

Earth Systems 3209

June 2017 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 minor branch of earth science.
2	30	333-1	2	Sequence the stages in the solar nebular hypothesis.
3	32	333-1	1	Identify a factor that contributes to Earth's internal structure.
4	32	333-1	2	Identify a layer of Earth based on its associated characteristics.
5	34	332-3	2	Determine the order of formation of Earth's spheres.
Unit II 6	40	332-5	1	Identify a principal/law relating to Earth's formation and processes.
7	42	332-6	2	Use a geological sequence to identify a relative dating feature/ technique.
8	40	332-6	2	Identify an example of relative age dating.
9	42	332-6	3	Interpret a geological history using relative dating techniques.
10	46	332-6	3	An absolute dating technique. Glacial varve calculation.
11	48	332-4	2	An absolute dating technique. Radioactive dating calculation.
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	58	332-4	1	Determine the dominant life form in a geological time frame.
15	56	332-4	1	Identify a geological time frame from an associated characteristic.
16	58	332-4	2	Determine the evolutionary sequence of a set of lifeforms.
17	60	332-4	2	Determine a lifeform associated with a mass extinction event.
18	60	332-7	1	Determine an accepted explanation for a mass extinction event.

Unit III 19	68	330-3	1	Identify the characteristics of a mineral.
20	66	330-3	1	Identify dominant elements in an earth layer.
21	70	330-3	1	Determine a characteristic of a specific mineral.
22	70	330-3	1	Relate a mineral property to its level of reliability.
23	68/74	330-3	1	Identify an example of a mineral.
24	70	330-3, Lab #3	1	Identify a mineral based on its property/characteristic.
25	70	330-3	2	Identify a mineral based on its property/characteristic.
26	76	330-2	2	Use a mineral property to distinguish between two minerals.
27	78	330-2	2	Identify a texture in an igneous rock.
28	78, 82	330-2, Lab #4	1	Identify a factor responsible for the development of an igneous rock texture.
29	80	330-2	3	Use a texture and composition chart to classify an igneous rock.
30	76	330-2	2	Classify rock types according to texture and composition.
31	86	330-2	2	Identify a process involved in the rock cycle.
32	86	330-2	2	Identify a sedimentary rock.
33	78	330-2	1	Identify the cause of a specific igneous rock texture.
34	86	330-2	1	Identify a term relating to sedimentary rock classification.
35	86	330-2	1	Identify a sedimentary rock based on its characteristics.
36	88	330-2	2	Determine the sequence of clastic sedimentary rocks based on their relationship to velocity.
37	88	330-2	1	Classify a clastic sedimentary rock.
38	90	330-2	1	Identify a sedimentary rock feature.
39	94	330-2	1	Identify a metamorphic rock and its parent.
40	90/92	330-2	1	Identify a sedimentary rock and its relevant environment.
41	94	330-2	2	Identify a metamorphic rock and its parent.
42	96	330-2	3	Determine the location of a type of metamorphism in a diagram.
43	94/96	330-2	3	Use a diagram to determine a type of metamorphism, metamorphic rock, and its parent rock.
44	96	330-2	1	Identify an associated characteristic of regional metamorphism.

Unit IV 45	108	115-7	2	Identify a characteristic of tectonic plate movement.
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	112	115-7	1	Identify a geologic feature at a plate tectonic boundary.
49	114	115-7	1	Identify a tectonic force within a plate tectonic environment.
50	116	330-12	1	Identify a characteristic of a section of Newfoundland geology.
51	112	115-7	2	Classify the type of boundary shown in a diagram of a plate tectonic environment.
52	122	332-7	3	Identify a geological environment based on type of deformation and associated factors.
53	124	332-7	2	Use a diagram to identify a fault type and associated type of stress.
54	124	332-7	1	Identify a feature associated with compressional forces.
55	124	332-7	2	Identify a specific deformation feature.
56	126	331-9	1	Define a term related to earthquakes and their formation.
57	126	331-9	2	Identify a process associated with earthquakes.
58	126	331-9	1	Relate a plate tectonic boundary to type and depth of earthquakes.
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	130	331-9	3	Compare earthquakes based on amplitude.
62	136	331-9	2	Classify the factors impacting eruption styles of volcanoes.
63	136	331-9	2	Describe processes of formation of intraplate/hotspot volcanism.
64	134	331-9	1	Identify a rock type based on volcanic environment.

Unit V 65	146	330-8	1	Identify an economic mineral deposit based on process of formation.
66	148	330-9	1	Identify an exploration technique.
67	148	330-9	1	Identify a feature of an open pit mine.
68	152	330-10	1	Identify an ore processing technique, based on a description.
69	152	330-10	2	Identify an ore processing technique, based on a source.
70	154/156	330-10	1	Define a term related to petroleum.
71	156	330-10	3	Determine sequence of the evolutionary stages of petroleum formation.
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	330-10	2	Analyze a diagram to identify mineral deposit type.
75	152	330-10	1	Identify a petroleum refining technique based on a description.

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%	Processes involved in forming Earth's internal structure.
Unit II 77(a)(i)	48	332-4	2	2%	Radioactive dating calculations. An absolute dating technique.
77(a)(ii)	48	332-4	2	1%	Radioactive dating calculations. An absolute dating technique.
77(b)	48	332-4, 214-10	3	2%	An assumption and a possible issue relating to radioactive dating as an absolute dating technique.
Unit III 78(a)(i)	70, 225	330-3, Lab #3	2	2%	An economic mineral deposit, mineral properties, and a selected mineral.
78(a)(ii)	70, 225	330-3, Lab #3	2	1%	A mineral and its economic use.
78(b)	78, 86, 239	330-3, Lab #3	2	2%	A similarity and a difference between two sedimentary rocks.
78(c)	78	330-2	3	2%	An igneous rock texture and its development.
Unit IV 79(a)	128	331-9	2	2%	Seismograms and their use in determining distances to earthquake epicenters.
79(b)	126	331-9	2	2%	Plate boundaries, volcano types, and differences in viscosities and eruption styles.
79(c)	124	332-7	3	2%	A plate boundary and its associated fault type and characteristics.
Unit V 80(a)	146	330-8	2	3%	Two economic mineral deposits and their formations.
80(b)	156	330-10	3	2%	A petroleum trap and its required components.