



GCE AS MARKING SCHEME

SUMMER 2025

**AS
GEOLOGY - COMPONENT 1
B480U10-1**

About this marking scheme

The purpose of this marking scheme is to provide teachers, learners, and other interested parties, with an understanding of the assessment criteria used to assess this specific assessment.

This marking scheme reflects the criteria by which this assessment was marked in a live series and was finalised following detailed discussion at an examiners' conference. A team of qualified examiners were trained specifically in the application of this marking scheme. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners. It may not be possible, or appropriate, to capture every variation that a candidate may present in their responses within this marking scheme. However, during the training conference, examiners were guided in using their professional judgement to credit alternative valid responses as instructed by the document, and through reviewing exemplar responses.

Without the benefit of participation in the examiners' conference, teachers, learners and other users, may have different views on certain matters of detail or interpretation. Therefore, it is strongly recommended that this marking scheme is used alongside other guidance, such as published exemplar materials or Guidance for Teaching. This marking scheme is final and will not be changed, unless in the event that a clear error is identified, as it reflects the criteria used to assess candidate responses during the live series.

GCE AS GEOLOGY
COMPONENT 1 - GEOLOGICAL ENQUIRIES
SUMMER 2025 MARK SCHEME

Instructions for examiners of A Level Geology when applying the mark scheme

1 Positive marking

It should be remembered that candidates are writing under examination conditions and credit should be given for what the candidate writes, rather than adopting the approach of penalising him/her for any omissions. It should be possible for a very good response to achieve full marks and a very poor one to achieve zero marks. Worthwhile answers that meet the requirements of the question, but do not appear on the mark scheme are to be given credit.

2 Tick marking

Low tariff questions should be marked using a points-based system. Each credit worthy response should be ticked in red pen. The number of ticks must equal the mark awarded for the sub-question. The mark scheme should be applied precisely using the marking details box as a guide to the responses that are acceptable. Do not use crosses to indicate answers that are incorrect.

3 Annotated diagrams

Where a candidate has answered a question wholly or partly by use of an annotated diagram, credit must be awarded to the annotations which form credit-worthy responses as outlined in the marking details box. Candidates must be credited only once for valid responses which appear both as annotations to diagrams and within a section of prose in the answer to the same question.

4. Banded mark schemes

Banded mark schemes are divided so that each band has a relevant descriptor. The descriptor for the band provides a description of the performance level for that band. Each band contains marks. Examiners should first read and annotate a candidate's answer to pick out the evidence that is being assessed in that question. **Do not use ticks** on the candidate's response. Once the annotation is complete, the mark scheme can be applied. This is done as a two stage process.

Stage 1 – Deciding on the band

When deciding on a band, the answer should be viewed holistically. Beginning at the lowest band, examiners should look at the candidate's answer and check whether it matches the descriptor for that band. Examiners should look at the descriptor for that band and see if it matches the qualities shown in the candidate's answer. If the descriptor at the lowest band is satisfied, examiners should move up to the next band and repeat this process for each band until the descriptor matches the answer.

If an answer covers different aspects of different bands within the mark scheme, a 'best fit' approach should be adopted to decide on the band and then the candidate's response should be used to decide on the mark within the band. For instance if a response is mainly in band 2 but with a limited amount of band 3 content, the answer would be placed in band 2, but the mark awarded would be close to the top of band 2 as a result of the band 3 content.

Examiners should not seek to mark candidates down as a result of small omissions in minor areas of an answer.

Stage 2 – Deciding on the mark

Once the band has been decided, examiners can then assign a mark. During standardising (marking conference), detailed advice from the Principal Examiner on the qualities of each mark band will be given. Examiners will then receive examples of answers in each mark band that have been awarded a mark by the Principal Examiner. Examiners should mark the examples and compare their marks with those of the Principal Examiner.

When marking, examiners can use these examples to decide whether a candidate's response is of a superior, inferior or comparable standard to the example. Examiners are reminded of the need to revisit the answer as they apply the mark scheme in order to confirm that the band and the mark allocated is appropriate to the response provided.

Indicative content is also provided for banded mark schemes. Indicative content is not exhaustive, and any other valid points must be credited. In order to reach the highest bands of the mark scheme a candidate need not cover all of the points mentioned in the indicative content but must meet the requirements of the highest mark band. Where a response is not creditworthy, that is contains nothing of any significance to the mark scheme, or where no response has been provided, no marks should be awarded.

Specimen A (Breccia), Specimen H (Gypsum), Specimen F (Coral) and Specimen D (Granite)

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
1	(a)		Angular / sub-angular grains (1) Appropriate scale (grains should be drawn 0.5cm to 4cm) (1) Poorly sorted (1)		3		3	1	3
	(b)	(i)	Well-rounded to sub-rounded (1) Well sorted (1) 0.5-1mm grain size (1)	3			3	1	3
		(ii)	Quartz (1)	1			1		1
		(iii)	Sandstone / Orthoquartzite (1)		1		1		1
	(c)		Rock in Photograph 1 is more mature than in rock A or equivalent (1) Grains in Photograph 1 have undergone more transport (1) Grains in Photograph 1 have undergone more abrasion / erosion (1) Any two x (1) from: • because they are more rounded • because they are better sorted • because they are finer grains • however, larger grain size of Specimen A may be due to deposition in a higher energy environment • however, better sorting of grains in Photograph 1 may be due to rate of deposition. To a maximum of 4 marks			4	4		
Question 1 total				4	4	4	12	2	8

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
2	(a)		No mark for property		2	2	4		4
			Property	Description					
			Hardness	Use of equipment to determine hardness (1)					
			Habit	Observe the crystal shape/habit (1)					
			Lustre	Observe the appearance of reflected light (1)					
			Award marks related to a maximum of two of these three properties.						
	(b)		Gypsum (1)			1	1		1
			Question 2 total		2	3	0	5	0

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
3	(a)	(i)	Drawn to correct scale (1) Shape of the coral- hexagonal corallites (1) Detail of septa (1)		3		3	1	3
		(ii)	Label of septa (also credit reference to columella, corallite wall etc) (1)	1			1		
		(iii)	Coral (1)	1			1		
	(b)	(i)	Thecae (1)	1			1		
		(ii)	Monograptus (1)		1		1		
		(iii)	Shale (1)	1			1		

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
	(c)		Indicative content There is a bias in the fossil record towards marine organisms. Bias is also towards body parts resistant to decay, low energy environments, and where rapid burial occurs. These environments are most common in marine environments. Bias is also caused by there being a greater area that is marine, and there is a greater number of organisms that live in marine environments, which is why it is biased. Rock Unit C contains a graptolite found in a low energy shale (which is deep marine) so lack of current/transport. Preservation in anaerobic conditions. May note that shales are formed in a low energy environment so could be deep sea. May note that some shales can be from terrestrial environments but unlikely due to fossil. Rock Unit F contains a coral and so was formed in a shallow tropical marine environment. Coral survives because it also has hard parts. Rock Unit A is a breccia and lacks fossils as likely formed in a high energy environment and on land (a river, wadi deposit, flash flood event, glacial or a beach). Rock Unit A is terrestrial and will have experienced oxidation. Rock Unit B has undergone considerable erosional process, being well rounded, well sorted and primarily made of one mineral (quartz). This level of erosion would have destroyed any fossils and would be too high energy for quick deposition. Rock Unit B may also have experienced oxidation if it was deposited in a terrestrial environment.			6	6		

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
			5–6 marks A thorough answer, using at least three of the four resources. This response relates to the environments and levels of energy, using both the rock types and the fossils present. Response has an evaluation that considers that there are factors beyond whether or not an organism was marine. <i>There is a sustained line of reasoning which is coherent, substantiated and logically structured. The information included in the response is relevant.</i> 3–4 marks A sound answer using at least two of the resources. This response may focus more on marine environments being more abundant with fossils and have less of a focus on energy. Rock types and/or fossils considered but less use of the resources to evaluate the statement. Response lacks full evaluation, focusing more on description of evidence. <i>There is a line of reasoning which is partially coherent, supported by some evidence and with some structure. Mainly relevant information is included but there may be some irrelevant information or minor errors.</i> 1–2 marks A brief answer using at least one of the resources. The response refers to marine environments only without consideration of the range of energy levels found in this environment. Limited use of evidence with occasional reference to the rocks or fossils. <i>There is a basic line of reasoning which is not coherent, supported by limited evidence and with very little structure. There may be significant errors/ inclusion of much irrelevant information.</i> 0 marks No attempt made or no response worthy of credit.						
			Question 3 total	4	4	6	14	1	3

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
4	(a)	(i)	Granite (1) Coarse crystal size / stated value over 3mm (1) Contains quartz /silicic / light in colour (1)		3		3		3
		(ii)	From map, any one x (1) from: - large body / discordant - metamorphic aureole From specimen Coarse crystal size (1)		2		2		
	(b)	(i)	25.5 / 9 (1) 2.83 g/cm ³ or 2.83 gcm ⁻³ (1) (also accept 3 or 2.8 because '9' is only 1 sig fig)		2		2	2	2
		(ii)	Any two x (1) from: - ensured that the balance was reading zero before placing the specimen on - recorded the mass of the specimen before immersing it in water - ensured eyes are level with the meniscus in the measuring cylinder - lowered specimen into cylinder gently Credit sensible alternatives e.g. making sure it is on flat surface, at eye level to avoid parallax, measure at same point on the meniscus each time, clean rock to make sure no added weight			2	2		2
			Question 4 total	0	7	2	9	2	7

Question			Marking details				Marks Available					
							AO1	AO2	AO3	Total	Maths	Prac
5	(a)			F1	F2	F3		5		5		5
			Direction of dip of fault plane	southeast	northwest (1)							
			Relative movement of hanging wall	upwards (1)	downwards							
			Dip angle of fault plane	75°	70°	90°/vertical (1)						
			Fault type [normal, reverse, thrust, strike-slip]	reverse (1)	normal	strike-slip (1)						
	(b)	(i)	100m (spot heights 350m - 250m) (1)					1		1		1
		(ii)	F2 is younger than the unconformity but older than F3 (1)					1		1		1
			Question 5 total				0	7	0	7	0	7

Question			Marking details	Marks Available					
				AO1	AO2	AO3	Total	Maths	Prac
6			Beds A & B placed horizontally towards X at correct height (1) Bed B placed horizontally between F1 & F2 at 250m, and towards Y at 350m (1) Correct plot of pluton (1) Metamorphic aureole (1) F1 at correct location, dip angle and direction (1) F2 at correct location and dip angle (1) Arrows on F1 and F2 showing correct displacement (1) Boundary of Rock Unit F-E, E-C in correct location and correct dip to the northwest under unconformity (1) Boundary of C-E in correct location and correct dip to the southeast to form an antiform limb northwest of F1 (1) NW limb of synform (boundaries of E-F and E-C in correct location and correct dip towards Y) (1) SE limb of synform (boundaries of E-F and E-C in correct location and correct dip towards X) (1) 1 Synform and 1 antiform axis correctly drawn and labelled (1) Correct cross-cutting relationship of unconformity with F1 and F2 (1)		1 1 1 1 1 1 1 1 1 1 1 1	1 1 1	13	13	13
			Question 6 total	0	10	3	13	13	13
			Totals	10	35	15	60	18	43

