



# **GCSE MARKING SCHEME**

**GEOLOGY**

**SUMMER 2013**

## **INTRODUCTION**


The marking schemes which follow were those used by WJEC for the Summer 2013 examination in GCSE GEOLOGY. They were finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conferences were held shortly after the papers were taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conferences was to ensure that the marking schemes were interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conferences, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about these marking schemes.

**GCSE GEOLOGY**

**SUMMER 2013**

<b>Section</b>	<b>Question</b>	<b>Answer</b>	<b>Mark</b>
1	1		1
	2	syncline	1
	3	strike-slip	1
	4	sideways displacement of beds (1) dextral (1) displacement of the axial plane trace of the syncline (1) equal width of beds each side of fault (1)	2
	5	shear	1
	6	from oldest to youngest structure in the sedimentary rocks fault granite intrusion mineral veins	all correct (2) 2 correct (1)
	7	cross-cutting relationships	1
	8	galena	1
	9	quartz	1
	10	hydrothermal fluids (1) from granite or from country rock (1) scavenge/dissolve minerals (1) enter fractures (1) cool (1) crystallise (1) any 4 points logically presented using good English	4
	11	magnetic survey and surface mining – concealed iron ore geological mapping and quarrying – limestone seismic survey and boreholes – oil	3

**Total 18**

Section	Question	Answer	Mark
2	12	in order crystallisation as cement from pore waters (1) magma collects (1) cooling and crystallisation of magma (1)	3
	13	bed load consists of the smallest grains moved by traction	1
	14	e.g. rounded grains by water, angular by ice (1) or better sorting in water (1) or coarser grain size in ice (1) due to lack of attrition in ice / grains separated by denser medium / less chance of contact (2) due to removal of fines by water / water cannot carry very coarse grains / rapid deposition by ice (2) ice has higher energy and is able to carry coarser grains (2)	3
	15	rounded (1) medium-grained (1)	2
	16	crystalline (1) non-foliated (1)	2
	17	calcite	1
	18	metamorphism	1
	19	1 (1)  high pressure causes foliation (1) garnet forms under high pressure (1) high temperature produces medium-grained crystalline texture / recrystallisation (1) (credit explanation for rejecting alternatives) up to (2) max for explanations	3
			<b>Total 16</b>

Section	Question	Answer	Mark
3	1	trace fossils (1) ripple marks (1)	2
	2	e.g. shallow water / lake (1) shallow water for ripples (1) symmetrical/asymmetrical - currents (1) shallow for terrestrial dinosaurs (1) (allow desert environment if justified) environment (1) reasons (2) max	3
	3	G (1) frilly suture line (2) – no credit for ‘suture line’ only	3
	4	G 3 F2 H 1 (3) suture line from zig-zag to frilly, evolution to more complex (2)	5
	5	reef building coral (1)  tropical / 22-28°C (1) accept ‘uniformitarianism’	2
			<b>Total 15</b>

Section	Question	Answer	Mark
4	6	volcanic island arc 4 subduction zone 5 constructive plate margin 1 ocean trench 3 abyssal plain 2	5
	7	← ←	1
	8	3	1
	9	pillow lavas of basalt – volcanic eruption on the sea floor black shale – deposition of organic mud gabbro – slow crystallisation of magma dykes of medium-grained rock – intrusion along vertical cracks in the crust	4
	10	crust and upper mantle (1) rigid solid (1)	2
	11	1 basaltic (1) 4 andesitic/granitic (1) partial melting of mantle only at location 1 (1) partial melting of mantle at location 5 (1) which is contaminated with crustal melt (1) contaminated with sediment (1) 'processed' to become andesite (1) (3) max for explanation	5
		(melting of subducting slab is incorrect but does not prevent maximum marks being awarded for other correct points)	
		<b>Total 18</b>	
5	1	fast moving slurries of rock .... lahar small fragments .... ash molten flows .... lava flow downhill movements .... landslides high speed avalanches .....pyroclastic flows	5
	2	pyroclastic flow	1
	3	high population density	1
	4	ground deformation / gas emissions / thermal monitoring / changes in groundwater / seismic e.g. volcanic tremors 2 x 2 for description logically presented using good English	4
		<b>Total 11</b>	

Section	Question	Answer	Mark
6	5	N	1
	6	Permo-Triassic	1
	7	Q	1
	8	dinosaurs (1) ammonites (1)	2
	9	e.g. meteorite impact or changing climate; good description (2)	2
	10	3 500 Ma	1
	11	black smokers (1) hydrothermal pools (1) in absence of oxygen (1) input of energy (1) suitable organic chemicals (1) or up to (2) for extraterrestrial organic materials transported by meteorites	2
	12	Cambrian	1
	13	trilobite	1
	14	any 2 of rapid burial (1) no oxygen (1) no predators (1) no currents (1) fine sediment preserves detail (1)	2
			<b>Total 14</b>
7	1	the v-shaped valley has been formed by glaciation (1) jointing decreases the permeability of a rock (1)	2
	2	a landslide is more likely on the west .... (1) the steep angle of dip .... (1)	2
	3	rock bolts prevent rock falling on road (1) secure loose rock (1) gabions prevent sand and gravel slumping (1) prevent collapse of road base (1) acts as retaining wall (1) adds weight to base of slope (1) must be at least (1) from each (max of 3 for really good explanation of one)	4
			<b>Total 8</b>
			<b>Paper Total 100</b>



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