

Earth Systems 3209

June 2015 Public Exam Outcome Report

This examination follows the specifications, conventions and standards set out in the:
Earth Systems 3209 Provincial Exam Standards

Units	1 - Introduction	4 - Forces Within Earth
	2 - Historical Geology	5 - Earth's Resources
	3 - Earth Materials	

PART I: Selected Response—Total Value: 75%

Item	Curriculum Guide Page	Outcome	Cognitive Level	Outcome Description
Unit I 1	28	114-6	1	Identify the characteristics of a branch of earth science.
2	30	331-1	2	Sequence the stages in the solar nebular hypothesis.
3	32	331-1	1	Identify a factor contributing to Earth's layered structure.
4	34	332-3	2	Demonstrate effects of interaction among spheres.
5	32	333-1	2	Classify temperature and density changes within earth.
Unit II 6	42	332-6	2	Use a diagram for identification of a geologic structure.
7	40	332-5	1	Identify a scientist and his/her contribution.
8	40	332-6	1	Identify an example of relative time.
9	42	332-6	2	Use a diagram for identification of a geologic structure.
10	46	332-6	3	Determine the age of a lake (glacial varves).
11	48	214-10	2	Describe the limitations of radioactive dating.
12	48	332-4	1	Define a chemistry term.
13	58/60	332-4	2	Classify the life form and geologic time frame of a fossil based on its characteristics.
14	52	332-7	1	Identify an example of a trace fossil.
15	56	332-4	1	Identify a division of geologic time.
16	52	332-7	1	Identify a factor which would reduce the chances of fossilization.
17	58	332-4	3	Sequence a series of fossils from youngest to oldest.

18	60	332-7	2	Classify a match between geologic boundary and extinction of species.
Unit III 19	66	330-3	1	Identify an example of a chemistry term.
20	66	330-3	1	Identify elements dominating an earth layer.
21	68	330-3	1	Define an earth material term.
22	68	330-3	2	Classify a metallic native element.
23	68/74	330-3	1	Identify an example of a mineral.
24	70	330-3, 213-3, 214-10	3	Determine the mass of a mineral, given specific data.
25	70	330-3	3	Determine the properties of a mineral based on a given diagram.
26	70	330-3	2	Differentiate between minerals based on a mineral property.
27	70	330-3	1	Identify reliable means of mineral identification.
28	74	116-7	2	Classify rock types and relevant processes.
29	74/94	116-7, 330-2	1	Identify processes involved in rock formation.
30	76	330-2	2	Classify rock types according to texture and composition.
31	78	330-2	1	Identify a category or type of igneous rock.
32	76/78	330-2	1	Identify an igneous rock based on its composition.
33	78	330-2	1	Identify the cause of a specific igneous rock texture.
34	72	330-3	2	Differentiate between minerals based on composition and atomic arrangement.
35	76/78	330-2	3	Determine rock composition and type based on Bowen's reaction series.
36	86	330-2	2	Sequence the order of clastic sedimentary rocks.
37	86/88	330-2	1	Identify a sedimentary rock based on characteristics given.
38	86	330-2	2	Inspect a photo of a sedimentary rock and identify its characteristics.
39	88	330-2	1	Identify a process relating to a type of sedimentary rock.
40	90/92	330-2	1	Identify a sedimentary rock and its relevant environment.
41	78	330-2	1	Identify igneous rock type and texture.
42	94	330-2	2	Classify an agent of metamorphism and its effect on a rock.
43	94	330-2	1	Identify a metamorphic rock texture.
44	94	330-2	1	Identify a parent rock and its resulting metamorphic rock.
Unit IV	106/108	115-3	1	Identify a scientist and his/her contribution.

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46	104/106	114-2, 115-3	1	Select specific characteristics of the theory of continental drift.
47	110/134/ 136	115-7, 331-9	1	Identify a rock type that forms at a specific plate boundary.
48	108	115-7	1	Identify a characteristic of an Earth layer.
49	114	115-7	1	Identify a tectonic force type within a plate tectonic environment.
50	120	332-7	1	Identify a type of deformation.
51	112	115-7	2	Classify the type of boundary shown in a diagram of a plate tectonic environment.
52	124	332-7	1	Identify a fault type.
53	104	114-2	1	Identify a past continental configuration.
54	112/120	115-7 332-7	2	Classify force type and plate tectonic environment contributing to the formation of island arcs.
55	124	332-7	2	Classify a fault type based on a diagram.
56	110/136	115-7, 331-9	3	Determine the type of plate boundary relating to the formation of a specific land feature.
57	128	331-9	2	Classify the characteristics of earthquake scales.
58	130	331-9	2	Differentiate between earthquakes based on magnitude.
59	134/136	331-9	1	Identify the characteristics of a volcano type.
60	114	332-8	3	Evaluate evidence of plate tectonics and plate boundary type, and rock type.
61	136	331-9	3	Determine the characteristics of volcano types.
62	136	331-9	2	Classify the factors impacting eruption styles of volcanoes.
63	114/124	115-7, 332-7	1	Identify an environment containing a specific fault type caused by a specific force type.
64	140	117-7	1	Identify a branch of earth science.
Unit V 65	154	330-10	1	Define a petroleum term.
66	146	330-8	2	Classify a mineral deposit type, based on a diagram.
67	146	330-8	1	Identify a factor determining the economics of a mineral deposit.
68	160	330-10	2	Classify an oil trap based on a diagram.
69	164	330-10	3	Determine results coming from a distillation chamber.
70	154/156	330-10	1	Define a petroleum term.

71	162	330-10	1	Identify a process used to mobilize hydrocarbons.
72	156/158	330-10	1	Identify the components of a petroleum trap.
73	160	330-10	3	Determine a force type and type of petroleum trap.
74	146	330-8	2	Analyze a diagram to identify mineral deposit type.
75	152	330-10	1	Identify a processing technique.

PART II: Constructed Response—Total Value: 25%

Item	Curriculum Guide Page	Outcome	Cognitive Level	Value	Outcome Description
Unit I 76	32	333-1	3	2%	Describe the formation of the solar system, Earth, and Earth's structure.
Unit II 77(a)	40/54	332-5, Core Lab #2	3	3%	Explain how a geological principle is used to understand a specific era.
77(b)	48	332-4	2	2%	Determine the age of a rock sample through radioactive dating data.
Unit III 78(a)	86	330-2	2	1%	Classify a rock based on a diagram.
78(b)	86	330-2	2	2%	Explain the processes of formation of a specific rock type.
78(c)	94	330-2	2	2%	Differentiate between two rock samples.
78(d)	70	Core Lab #3	3	2%	Determine the mineral properties of two samples.
Unit IV 79(a)	114	332-8	2	2%	Explain supporting evidence of plate tectonics.
79(b)	76/136	330-2, 331-9	2	2%	Describe a plate boundary type based on specific characteristics.
79(c)	114/116	332-8, 117-11	3	2%	Develop a diagram showing the formation of a geological location.
Unit V 80(a)	156	330-10	2	3%	Classify the phases of the evolution of organic matter into petroleum.
80(b)	160	330-10	3	2%	Based on a diagram, determine the best location for oil exploration.

