme, ouvert toute l'année / en saison
Informationsbüro, ganzjährig / saisonal

Picnic site
Emplacement de pique-nique
Picknickplatz

Park & Ride, all year / seasonal
Parking et navette, ouvert toute l'année / en saison
Park & Ride, ganzjährig / saisonal

Telephone, public / roadside assistance
Téléphone, public/ borne d'appel d'urgence
Telefon, öffentlich / Notrufsäule

Recreation / leisure / sports centre
Centre de détente / loisirs / sports
Erholungs- / Freizeit- / Sportzentrum

World Heritage site/area
Site du Patrimoine Mondial
Welterbestätte

ABBREVIATIONS — See our website for full list

CH	Clubhouse	CG	Cattle grid
PH	Public house	P	Post office
PC	Public convenience (in rural area)	MP	Milepost
TH	Town hall, Guildhall or equivalent	MS	Milestone

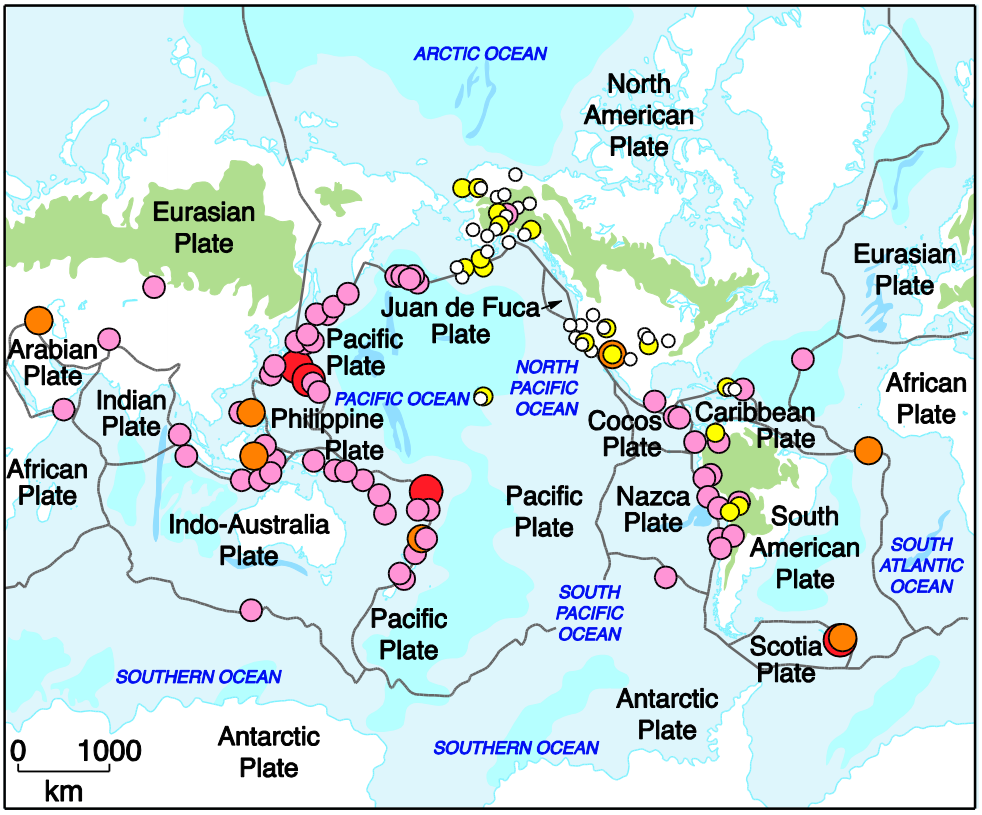
ARCHAEOLOGICAL AND HISTORICAL INFORMATION

Site of antiquity — VILLA Roman — Battlefield (with date)
Visible earthwork — Castle Non-Roman

Information provided by English Heritage for England and the Royal Commissions on the Ancient and Historical Monuments for Scotland and Wales

ROCK FEATURES

Fig. 2 A Geographical Information System (GIS) map showing earthquake hazard distribution



Key

Earthquake magnitude

- 2.50 – 3.37
- 3.38 – 4.25
- 4.26 – 5.13
- 5.14 – 6.01
- 6.02 – 6.90

Earth's Tectonic Plates

Fig. 3 A hot desert climate graph

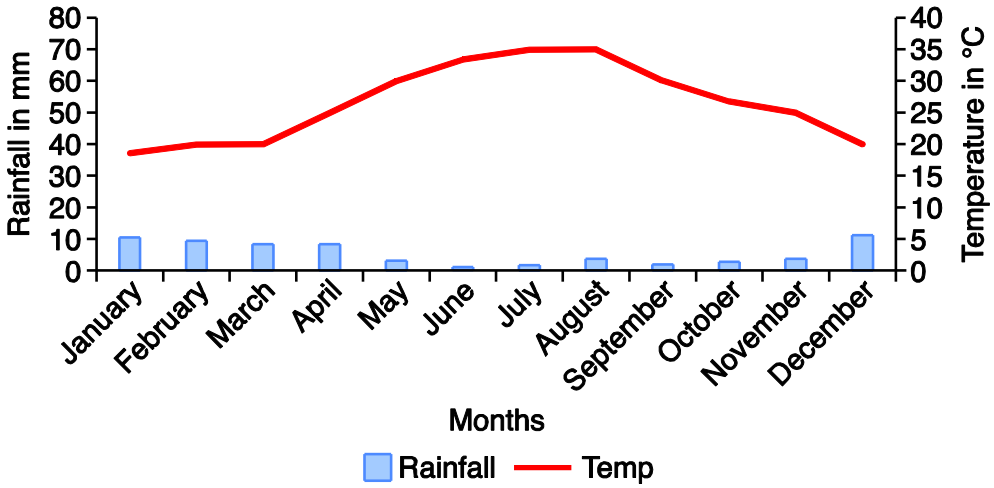
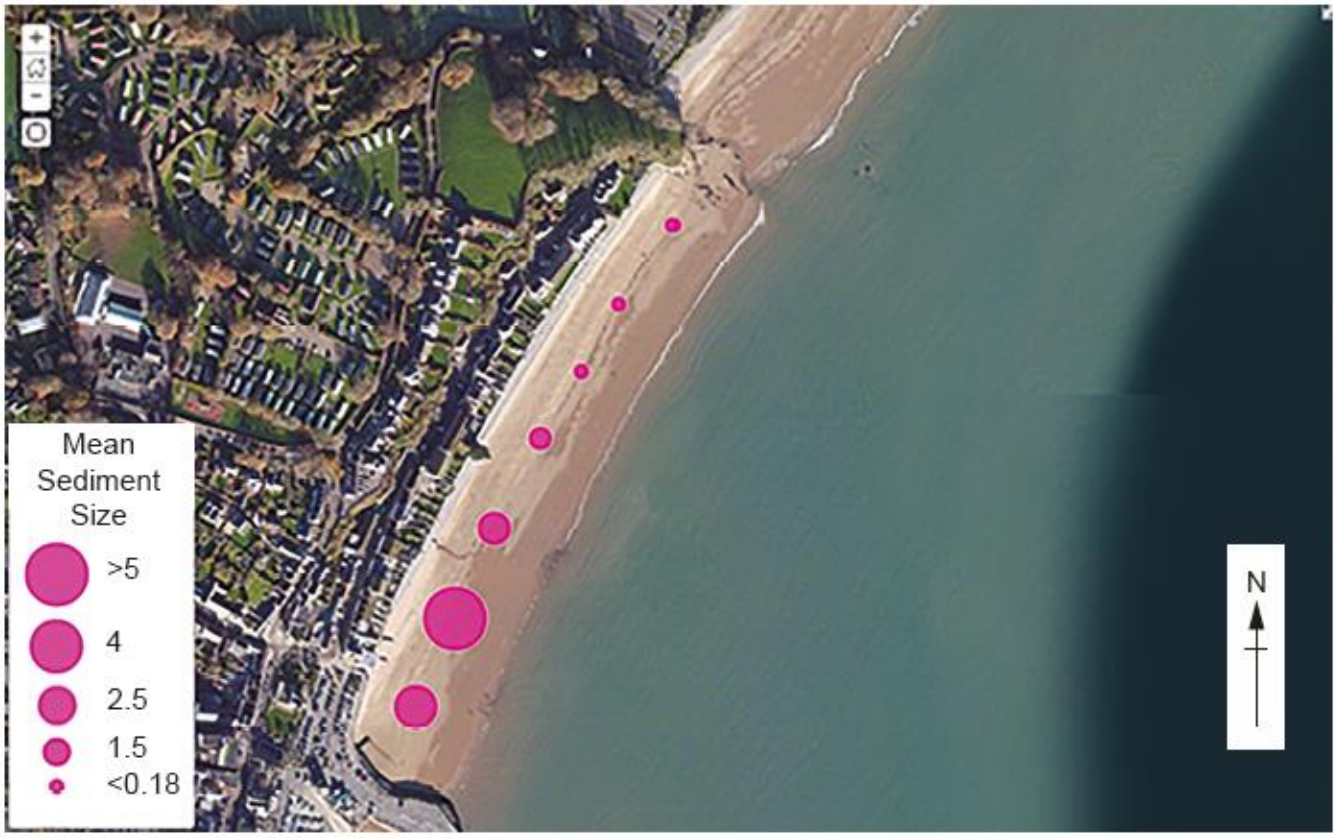


Fig. 4 Students' data presentation from physical geography fieldwork data



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Summary of updates

Date	Version	Details
July 2021	1.1	Updated copyright acknowledgements.
October 2021	1.2	Updated due to optionality

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GCSE (9–1) Geography B (Geography for Enquiring Minds)

J384/01 Our Natural World Version 1.2

Sample Question Paper for Summer 2022 only

Date – Morning/Afternoon

Time allowed: 1 hour

You must have:
- the Resource Booklet (inside this document)

You may use:
- a scientific or graphical calculator
- a ruler (cm/mm)

First name	
Last name	
Centre number	
Candidate number	

Changes for summer 2022 are highlighted in red below.

IMPORTANT – please note for the summer 2022 exam:
- The SPaG marks for this component may be in either Section A (the compulsory content questions) or Section B (the optional content questions). There will be no SPaG marks in Section C (the compulsory fieldwork questions).
- The physical fieldwork context is **rivers** and not coasts.

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 in Section A.
- Choose **one** option in Section B and answer **all** the questions for that option.
- Answer the questions in Section C.

INFORMATION
- The total mark for this paper is **49**.
- 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.

Section A

Answer **all** the questions.

Changing Climate

1 **(a)** Students were studying monthly temperature data to identify long term climate change.

Which average is best for them to use?

A Mean
B Median
C Modal class
D Mode

Write the correct letter in the box. ☐

[1]

(b) Compare the reliability of **two** sources of evidence of climate change.

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[4]

(c)* Assess whether the social impacts of climate change experienced in the UK in the 21st century are greater than the environmental impacts.

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[8]

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

Distinctive Landscapes

2 Study **Fig. 1** in the separate Resource Booklet, an OS map extract showing part of the South coast of England.

(a) **(i)** The straight line distance between Mupe Rocks (8479) and Worbarrow Tout (8679) is:

A 1600m
B 2000m
C 2400m
D 2800m

Write the correct letter in the box. ☐

[1]

(ii) The four-figure grid reference for the museum in Tyneham is:

A 8582
B 8781
C 8880
D 8979

Write the correct letter in the box. ☐

[1]

(b) Geographical Information Systems (GIS) can show many different kinds of data on one map, with each kind of data representing a new 'layer' of the map.

Suggest **one** extra layer which could be added to the OS map extract in **Fig. 1** making it more informative for a group of geography students using the area for a coastal study. Give a reason for your answer.

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[2]

(c) Explain the stages in the formation of an arch.

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[3]

(d) CASE STUDY – a river basin in the UK.

Name of river basin in the UK:

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Explain how human activity has influenced the geomorphic processes in this landscape.

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[6]

Section B

Choose **one** option answer **all** the questions for that option.

Option A – Global Hazards

3 **(a)** Describe what a hot spot is.

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[2]

(b) Study **Fig. 2** in the separate Resource Booklet**,** a Geographical Information System (GIS) map showing earthquake hazard distribution.

Using data from **Fig. 2**, describe the pattern of earthquake distribution.

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[4]

(c) Study the table below, showing the total and average number of tropical storms in the USA (1851–2013).

Month	Total number of tropical storms	Average number of tropical storms
January	2	-
February	1	-
March	1	-
April	1	-
May	20	0.1
June	86	0.5
July	116	0.7
August	373	2.3
September	564	3.5
October	332	2.0
November	88	0.5
December	17	0.1

Select the most suitable graphical technique for presenting the total number of tropical storms column.

A Bar graph
B Climate graph
C Cross-section
D Rose chart

Write the correct letter in the box. ☐

[1]

(d) Extreme weather conditions vary in contrasting countries.

Discuss the differences in extreme weather conditions in contrasting countries.
You should develop your ideas fully.

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[6]

Option B – Sustaining Ecosystems

4 Study **Fig. 3** in the separate Resource Booklet, showing a hot desert climate graph.

(a) Describe the yearly temperature and rainfall patterns on the hot desert climate graph.

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[2]

(b) Which **two** statements best explain why the nutrient cycle of tropical rainforests is rapid?

1 Heavy rainfall washes away dead plant material
2 Nutrients are in high demand from the fast-growing plants
3 The forest floor conditions allow for quick decomposition of dead plant material
4 There is great biodiversity in tropical rainforests

A 1 and 2
B 1 and 4
C 2 and 3
D 3 and 4

Write the correct letter in the box. ☐

[1]

(c) Describe how tropical rainforests provide valuable services.

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[4]

(d) CASE STUDY – a small scale example of sustainable management in either the Arctic or Antarctic.

Evaluate the success of **one** small scale example of sustainable management in either the Arctic or Antarctic.

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[6]

Option C – Resource Reliance

5 **(a)** Which **two** statements best describe an ethical consumer?

1 Someone who does not consider the source of products they buy
2 Someone who always buys the cheapest products
3 Someone who chooses products made with minimal environmental damage
4 Someone who prefers to buy fairly traded food products

A 1 and 2
B 1 and 4
C 2 and 3
D 3 and 4

Write the correct letter in the box. ☐

[1]

(b) Describe what it means for a person to be food secure.

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[2]

(c) **CASE STUDY – Food security**

Explain how effective one attempt to achieve food security at a national scale has been.

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[4]

(d) Evaluate the success of **one** technological strategy to sustainably improve food security.

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[6]

Section C

Answer **all** the questions.

Physical Geography Fieldwork

5 **(a)** Study the table below, which shows the results of an investigation into longshore drift.

Groyne Number	Drop North side (cm)	Drop South side (cm)	Difference
1	27	41	14
2	31	51	20
3	28	44	16
4	25	39	14
5	32	54	22

Using data from the table, describe the pattern in the longshore drift data collected.

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…… **[4]**

(b) Study **Fig. 4** in the separate Resource Booklet, students' data presentation from physical geography fieldwork data.

A student had used GIS to present their findings on changes in beach sediment size along the shore.

Suggest what **Fig. 4** indicates about the pattern of beach sediment size along the shore.

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…… **[2]**

(c) State one way you could adapt **Fig. 4** to make it more informative.

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…… **[1]**

END OF QUESTION PAPER

ADDITIONAL ANSWER SPACE

If you use this lined space to complete the answer to any question(s), the question number(s) **must** be clearly shown.

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OCR
Oxford Cambridge and RSA

…day June 20XX – Morning/Afternoon

GCSE (9–1) Geography B (Geography for Enquiring Minds)

J384/01 Our Natural World

SAMPLE MARK SCHEME

Duration: 1 hour

MAXIMUM MARK 49

This document consists of 23 pages

MARKING INSTRUCTIONS

PREPARATION FOR MARKING

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 **required number** of standardisation responses.

   YOU MUST MARK 5 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% deadlines. If you experience problems, you must contact your Team Leader without delay.

4. If you are in any doubt about applying the mark scheme, consult your Team Leader by telephone, email or via the *RM assessor* messaging system.

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 scoris **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 telephone, email or the scoris messaging system.

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

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.

Question			Answer	Marks	Guidance
1	(a)		A: Mean (✓)	1	(✓)
	(b)		Historical records (✓) and ice cores (✓) are two sources of evidence of climate change. Historical records may be less reliable than ice cores as they are handwritten or drawn based on one person's interpretation (DEV) without the use of modern thermometers (DEV) Examples of other possible data/evidence: Sea ice positions (✓) Global temperature change (✓) Paintings (✓) Diaries (✓)	4	Answer given will depend on type of data/evidence for climate change chosen 2 x 1 (✓) reserved for types of data/evidence for climate change 2 x 1 (DEV) for comparing the reliability of data i.e. glacial/interglacial cycles = natural process, need a range of data to support, level of glacial retreat, ice sheet depletion, global temperature variances Comparison must be related to reliability
	(c)*		**Level 3 (6–8 marks)** An answer at this level demonstrates **thorough** understanding of the social and environmental impacts of climate change experienced in the UK in the 21st century (AO2) and **thorough** analysis of whether the social impacts are greater than the environmental impacts (AO3). This will be shown by including **well-developed** ideas about the social and environmental impacts of climate change experienced in the UK in the 21st century and which are greater. There is a **well-developed** line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.	8	**Indicative content** Social impacts could include: Tourist industry boom as more people holiday at home due to warmer weather in the UK Farmers can grow different varieties of crops such as grapes as the UK experiences warmer weather Decrease in cold related deaths over winter Increased pressure on the NHS from patients developing heat related illnesses. Increased flooding leading to homelessness, deaths, anxiety, depression Extreme weather events causing damage to homes, drought, water shortages, dehydration, hose pipe bans and loss of communications Effects on farming impacting livelihoods, price of goods and availability of products and food security. Effects on fishing impacting livelihoods, price of goods

Question			Answer	Marks	Guidance
			Level 2 (3–5 marks) An answer at this level demonstrates **reasonable** understanding of the social and environmental impacts of climate change experienced in the UK in the 21st century (AO2) and **reasonable** analysis of whether the social impacts are greater than the environmental impacts (AO3). This will be shown by including **developed** ideas about the social and environmental impacts of climate change experienced in the UK in the 21st century and which are greater. 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** understanding of the social and environmental impacts of climate change experienced in the UK in the 21st century (AO2) and **basic** analysis of whether the social impacts are greater than the environmental impacts (AO3). This will be shown by including **simple** ideas about the social and environmental impacts of climate change experienced in the UK in the 21st century and which are greater. No developed points are made. 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.		Environmental impacts could include: For UK wildlife warmer temperatures could increase survival rates for offspring born in winter Habitats may come under increasing pressure including salt marsh threatened by sea-level rise to beech woodland susceptible to summer droughts Increased extreme storm and flood events Encroachment of sea through rising sea levels Accelerated coastal erosion Extremes in weather conditions (higher summer temperatures, heat waves, higher average winter precipitation, decrease in summer precipitation) Examples of **well-developed** ideas: The social impacts of climate change experienced in the UK in the 21st century have mainly been a consequence of environmental impacts and so could be considered greater. More precipitation in the winter and more chance of extreme storm conditions at all times bring an increased risk of flooding. This would mean people may become isolated from amenities and unable to get food supplies or to their place of work or even have to leave their homes or be rescued. As social impacts exacerbate to the environmental ones, they increase the impact felt and so can be considered greater. Examples of **developed** ideas: Most of the social impacts experienced in the UK make the environmental impacts worse. There are more extreme storms and this can lead to more flooding as there is more precipitation. When it floods then people cannot get to work, school or do the shopping and some even have to move out of their homes. This is worse than just flooding happening and so it is a greater impact.

Question			Answer	Marks	Guidance
			0 marks No response worthy of credit.		Examples of **simple** ideas: Social impacts mostly happen after an environmental impact and make them worse, like when people have to leave their homes after a flood.
		✎	Spelling, punctuation and grammar and the use of specialist terminology (SPaG) are assessed using the separate marking grid in Appendix 1.	**3**	

Question			Answer	Marks	Guidance
2	(a)	(i)	C: 2400	1	(✓)
		(ii)	C: 8880	1	(✓)
	(b)		Possible suggestions: Geology (✓) so they can plan which sites to visit depending on their fieldwork title (DEV) Youth hostels/accommodation (✓) so they can plan a route for fieldwork investigations starting from their accommodation (DEV) Public transport information (✓) so they can plan travel to and from the area (DEV) Coastal management zones/techniques (✓) so they can decide which section of the coastline to sample (DEV)	2	1 x 1 (✓) for layer suggested 1 x 1 (DEV) for reason Do not accept symbols already used on the map
	(c)		Waves attack vertical lines of weakness in the headland until a crack forms by hydraulic action (✓) The crack continues to expand until it becomes a cave (✓) The rock continues to erode until the cave breaks through the headland to form an arch (✓)	3	3 x 1 (✓) for each valid explanation of the stages in the formation of an arch No DEV required
	(d)		**Case study: river basin in the UK** **Level 3 (5–6 marks)** An answer at this level demonstrates a **thorough** knowledge of geomorphic processes (AO1) and a **thorough** understanding of how human activity has influenced the geomorphic processes (AO2). This will be shown by including **well-developed** ideas **both** about the geomorphic processes **and** how	6	Case study will be marked using 3 levels: Case study: responses will depend on candidate's area of study. **Indicative content** Management strategies could include: Flood barriers/dams –silting up, restriction of sediment replenishment (dev) River realigning/straightening – restriction of meanders/horizontal) lateral erosion

Question			Answer	Marks	Guidance
			human activity has influenced the geomorphic processes. The answer must also include **place-specific** details for the landscape. Amount of relevant place-specific detail determines credit within level. **Level 2 (3–4 marks)** An answer at this level demonstrates **reasonable** knowledge of geomorphic processes (AO1) and **reasonable** understanding of how human activity has influenced the geomorphic processes (AO2). This will be shown by including **developed** ideas **either** about the geomorphic processes **or** how human activity has influenced the geomorphic processes. Developed ideas but no place-specific detail credited up to **bottom** of level. Valid named example needed for top of level. **Level 1 (1–2 marks)** An answer at this level demonstrates **basic** knowledge of geomorphic processes (AO1) and **basic** understanding of how human activity has influenced the geomorphic processes (AO2). This will be shown by including **simple** ideas about the geomorphic processes or how human activity has influenced the geomorphic processes. No developed points are made.		Channelisation- impact of erosion, decreased bedload, deposition, throughflow. Building on flood plains – increased surface runoff, Afforestation/deforestation Artificial Levees/Embankments Examples of **well-developed** ideas: Humans have straightened rivers and introduced channelisation to increase the discharge of the River Nene in Northampton. These changes alter the velocity of the river and reduce friction. These human activities reduce the amount of lateral and vertical erosion causing the river to not form a meander which would be the natural landscape. Examples of **developed** ideas: Channel straightening is one way that humans have altered the river Nene landscape in Northampton. They have used concrete to change the route of the river which has caused less erosion and flooding. Examples of **simple** ideas: One way humans have affected the river is by taking away the bends and making the river straighter.

Question			Answer	Marks	Guidance
			Named examples **only** receives **no** place specific detail credit. **0 marks** No response worthy of credit.		

Question			Answer	Marks	Guidance
3	(a)		A small area of the earth's crust where unusually high heat flow (✓) is linked to volcanic activity (✓)	2	2 x 1 (✓)
	(b)		The majority of earthquakes occur at plate boundaries (✓) with a particularly large number of earthquakes along the western edge of the Pacific Plate (✓) including three of the largest earthquakes which registered over 6.02 in magnitude (DEV) occurring here (C)	4	2 x 1 (✓) for describing the pattern of earthquake distribution 1 x 1 (DEV) for using data from the map 1 x 1 (C) for communicating the answer in an appropriate and logical order
	(c)		A: Bar graph (✓)	1	(✓)
	(d)		**Level 3 (5–6 marks)** An answer at this level demonstrates **thorough** understanding of extreme weather conditions in contrasting countries (AO2) and **thorough** analysis of the differences in extreme weather conditions in contrasting countries (AO3). This will be shown by including **well-developed** ideas **both** about extreme weather conditions **and** the differences in extreme weather conditions in contrasting countries. **Level 2 (3–4 marks)** An answer at this level demonstrates **reasonable** understanding of extreme weather conditions in contrasting countries (AO2) and **reasonable** analysis of the differences in extreme weather conditions in contrasting countries (AO3). This will be shown by including **developed** ideas about **either** extreme weather conditions **or** the	6	**Indicative content** Extremes in weather conditions most likely to be discussed are temperature, wind and precipitation. The differences in extreme weather conditions could include contrasts between the countries, but may also focus on differences between extremes and averages within the countries. Examples can be drawn from any countries but at least two should be discussed and they must be contrasting in terms of their extreme weather conditions. Examples of **well-developed** ideas: England and Australia have very different extremes in temperature when compared to each other but not necessarily as a difference from their own average temperatures. Average summer temperatures in England are around 20°C, with 30°C being considered extreme. This 10°C difference is mirrored in Australia with average summer temperatures being around 30°C and extremes

Question			Answer	Marks	Guidance
			differences in extreme weather conditions in contrasting countries. **Level 1 (1–2 marks)** An answer at this level demonstrates **basic** understanding of extreme weather conditions in contrasting countries (AO2) and **basic** analysis of the differences in extreme weather conditions in contrasting countries (AO3). This will be shown by including **simple** ideas about extreme weather conditions or the differences in extreme weather conditions in contrasting countries. No developed points are made. **0 marks** No response worthy of credit.		at 40°C. So the differences in the extremes in temperature are very similar. Examples of **developed** ideas: Extreme temperatures in Australia are much higher than in England, with average summer temperatures in Australia being very similar to very hot weather in England which could be considered extreme. Examples of **simple** ideas: The extreme temperatures in Australia are much hotter than in England. Australia is much hotter than England especially in the summer.

Question			Answer	Marks	Guidance
4	(a)		The temperature of the hot desert is consistent at the start of the year before increasing steadily to peak in July and August and decreasing again (✓). The rainfall in the hot desert is significantly higher from December through to April and very low between May and November (✓).	2	1 x 1 (✓) for describing the yearly temperature pattern 1 x 1 (✓) for describing the yearly rainfall pattern
	(b)		C: 2 and 3	1	(✓)
	(c)		Reduction of flood risk as trees intercept and slow down rainwater (✓) The rainforest acts as the lungs of the planet through photosynthesis (✓) The rainforest is a natural store of carbon dioxide so it balances atmospheric gases (✓) Soils enable commercial agriculture (✓) Rainforests are popular with tourists due to the flora and fauna (✓) The rainforest ecosystem is a habitat for a huge number of species of animals and vegetation (✓)	4	4 x 1 (✓) for each valid idea No DEV required
	(d)		**Case study: a small scale example of sustainable management in either the Arctic or Antarctic** **Level 3 (5–6 marks)** An answer at this level demonstrates **thorough** knowledge of a small scale sustainable management scheme (AO1) and a **thorough** evaluation of the success of the example of sustainable management (AO3). This will be shown by including **well-developed** ideas about the small scale sustainable management scheme and its success. The answer must also include **place-specific** details for the named management scheme. Amount of	6	**Indicative content** Case study: either Arctic or Antarctic example Max level 1 = large scale e.g. Earth Summit or Treaty's Examples could include sustainable tourism, conservation, whaling Example of **well-developed** ideas: Tour operators have an agreed set of rules for tourism for Antarctica, this includes the sustainable tourism management plan. Litter is one thing covered under the plan, and it has to be prevented and removed to maintain the areas ecosystems and natural beauty. This has had a positive impact on both the waste management and the habitats of birds and sea life in Antarctica. The plan has

Question			Answer	Marks	Guidance
			relevant place-specific detail determines credit within level. **Level 2 (3–4 marks)** An answer at this level demonstrates **reasonable** knowledge of a small scale sustainable management scheme (AO1) and a **reasonable** evaluation of the success of the example of sustainable management (AO3). This will be shown by including **developed** ideas about the small scale sustainable management scheme and its success. Developed ideas but no place-specific detail credited up to **bottom** of level. Valid named example needed for top of level. **Level 1 (1–2 marks)** An answer at this level demonstrates **basic** knowledge of a small scale sustainable management scheme (AO1) and a **basic** evaluation of the success of the example of sustainable management (AO3). This will be shown by including **simple** ideas about the small scale sustainable management scheme and its success. Named examples **only** receives **no** place specific detail credit. **0 marks** No response worthy of credit.		many positive points but also the tours themselves potentially have a number of negative impacts on ecosystems, such as interrupting species breeding routines. To mitigate this tour operators try to advise tourists on where to position themselves when viewing birds and animals to cause least impact. Example of **developed** ideas: The Antarctic tour operators have rules to help protect it for example by only allowing a certain number of people to go there and no litter is allowed to be left there. This has meant there are less people destroying the pristine ecosystem and those who do go do as little damage as possible. Example of **simple** ideas: People have been stopped from going on large ships to holiday in the Antarctic so that there is less damage to it.

Question			Answer	Marks	Guidance
5	(a)		D: 3 and 4 (✓)	1	(✓)
	(b)		To be food secure a person would have physical and economic access to food (✓) that meets which dietary needs and food preferences (✓).	2	2 x 1 (✓)
	(c)		**Case study: Food security** **Example:** In Cuba, the government have attempted to become more food secure by increasing self-sufficiency (✓), with the scheme being effective as Cuba is now 90% self-sufficient in fruit and vegetables (DEV). In Havana over 200 urban farms called Organopónicos have opened, where fruit and vegetables are grown on any land possible such as rooftops or waste sites (✓), which have been effective in helping increase the amount of fruit and vegetable production but does not produce other products which help to achieve food security (DEV).	4	2 x 1 (✓) for details of food security attempt valid use from the resources 2 x 1 (DEV) for the explanation of how effective the attempt is to achieve food security Answer must be an attempt to ensure food security at a national scale
	(d)		**Level 3 (5–6 marks)** Answers at this level must show **thorough** understanding of how one technological strategy attempts to improve food security (AO2) and **thorough** evaluation of the success of the technological strategy to sustainably improve food security (AO3). This will be shown by including **well-developed** ideas about how one technological strategy improves food security and its success. **Level 2 (3–4 marks)** Answers at this level must show **reasonable** understanding of how one technological strategy attempts to improve food security (AO2) and	6	Answer will be marked using 3 levels: **Indicative content** Example of **well-developed** ideas: The amounts of GM crops (such as rice) produced has increased over the years in an attempt to provide enough food to feed growing populations (social sustainability) and to produce crops adapted to changing climatic conditions in drier areas such as sub-Saharan Africa (environmental sustainability). However whilst GM crops have increased yields and meant adaptions could be made, they have also been criticised for producing mono-cultures which threatens crop diversity. Example of **developed** ideas:

Question			Answer	Marks	Guidance
			reasonable evaluation of the success of the technological strategy to sustainably improve food security (AO3). This will be shown by including **developed** ideas about how one technological strategy improves food security and its success. **Level 1 (1–2 marks)** Answers at this level must show **basic** understanding of how one technological strategy attempts to improve food security (AO2) and **basic** evaluation of the success of the technological strategy to sustainably improve food security (AO3). This will be shown by including **simple** ideas about how one technological strategy improves food security and its success. **0 marks** No response worthy of credit.		There are more types of GM crops grown (such as rice) to provide food for a growing population. They are not always good for the environment and people's health but more food has been produced and that has helped starving populations. Example of **simple** ideas: GM crops are bad for the environment but can be helpful if people are hungry

Question			Answer	Marks	Guidance
6	(a)		Longshore drift is moving sand South (✓) and 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) (C) 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 (✓) (C) The drop on the North side of the groyne is more consistent than 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 2nd 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	(✓) for valid suggestion for a way Fig. 4 could be adapted Credit data presentation techniques rather than data collection techniques (more sites).

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

Summary of Updates

Date	Version	Change
October 2021	1.2	Sample assessment materials amended after Ofqual's consultation determining that GCSE Geography would have optionality included for the Summer 2022 series.