

**Science 10: Earth and Space Science  
Item-Level Response Report (Provincial Level)**

**British Columbia**

**All Schools**

**June/2009**

Provincial Science 10 Item-Level Response Reports include data for all BC students who wrote the exam in June 2009 (about 33,678). Both public and independent schools are included. The Science 10 June 2009 (Earth and Space Science) provincial Item-Level Response Report displays the proportion of students who made errors on each test item and a description of the misconception.

**Click [here](#) to view the Prescribed Learning Outcomes**

<b>Form</b>	<b>Item #</b>	<b>Question type</b>	<b>Prescribed Learning Outcomes</b>	<b>Number of Students who Responded to the Item</b>	<b>Percentage of Students who Answered Incorrectly</b>	<b>Specific Curricular Aspect that Needs Attention [&gt;20% selected incorrect response]</b>
A	60	MC	D1	33484	39%	*
A	61	MC	D1	33531	10%	• N/A
A	62	MC	D1	33520	22%	*
A	63	MC	D1	33529	15%	• N/A
A	64	MC	D1	33491	56%	• Students were unable to correctly interpret a diagram of Earth's Energy Budget; incorrectly answered that greenhouse gases reflect 30% of the incoming solar energy.
A	65	MC	D2	33483	19%	• N/A
A	66	MC	D2	33526	46%	• Students did not understand the relationship between altitude and atmospheric pressure;

						incorrectly answered that as altitude increases, atmospheric pressure increases, not decreases.
A	67	MC	D2	33506	71%	<ul style="list-style-type: none"> <li>Students did not understand the conditions present in a low pressure centre; correctly answered that surface winds move towards the centre and there would be precipitation with a low pressure centre, but incorrectly answered that there would be falling air, not rising air.</li> <li>Students did not understand the conditions present in a low pressure centre; correctly answered that there would be rising air, but incorrectly answered that surface winds move away from the centre and there would be dry air with a low pressure centre.</li> </ul>
A	68	MC	D3	33509	39%	<ul style="list-style-type: none"> <li>Students were unable to interpret a short article; correctly answered that a bloom will increase reflection of solar radiation, but incorrectly answered that it will warm the Earth, not cool it.</li> </ul>
A	69	MC	D3	33509	45%	<ul style="list-style-type: none"> <li>Students were unable to interpret a diagram showing the impact of a strong El Nino event on Canadian winter weather; incorrectly answered that a strong El Nino event will cause warmer than normal temperatures in all of Canada.</li> </ul>
A	70	MC	D4	33364	39%	*
A	71	MC	D4	33523	53%	<ul style="list-style-type: none"> <li>Students did not understand the composition of the Earth's layers; correctly answered that the Earth's crust is thinner than the mantle, but incorrectly answered that it is denser, not less dense.</li> </ul>

A	72	MC	D4	33516	53%	<ul style="list-style-type: none"> <li>Students did not understand the characteristics of earthquake waves; correctly answered that primary waves could be used to determine the depths of a solid mantle and liquid core, but did not consider secondary waves.</li> </ul>
A	73	MC	D4	33490	49%	<ul style="list-style-type: none"> <li>Students were unable to correctly interpret a series of map diagrams showing subduction of a plate; correctly answered that the Farallon Plate subducted, but incorrectly answered that it subducted beneath the Pacific Plate, not the North American Plate.</li> </ul>
A	74	MC	D4	33488	57%	<ul style="list-style-type: none"> <li>Students likely did not refer to the data booklet; incorrectly answered that a hot spot is found on the western side of South America, not a subduction zone.</li> <li>Students likely did not refer to the data booklet; incorrectly answered that a rift valley is found on the western side of South America, not a subduction zone.</li> </ul>
A	75	MC	D4	33478	55%	<ul style="list-style-type: none"> <li>Students likely did not refer to the data booklet; did not understand the symbols that indicate the presence of a subduction zone; correctly chose the convergent boundary symbol, but incorrectly chose a transform boundary symbol, not a volcanoes symbol.</li> <li>Students likely did not refer to the data booklet; did not understand the symbols that indicate the presence of a subduction zone; incorrectly chose the transform fault and divergent boundary symbols, not the volcanoes and convergent boundary symbols.</li> </ul>

A	76	MC	D4	33523	34%	*
A	77	MC	D4	33503	75%	<ul style="list-style-type: none"> <li>Students were unable to interpret a map of the East African Rift Zone; likely did not refer to the data booklet; incorrectly answered that a subduction zone will form along the Gulf of Aden, not that sea water will flood the East African Rift Zone.</li> </ul>
A	78	MC	D4	33514	55%	<ul style="list-style-type: none"> <li>Students did not understand the processes that produce the trenches which outline the Ring of Fire; incorrectly answered that divergence of oceanic crust will form trenches, not subduction of an oceanic plate.</li> </ul>
A	79	MC	D4	33505	79%	<ul style="list-style-type: none"> <li>Students likely did not refer to the data booklet; incorrectly answered that an apparent opposing motion of two hot spots was due to slab pull at the Eastern edge of the Pacific Plate, not the ridge push at the East Pacific Rise.</li> <li>Students likely did not refer to the data booklet; incorrectly answered that an apparent opposing motion of two hot spots was due to divergence of the North American Plate and the Pacific Plate, not the ridge push at the East Pacific Rise.</li> <li>Students likely did not refer to the data booklet; incorrectly answered that an apparent opposing motion of two hot spots was due to mantle magma rising at several locations along the hot spot island chain, not the ridge push at the East Pacific Rise.</li> </ul>
A	80	MC	D5	33515	47%	<ul style="list-style-type: none"> <li>Students did not understand the evidence that</li> </ul>

						Alfred Wegener used to support his Continental Drift Theory; correctly answered that Alfred Wegener used fossil evidence, jigsaw puzzle fit of continents, and matching up of mountain ranges to support his Continental Drift Theory, but incorrectly answered that he also used magnetic reversal in the ocean crust.
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Note:

'\*' indicates that there were fewer than 20% of the students who selected any of the possible incorrect answers to the item, hence, no curricular note is reported;

'N/A' indicates that there were fewer than 20% of the students who incorrectly answered the item, hence, no curricular note is reported.

**Question Type:** Multiple Choice (MC).