

GCSE Examiners' Report

Geology

GCSE

Summer 2025

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Introduction

Our Principal Examiners' report provides valuable feedback on the recent assessment series. It has been written by our Principal Examiners and Principal Moderators after the completion of marking and moderation, and details how candidates have performed in each component.

This report opens with a summary of candidates' performance, including the assessment objectives/skills/topics/themes being tested, and highlights the characteristics of successful performance and where performance could be improved. It then looks in detail at each unit, pinpointing aspects that proved challenging to some candidates and suggesting some reasons as to why that might be.¹

The information found in this report provides valuable insight for practitioners to support their teaching and learning activity. We would also encourage practitioners to share this document – in its entirety or in part – with their learners to help with exam preparation, to understand how to avoid pitfalls and to add to their revision toolbox.

Further support

Document	Description	Link
Professional Learning / CPD	Eduqas offers an extensive programme of online and face-to-face Professional Learning events. Access interactive feedback, review example candidate responses, gain practical ideas for the classroom and put questions to our dedicated team by registering for one of our events here.	https://www.eduqas.co.uk/home/professional-learning/
Past papers	Access the bank of past papers for this qualification, including the most recent assessments. Please note that we do not make past papers available on the public website until 12 months after the examination.	Portal by WJEC or on the Eduqas subject page
Grade boundary information	Grade boundaries are the minimum number of marks needed to achieve each grade. For unitised specifications grade boundaries are expressed on a Uniform Mark Scale (UMS). UMS grade boundaries remain the same every year as the range of UMS mark percentages allocated to a particular grade does not change. UMS grade boundaries are published at overall subject and component level. For linear specifications, a single grade is awarded for the subject, rather than for each component that contributes towards the overall grade. Grade boundaries are published on results day.	For unitised specifications click here: Results and Grade Boundaries and PRS (eduqas.co.uk)

¹ Please note that where overall performance on a question/question part was considered good, with no particular areas to highlight, these questions have not been included in the report.

Exam Results Analysis	Eduqas provides information to examination centres via the WJEC Portal. This is restricted to centre staff only. Access is granted to centre staff by the Examinations Officer at the centre.	Portal by WJEC
Classroom Resources	Access our extensive range of FREE classroom resources, including blended learning materials, exam walk-throughs and knowledge organisers to support teaching and learning.	https://resources.eduqas.co.uk/
Bank of Professional Learning materials	Access our bank of Professional Learning materials from previous events from our secure website and additional pre-recorded materials available in the public domain.	Portal by WJEC or on the Eduqas subject page.
Become an examiner with WJEC.	We are always looking to recruit new examiners or moderators. These opportunities can provide you with valuable insight into the assessment process, enhance your skill set, increase your understanding of your subject and inform your teaching.	Become an Examiner Eduqas

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Executive Summary

The two components forming the GCSE Geology assessment in 2025 were both of similar formats to these components in previous years, and it is clear that many candidates were familiar with the typical demands of such papers.

The mean marks achieved by candidates were slightly lower in Component 1 and higher in Component 2 than in 2024.

In both components candidates generally performed well on topics such as minerals and rocks. However, in Component 1 many candidates did not understand the difference between relative and absolute ages. Candidates had difficulty identifying a fossil goniatite, interpreting fault types and providing evidence for a previous convergent plate boundary from rock and map evidence in Component 2.

In Component 2 there was a particular emphasis on the assessment of candidates' knowledge and understanding of practical skills and techniques, which accounted for 25 of the 80 marks. The drawing of the sand in question 3 was generally done well, although the sketching of the igneous body in question 2 was undertaken less well than equivalent drawing in previous years. Most candidates did attempt the construction of the cross-section although many found it quite challenging.

The answers involving mathematical skills were answered very well by many in Component 2. In Component 1 however, these types of answers produced a greater variety of responses, and several basic errors were made in measuring from scale bars and graphs.

Throughout both components candidates simply gave answers that were too brief for the number of marks available. Candidates should refer to the number of marks allocated to a question and account for this in the amount of detail that they incorporate in their answers.

As in previous years it was notable that candidates are using the names of rocks not on the specification, such as gneiss and hornfels. Teaching candidates these names puts them at a disadvantage in the examinations compared to those who are not aware of such terms and who therefore have fewer chances of getting the answer wrong.

Areas for improvement	Classroom resources	Brief description of resource
Writing answers that respond to all the key information given in the stem of the question	Online exam review	Annotated samples of candidate responses which can be used to show good practice.
Recall of a variety of topic areas	GCSE KNOWLEDGE ORGANISERS	A collection of knowledge organisers to support the learning of GCSE Geology.

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Component 1 – Geological Principles

Overview of the Component

Component 1 covered specification aspects of the rock cycle, Earth structure and composition, plate tectonics, Earth resources and engineering, climate change, planetary geology, sedimentary rocks and structures and principles of geological dating. It also assessed appropriate practical and mathematical skills.

Component 1 was accessible to the majority of candidates and on balance there were more questions attempted compared to previous Component 1 examinations, particularly the longer response questions worth between 3 and 6 marks.

A small number of candidates failed to make use of the data sheet as instructed and sacrificed a few easily obtainable marks.

A minority of candidates failed to tick two boxes on the multiple-choice questions when required.

The QER extended response questions worth 6 marks produced a wide range of responses with candidates scoring across the full range of marks. Fewer candidates failed to attempt these questions this year.

The mathematically based questions produced a variety of responses, and a number of basic errors were made in measuring from scale bars and graphs.

Comments on individual questions/sections

Q.1 Rock cycle, rock structure, Earth resources and engineering.

The multiple-choice questions were generally answered well by most of the candidates, but section (b) proved to be a very good discriminator. A significant number of candidates failed to notice that the location of the proposed road was in an upland area of Northern Scotland and consequently did not refer to the likelihood of strong mechanical weathering/freeze-thaw continuing to produce scree. Many candidates ignored the word evaluate and their answers concentrated only on the negative aspects of the location of the road. Most answers focused on the removal of the scree which would likely lead to collapse of the hanging wall of the normal fault. Others cited fault reactivation after heavy rainfall and that shale was impermeable and incompetent. The best answers referred to the relative stability of the cliff as the beds dipped away from the location of the road. In addition, some candidates referred to stabilisation methods such as rock bolts, shotcrete, steel nets, slope re-profiling and gabion baskets that could be used to prevent scree from falling on the road and so stabilize the cliff face permanently.

Q.2 Earth structure and composition.

The majority of candidates were able to identify layer **A** as the lithosphere, showed good knowledge of the physical properties of the asthenosphere and were also aware that meteorites could be used to interpret the composition of the Earth's mantle and core. It was pleasing to see that a high proportion of candidates were able to accurately calculate the volume of the Earth using the formula given in (b)(i). Many candidates were also aware of how to state the answer in standard form and scored the full 3 marks. A small number of candidates transposed the formula incorrectly by using $3/4$ instead of $4/3$. A minority of candidates seemed unable to use the on-screen calculator or had no access to a physical calculator to carry out the calculation and simply just put the numbers into the equation which achieved 1 mark.

Most candidates were able to identify the mantle as the layer making up 84% of the total volume of the Earth. However, in (c), there was a wide variation in the length and quality of the responses. Many candidates simply described the pattern shown by changes in the density of the Earth layers with depth gaining 1 mark. A significant proportion of responses made no reference to composition in terms of rock types/minerals/elements or to the physical state of the different layers.

Q.3 Plate tectonics and continental drift.

This proved to be a very good discriminator with a wide range of marks achieved by the candidates. Many candidates correctly identified the plate boundary as divergent in (a) (i) but struggled somewhat with (a) (ii) and (a) (iii). Describing the pattern shown by the magnetic stripes in Figure 3a was done poorly by many as only one aspect of the pattern was stated. Very few responses gave symmetrical, parallel to the ridge and alternating normal and reverse polarities. A small number of candidates described the pattern shown in Figure 3b referring to the variation in ages of the stripes. Only a minority of candidates scored marks in (a) (iii) with many answers left blank. Most attempts tried to explain sediment on the ocean floor varying in thickness and covering up parts of the stripes. The only creditworthy responses referred to variations in volcanic activity/spreading rates along the ridge and that in places the stripes were offset by transform faults.

The responses in (b) were quite variable with marks being lost through carelessness and poor exam technique. A significant number of candidates measured the most recent period of normal polarity instead of reversed polarity as stated in the question. Many candidates failed to put the correct units in their answers so 0.1 or 120,000 did not gain credit, 0.1Ma or 120,000 years was required. Many candidates correctly counted the number of periods of normal and reversed polarity and realised that 286,000 years could be the only answer.

Section (c) proved problematic for a number of candidates. Many were unable to read the graph in Figure 3d accurately and often stated that rocks aged 76 Ma were 1350km to 1450km from the Mid-Atlantic Ridge. The actual value was 1500 km. Many candidates then failed to use the values of 76 Ma and 1500 km to calculate the mean rate of sea floor spreading even though it was clearly stated in the question. A number of candidates used the correct figures but were unable to give the correct answer of 1.97 cm yr^{-1} , instead giving 19.7 cm yr^{-1} .

Section (d) was answered well by many candidates and only a few failed to gain any marks here. Most candidates attempted this QER and a lot of full marks were awarded. The best responses concentrated on three different pieces of evidence and explained how each has been used, citing detailed examples. Jigsaw fit using the opposing coastlines of Eastern South America and West Africa was the most common followed by fossil evidence using Mesosaurus, the freshwater reptile only found in Africa and South America. Other responses included reference to rock types and climate, matching up mountain chains across oceans, evidence from glacial deposits and the use of modern GPS tracking. Weaker responses failed to give examples and explain how they had been used to indicate drift through time so were restricted to 3/6 marks. A small number of candidates misinterpreted the question and referred to evidence for sea floor spreading and hot spot volcanic islands.

Q.4 Climate change.

This question was characterised by careless errors from some candidates due to failing to read the data from Figure 4 correctly, in particular sections (a) (i) and (a) (iii). Counting the number of icehouse conditions in the different geological eras proved a challenge for a significant number of candidates and all three had to be correct to gain the 2 marks in (a) (i). Calculating the concentration factor in (a) (iii) was made difficult by candidates choosing the wrong numbers from Figure 4a. Many failed to notice the CO₂ level in 2022 was 421 ppm, giving 500 ppm instead. The remaining multiple-choice sections of this question were well answered by the majority of the candidates.

Q.5 Planetary geology, geological history and sedimentary rocks/structures.

This question was the longest on Component 1, worth 21 of the 80 marks in total. The questions were accessible to all candidates, and many scored very highly here. Many candidates scored full marks on the multiple-choice sections regarding the shape and size of the Jezero Crater. The majority of candidates were able to calculate the circumference of the crater correctly and many noticed the scale bar of 15km to be exactly one third of the diameter of the crater which resulted in many identical answers. Section (b) was the highest scoring part of the question with most candidates identifying the rock at location X as conglomerate along with the correct textural description. Haematite was correctly identified as the mineral responsible for the reddish-brown colour of rock at location X by almost all candidates.

Section (c) proved straightforward for most candidates with excellent explanations on how the desiccation cracks had been formed. The descriptions of the size and shape of the desiccation cracks was poorly done in comparison by some candidates. The cracks are clearly in the range of 2-8 cm but many gave values of 20 cm or more. The shape is clearly angular/rectangular/polygonal but many just stated irregular, parallel or random, failing to gain credit.

Section (d) proved to be a very accessible question with the framework for an answer being given in the stem. Most candidates made a good attempt at this question, and many were awarded full marks. The strongest candidates adopted a logical approach going from the earliest event through to the most recent event. A significant number of responses started with the formation of the Mars crust as the first event which was given due credit. It wasn't necessary to identify every event in order to gain maximum marks but many of the best did just this. Marks were lost generally by candidates suggesting the river channels formed first, followed by the Jezero impact crater. Only the best answers referred to the crater filling up to form a lake, then overflowing to cut the outflow channel in the top left of the crater.

A number of responses failed to realise that the small impact craters were the final geological event. Most candidates made reference to superposition and cross-cutting relationships in their reasons to explain the sequence of events. Only a very few candidates made no attempt at this question.

Q.6 Geological structures, relative and absolute dating.

This question proved difficult for a significant number of candidates and many of the responses were rather disappointing. It is clear that many candidates do not understand the difference between relative and absolute ages. Many candidates failed to state what was meant by relative age, then stated the relative age of the granite intrusion in Figure 6 as 270 Ma. This showed very poor technique by many as 270 Ma could not possibly be worth the 4 marks allocated for this question. The stronger candidates scored full marks here stating the granite was younger than the schist as it cuts through the schist, and older than the Quaternary sediments as they lay unconformably above the eroded granite.

Half-life was understood by many candidates, but fewer could fill in Table 3 correctly with the percentage of parent and daughter isotopes. The most common mistake given was 0% parent/100% daughter or 25% parent/25% daughter.

Section (b) (iii) was answered well by many candidates recognising that 12.5% parent atoms equated to three half-lives, giving an age of 3753 Ma. A number of candidates thought as many as 8 half-lives had elapsed ($8 \times 12.5\% = 100\%$) so could only score a maximum of 1 mark for the calculation. (error carried forward or ecf). The final question enabled the majority of candidates to score 1 mark for realising that location Q was in the metamorphic aureole of the granite. Very few candidates would commit to making a decision on whether this would result in the absolute age of the schist at Q being younger or older than at location P.

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Component 2 – Investigative Geology

Overview of the Component

The Component 2 paper included short and extended questions based on Map 1. The paper assessed a wide variety of topics with an emphasis on the rock groups, minerals and geological structures. It also required the candidates to draw on their knowledge and understanding of practical skills and techniques which accounted for 25 marks. Candidates were assessed on the sketching of a sill and the texture of a sediment. Generally, the plotting of data on the graph and the bar chart was done well. Many candidates attempted the cross-section in question 6 although few achieved full marks as beds were not plotted accurately. A significant minority did not attempt the cross-section. Mathematical skills were also assessed in the paper and accounted for 21 marks. Generally, these questions were answered very well.

Comments on individual questions/sections

Q.1 Overall, the first part of the question was generally well-answered with many candidates using correct terminology to describe the textural terms. In (a)(ii) and (a)(iii), most candidates successfully identified sandstone and shale; however, some provided incorrect responses, naming igneous or metamorphic rocks, or even minerals. For (b), although some candidates did not add the required plot to complete the permeability graph, many did plot the data point and line of best fit accurately, and were able to identify the correct permeability for Rock Unit B. In (c), many candidates secured one mark by describing the correct relationship between grain size and permeability. However, only a few gave a full description with reference to a positive relationship or made use of the values within the data. Candidates should refer to the number of marks allocated and account for this in the detail of their answers. This was also seen in (d)(i), where higher scoring candidates referred to the permeability of both limestone and shale to explain the presence of the spring, but others gave underdeveloped responses. Similarly, in (d)(ii), while most identified that Well 1 was the more suitable site, higher scoring responses explained this using reference to the permeability of the relevant rock units. Lower scoring responses were vague and did not relate specifically to the rock units.

As with Component 2 in 2024, many candidates incorrectly referred to the permeable limestone as a reservoir rock and shale as a cap rock.

Q.2 Part (a)(ii), requiring a sketch of the sill, was less well answered than in previous years. While some candidates produced accurate sketches of the sill thickness and dip, lower scoring responses often used a ruler, resulting in inaccurate proportions and dip angles.

The comparison of two minerals in part (b)(i) was a new style of mineral question. Higher scoring candidates correctly selected properties such as hardness or cleavage and were able to describe the tests including the relevant equipment and compare the result for olivine and augite. Some candidates mistakenly described the hardness test as a “scratch test”.

In (b)(ii), many candidates identified the equicrystalline texture of Rock Unit N, supporting the inference that it cooled at a single rate. However, weaker responses misunderstood crystalline texture as evidence of an intrusion generally or linked it incorrectly to mafic composition. Higher scoring candidates were able to recognise that the medium sized crystals were formed intrusively and thus cooled slower.

In (c)(i), although many candidates correctly identified the sill, few gave two correct reasons. For (c)(ii), candidates stated interlocking crystals as evidence for contact metamorphism, rather than explicitly linking it to heat from the sill.

Q.3 This was a highly accessible question for most candidates. In (a), higher scoring responses plotted the graph accurately with percentages totalling 100%. A frequent mistake was to replicate Figure 3b, without adjusting for the poorer sorting. Sketches of Sand Z were generally of good quality, with few candidates confusing mineral crystals for grains. Many used the scale bar effectively to measure grain sizes accurately. Higher scoring responses in (c) used textural characteristics to explain greater transport distances and correctly referred to attrition or abrasion as the key erosional processes. Parts (d) and (e) were high scoring, with many candidates achieving 2 or 3 marks in the 3 mark questions.

Q.4 The cross-section continued to differentiate well. Many candidates successfully plotted the fault and dip of the bedding. However, significant numbers did not attempt to plot the dyke or drew it parallel to bedding. Some plotted both the fault and beds vertically. Higher scoring candidates used the western bed thickness to correctly determine the thickness of Rock Unit D. Although the fault in (a)(ii) could be identified either from Table 3 or the cross section, many candidates incorrectly identified it as a reverse fault. In (b)(i), many candidates showed clear working to accurately calculate the outcrop width. However, only a small number successfully answered (b)(ii), with many not attempting it at all. High-scoring answers described how uplift and erosion on the northern side of the anticline led to decreased outcrop width.

Part (c) was accessible, though higher-level responses included evaluative points, such as why an unconformity was likely and why a pluton was unlikely. Strong answers explained that conglomerates are sedimentary rocks and would not be found within a pluton. Weaker responses tended to be short and did not reflect the 4-mark allocation.

Q.5 Many candidates correctly identified Mineral L as mica and the texture as foliated, but very few identified Rock Unit G as slate. Incorrect answers often included rocks not on the specification, such as gneiss or hornfels.

In (b), fossil identification proved more challenging, with many candidates confusing the goniatite with ammonites or ceratites.

The QER was well attempted by many candidates. Lower scoring candidates were able to use the data sheet to determine that both Rock Unit H and the goniatite were of Palaeozoic age. Higher level answers referred to all the sources and explained how each provided evidence for a convergent plate boundary rather than simply linking the two without explanation. For example, higher level answers explained that the granite formed because of partial melting and the thrust fault and folding formed due to compressional stresses at a convergent boundary.

Some candidates, however, gave geological histories rather than focusing on answering the question directly.

Practical and Map Skills:

Map Skills:

Many candidates attempted the cross-section; however, it remained challenging for most. Although the majority successfully plotted the fault and bed dip, a significant number failed to plot the dyke. Additionally, many were unable to identify F1 and its characteristics or provide a clear explanation for the decrease in outcrop width towards the north.

Sketching Skills:

The quality of the sketching was good, however the sketches of the sill varied in accuracy, with weaker responses using rulers leading to poor proportions and dip angles. Sand sketches were generally good, with correct use of the scale bar to measure grain sizes. However, many did not take into account the range of sediment sizes in the sketch.

Identification of Rocks and Fossils:

Most candidates identified sandstone, shale, and mica correctly, but struggled with identifying slate and sometimes used rock names not on the specification. Fossil identification was challenging, with frequent confusion between goniatites, ammonites, and ceratites.

Supporting you

Useful contacts and links

Our friendly subject team is on hand to support you between 8.30am and 5.00pm, Monday to Friday.

Tel: 029 2240 4253

Email: geology@eduqas.co.uk

Qualification webpage: [GCSE Geology | Eduqas](#)

See other useful contacts here: [Useful Contacts | Eduqas](#)

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WJEC
245 Western Avenue
Cardiff CF5 2YX
Tel No 029 2026 5000
Fax 029 2057 5994
E-mail: exams@wjec.co.uk
website: www.wjec.co.uk