Ohio Achievement Assessment
Grade 8 Science

Spring 2011

Answer Key
and
Scoring Guidelines

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Answer Key
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Item No.	Type	Content Standard	Content Standard Benchmark	Key
1	Multiple Choice	Physical Sciences	A	Not for public release
2	Multiple Choice	Earth and Space Sciences	D	B
3	Multiple Choice	Physical Sciences	A	D
4	Multiple Choice	Life Sciences	B	C
5	Multiple Choice	Earth and Space Sciences	D	Not for public release
6	Short Answer	Life Sciences	C	2 pt rubric
7	Multiple Choice	Physical Sciences	D	Not for public release
8	Multiple Choice	Life Sciences	C	Not for public release
9	Extended Response	Scientific Inquiry	A	Not for public release
10	Multiple Choice	Physical Sciences	A	D
11	Multiple Choice	Earth and Space Sciences	C	C
12	Multiple Choice	Earth and Space Sciences	C	B
13	Multiple Choice	Earth and Space Sciences	C	D
14	Multiple Choice	Life Sciences	B	Not for public release
15	Multiple Choice	Earth and Space Sciences	E	Not for public release
16	Short Answer	Scientific Inquiry	B	Not for public release
17	Multiple Choice	Life Sciences	A	C
18	Multiple Choice	Physical Sciences	D	Not for public release
19	Multiple Choice	Earth and Space Sciences	E	Not for public release
20	Multiple Choice	Life Sciences	C	Not for public release
21	Extended Response	Earth and Space Sciences	A	4 pt rubric
22	Multiple Choice	Life Sciences	B	Not for public release
23-28	**Field Test questions not used for student score**			
29	Multiple Choice	Physical Sciences	A	Not for public release
30	Multiple Choice	Life Sciences	C	Not for public release
31	Multiple Choice	Earth and Space Sciences	E	Not for public release
32	Multiple Choice	Life Sciences	A	B
33	Short Answer	Scientific ways of Knowing	C	2 pt rubric
34	Multiple Choice	Life Sciences	A	Not for public release
35	Multiple Choice	Physical Sciences	A	B
36	Multiple Choice	Physical Sciences	B	Not for public release
37	Multiple Choice	Physical Sciences	C	D
38	Short Answer	Science and Technology	A	Not for public release
39	Multiple Choice	Life Sciences	A	D
40	Multiple Choice	Earth and Space Sciences	B	Not for public release
41	Multiple Choice	Physical Sciences	D	A
42	Multiple Choice	Earth and Space Sciences	B	Not for public release
43	Multiple Choice	Scientific Inquiry	B	Not for public release
44	Multiple Choice	Scientific Inquiry	B	Not for public release

Limited = 0-10; Basic = 11-21; Proficient = 22-30; Accelerated = 31-35; Advanced = 36-48
Multiple Choice = 1 point; Short Answer = 2 points; Extended Response = 4 points

6. Aphids, ants and plants interact with one another through symbiotic relationships. Aphids are small insects that poke holes in plants and suck out sap. Aphids may cause the plant's leaves to wilt and curl. Ants protect aphids and eat the sugary liquid that aphids produce.

In your **Answer Document**, choose two of the organisms in this symbiosis. Describe the relationship between the two organisms in terms of the benefit or harm to each organism. (**2 points**)

Scoring Guidelines

Points	Student Response
2 point	**Sample Response:** The aphid benefits in its relationship with the plant 1. It gets food from the plant. 2. The plant is harmed by this interaction because the aphid may cause its leaves to wilt and curl. 3. **Other Response(s):** Both the ant and aphid benefit from their interaction. 1. The ant protects the aphid and the ant receives food from the aphid. 2. The ant benefits from the plant because it provides food for the aphids. 3. The plant is harmed indirectly by the ant because the aphids feed on the plant sap and then the ants eat the sugary liquid the aphids produce. The response provides a correct description, including 1. The benefit or harm to each of the two organisms, of the relationship. 2. Between two of the organisms in the symbiosis. **NOTE**: Providing a one word name for the relationship, for example, parasitism or mutualism is not enough to receive credit. However, stating "That the relationship between aphids and the plant is parasitism" is acceptable for a one point answer. This response provides the type of relationship and identifies the two organisms in the relationship. The response "The relationship between aphids and ants is mutualism" is an acceptable two point response. This response is worth two points because the word "mutualism" implies that each organism in the relationship benefits from the interaction.
1 point	The response provides the benefit or harm of the symbiosis to only one organism. **Sample Response:** The aphid benefits because it gets food from the plant.

0 point	The response fails to provide the benefit or harm of the symbiosis to either organism. 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”. **Sample Response:** Ants protect aphids and eat the sugary liquid that aphids produce.

21. The diagram models Earth and the moon in two positions of its orbit. The arrows indicate the direction of light from the sun.

Identify what phase of the moon will be seen from Earth when the moon is in position X.

Then, identify what phase of the moon will be seen from Earth when the moon is in position Z. Write your Answer in the **Answer Document**. (**4 points**)

Scoring Guidelines

Points	Student Response
4 point	**Sample Response:** Position X is the third quarter moon phase and, 1. From Earth, the left half of the side of the moon facing Earth is lit. 2. Position Z is the new moon phase and, from Earth, no part of the lit side of the moon will be seen. It appears completely dark. **Other Response(s):** Correct responses for the phase of the moon when it is in Position X may include: • Third quarter moon phase. Correct responses for how the moon will appear from Earth when it is in X may include: • As seen from Earth, only the left half of the side of the moon facing Earth is illuminated; **NOTE**: The student may receive credit for just drawing a half circle with the correct orientation. Correct responses for the phase of the moon when it is in Position Z may include: • New moon phase. Correct responses for how the moon will appear from Earth when it is in Position Z may include: • As seen from Earth, no part of the side of the moon that is facing Earth is illuminated; • As seen from Earth, the moon is completely dark, only the side facing away from Earth is illuminated; The response provides • The name of the phase of the moon as seen from Earth at position X; **AND** • A description or drawing of what the phase looks like from Earth at position X; **AND** • The name of the phase of the moon as seen from Earth at position Z; **AND** • A description or drawing of what the phase looks like from Earth at position Z.
3 point	The response provides three of the four elements identified above. **Sample Response:** Position Z is the new moon phase and position X is the third quarter phase. There is no light reflected off the side of the moon facing Earth at position Z.

2 point	The response provides two of the four elements identified above. **Sample Response:** X Z
1 point	The response provides one of the four elements identified above. **Sample Response:** Position Z is the new moon phase.
0 point	The response fails to demonstrate any understanding of lunar phases. 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 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:** Sometimes there is no moon.

33. Students observe that the length of the shadow of a flagpole varies throughout the year. They measure and diagram the flagpole's shadow in spring, summer and fall at mid-afternoon. The students' diagrams are shown.

In your **Answer Document** describe or draw what the flagpole's shadow will look like at mid-afternoon in the winter, December 21. (**2 points**)

Then, explain why the flagpole's shadow length changes throughout the year.

Scoring Guidelines

Points	Student Response
2 point	**Sample Response:** The flagpole's shadow will be the longest on December 21st. The flagpole's shadow length changes throughout the year because the position of the sun in the sky at mid-afternoon changes throughout the year. **Other Response(s):** Correct responses for describing the flagpole's shadow at mid-afternoon on December 21st may include: • It will be longer than the spring, summer and fall shadows. • It will be the longest. Note to scorer: the shadow only needs to be longer than any of the other three. It does not have to be longer than the flagpole. Correct responses for explaining why the flagpole's shadow changes throughout the year may include: • The sun's observed position in the sky at mid-afternoon constantly changes from highest on June 21st to lowest on December 21st. • The directness of the sun's rays constantly change throughout the year and are most direct on June 21st and most indirect (least direct) on December 21st. Earth is tilted on its axis which causes the observed position of the sun in the sky to change throughout the year. The response provides • A description or diagram of the flagpole's shadow length in the winter; **AND** • Explains why the length of the flagpole's shadow changes throughout the year.
1 point	The response provides • A description or diagram of flagpole's shadow length in the winter; **OR** • Explains why the length of the flagpole's shadow changes throughout the year. **Sample Response:** The flagpole's shadow will be the longest.

0 point	The response fails to demonstrate any understanding how Earth's tilt affects the length of shadows. 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 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:** The flagpole's shadow will become darker.