



GCSE (9–1)

**Geography B (Geography for Enquiring
Minds)**

J384/01: Our natural world

General Certificate of Secondary Education

Mark Scheme for June 2019

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.

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Annotations

Annotation	Meaning
	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
	Level 1
	Level 2
	Level 3
	Level 4
	Development
	Relevant place detail
	Benefit of doubt
	Significant amount of material which doesn't answer the question
	Expandable vertical wavy line
	Communicate findings
	Noted but no credit given

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	Mark	Guidance
1	(a)	(i)	D: The pressure created by the plate movements creates explosive volcanic eruptions (✓)	1	(✓)
		(ii)	The tectonic plates move towards each other (✓) One plate is forced under another plate (subduction) (✓) The denser plate/ oceanic is subducted (✓) This causes the crust to melt (✓) Plates melt due to friction between the plates. (✓) Plates melt due to the increase in temperature in the mantle (✓) Pressure in the magma chamber builds up (✓) Molten material rises (✓) as it is less dense (✓) The magma moves through a weakness/ cracks/ gaps. in the crust (✓) Erupted material builds up the sides of the volcano (✓)	4	4 x 1 (✓) for explanation of how the movement of tectonic plates at destructive plate margins causes volcanoes to form Development awarded with (✓) as a further valid explanation Do not credit the type of eruption that occurs. Credit denser but not heavier.
	(b)		Strong winds (✓) Heavy rain (✓) Prolonged rain (✓) Lightning (✓)	2	2 x 1 (✓) for valid types of extreme weather associated with tropical storms Do not accept thunder Do not credit rain or wind without further qualification. Do not credit extreme

	(c)	Case study: UK-based natural weather hazard Level 3 (5-6 marks) An answer at this level demonstrates a thorough knowledge (AO1) of the responses to the UK-based natural weather hazard with a thorough evaluation of the responses to this natural weather hazard (AO3). This will be shown by including well-developed ideas about the responses to the UK-based natural weather hazard. The answer must also include place-specific details for the UK-based natural weather hazard. Level 2 (3-4 marks) An answer at this level demonstrates a reasonable knowledge (AO1) of the responses to the UK-based natural weather hazard with a reasonable evaluation of the responses to this natural weather hazard (AO3). This will be shown by including developed ideas about the responses to the UK-based natural weather hazard. 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 (AO1) of the responses to the UK-based natural weather hazard with a basic evaluation of the responses to this natural weather hazard (AO3). This will be shown by including simple ideas about the responses to the UK-based natural weather hazard. Named example only, receives no place specific detail credit.	6	Indicative content Types of natural weather hazard could include drought/ heatwave/ flash flood/ tail end of a tropical storm. Responses could be short term (days/ weeks, search and rescue) and/ or long term (rebuilding, restarting economy of area) Example of a well-developed idea: The response to the 2012 drought was effective as the steps mostly caused short term inconvenience. Water companies and the government needed to balance water supply and maintaining water levels in rivers. To achieve this, the government tried to raise awareness with posters stating that running water when you brush your teeth uses 6 litres of water. This was successful as over 90% of people said they had heard this message in a 2012 YouGov survey. Example of a developed idea: One response to the 2012 drought was an advertising campaign that tried to reduce water usage by showing how much water (6 litres) is used when brushing your teeth. This was successful as many people heard the message and said that they reduced the water they used. Example of a simple idea: An advertising campaign was used to tell people not to leave the tap running when they brushed their teeth. Maximum of 3 marks for any examples that do not contain any place specific detail. Incorrect case study – maximum Level 1
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			0 marks No response worthy of credit.		
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Question			Answer	Mark	Guidance
2	(a)		A: fairly stable until 1800 then a sudden and very rapid rise (✓)	1	(✓)
	(b)		Reliable because Atmospheric carbon dioxide data from ice cores gives information over thousands of years (✓) It is more reliable source than other shorter term sources (✓) The scientific method/ use of machines (✓) Provides quantitative data/ the amount of CO ₂ (✓) Objective/ not subjective (✓) Diaries/ paintings can be altered/ are subjective (✓) Can be compared with known time periods (✓) Can be compared with other locations (✓) Each layer is part of a long term sequence (✓) Each layer represent a discrete time period/ year (✓) Pristine conditions (✓) Unreliable because Doesn't provide an exact date (✓) Doesn't provide an exact temperature/ the temperature has to be calculated (✓) Unrepresentative of the whole atmosphere/ only represent areas that are cold. (✓) Only a small number of sample sites (✓) Difficult to store (✓) No second source to verify the data (✓) There is a limit to how far back in time there is data (✓) The ice might melt (✓)	4	4 x 1 (✓) for valid points discussing the reliability of data on atmospheric carbon dioxide collected from ice cores as evidence for climate change Development awarded with (✓) as a further valid explanation Don't need to make an overall judgment or assessment One sided argument can be awarded all 4 marks. Ice core data is available up to 1.5 million years ago.

	(c)*	Level 3 (6-8 marks) An answer at this level demonstrates thorough understanding of worldwide economic and environmental impacts of climate change (AO2). There will be a thorough evaluation of how concerning worldwide economic and environmental impacts of climate change (AO3) with a reasonable judgement of the extent to which it is agreed that worldwide economic impacts of climate change are more concerning than environmental impacts (AO3). This will be shown by including well-developed ideas about the worldwide economic and environmental impacts of climate change and how concerning the impacts are. There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated. Level 2 (3-5 marks) An answer at this level demonstrates reasonable understanding of worldwide economic and environmental impacts of climate change (AO2). There will be a reasonable evaluation of how concerning worldwide economic and environmental impacts of climate change (AO3) with a basic judgement of the extent to which it is agreed that worldwide economic impacts of climate change are more concerning than environmental impacts (AO3). This will be shown by including developed ideas about the worldwide economic and environmental impacts of climate change and how concerning the impacts are. There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.	8	Indicative Content Could include impacts of sea level rise, extreme weather events. Must relate to 21st century impacts. Evaluation may consider - number of people directly affected - speed of change - reversibility - scale of change - short term/ long term - AC/LIDC Example of well-developed ideas: Economic issues are less concerning than environmental issues as not all the economic issues are negative. The cost of repairing buildings damaged by more extreme weather will partially be offset by the increase in tourism in areas where the weather has improved as happened during the 2015 UK drought. This contrasts with the environmental impacts where the melting of the polar ice cap will have only negative impacts for the species that live there and could lead to the collapse of the food chain. Example of developed ideas: Economic issues are less concerning than environmental issues. One economic cost is the repairing of buildings damaged by more extreme weather. The increase in tourism in areas where the weather has improved may boost the economy. The biggest environmental impact is the melting of the polar ice cap which could lead to the collapse of the food chain. Example of simple ideas: More people are going to be damaged by tropical storms. The polar ice maps will melt.
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		Level 1 (1-2 marks) An answer at this level demonstrates basic understanding of worldwide economic and/ or environmental impacts of climate change (AO2). There will be a basic evaluation of how concerning worldwide economic and environmental impacts of climate change (AO3) with a basic judgement of the extent to which it is agreed that worldwide economic impacts of climate change are more concerning than environmental impacts (AO3). This will be shown by including simple ideas about the worldwide economic and environmental impacts of climate change and how concerning the impacts are. The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the question may not be clear 0 marks No response worthy of credit		Students can argue for either environmental issues, economic issues or a balance. Case study detail is not required; however examples can be used to help increase the level of development within an answer.
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Question			Answer	Mark	Guidance
3	(a)		Hydraulic Action (✓) Abrasion (✓) Attrition (✓) Corrosion/Solution (✓) Corrasion (✓)	1	(✓) Do not credit weathering
	(b)	(i)	C: 250m (✓)	1	(✓)
		(ii)	Sand/ shingle/ dunes extend out towards the artificial reefs (✓) showing the reefs reduce wave energy (DEV) Gaps in the reefs have less sand/shingle extending towards them (✓) which indicates that reefs are stopping waves and allowing sediment to build up (DEV) Gaps in the reefs have less sand/shingle extending towards them (✓) which indicates that where there are no reefs sand is not built up/ eroded (DEV) Transportation is reduced (DEV) allowing sand to build up behind the reefs (✓)	2	1 x 1 for identifying evidence from OS map (✓) 1 x 1 mark for explanation of how evidence shows that the coastal defences are effective (DEV)
		(iii)	Show historical coastline (✓) Amount of erosion (✓) Sea depth (✓) Wave direction (✓) Wave strength (✓) Longshore drift direction (✓) Wave height (✓) Wind direction (✓)	1	1 x 1 (✓) for appropriate extra layer suggested Credit any variable that can be changed by the presence of an offshore reef. Do not credit geology or land-use Do not credit sediment size or contour lines as they are already on the map. Layers can be made up from numerical data, graph, beach profile, pictures, photos or map layers.
	(c)	(i)	2.1 (✓)	1	(✓) Do not allow 2. Units are not required
		(ii)	3.6 (✓)	1	(✓) Units are not required. Credit 0.6 – 4.2

	(d)	Case study: Coastal landscape in the UK Level 3 (5-6 marks) An answer at this level demonstrates thorough knowledge of the management strategies used (AO1) and a thorough understanding of how the management strategies have impacted the coastal landscape (AO2). This will be shown by including well-developed ideas about the management strategies used and the impact on the coastal landscape. The answer must also include place-specific details for the named UK coastal landscape. Level 2 (3-4 marks) An answer at this level demonstrates reasonable knowledge of the management strategies used (AO1) and a reasonable understanding of how the management strategies have impacted the coastal landscape (AO2). This will be shown by including developed ideas about the management strategies used and the impact on the coastal landscape. 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 management strategies used (AO1) and a basic understanding of how the management strategies have impacted the coastal landscape (AO2). This will be shown by including simple ideas about the	6	Indicative content Management could include hard or soft engineering strategies, including allowing natural retreat Example of a well-developed idea: 10 groynes and a 900m sea wall have been built in Sheringham to reduce the rate of erosion and amount of material transported by longshore drift. This has led to the cliff line being stabilised as erosion has dropped to nothing and an increase in the volume of the beach as the rate of deposition has increased. Example of a developed idea: There are 10 groynes in Sheringham which prevent long-shore drift. This helps to build up the beach. There is also a concrete sea wall which reduces the rate of erosion by absorbing wave energy. Example of a simple idea: Groynes prevent long-shore drift. Sea walls stop erosion. Non-UK location – Max Level 1. Ensure answers deal with the coastline as a whole and not just a single landform Maximum of 3 marks for any examples that do not contain any place specific detail.
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			management strategies used and the impact on the coastal landscape. Named example only, receives no place specific detail credit. 0 marks No response worthy of credit.		
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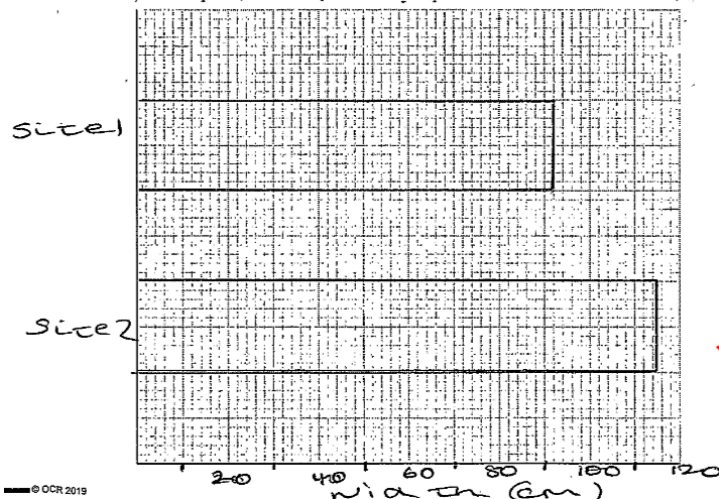
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Question			Answer	Mark	Guidance
4	(a)		In a band mostly between the Tropics of Cancer and Capricorn (✓) with a large concentration over South East Asia (✓) (C) Coral reefs are distributed in North East Australia (✓) and around Indonesia (✓) Coral reefs are distributed between 30 degrees N and 30 degrees S (✓) and between the Tropic of Cancer and Capricorn (✓).	3	2 x 1 for describing the pattern (✓) 1 x 1 (C) for communicating the answer in an appropriate and logical way Credit can be given for describing the location of low, medium and high diversity coral reefs. Credit where coral reefs are located. Do not credit where they are not located, such as the West of South America No C mark unless there is a global description and a smaller scale.
	(b)	(i)	D: 27% (✓)	1	(✓)
		(ii)	Overexploitation (✓)	1	(✓)
		(iii)	Bar graph (✓) Bar chart (✓) Pictogram (✓) Radial graph (✓)	1	1 x 1 (✓) for valid alternative suggestion of how to plot the data in Fig. 4 Do not credit line graph, scattergraph histogram, rose diagram
	(c)		D: managing an environment to ensure it will benefit both current and future generations (✓)	1	(✓)

	(d)*	Case study: global 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 one global scale sustainable management solution for the Arctic/ Antarctic (AO1) with a thorough analysis of the success of the solution (AO3). This will be shown by including well-developed ideas about the global scale sustainable management solution and its success. The answer must also include place-specific details for the sustainable management solution. Level 2 (3-4 marks) An answer at this level demonstrates reasonable knowledge of one global scale sustainable management solution for the Arctic/ Antarctic (AO1) with a reasonable analysis of the success of the solution (AO3). This will be shown by including developed ideas about the global scale sustainable management solution and its success. 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 global scale sustainable management solution for the Arctic/ Antarctic (AO1) with a basic analysis of the success of the solution (AO3). This will be shown by including simple ideas about the	6	Indicative content Antarctic Treaty Arctic Council International Whaling Commission Paris Agreement Example of a well-developed idea: The Antarctic Treaty has been mostly successful at sustainably managing Antarctica. The treaty has helped to preserve the pristine nature of the area by banning drilling for oil, dumping nuclear waste and military conflict. Flora and fauna are also protected by banning hunting of seals and whales, protecting the whole food chain. It is not totally successful as the treaty cannot protect Antarctica from the impact of climate change. Example of a developed idea: The Antarctic Treaty is successful as it protects Antarctica by allowing only scientific study to take place there so plants and animals are conserved. Example of a simple idea: The Antarctic Treaty only allows scientists to study Antarctica. The name line is used to help focus the candidate on the question. Consider the whole answer when awarding the mark. Small scale case study – Level 1 only. Many strategies can make up a solution. Credit answers that assess a sustainable management solution by judging the success of various strategies through time.
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		global scale sustainable management solution and its success. Named example only, receives no place specific detail credit. 0 marks No response worthy of credit.		
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Question			Answer	Mark	Guidance
5	(a)		We studied Goredale Beck It was appropriate because You could study the Bradshaw Model (✓) You can measure velocity of the river (✓) There is management of erosion around a meander (✓) There has been flooding here before (✓) It is shallow (✓) It is close to the school (✓) Our key question was investigating the build-up of sand on the east and west of a groyne. It was appropriate as it can show if longshore drift is happening (✓). We investigated if the coastal management was effective. This was appropriate as there are a lot of different types of sea defence in Dawlish Warren (✓). Our question was about whether erosion was occurring along the North Norfolk. We did it there as it close to the school (✓) and links to the topic of coastal management (✓).	2	2 x 1 (✓) for valid reasons why the key question for investigation was appropriate. Identify what the context of the investigation is and then credit 2 reasons why it might be appropriate. No credit for identifying the context. Context may be A fieldwork location A named landform characteristic Any relevant fieldwork models (Bradshaw Model) A named physical process A named management technique A key question/ hypothesis
	(b)	(i)	Site A – 1.3 m/s (✓) Site B – 1.2 m/s (✓) Site 1 = 10/7.5 Site 2 = 10/8.2 (DEV)	3	2 x 1 (✓) for each correct answer 1 x 1 (DEV) for correct working out. Units are not required. Allow answer that are correct to one or more decimal places. Allow the development mark for the correct formula (distance/time) even if the solution is incorrect for example - 10/ (7.5 + 10.2 + 31.7/3) = 10/ 16.46 = 10/ (8.2 + 6.8 + 11.3/3) = 10/ 8.76 =

					100/8.2 =
		(ii)		2	1 x 1 (✓) for drawing a horizontal bar graph with an accurate scale and site 1 and 2 labelled (units not required). Give credit for accurate axis plotted with a scale break. 1 x 1 (DEV) for plotting both points correctly regardless of graph orientation. Credit charts where the bars touch No tolerance Scale doesn't have to start at 0
(b*)	(iii)	Level 3 (6–8 marks) An answer at this level demonstrates thorough analysis of the investigation in Fig. 5 (AO3) with a thorough evaluation of how the students could improve their investigation in order to improve the reliability of their results (AO3). This will be shown by including well-developed ideas. There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated. Level 2 (3-5 marks) An answer at this level demonstrates reasonable analysis of the investigation in Fig. 5 (AO3) with a reasonable evaluation of how the students could improve their investigation in order to improve the reliability of their results (AO3). This will be shown by including developed ideas.	8	Indicative Content Example of well-developed ideas: One problem the students had was that the orange got stuck on a rock, giving a much larger reading than on the other attempts. The students could have improved their investigation by using a more scientific piece of equipment to measure the speed, such as a flow meter. They would have made the result they collected more precise and have a greater level of accuracy so that the results are more reliable. Example of developed ideas: One problem the students had was that the orange got stuck on a rock. The students could have improved their investigation by using a more scientific piece of equipment to measure the speed, such as a flow meter. They would have made the result they collected more reliable.	

		There is a line of reasoning presented with some structure. The information presented is in the most part relevant. Level 1 (1-2 marks) An answer at this level demonstrates basic analysis of the investigation in Fig. 5 (AO3) with a basic evaluation of how the students could improve their investigation in order to improve the reliability of their results (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.		Example of simple ideas: One problem the students had was that the orange got stuck on a rock. They could use different equipment to make it more reliable next time. Fieldwork can be made more reliable by using fieldwork techniques to make the data collection more precise or by collecting more data to make it more representative.
		Spelling, punctuation and grammar and the use of specialist terminology (SPaG) are assessed using the separate marking grid in Appendix 1.	3	

Appendix 1

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

High performance 3 marks
• Learners spell and punctuate with consistent accuracy • Learners use rules of grammar with effective control of meaning overall • Learners use a wide range of specialist terms as appropriate
Intermediate performance 2 marks
• Learners spell and punctuate with considerable accuracy • Learners use rules of grammar with general control of meaning overall • Learners use a good range of specialist terms as appropriate
Threshold performance 1 mark
• Learners spell and punctuate with reasonable accuracy • Learners use rules of grammar with some control of meaning and any errors do not significantly hinder overall • Learners use a limited range of specialist terms as appropriate
0 marks
• The learner writes nothing • The learner’s response does not relate to the question • The learner’s achievement in SPaG does not reach the threshold performance level, for example errors in spelling, punctuation and grammar severely hinder meaning

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