# Ohio Achievement Assessment Grade 5 Science

Spring 2010

Answer Key and Scoring Guidelines

# Grade 5 Science Answer Key Spring 2010

			Content	
			Standard	
Item No.	Туре	Content Standard	Benchmark	Key
1	Multiple choice	Life sciences	С	В
2	Multiple choice	Earth and space science	D	Not for public release
3	Multiple choice	Physical sciences	В	С
4	Multiple choice	Scientific inquiry	В	Not for public release
5	Multiple choice	Earth and space science	С	В
6	Short answer	Scientific inquiry	С	Not for public release
7	Multiple choice	Life sciences	С	Not for public release
8	Multiple choice	Life sciences	В	Not for public release
9	Multiple choice	Life sciences	В	Not for public release
10	Multiple choice	Earth and space science	В	В
11	Extended answer	Physical sciences	Α	Not for public release
12	Multiple choice	Scientific ways of knowing	С	Not for public release
13	Multiple choice	Life sciences	Α	Not for public release
14	Multiple choice	Earth and space science	С	В
15	Multiple choice	Physical sciences	D	A
16	Extended answer	Scientific ways of knowing	С	4 pt rubric
17	Multiple choice	Life sciences	Α	С
18	Multiple choice	Scientific inquiry	С	D
19	Multiple choice	Physical sciences	D	Not for public release
20	Multiple choice	Life sciences	Α	В
21	Short answer	Science and technology	Α	2 pt rubric
22	Multiple choice	Earth and space science	D	D
23 - 28		Field Test Items Not Used in Stu	udent Score	
29	Multiple choice	Physical sciences	F	Not for public release
30	Multiple choice	Life sciences	В	С
31	Multiple choice	Science and technology	Α	Not for public release
32	Short answer	Earth and space science	В	2 pt rubric
33	Multiple choice	Physical sciences	D	D
34	Multiple choice	Life sciences	С	В
35	Multiple choice	Earth and space science	Α	Not for public release
36	Multiple choice	Science and technology	Α	Not for public release
37	Multiple choice	Physical sciences	С	В
38	Short answer	Life sciences	А	Not for public release
39	Multiple choice	Scientific inquiry	В	Not for public release
40	Multiple choice	Physical sciences	В	В
41	Multiple choice	Earth and space science	А	Not for public release
42	Multiple choice	Physical sciences	В	Not for public release
43	Multiple choice	Life sciences	В	С
44	Multiple choice	Earth and space science	С	В

Limited = 0-12; Basic = 13-23; Proficient = 24-30; Accelerated = 31-38; Advanced = 39-48 Multiple Choice = 1 point; Short Answer = 2 points; Extended Response = 4 points

**16.** Two students are doing an investigation to measure how fast a ball rolls down a ramp. They record their data in the tables shown.

Student 1's Data

Distance Ball Traveled	Time (seconds)
10	0.2
20	1.2
30	
40	3.6

## Student 2's Data

	Trial 1	Trial 2	Trial 3
Distance Ball Traveled (cm)	Time (seconds)	Time (seconds)	Time (seconds)
10	1.2	1.1	1.2
20	2.4	2.6	2.5
30	3.6	3.6	3.7
40	4.8	4.9	4.9

In your **Answer Document**, identify two advantages of Student 2's data and explain why each is an advantage. (**4 points**)

**Scoring Guidelines** 

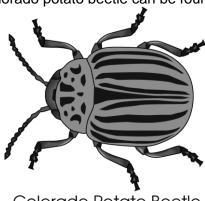
Points	Student Response
4 point	Exemplar Response:
	Student 2 recorded data for more than one trial, which makes her data more reliable because the numbers are pretty close. Student 2 collected data for each distance, which makes the results more complete.
	Sample Response:
	Correct explanations for advantages of Student 2's data may include:
	<ul> <li>Multiple trials make the data more reliable by showing the results to be consistent.</li> </ul>
	<ul> <li>Multiple trials allow the student to average the times for a more reliable</li> </ul>

conclusion. All labels for data units are noted in the table, which makes it possible for the experiment to be repeated by someone else. • All labels for data units are noted in the table, which makes it possible for others to interpret the data correctly. There are no data missing from the table, which allows the student to completely compare the data with other students' data. • There are no data missing from the table, which allows the student to make a complete (or accurate) conclusion from the data. The response correctly identifies two advantages of Student 2's data AND explains why each is an advantage. The response correctly identifies two advantages of Student 2's data AND explains 3 point why one is an advantage. Sample Response: Student 2 made sure to write all the labels down for the units so that other people know how the data was measured so they can repeat the procedure. Student 2 also collected data for all the distances. 2 point The response correctly identifies two advantages of Student 2's data identifies one advantage of Student 2's data **AND** explains why it is an advantage. Sample Response: Student 2 remembered to write the unit labels in the data table, so that someone else can interpret the data. The response correctly provides one advantage of Student 2's data. 1 point Sample Response: Student 2 collected data for all the distances. The response fails to identify and explain two advantages of Student 2's data. The 0 point response does not meet the criteria required to earn one point. The response indicates inadequate or no understanding of the task and/or the idea or concept needed to answer the item. It may only repeat information given in the test item. The response may provide an incorrect solution/response and the provided supportive information may be irrelevant to the item, or possibly, no other information is shown. The student may have written on a different topic or written, "I don't know."

Sample Response:

Student 2 did the same experiment as Student 1 but did a better job of performing the investigation and collecting data.

21. The Colorado potato beetle can be found in gardens in Ohio.



Colorado Potato Beetle

Potato beetles destroy many crops, such as potatoes and tomatoes. Some farmers spray chemicals on their crops to control the potato beetles. Other farmers think chemicals are bad for the environment.

In your **Answer Document**, describe one positive effect and one negative effect of using chemicals on the crops and/or the environment. (2 points)

**Scoring Guidelines** 

Points	Student Response
2 point	Exemplar Response:  A positive effect of using the chemicals is that controlling the potato beetles will protect crops and make more food for people. A bad reason is that chemicals are poison and might kill more animals than the potato beetle.
	Sample Response: Acceptable positive effects of using chemicals to control potato beetles include:
	By having fewer beetles, more food will be produced.
	Acceptable negative effects of using chemicals to control potato beetles include:  • The chemicals are poison and might kill more/other animals than the potato beetle.  • The chemicals could pollute rivers, lakes and our drinking water.  • The chemicals could get into our food.
	The response provides one positive effect <b>AND</b> one negative effect of using chemicals to control the potato beetles.
1 point	The response provides one positive effect  OR
	one negative effect of using chemicals to control the potato beetles.
	[NOTE: A response will receive one point for providing two appropriate effects but failing to identify which is beneficial and which is harmful. However, if the response is ordered so that the first statement is a positive effect and the second statement is a negative effect, then the response may receive 2 points.]  Sample Response:
	It would be bad to add chemicals that might get into our food.

### 0 point

The response indicates no understanding of the effects of the use of chemicals to control insects on crops. The response does not meet the criteria required to earn one point. The response indicates inadequate or no understanding of the task and/or the idea or concept needed to answer the item. It may only repeat information given in the test item. The response may provide an incorrect solution/response and the provided supportive information may be totally irrelevant to the item, or possibly, no other information is shown. The student may have written on a different topic or written, "I don't know".

0 point sample answer:

The farmers should use chemicals because they control potato beetles.

32. Natural processes can break large rocks into smaller pieces.
In your **Answer Document**, identify and describe two processes that can break rocks apart. (2 points)

## **Scoring Guidelines**

	Guidelines		
Points	Student Response		
2 point	Exemplar Response:		
	<ol> <li>Water freezes in the cracks of rocks. Water expands when it freezes and breaks up the rock.</li> </ol>		
	<ol> <li>Wind blows sand and small rocks against big rocks. This can wear rocks down and make them break into pieces.</li> </ol>		
	Other Correct Response(s): Sample Response:		
	<ul> <li>Water freezes in the cracks of rocks. When water freezes, it expands and causes the rock to split apart.</li> </ul>		
	<ul> <li>The rapid heating and cooling of rocks may occur in areas where there are extreme temperature changes in a very short time (e.g., desert climates). This can cause cracks in rocks and they can break apart.</li> </ul>		
	<ul> <li>Wind can blow sand and other particles against rocks, causing them to break down.</li> </ul>		
	Water can cause the rock to wear down and break apart.		
	<ul> <li>Rocks are hit by other rocks as they fall or as they are washed down rivers and streams.</li> </ul>		
	Growing plant roots can break apart rocks.		
	<ul> <li>Glaciers can wear down and break rocks apart when they move.</li> </ul>		
	<ul> <li>Earthquakes and volcanoes can break rocks apart. The movement of Earth's crust can cause rocks to crack or break up when they collide with each other.</li> </ul>		
	<ul> <li>Weathering breaks rocks into smaller pieces.</li> </ul>		
	Erosion carries pieces of rock that may strike other rocks and break them apart.		
	The response describes two natural processes that can break apart rocks.		
1 point	The response describes one natural process that can cause rocks to break.  OR		
	The student can receive 1 point for naming two appropriate scientific processes that		
	can cause rocks to break.		
	Sample Response:		
	Weathering and erosion.		
0 point	The response fails to demonstrate any understanding of how to determine natural		
	processes change Earth's surface. The response indicates inadequate or no		
	understanding of the task and/or the idea or concept needed to answer the item. The		
	response may only repeat information from the stem, be irrelevant to the item, or		
	cannot be read or understood. The response may provide an incorrect solution or a written, "I don't know."		
	Sample Response:		
	A hammer will make rocks smaller.		
L	A Hammer was make rooke emailer.		