Earth Systems 3209

June 2016 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
2 - Historical Geology
3 - Earth Materials
4 - Forces Within Earth
5 - Earth's Resources

PART I: Selected Response—Total Value: 75%

Item	Curriculum Guide Page	Outcome	Cognitive Level	Outcome Description
Unit I 1	28	114-6	1	Identify a branch of earth science.
2	30	333-1	2	Use an image to identify a stage in the solar nebular hypothesis.
3	32	333-1	1	Identify a factor contributing to Earth's layered structure.
4	32	333-1	2	Use a diagram to identify an Earth layer.
5	32	333-1	2	Classify temperature and density changes within Earth.
Unit II 6	40, 42	332-6	1	Identify an example of relative time.
7	42	332-6	2	Use a diagram for identification of a geologic structure.
8	42	332-6	3	Determine the oldest layer using a diagram and fossil correlation.
9	40, 46	332-6	1	Identify absolute time using an example.
10	40	332-5	1	Define a geologic concept.
11	48	332-4	2	Calculate a solution to a radioactive decay problem.
12	48	332-4	3	Compare rock samples by performing radioactive decay calculations.
13	52	332-7	2	Classify a type/method of fossilization.
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 condition of fossilization.
17	58	332-4	2	Classify a division of geologic time with the dominant life form.
18	58	332-4	2	Use a diagram to match a group of organisms with a division of geologic

				time.
Unit III 19	66	330-3	1	Identify an element based on its symbol.
20	68	330-3	1	Identify the appriopriate mineral group for a mineral.
21	68	330-3	1	Identify a mineral based on a description.
22	70, 225	213-3, Lab #3	3	Determine the specific gravity of a mineral.
23	70	330-3	1	Identify a reliable mineral property.
24	70	330-3	2	Use a diagram to identify a mineral and a mineral property.
25	70, 225	330-3, Lab #3	2	Use a diagram to identify a mineral and a mineral property.
26	70, 225	330-3, Lab #3	1	Identify a mineral based on a description of a mineral property.
27	72	330-3	1	Identify minerals based on composition.
28	76	330-2	1	Identify igneous rocks based on chemical composition.
29	74,86	116-7, 330-2	1	Identify factors that are responsible for forming a type of rock.
30	76	330-2	2	Classify a rock type according to texture and composition.
31	76	330-2	1	Identify an igneous rock based on composition and the environment of formation.
32	76	330-2	1	Identify a mineral that relates to an igneous rock composition.
33	226	Lab #3	1	Identify a scientist and his/her contribution.
34	78	330-2	2	Use a diagram to identify an igneous rock texture.
35	78	330-2	1	Identify an igneous rock based on texture.
36	80	330-2	3	Determine an igneous rock using Bowen's Reaction Series.
37	86	330-2	1	Identify processes involved in the formation of a rock type.
38	86	330-2	2	Describe the conditions of formation of a sedimentary rock.
39	86	330-2	2	Use a diagram to identify a sedimentary rock based on its properties.
40	90	330-2	1	Identify a metamorphic rock.
41	90	330-2	1	Identify a biochemical sedimentary rock.
42	94	330-2	3	Determine characteristics and conditions of a metamorphic rock.
43	98	117-7	1	Identify a scientist and his/her contribution.
44	94	330-2	2	Sequence the order of metamorphic rocks from low to high grade.
Unit	104	114-2	1	Identify evidence supporting continental drift theory.

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46	104, 106	114-2, 115-3	1	Identify a scientist and his/her contribution.
47	106	115-3	1	Identify a scientist and his/her contribution.
48	104, 108	114-2, 115-7	1	Identify evidence provided by a scientist in support of continental drift theory.
49	114	115-7	1	Identify a stage in the development of a divergent plate boundary.
50	110	115-7	1	Identify a location with a specific plate boundary type.
51	112	115-7	2	Use a diagram to identify a plate boundary type.
52	124	332-7	3	Determine a crustal deformation feature from a diagram.
53	116, 191	330-12, STSE	1	Identify a geologic zone of Newfoundland based on a description.
54	122	332-7	3	Determine factors that relate to deformation of rocks in a mountain system.
55	124	332-7	2	Use a diagram to identify a fault type.
56	124	332-7	1	Identify a type of deformation based on a description.
57	126	331-9	2	Classify features relating to an earthquake.
58	136	331-9	1	Identify a process involved in the formation of a lava plateau.
59	132, 247	331-9, Lab #5	1	Identify a process involved in locating the epicentre of an earthquake.
60	128	331-9	3	Determine the properties and limitations of seismic waves as they travel through Earth.
61	126	331-9	2	Classify a geologic feature with its corresponding plate boundary.
62	130	331-9	2	Differentiate between energy released from two different earthquakes.
63	138	332-3	1	Identify an effect of volcanic activity.
64	136	331-9	2	Classify a volcano type and its appropriate plate boundary.
Unit V 65	146	330-8	1	Identify a factor that determines if a mine will be economical.
66	146	330-8	3	Determine types of economic mineral deposits from a diagram.
67	146	330-8	2	Describe the process of formation of an economic mineral deposit.
68	154	330-10	2	Classify a rock type relating to petroleum.
69	152	330-10	1	Identify a technique for processing ore.
70	154	330-10	1	Define a petroleum-related term.

71	156	330-10	1	Identify a phase in the evolution of petroleum.
72	160	330-10	1	Identify a process in the formation of a petroleum trap.
73	164	330-10	2	Describe a method of refining petroleum.
74	162	330-10	1	Identify a means of extracting petroleum within Newfoundland.
75	261	Lab #7	3	Determine an exploration technique for a specific type of petroleum trap.

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%	Explain the formation of a planet's internal structure (e.g. Earth).
Unit II 77(a)	40	332-5	3	2%	Determine how geologic events on earth can be explained by a geologic principle.
77(b)	52	332-7	2	3%	Describe a method of fossilization.
Unit III 78(a)	96	330-2	3	2%	Determine how relative dating techniques and geologic concepts can explain a geologic cross-section.
78(b)	78	330-2	2	3%	Describe the features and processes of formation of an igneous rock texture.
78(c)	70	330-3	2	2%	Describe properties used to distinguish between minerals.
Unit IV 79(a)	134	331-9	2	2%	Describe factors affecting the nature of a volcanic eruption.
79(b)	124	332-7	2	2%	Develop a diagram and describe the process involved in a type of crustal deformation.
79(c)	247	Lab 5	3	2%	Determine distances that stations are from earthquakes using data provided.
Unit V 80(a)	162	330-10	2	3%	Describe a method or type of mining and associate it with a type of economic mineral deposit.
80(b)	156, 160	330-10	3	2%	Determine the components involved in the formation of a petroleum trap and associate it with a trap type.