

# **GCSE**

## **Geography A Geographical Themes**

### **J383/02: The world around us**

General Certificate of Secondary Education

### **Mark Scheme for June 2023**

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.

It is also responsible for developing new specifications to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support, which keep pace with the changing needs of today's society.

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.

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## 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 component. 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 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 spaceAward 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 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:
- To determine the level** – start at the highest level and work down until you reach the level that matches the answer
  - 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
	Tick, use to show where marks gained for all short answer questions, place where mark(s) gained
	Unclear, use to show mark(s) cannot be awarded as answer is illegible or unclear
	Cross, use for incorrect idea(s) for all short answer questions
	Omission mark to show key idea(s) missing from answer that prevents mark(s) being given
	Level 1 Annotate end of answer with <b>L1</b> for overall level for Q1d) Q2c) Q3d)
	Level 2 Annotate end of answer with <b>L2</b> for overall level for Q1d) Q2c) Q3d)
	Level 3 Annotate end of answer with <b>L3</b> for overall level for Q1d) Q2c) Q3d)
	Level 4 Annotate end of answer with <b>L4</b> for overall level for Q1d) Q2c) Q3d)
	Use for developed points for Q1c) Q3aiv) and to show developed/well developed ideas for Q1d) Q2c) Q3d)
	Use for relevant place specific detail for Q1d) Q2c) Q3d)
	Benefit of doubt, use to show mark(s) given where answer lacks clarity
 	Significant amount of material which doesn't answer the question (with red colour highlighter)
 	Use to indicate incorrect example or content for case study response (with red colour highlighter)
	Use to indicate valid ideas within case study response if incorrect example is given (with green colour highlighter) Or if a correct example is omitted from the top line but given in the body of the answer.
	Blank page this annotation <b>must</b> be used on all blank pages within an answer booklet and on each page of an additional object where there is no candidate response.
	Noted but no credit given and use for all unanswered question items, along with NR

## 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.

The Examiners' Standardisation Meeting will ensure that the Mark Scheme covers the range of candidates' responses to the questions, and that all Examiners understand and apply the Mark Scheme in the same way. The Mark Scheme will be discussed and amended at the meeting, and administrative procedures will be confirmed. Co-ordination scripts will be issued at the meeting to exemplify aspects of candidates' responses and achievements; the co-ordination scripts then become part of this Mark Scheme.

Before the Standardisation Meeting, you should read and mark a number of scripts, in order to gain an impression of the range of responses and achievement that may be expected.

In your marking, you will encounter valid responses which are not covered by the Mark Scheme: these responses must be credited. You will encounter answers which fall outside the 'target range' of bands for the paper which you are marking. Please mark these answers according to the marking criteria.

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.

	<b>A01</b>	<b>A02</b>	<b>A03</b>
<b>Comprehensive</b>	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.
<b>Thorough</b>	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.
<b>Reasonable</b>	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.
<b>Basic</b>	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	Mark	Guidance
1	(a)	(i)	0 (✓) Zero (✓)	1	1 x 1 (✓) for correct answer
		(ii)	28.0 (✓)	1	1 x 1 (✓) for correct answer  No credit for 28 or 2.3
		(iii)	High temperatures or similar (✓)  Low rainfall or similar (✓) / four months with no rainfall (✓)	2	2 x 1 (✓) for each valid idea about how the climate data is typical of a hot desert ecosystem One feature must be about temperature One feature must be about rainfall Data not needed
	(b)		Plants are xerophytic (✓) They can survive with little water (✓) Plants have thick, spiky, waxy leaves (✓) Reduces water loss through transpiration (✓) To prevent water loss due to predators (✓) Plants absorb lots of water when it rains (✓) Store water (✓) Plants have long roots/tap roots (✓) Tap into deeper groundwater supplies (✓) Plants have roots near surface spread over a large area (✓) To access any rain which falls (✓) Plants have dormant seeds (✓) These grow when it rains (✓)	4	4 x 1 (✓) for each valid idea about how plants are adapted to the climate of a hot desert ecosystem  Development awarded with (✓) for further explanation of valid idea(s)
	(c)		Deforestation/timber/logging (✓) destruction of habitats (DEV) disruption of water cycle (DEV) disruption of nutrient cycle (DEV) increased soil erosion (DEV) air pollution by machines (DEV) Plantations/agriculture (✓) deforestation/destruction of habitats (DEV) disruption of water cycle (DEV) disruption of nutrient cycle (DEV) depletion of soil nutrients (DEV) Oil/natural gas exploitation (✓) deforestation/destruction of habitats (DEV) pollution of water courses harms creatures (DEV) Mining (✓) deforestation/destruction of habitats (DEV) contamination of water courses harms creatures (DEV) air pollution by machines (DEV)	4	2 x 1 (✓) for stating a valid threat to tropical rainforest biodiversity  2 x 1 (DEV) for explanation of how the threat affects biodiversity  Explanation must be coherently linked to threat given  Two developed ideas needed for full marks

		<p>Forest fires (✓) destroys vegetation/habitats (DEV) kill animals (DEV)</p> <p>Road building (✓) destroys vegetation/habitats (DEV) kill animals (DEV) air pollution by machines (DEV)</p> <p>Poaching/hunting/trade in rare species (✓) extinction of animals (DEV)</p> <p>Global warming (✓) less rainfall (DEV) loss of vegetation/habitats (DEV)</p>		
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	(d)	<p><b>CASE STUDY – Tropical rainforest independence</b></p>          <p><b>Level 3 (5-6 marks)</b></p>	<p><b>6</b></p> <p>Case study will be marked using 3 levels: Example must be a valid named tropical rainforest of part of a rainforest</p> <p><b>Indicative Content</b> Response should focus on a named tropical rainforest or a named area with a tropical rainforest. Response will include information about the interrelationships and links between climate and plants, climate and soil, plants and soil and the interdependence between these components.</p> <p>Place specific information could include accurate climate data, plant species, area and location.</p> <p>Maximum of mid-Level 2 - 3 marks if no valid named tropical rainforest given but valid ideas about tropical rainforest interdependence.</p> <p><b>Example of well-developed ideas.</b></p>
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		<p>An answer at this level demonstrates <b>thorough</b> knowledge of interdependence of climate, plants and soil (AO1) with a <b>thorough</b> understanding of the interdependence of climate, plants and soil in a tropical rainforest (AO2).</p> <p>This will be shown by including <b>well-developed</b> ideas about the interdependence of climate, plants and soil in a named tropical rainforest.</p> <p>The answer must also include <b>place-specific</b> details of the tropical rainforest. Amount of relevant place-specific detail determines credit within level.</p> <p><b>Level 2 (3-4 marks)</b> An answer at this level demonstrates <b>reasonable</b> knowledge of interdependence of climate, plants and soil (AO1) with a <b>reasonable</b> understanding of the interdependence of climate, plants and soil in a tropical rainforest (AO2).</p> <p>This will be shown by including <b>developed</b> ideas about the interdependence of climate, plants and soil in a named tropical rainforest.</p> <p><b>Developed</b> ideas but no place-specific detail credited up to middle of level.</p> <p><b>Level 1 (1-2 marks)</b> An answer at this level demonstrates <b>basic</b> knowledge of interdependence of climate, plants and soil (AO1) with a <b>basic</b> understanding of the interdependence of climate, plants and soil in a tropical rainforest (AO2).</p>	<p>The climate of the Peruvian Amazon rainforest provides ideal growing conditions for plants. High average temperatures of 28°C and high annual rainfall of 2,600 mm provide heat and moisture for plants to grow all year round. The tallest trees, such as the broad leaved mahogany, can grow as high as 50 metres. This helps the trees to access sunlight for photosynthesis. The warm humid conditions in the rainforest mean that fungi and bacteria thrive and cause the rapid decomposition of leaves that fall from the plants. This releases nutrients which are quickly absorbed by the plants. This is known as the nutrient cycle.</p> <p><b>Example of developed ideas.</b> In the Amazon Rainforest high temperatures and rainfall of over 2,500 mm are the ideal climate for plants to grow all year round. Hot humid conditions cause the rapid decomposition of leaves that fall from the plants. This gives nutrients to the soil to help the plants grow.</p> <p><b>Example of simple ideas.</b> The hot wet climate helps the plants to grow well. Rotting leaves provide nutrients for the soil to help the plants grow.</p>
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			<p>This will be shown by including <b>simple</b> ideas about the interdependence of climate, plants and soil in a tropical rainforest.</p> <p><b>0 marks</b> No response worthy of credit.</p>		
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Question			Answer	Mark	Guidance
2	(a)	(i)	C: 14 million (✓)	1	(✓)
		(ii)	B: There is a high birth rate and low life expectancy(✓)	1	(✓)
	(b)	(i)	Economic development is about improvements made by a country in terms of wealth (✓)	1	<p>1 x 1 (✓) for valid definition of economic development</p> <p>Accept reference to money, value of goods/services produced, GDP, GDP per capita, GNI per capita</p> <p>No credit for simple reference to economy</p>
		(ii)	<p>Easy to compare countries (✓)</p> <p>Shows global patterns of development (✓)</p> <p>Uses more than one measure/indicator (✓)</p> <p>Includes measures/indicators of wealth, health and education (✓)</p> <p>Combines economic and social measures/indicators (✓)</p> <p>Produced/updated by United Nations so is reliable/accurate (✓)</p> <p>(for Human Development Report)</p>	3	<p>3 x 1 (✓) for each valid idea about the advantages of using the HDI as a development indicator</p> <p>Development awarded with (✓) for further explanation of valid idea(s)</p> <p>No credit for correct ideas about the HDI unless clearly linked to an advantage</p>

	(c)*	<p><b>CASE STUDY- employment structure and economic development in an LIDC or EDC.</b></p> <p><b>Level 4 (10-12 marks)</b>  An answer at this level demonstrates <b>comprehensive</b> knowledge of employment structure changes over time and economic development in an LIDC or EDC (AO1) with a <b>comprehensive</b> understanding of how employment structure changes over time may influence economic development (AO2). There is a <b>comprehensive</b> analysis of the how changes in employment structure influences economic development (AO3b) with a <b>comprehensive</b> judgement about the extent to which changes in employment structure influences economic development (AO3d).</p> <p>This will be shown by including <b>well-developed</b> ideas about economic development and changes in employment structure over time.</p> <p>The answer must also include <b>place-specific</b> details about the chosen LIDC or EDC. Amount of relevant place-specific detail determines credit within the level.</p> <p>There is a <b>well-developed</b> line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</p> <p><b>Level 3 (7-9 marks)</b>  An answer at this level demonstrates <b>thorough</b> knowledge of employment structure changes over time and economic development in an LIDC or EDC (AO1) with a <b>thorough</b> understanding of how employment structure changes over time may influence economic development (AO2). There is a <b>thorough</b> analysis of the how changes in employment structure influences economic development (AO3b) with a <b>thorough</b></p>	<p><b>12</b></p> <p>Case study will be marked using 4 levels:  Example must be a valid named LIDC or EDC</p> <p><b>Indicative Content</b>  Response will include information about changes in employment structure over time and economic development.</p> <p>Employment structure could include references to employment sectors, jobs, work, workplaces, Rostow's model</p> <p>Use PLC for relevant knowledge linked to case study example.  Relevant PLC could include named workplaces, TNCs, named exports, named imports, named government policies, percentages employed, data about workplaces, stages of Rostow model, trade data</p> <p>Judgment could include ideas about the importance of employment structure but also direct comparison with other factors which may be more important such as geographical location, climate, resources, international aid and political development, international relationships</p> <p>Maximum of mid-Level 2 - 5 marks, if a valid named LIDC or EDC is not given, for valid ideas about changes in employment structure over time and economic development</p> <p><b>Example of well-developed ideas.</b>  Ethiopia is an LIDC in east Africa. Increases in manufacturing and services helped the economy to grow by 11% in the 2000s with GDP per capita increasing slowly to \$2,200. However, manufacturing still only provides 7%</p>
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		<p>judgement about the extent to which changes in employment structure influences economic development (AO3d).</p> <p>This will be shown by including some <b>well-developed</b> ideas about economic development and changes in employment structure over time. With <b>developed</b> ideas for the other question foci.</p> <p>The answer must also include some <b>place-specific</b> details about the chosen LIDC or EDC. Amount of relevant place-specific detail determines credit within the level.</p> <p>There is line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.</p> <p><b>Level 2 (4-6 marks)</b> An answer at this level demonstrates <b>reasonable</b> knowledge of employment structure changes over time and economic development in an LIDC or EDC (AO1) with a <b>reasonable</b> understanding of how employment structure changes over time may influence economic development (AO2). There is a <b>reasonable</b> analysis of the how changes in employment structure influences economic development (AO3b) with a <b>reasonable</b> judgement about the extent to which changes in employment structure influences economic development (AO3d).</p> <p>This will be shown by including some <b>developed</b> ideas about economic development and changes in employment structure over time. With <b>simple</b> ideas for the other question foci. Developed ideas but no place-specific detail credited up to <b>middle</b> of level.</p> <p>The information has some relevance and is presented with limited structure. The information is supported by limited evidence.</p>	<p>of jobs, with over 80% of jobs in agriculture. Agricultural products make up 89% of Ethiopia's exports which generates less economic development than manufactured goods. There are over 2.5 million workers in service jobs, linked to the development of tourism, this has made a positive contribution to economic development. However, many of these jobs are low paid and provided by foreign owned companies. Higher paid jobs are given to outsiders and profits generated by tourism leave Ethiopia. Although increased services have helped economic development, foreign ownership has limited the benefits for Ethiopia.</p> <p><b>Example developed ideas.</b> Ethiopia is in east Africa. Increases in manufacturing and services helped the economy to grow in the 2000s. However, 80% of jobs are still in agriculture with agricultural products making up most of Ethiopia's exports This generates less economic development than manufactured goods. There are over a million workers in service jobs, linked to the development of tourism. But many of these jobs are low paid and the profits from tourism go to foreign owned companies. So there are limited economic benefits for Ethiopia</p>
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			<p><b>Level 1 (1-3 marks)</b></p> <p>An answer at this level demonstrates <b>simple</b> knowledge of employment structure changes over time and economic development in an LIDC or EDC (AO1) with a <b>simple</b> understanding of how employment structure changes over time may influence economic development (AO2). The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to evidence may not be clear. There is a <b>basic</b> analysis of the how changes in employment structure influences economic development (AO3b) with a <b>basic</b> judgement about the extent to which changes in employment structure influences economic development (AO3d).</p> <p>This will be shown by including some <b>simple</b> ideas about economic development and changes in employment structure over time.</p> <p>Named example <b>only</b> receives <b>no</b> place specific detail credit. The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to evidence may not be clear.</p> <p>0 marks No response worthy of credit</p>		<p><b>Example of simple ideas.</b></p> <p>Ethiopia is an LIDC in Africa. Most people still work in farming. This holds back Ethiopia's economic development as wages are low.</p>
			Spelling, punctuation and grammar and the use of specialist terminology (SPaG) are assessed using the separate marking grid in Appendix 1.	3	

Question			Answer	Mark	Guidance
3	(a)	(i)	-9°C (✓)	1	1 x 1 (✓) for correct answer
		(ii)	B: lower than average global temperatures when glacial ice covers more land (✓)	1	1 x 1 (✓) for correct answer
		(iii)	There is a clear / positive / proportional relationship or correlation (✓)  As carbon dioxide levels rise/fall so do global temperatures (✓)	2	2 x 1 (✓) for valid ideas to describe relationship shown on Fig 2  One mark for stating there is a relationship  One mark for describing the relationship  Credit use of data to show the range of the relationship
		(iv)	Sun spot activity / variations in energy from the sun (✓) More sun spots/activity = higher temperatures (DEV)  Eccentricity / changes in the Earth's orbit (✓) Elliptical orbit = higher temperatures (DEV)  Obliquity / Axial tilt (✓) Greater degree of tilt = higher temperatures (DEV)  Precession / Earth's wobble (✓) Earth tilted closer to sun = warmer periods (DEV)  Volcanic eruptions (✓)	2	1 x 1 (✓) for a valid possible natural cause of increases in global temperatures  1 x 1 (DEV) for explanation of how given cause increased temperatures  No credit for mention of Milankovitch cycles unless reference made to either eccentricity, axial tilt or precession  No credit for methane produced by cattle

			Emit gases to cause global warming (DEV)		
	<b>(b)</b>	<b>(i)</b>	Severe storm (✓)	<b>1</b>	1 x 1 (✓) for correct answer
		<b>(ii)</b>	<p>Higher global temperatures increase rates of evaporation (✓) meaning increased rainfall / precipitation (✓) lead to more frequent severe storms and hurricanes (✓)</p> <p>Melting of ice caps causing rising sea levels (✓) leads to more frequent coastal flooding (✓)</p> <p>Higher global temperatures create hot and dry conditions (✓) for more frequent wildfires (✓)</p> <p>Higher global temperatures increase evaporation rates (✓) lead to more frequent drought events (✓)</p>	<b>3</b>	<p>3 x 1 (✓) for valid idea(s) about how increased frequency of severe weather and climate events shown in Fig. 3, may be a consequence of global climate change</p> <p>Development awarded with (✓) for further explanation of one valid idea</p> <p>Ideas must be coherently linked the events shown in Fig 3</p>
	<b>(c)</b>		<p>Near the Equator/where the Hadley cells meet (✓) hot air rises (✓) increasing evaporation to cause heavy rainfall (✓)</p> <p>Air rises where the Ferrel cells meet the Polar cells/at temperate latitudes(✓) causing air to rise (✓) increasing evaporation causing heavy rainfall (✓)</p> <p>Western South America (✓) El Nino effect trade winds causing warm water to build up (✓) increasing evaporation to cause heavy rainfall (✓)</p> <p>Eastern Australia (✓) La Nina effect trade winds causing warm water to build up (✓) increasing evaporation to cause heavy rainfall (✓)</p>	<b>3</b>	<p>3 x 1 (✓) for valid ideas about how the global circulation of the atmosphere leads to extreme wet weather conditions in one part of the world</p> <p>Development awarded with (✓) for further explanation of a valid idea</p> <p>Credit other examples coherently linked to global air circulation such as the Jet Stream, Monsoon and ITCZ.</p>

	(d)*		<p><b>CASE STUDY – Effects of a drought event</b></p> <p><b>Level 3 (6-8 marks)</b> An answer at this level demonstrates <b>thorough</b> knowledge of the environmental effects of the drought event (AO1) with <b>reasonable</b> understanding of how the environmental effects had an impact on the people (AO2). There will be a <b>thorough</b> evaluation of how far the environmental effects had an impact on the people (AO3).</p> <p>This will be shown by including <b>well-developed</b> ideas about the environmental effects of drought and their impact on people.</p> <p>The answer must also include <b>place-specific</b> details about the drought event and its effects on the environment and people.</p> <p>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</p> <p><b>Level 2 (3-5 marks)</b> An answer at this level demonstrates <b>reasonable</b> knowledge of the environmental effects of the drought event (AO1) with <b>basic</b> understanding of how the environmental effects had an impact on the people (AO2). There will be a <b>reasonable</b> evaluation of how far the environmental effects had an impact on the people (AO3).</p> <p>This will be shown by including <b>developed</b> ideas about the environmental effects of drought and their impact on people.</p>	8	<p>Case study will be marked using 3 levels</p> <p>Example must be a valid named drought event caused by El Niño/La Niña. Example can be regional, national or local in scale.</p> <p><b>Indicative Content</b> Response will include information about the effects of the drought on the environment and people.</p> <p>Environmental effects of drought could include rivers and water supplies drying up, loss of vegetation, soil erosion, desertification, reduction of water quality, toxic algal blooms, less water for HEP increased use of fossil fuels increasing air pollution/global warming.</p> <p>Human impact could include farming, water supply, economy, migration and welfare.</p> <p>Use PLC for relevant knowledge linked to case study example.</p> <p>PLC could include dates for and duration of drought event, location, impact of businesses, impact on health, data for restrictions or support for people, examples of restrictions or support for people.</p> <p>Maximum of mid-Level 2 - 4 marks, if a valid named drought event not given, for valid ideas about the effects of drought on the environment and people.</p>

		<p><b>Developed</b> ideas but no place-specific detail credited up to <b>middle</b> of level.</p> <p>There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.</p> <p><b>Level 1 (1-2 marks)</b></p> <p>An answer at this level demonstrates <b>basic</b> knowledge of the environmental effects of the drought event with <b>basic</b> understanding of how the environmental effects had an impact on the people (AO2). There will be a <b>basic</b> evaluation of how far the environmental effects had an impact on the people (AO3).</p> <p>This will be shown by including <b>simple</b> ideas about the environmental effects of drought and their impact on people.</p> <p>Named examples <b>only</b> receives <b>no</b> place specific detail credit.</p> <p>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.</p> <p><b>0 marks</b></p> <p>No response worthy of credit</p>	<p><b>Example of well-developed ideas.</b></p> <p>The 'Big Dry' was a severe drought event in Australia from 2002 to 2009. Annual rainfall was 40-60% below normal during this time. The hot dry conditions created wildfires which destroyed vegetation and animal habitats. Creeks and rivers dried up and the lack of rainfall lead to soil degradation and erosion. These impacts on water supply and soil worsened the effects of the drought for farmers. They were unable to irrigate crops and grassland used for cattle turned to scrubland. 10,000 people in the cotton growing industry were affected. Many cattle farmers could not afford to feed their cattle and went out of business. Suicide rates in rural areas increased. People also moved from rural areas to towns and cities and this increased the pressure on water supplies there. The environmental effects of the drought on land used for farming worsened the effects on farmers and rural areas.</p> <p><b>Example of developed ideas.</b></p> <p>The 'Big Dry' was a severe drought in Australia from 2002 to 2009. Rivers dried up and the lack of rainfall lead to soil erosion. Grassland used for cattle turned to scrubland. Many cattle farmers could not afford to feed their cattle and went out of business. Suicide rates in rural areas increased. The environmental effects of the drought on land used for farming worsened the effects on farmers.</p> <p><b>Example of simple ideas.</b></p> <p>The 'Big Dry' drought in Australia dried up rivers and caused soil erosion. This made the drought worse for farmers who lost their jobs or went out of business.</p>
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## Appendix 1

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

<b>High performance 3 marks</b>
<ul style="list-style-type: none"> <li>• Learners spell and punctuate with consistent accuracy</li> <li>• Learners use rules of grammar with effective control of meaning overall</li> <li>• Learners use a wide range of specialist terms as appropriate</li> </ul>
<b>Intermediate performance 2 marks</b>
<ul style="list-style-type: none"> <li>• Learners spell and punctuate with considerable accuracy</li> <li>• Learners use rules of grammar with general control of meaning overall</li> <li>• Learners use a good range of specialist terms as appropriate</li> </ul>
<b>Threshold performance 1 mark</b>
<ul style="list-style-type: none"> <li>• Learners spell and punctuate with reasonable accuracy</li> <li>• Learners use rules of grammar with some control of meaning and any errors do not significantly hinder overall</li> <li>• Learners use a limited range of specialist terms as appropriate</li> </ul>
<b>0 Marks</b>
<ul style="list-style-type: none"> <li>• The learner's response does not relate to the question</li> <li>• The learner's achievement in SPaG does not reach the threshold performance level, for example errors in spelling, punctuation and grammar severely hinder meaning</li> </ul>
<b>NR</b>
<ul style="list-style-type: none"> <li>• The learner writes nothing</li> </ul>

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