Grade 4

Science Item Samples

Science Item Samples Scoring Guide

AMP Science Item Samples Scoring Guide

with Answer Keys, Scoring Guidelines, and Sample Papers

General Introduction

The AMP Science Item Samples are provided by Alaska Department of Education and Early Development (EED) for educators and students in Alaska as an example of the type of questions and content measured by the AMP Science summative assessment.

All items in both the AMP Science Item Samplers and the AMP Science summative assessment measure students understanding of the Alaska Science Grade Level Expectations (education.alaska.gov/akstandards/standards/standards.pdf).

The AMP Science summative assessment is a computer-based assessment, delivered via KITE Client. There are a variety of question types, including multiple choice and technology enhanced items. Technology enhanced items ask students to show their answer by completing tasks such as matching, highlighting, put ideas in order, or dragging & dropping labels to a picture. There are not questions that require students to keyboard, or type, an answer. Students will have access to all of the universal tools (highlighter, calculators, striker, etc.).

It is recommended that teachers use the AMP Technology Practice Tests to provide students with practice using the tools and answering the different types of technology enhanced items. To learn more about the Technology Practice Test go to: https://education.alaska.gov/akassessments/techpractest.html

The AMP Science Item Samples booklets are only available in the paper booklet form. The booklets contain items similar to those found on the AMP Science summative assessment. There are two types of questions: multiple choice and constructed response. For the multiple choice questions, students fill in bubbles on an answer sheet. The second type of question, constructed response, requires the student to write out an answer.

Resources Available

In addition to the student booklets in grade 4, 8, and 10, there are the following tools associated with the item samples in the three tested grades:

- scoring guide, with answer keys;
- scoring guidelines;
- sample student papers;
- Item Samples Booklet “test maps.”

The AMP Science Item Samples resources are located on the EED website. Select the purple Assessment star, AMP Tab, and the resources can be found in the Educator Resources box. https://education.alaska.gov/tls/Assessments/AMPresources.html

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Content

This guide is divided into two sections. Section I includes the answer keys and scoring guidelines (with detailed item-specific scoring rubrics for scoring constructed-response questions) and sample student papers with annotations for each score point. Section II presents a grade-level test map that lists item sequence, corresponding Grade Level Expectations, and an answer key.

Scoring Guidelines

The Item Samples booklets include two types of science items: multiple choice and constructed response.

- Multiple-choice (MC) items have four answer options. MC items are one point items.
- Short constructed-response (SCR) required the student to write a response. SCR items are two-point items.

Sample student papers are included for each short constructed-response. An item-specific annotation follows each sample student response. The annotations are designed to provide teachers with the explanation of why the score point was awarded.

Reminder: There are not constructed response questions on the AMP Science Summative assessment.

Test Maps

The test map presents the sequence of the items in the booklet, the Grade Level Expectation to which each item is aligned, and the answer key. This at-a-glance chart is designed to assist the teacher with scoring the booklet.

IMPORTANT: The Science Item Samples booklets are not representative of the depth and breadth of the Alaska Science GLEs or the AMP Science Assessment.

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SECTION I: Grade 4 Science Practice Test Answer Keys, Scoring Guidelines, and Sample Student Papers

1. A
2. C
3. B
4. C
5. A
6. C
7. B
8. C
9. C
10. B
11. D
12. C
13. C
14. C

This question is worth 2 points.

15. A student recorded air temperatures on Monday and Tuesday.

Air Temperature Information

Time	Monday	Tuesday
8:00 AM	45°F	50°F
9:00 AM	47°F	52°F
10:00 AM	48°F	53°F
11:00 AM	50°F	55°F
12:00 PM	52°F	57°F
1:00 PM	?	?

A. Describe a pattern in the student's recorded data.

_____

_____

_____

B. Based on the pattern, predict the **most likely** air temperature at 1:00 PM for each day.

Monday: _____°F

Tuesday: _____°F

15. Short Constructed Response

Score	Rubric
2	2 of the 2 parts are correct.
1	1 of the 2 parts is correct. OR some correct and relevant work or explanation
0	Response is incorrect or irrelevant.

- 1 point for describing a pattern in the student's recorded data
- 1 point for predicting air temperatures at 1:00 PM for both days

Correct Response:

Part A:

- The air temperature increases each hour on Monday and Tuesday.
- The air temperature has a five-degree difference between Monday and Tuesday for each hour.

Part B:

- Monday: 53°F or 54°F
- Tuesday: 58°F or 59°F

Item #15 **Response Score: 2**

Short Constructed Response:

A. Describe a pattern in the student's recorded data.

the air temperature increases each hour on both days

B. Based on the pattern, predict the **most likely** air temperature at 1:00 PM for each day.

Monday: 54 °F

Tuesday: 59 °F

Annotation for score point: 2

All parts are correct:
1. A correct description of the air-temperature pattern is provided.
2. Two correct predictions of the air temperature are provided.

Item #15 **Response Score: 1**

Short Constructed Response:

A. Describe a pattern in the student's recorded data.

On the same hour for the days they go up by 5.

B. Based on the pattern, predict the **most likely** air temperature at 1:00 PM for each day.

Monday: 45 °F

Tuesday: 50 °F

Annotation for score point: 1

Some part is correct:
1. A correct description of the air-temperature pattern is provided.
2. Incorrect predictions of the air temperature are provided.

Item #15 **Response Score: 0**

Short Constructed Response:

A. Describe a pattern in the student's recorded data.

45 50 47 52 48

53 50 55 52 57

B. Based on the pattern, predict the **most likely** air temperature at 1:00 PM for each day.

Monday: 57 °F

Tuesday: 57 °F

Annotation for score point: 0

No part is correct:
1. An incorrect description of the air-temperature pattern is provided.
2. Incorrect predictions of the air temperature are provided.

16. C
17. B
18. D
19. A
20. C
21. C
22. C
23. B
24. B
25. D
26. C
27. B
28. A
29. A
30. A
31. B
32. D
33. C
34. B
35. B
36. A
37. D
38. C
39. D

This question is worth 2 points.

40. In 2005, a fossil of a dinosaur track was discovered in Denali National Park.

Fossil Location

Fossil Information

- three toes
- many years old
- about 23 cm long and 15 cm wide

Describe one positive effect and one negative effect of this dinosaur fossil discovery.

One Positive Effect: _____

_____

_____

_____

One Negative Effect: _____

_____

_____

_____

40. Short Constructed Response

Score	Rubric
2	2 of the 2 parts are correct.
1	1 of the 2 parts is correct. OR some correct and relevant work or explanation
0	Response is incorrect or irrelevant.

- 1 point for one positive effect of the dinosaur fossil discovery
- 1 point for one negative effect of the dinosaur fossil discovery

Correct Response:

Positive Effect:

- Scientists can learn more about Alaska's history (e.g., plants, animals, environment).
- More jobs are created when scientists search for other fossils.
- More people will be visiting Denali National Park (to learn about or see the fossil).

Negative Effect:

- The natural environment may become disturbed (while searching for fossils).
- More people will be visiting Denali National Park (too many people, too crowded, etc.).

Scoring Note:
Students are not limited to each list; any reasonable positive and negative effects, regardless of a student's point of view, will receive credit.

Item #40 **Response Score: 2**

Short Constructed Response:

One Positive Effect: we can learn more about the history of Alaska

One Negative Effect: they might hert the land by diggin up many more fossils

Annotation for score point: 2

All parts are correct:
1. A positive effect of the dinosaur fossil discovery is provided.
2. A negative effect of the dinosaur fossil discovery is provided.

Item #40 **Response Score: 1**

Short Constructed Response:

One Positive Effect: more people visiting the park to look for fossils

One Negative Effect: Dinosaurs have big teeth

Annotation for score point: 1

Some part is correct:
1. A positive effect of the dinosaur fossil discovery is provided.
2. Response provided does not describe a negative effect of the dinosaur fossil discovery.

Item #40 **Response Score: 0**

Short Constructed Response:

One Positive Effect: the dinsaur track was measured

One Negative Effect: dinosaurs have only three toes

Annotation for score point: 0

No part is correct:
1. Response provided does not describe a positive effect of the dinosaur fossil discovery.
2. Response provided does not describe a negative effect of the dinosaur fossil discovery.

41. B
42. A
43. A
44. D
45. A
46. B
47. D
48. B

SECTION II: Grade 4 Science Test Map

SCIENCE		
Sequence	**GLE**	**Key**
1	A.1.1	A
2	B.1.1	C
3	C.3.2	B
4	G.4.1	C
5	B.3.1	A
6	D.3.1	C
7	A.1.1	B
8	C.2.1	C
9	G.2.1	C
10	D.1.1	B
11	B.3.1	D
12	D.4.2	C
13	B.1.1	C
14	D.2.2	C
15	A.1.1/A.1.2	Short Constructed Response
16	C.1.2	C
17	A.1.1	B
18	A.1.2	D
19	C.2.2	A
20	A.1.2	C
21	B.1.1	C
22	D.4.1	C
23	C.3.1	B
24	A.1.2	B
25	D.4.2	D
26	A.1.2	C
27	C.1.1	B
28	E.2.1	A
29	D.1.2	A

SECTION II: Grade 4 Science Test Map

SCIENCE		
Sequence	**GLE**	**Key**
30	D.2.2	A
31	E.1.1	B
32	B.1.1	D
33	A.1.1	C
34	A.1.1	B
35	E.3.1	B
36	C.3.2	A
37	B.3.1	D
38	A.1.1	C
39	D.1.1	D
40	E.3.1/C.1.2	Short Constructed Response
41	C.1.2	B
42	B.3.1	A
43	A.1.1	A
44	C.2.1	D
45	G.2.1	A
46	D.2.2	B
47	C.3.2	D
48	B.1.1	B

Alaska

Comprehensive System of Student Assessment (CSSA)

Standards Based Assessments (SBAs)

Grade 4

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