Pennsylvania PSSA 2015 Grade 8 Science

Exam & Answer Key Materials
Pages 2 - 32

The Pennsylvania System of School Assessment

Science
Item and Scoring Sampler

2015–2016
Grade 8

SCIENCE TEST DIRECTIONS

Below are the test directions available to students taking the paper-and-pencil version of the assessment. These directions may be used to help students navigate through the assessment.

Directions:

On the following pages are the Science questions. There are several types of questions.

Multiple-Choice Questions

Some questions will ask you to select an answer from among four choices. These questions will be found in your test booklet.

For the multiple-choice questions:

- Read each question, and choose the best answer.
- Record your choice in the answer booklet.
- Only one of the answers provided is the correct response.

Science Scenario Multiple-Choice Questions

Some of the questions will require you to use some information found in a science scenario. The science scenario may contain text, graphics, charts, and/or tables, and may use these elements to describe the results of a class project, an experiment, or other similar research. The science scenario may cover several pages in your test booklet, and it will include information you will need to answer several multiple-choice questions.

For the science scenario multiple-choice questions:

- Read each question, and choose the best answer.
- Record your choice in the answer booklet.
- Only one of the answers provided is the correct response.

Open-Ended Questions

Other questions will require you to write your response. These questions will be found in your answer booklet.

For the open-ended questions:

- Be sure to read the directions carefully.
- If the question asks you to do two tasks, be sure to complete both tasks.
- If the question asks you to compare, be sure to compare. Also, if the question asks you to explain, describe, or identify, be sure to explain, describe, or identify.

GENERAL DESCRIPTION OF SCORING GUIDELINES
FOR SCIENCE OPEN-ENDED QUESTIONS

2 POINTS

- The response demonstrates a *thorough* understanding of the scientific content, concepts, and procedures required by the task(s).

- The response provides a clear, complete, and correct response as required by the task(s). The response may contain a minor blemish or omission in work or explanation that does not detract from demonstrating a *thorough* understanding.

1 POINT

- The response demonstrates a *partial* understanding of the scientific content, concepts, and procedures required by the task(s).

- The response is somewhat correct with *partial* understanding of the required scientific content, concepts, and/or procedures demonstrated and/or explained. The response may contain some work that is incomplete or unclear.

0 POINTS

- The response provides *insufficient* evidence to demonstrate any understanding of the scientific content, concepts, and procedures as required by the task(s) for that grade level.

- The response may show only information copied or rephrased from the question or *insufficient* correct information to receive a score of 1.

MULTIPLE-CHOICE QUESTIONS

Use the graph below to answer question 1.
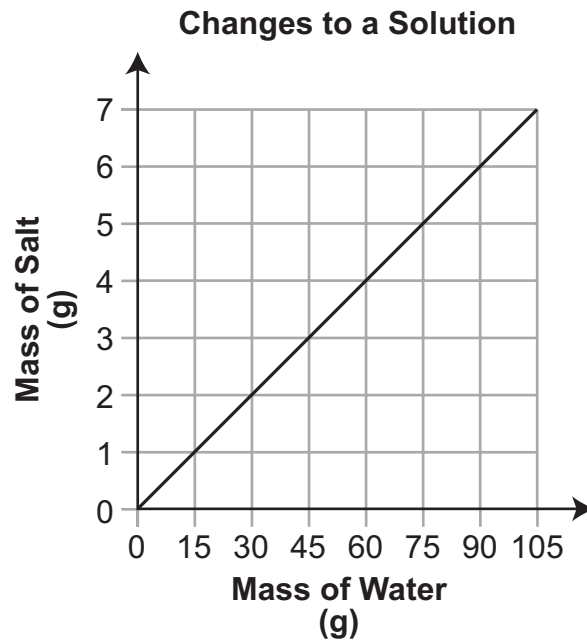
Atmospheric Pressure vs. Altitude
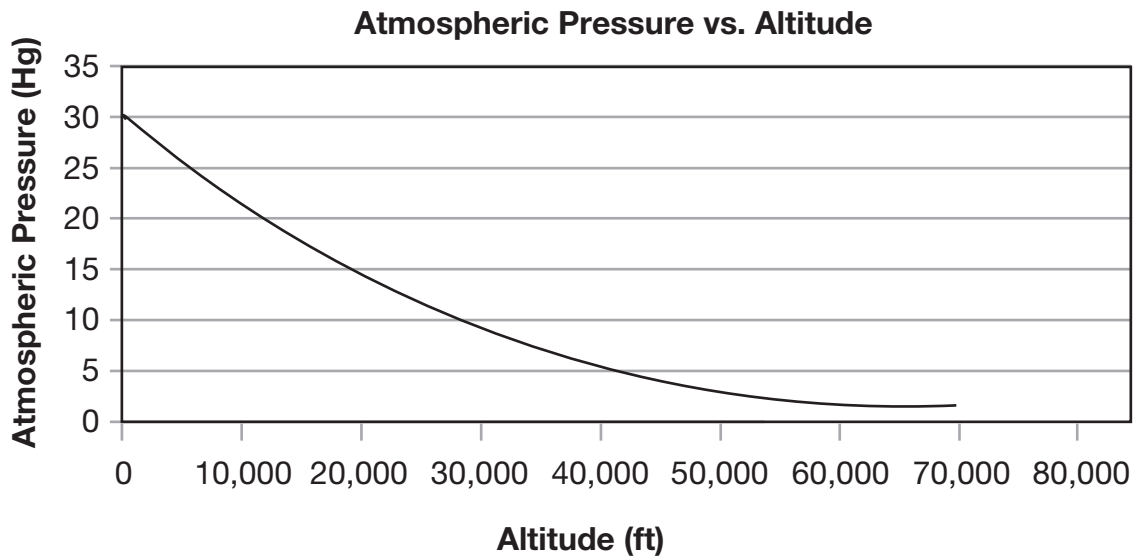
1. Based on the graph, which statement **best** describes the relationship between atmospheric pressure and altitude?

    A. Atmospheric pressure controls altitude.

    B. Atmospheric pressure is equal to altitude.

    C. Atmospheric pressure increases as altitude increases.

    D. Atmospheric pressure decreases as altitude increases.

Item Information		Option Annotations
Alignment	S8.A.1.1.3	A. Atmospheric pressure does not control altitude.
Answer Key	D	B. Atmospheric pressure does not equal altitude.
Depth of Knowledge	2	C. Atmospheric pressure decreases as altitude increases.
		D. Key: As altitude increases, atmospheric pressure decreases.

p-values			
A	**B**	**C**	**D**
10%	4%	16%	70%

2. In 1901, the SS *Port Morant* became the world's first refrigerated banana ship. It was equipped with carbon dioxide refrigeration. It could carry 23,000 bunches of bananas from Jamaica to England at a controlled temperature. What impact did cargo ship refrigeration systems have on the banana industry?

    A. It made transportation of bananas to overseas markets quicker.

    B. It made bananas ripen by the time they arrived at their destination.

    C. It made bananas sweeter than bananas transported without any cooling.

    D. It made shipment of bananas to faraway ports possible with little spoilage.

Item Information				Option Annotations
Alignment	S8.A.1.2.4			A. Refrigeration does not affect the speed at which the ship moves.
Answer Key	D			B. Refrigeration does not cause ripening.
Depth of Knowledge	2			C. Refrigeration does not control the sugar content of bananas.
				D. Key: Refrigeration slows the rate at which food is spoiled.
p-values				
A	**B**	**C**	**D**	
14%	13%	7%	66%	

Use the graph below to answer question 3.

Changes to a Solution

3. The graph shows the relationship between two characteristics of a saltwater solution. Which ratio describes the changes in these two characteristics?

A.   1:7

B.   90:7

C.   1:15

D. 105:15

Item Information		Option Annotations
Alignment	S8.A.1.3.1	A. Based on the data, a 1:7 ratio of salt to water is too low.
Answer Key	C	B. Based on the data, a 90:7 ratio of salt to water is too high.
Depth of Knowledge	2	C. Key: 1 g of salt to 15 g of water is used to make the solution.
		D. Based on the data, a 105:15 ratio of salt to water is too high.

p-values			
A	**B**	**C**	**D**
10%	9%	74%	7%

Use the data table below to answer question 4.

Trial	Time (seconds)		
	Mouse 1	Mouse 2	Mouse 3
1	58	52	67
2	54	50	65
3	53	49	61
4	47	48	57
5	42	46	55

4. A researcher placed three mice in a maze and recorded the time it took each mouse to complete the maze. Which relationship is **best** supported by the data collected by the researcher?

   A. More practice resulted in faster maze completion times for each mouse.

   B. More practice had no effect on the maze completion times for each mouse.

   C. More practice had the greatest effect on Mouse 3's final maze completion time.

   D. More practice reduced each mouse's maze completion time by more than 10 seconds.

Item Information		Option Annotations
Alignment	S8.A.2.1.1	A. Key: Maze completion times decreased for all three mice with each trial.
Answer Key	A	
Depth of Knowledge	2	B. Practice did have an effect, as maze completion times decreased with each trial.

p-values				Option Annotations (cont.)
A	**B**	**C**	**D**	C. Mouse 3 did not have the greatest decrease in maze completion times.
63%	12%	13%	12%	D. Maze completion times for Mouse 2 did not decrease by more than 10 seconds.

Use the graph below to answer question 5.

**Length vs. Potential Energy
in a Metal Spring**

5. Which statement **best** describes the relationship between the length of a metal spring and its potential energy as shown in the graph?

   A. Increased potential energy in the spring forces it to extend.

   B. Increased potential energy in the spring forces it to contract.

   C. As the length of the spring increases, its potential energy increases.

   D. As the length of the spring increases, its potential energy decreases.

Item Information		Option Annotations
Alignment	S8.A.2.1.4	A. Potential energy does not force the spring to extend.
Answer Key	C	B. Potential energy does not force the spring to contract.
Depth of Knowledge	2	C. Key: Increased spring length resulted in increased potential energy.
		D. Potential energy does not decrease as the spring length increases.

p-values			
A	**B**	**C**	**D**
18%	5%	72%	5%

6. Which measurements are required to calculate the average speed of a car driving on a road?

    A.   time and distance

    B.   time and direction

    C.   mass and distance

    D.   mass and direction

Item Information		Option Annotations
Alignment	S8.A.2.2.2	A. Key: Time and distance are required to calculate speed.
Answer Key	A	B. Time is used to calculate speed, but direction is not.
Depth of Knowledge	2	C. Distance is used to calculate speed, but mass is not.
		D. Neither mass nor direction is used to calculate speed.

p-values			
A	**B**	**C**	**D**
84%	5%	8%	3%

7. Which part of a farm system is directly improved by the use of fossil-fuel-based fertilizers?

    A.   air quality

    B.   water purity

    C.   soil temperature

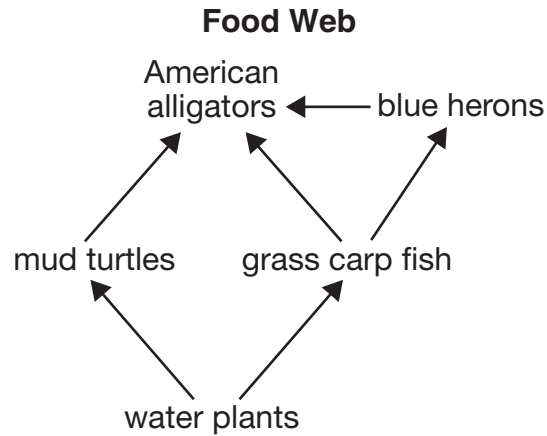   D.   nutrients and minerals

Item Information		Option Annotations
Alignment	S8.A.3.1.5	A. Air quality can be reduced by the use of fossil-fuel-based fertilizers.
Answer Key	D	B. Water quality can be reduced by the use of fossil-fuel-based fertilizers.
Depth of Knowledge	2	C. Soil temperature is not improved by the use of fossil-fuel-based fertilizers.
		D. Key: Fossil-fuel-based fertilizers provide nutrients and minerals to soils.

p-values			
A	**B**	**C**	**D**
8%	8%	17%	68%

8. Which word represents the basic unit of heredity in living organisms?

    A. gene

    B. zygote

    C. nucleus

    D. chromosome

Item Information		Option Annotations
Alignment	S8.B.2.2.2	A. Key: A gene is the basic unit of heredity.
Answer Key	A	B. A zygote is formed by fertilization of an egg by a sperm.
Depth of Knowledge	1	C. A nucleus is the control center of a cell.
		D. A chromosome is a strand of DNA that contains many genes.

p-values			
A	**B**	**C**	**D**
62%	7%	12%	19%

Use the food web below to answer question 9.

Food Web

9. Which statement **best** describes one way energy flows through this food web?

    A. Energy flows from American alligators to mud turtles to water plants.

    B. Energy flows from American alligators to blue herons to grass carp fish.

    C. Energy flows from water plants to mud turtles to American alligators to grass carp fish.

    D. Energy flows from water plants to grass carp fish to blue herons to American alligators.

Item Information		Option Annotations
Alignment	S8.B.3.1.1	A. Energy does not flow from consumers to producers.
Answer Key	D	B. Energy does not flow from higher-level consumers to lower-level consumers.
Depth of Knowledge	2	C. Energy does not flow from alligators to grass carp fish.

p-values				Option Annotations (cont.)
A	**B**	**C**	**D**	D. Key: Energy from the Sun enters the food web through water plants and is then transferred to grass carp fish, to blue herons, and then to American alligators.
5%	4%	7%	84%	

Use the list below to answer question 10.

Organism Traits

1. Good night vision
2. Good depth perception
3. Very sensitive hearing
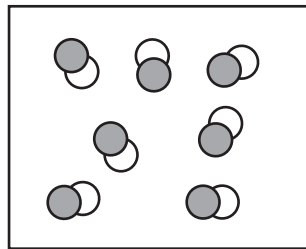4. Fast, silent flight
5. Sharp talons
6. Hooked beaks

---

10. Which word **best** describes the organism's role in its ecosystem?

    A.   mutualist

    B.   parasite

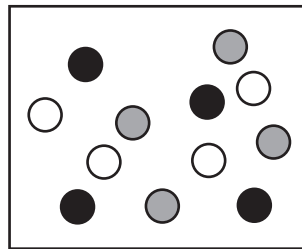   C.   predator

    D.   producer

Item Information				Option Annotations
Alignment	S8.B.3.1.3			A. The traits in the list do not indicate living with another organism and both benefiting.
Answer Key	C			B. The traits in the list do not indicate living with another organism at the expense of the other organism.
Depth of Knowledge	2			C. Key: The traits in the list indicate characteristics that benefit hunting of other organisms.
				D. The traits in the list do not indicate absorbing sunlight to produce food.
***p*-values**				
A	**B**	**C**	**D**	
5%	5%	84%	6%	

Use the diagrams below to answer question 11.

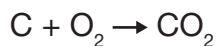**Model X**   **Model Y**

11. Which statement **best** describes the model that shows a compound?

A.   Model X shows a compound because there are two different types of atoms.

B.   Model X shows a compound because two different atoms are chemically bonded together.

C.   Model Y shows a compound because there is more than one type of atom.

D.   Model Y shows a compound because each pair of matching atoms can form a chemical bond.

Item Information		Option Annotations
Alignment	S8.C.1.1.1	A. Model X shows a compound, but a compound is not defined by the presence of two different types of atoms.
Answer Key	B	B. Key: Model X shows a compound, and compounds are atoms chemically bonded together.
Depth of Knowledge	2	C. Model Y does not show a compound, and a compound is not defined by the presence of more than one type of atom.

p-values				Option Annotations continued
A	**B**	**C**	**D**	C. Model Y does not show a compound, and a compound is not defined by the presence of more than one type of atom.
8%	72%	9%	11%	D. Model Y does not show a compound, and a compound is not defined by matching atoms forming a chemical bond.

Use the chemical equation below to answer question 12.

Formation of Carbon Dioxide

$$C + O_2 \rightarrow CO_2$$

12. Which statement **best** describes the chemicals in the reaction?

   A. C and O_2 are reactants, and CO_2 is a product.

   B. C and O_2 are products, and CO_2 is a reactant.

   C. C and CO_2 are products because they contain carbon.

   D. C, O_2, and CO_2 are all reactants because they are involved in a reaction.

Item Information				Option Annotations
Alignment	S8.C.1.1.3			A. Key: In a chemical equation, the reactants are located to the left of the arrow, and the products are located to the right.
Answer Key	A			B. C and O_2 are reactants, and CO_2 is a product.
Depth of Knowledge	2			C. C is not a product.
				D. CO_2 is not a reactant.

_p_-values			
A	**B**	**C**	**D**
64%	23%	6%	7%

13. Which example is a nonrenewable source of chemical energy?

    A.   biofuel

    B.   windmill

    C.   gasoline

    D.   solar panel

Item Information				Option Annotations
Alignment	S8.C.2.1.1			A. Biofuel is a source of chemical energy, but it is renewable.
Answer Key	C			B. Wind is not a source of chemical energy and is renewable.
Depth of Knowledge	2			C. Key: Gasoline is a nonrenewable source of chemical energy.
				D. Sunlight is not a source of chemical energy and is renewable.

p-values			
A	**B**	**C**	**D**
18%	6%	70%	6%

14. Which statement **best** explains the importance of fossils to scientists?

    A.   Fossils show how animals viewed their surroundings, so scientists know more about past animals.

    B.   Fossils show what color animals once were, so scientists know more about what they ate.

    C.   Fossils show where animals once lived, so scientists know more about the environment and how it has changed.

    D.   Fossils show that animals lived in the same location today as they once did, so scientists know more about today's environment.

Item Information				Option Annotations
Alignment	S8.D.1.1.4			A. Fossils do not involve the viewpoint of animals.
Answer Key	C			B. An animal's color is seldom preserved and does not provide information on food sources.
Depth of Knowledge	2			C. Key: The type of organism that formed the fossil can provide insight to past environments based on the type of resources the organism needed to survive.
				D. Fossils do not tell us about current environments.
p-values				
A	**B**	**C**	**D**	
14%	4%	74%	8%	

15. The cycling of water from ocean surfaces to the atmosphere mainly depends on which process?

    A.   evaporation caused by the Sun

    B.   precipitation caused by the Sun

    C.   evaporation caused by warm ocean currents

    D.   precipitation caused by warm ocean currents

Item Information				Option Annotations
Alignment	S8.D.1.3.1			A. Key: Energy from the Sun increases the movement of water molecules which causes evaporation of water, which rises from ocean surfaces to the atmosphere.
Answer Key	A			B. Precipitation moves water from the atmosphere to the ocean.
Depth of Knowledge	1			C. Warm ocean currents are not the main factor that drives evaporation from the ocean's surface to the atmosphere.
				D. Precipitation moves water from the atmosphere to the ocean.

p-values			
A	**B**	**C**	**D**
76%	8%	9%	6%

Use the drawing below to answer question 16.

951 Gaspra

16. The drawing shows the asteroid 951 Gaspra as seen by the Galileo spacecraft as it passed through the asteroid belt. How is this asteroid different from a moon?

    A. Unlike a moon, Gaspra has a gravitational force.

    B. Unlike a moon, Gaspra is made of solid materials.

    C. Gaspra would be classified as a moon if it were close to a planet.

    D. Gaspra would be classified as a moon if it began orbiting a planet.

Item Information		Option Annotations
Alignment	S8.D.3.1.3	A. All objects with mass have gravity.
Answer Key	D	B. Moons are also made of solids.
Depth of Knowledge	2	C. Proximity to a planet is not what classifies a body as a moon.
		D. Key: A moon remains in orbit around a planet.

p-values			
A	**B**	**C**	**D**
18%	13%	6%	63%

OPEN-ENDED QUESTIONS

Use the diagram below to answer question 17.
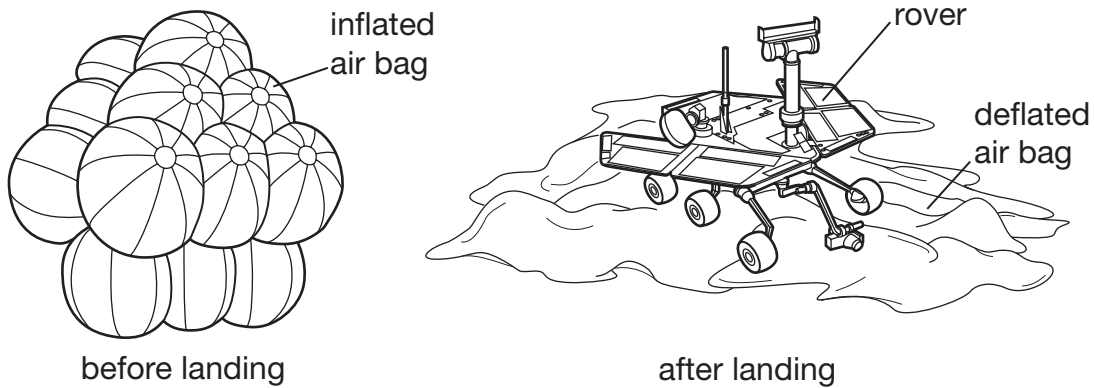
Mars Exploration Rover Landing System

inflated
air bag

rover

deflated
air bag

before landing   after landing

17. The landing system for the Mars Exploration Rover spacecraft used a system of air bags to protect its fragile rover during landing. Engineers first used a computer simulation to test the new air bag design; then they used crash tests with various types of vehicles.

> **Part A:** Describe one benefit of using a computer simulation to test the air bag design before conducting crash tests.
>
> _____
>
> _____
>
> _____

> **Part B:** Explain how crash tests help engineers test the air bag design.
>
> _____
>
> _____
>
> _____

SCORING GUIDE

#17 ITEM INFORMATION

Alignment	S8.A.3.2.2	Depth of Knowledge	2	Mean Score	1.35

ITEM-SPECIFIC SCORING GUIDELINE

| Score	Description
2	The response demonstrates a *thorough* understanding of how engineers use models to develop new and improved technologies to solve problems by • describing one benefit of using a computer simulation to test the air bag design before conducting crash tests **AND** • explaining how crash tests help engineers test the air bag design. The response is clear, complete, and correct.
1	The response demonstrates a *partial* understanding of how engineers use models to develop new and improved technologies to solve problems by • describing one benefit of using a computer simulation to test the air bag design before conducting crash tests **OR** • explaining how crash tests help engineers test the air bag design. The response may contain some work that is incomplete or unclear.
0	The response provides *insufficient* evidence to demonstrate any understanding of the concept being tested.
Non-scorables	B – No response written R – Refusal to respond F – Foreign language K – Off task U – Unreadable

Note: No deductions should be taken for misspelled words or grammatical errors.

Responses that will receive credit:

Part A (1 point):

- One benefit of using a computer simulation to test the air bag design before a crash test is safety.
- Computer simulations can save money and/or resources during product development.
- Computer simulations benefit the testing process by modeling conditions in which equipment will operate that are not present on Earth (i.e., conditions on Mars).
- Computer simulations make the testing process easier by allowing for different calculations to be made and tested quickly and efficiently.
- Computer simulations make it possible to collect large amounts of data in a short time and at a lower cost than conducting crash tests.

Part B (1 point):

- Crash tests help engineers test the air bag design by allowing for direct observation.
- Crash tests allow engineers to put theory into practice by observing how materials within a product perform.
- Crash tests allow engineers to study landing gear materials after a crash to identify potential weaknesses in the materials, their production, or how the landing process was executed.

STUDENT RESPONSE

RESPONSE SCORE: 2 POINTS

Use the diagram below to answer question 17.
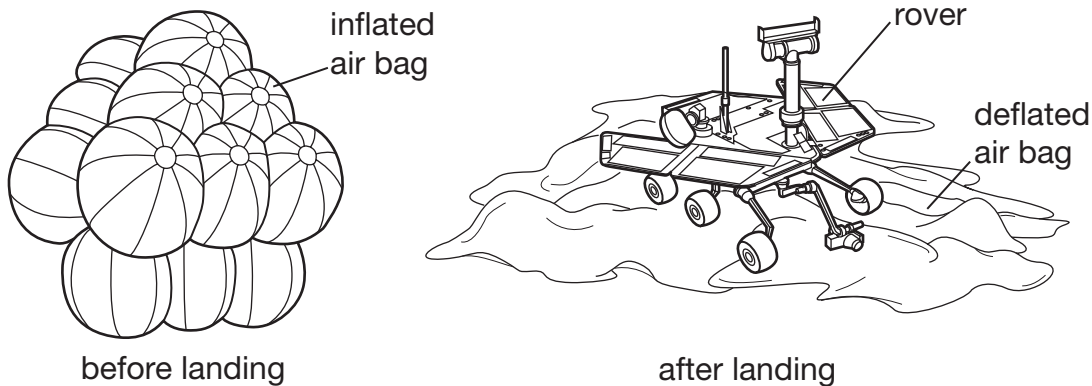
Mars Exploration Rover Landing System

inflated
air bag

rover

deflated
air bag

before landing   after landing

17. The landing system for the Mars Exploration Rover spacecraft used a system of air bags to protect its fragile rover during landing. Engineers first used a computer simulation to test the new air bag design; then they used crash tests with various types of vehicles.

> **Part A:** Describe one benefit of using a computer simulation to test the air bag design before conducting crash tests.
>
> A benefit is that if you know it isn't going to work on the computer, you don't waste materials.

> **Part B:** Explain how crash tests help engineers test the air bag design.
>
> It lets them know if the air bag is strong enough and know if it's going to pop or not.

This response demonstrates a thorough understanding of how engineers use models to develop new technologies to solve problems by describing a benefit of computer simulations ("if you know it isn't going to work on the computer you don't waste materials") and by explaining how crash tests help test the airbag design ("know if it's going to pop or not"). The response is clear, complete, and correct.

STUDENT RESPONSE

RESPONSE SCORE: 1 POINT

Use the diagram below to answer question 17.
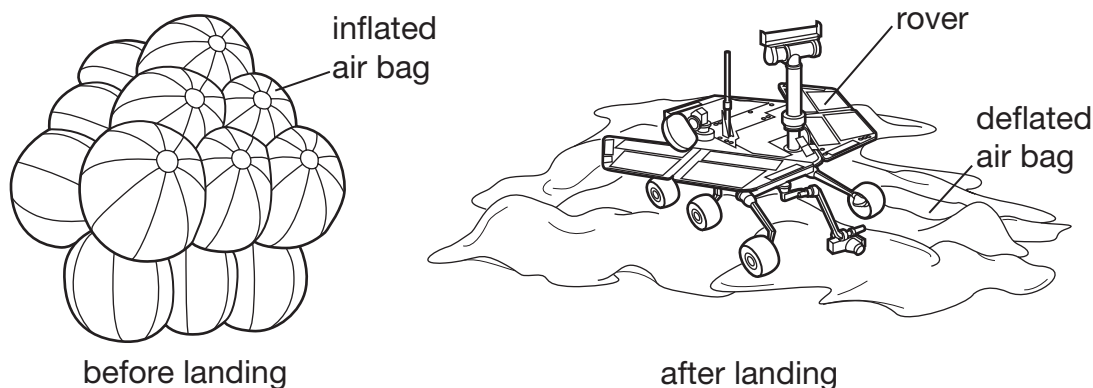
Mars Exploration Rover Landing System

inflated
air bag

rover

deflated
air bag

before landing

after landing

17. The landing system for the Mars Exploration Rover spacecraft used a system of air bags to protect its fragile rover during landing. Engineers first used a computer simulation to test the new air bag design; then they used crash tests with various types of vehicles.

Part A: Describe one benefit of using a computer simulation to test the air bag design before conducting crash tests.

You will have an idea of what will happen.

Part B: Explain how crash tests help engineers test the air bag design.

If it doesn't work good then they would change it.

This response demonstrates a partial understanding of how and why engineers use models to develop new technologies to solve problems. The response to Part A is too vague for credit because it fails to describe a specific benefit of running a computer simulation. The response to Part B, "If it doesn't work good then they would change it," is minimal, but acceptable, indicating the design can be improved based on crash test results.

STUDENT RESPONSE

RESPONSE SCORE: 0 POINTS

Use the diagram below to answer question 17.
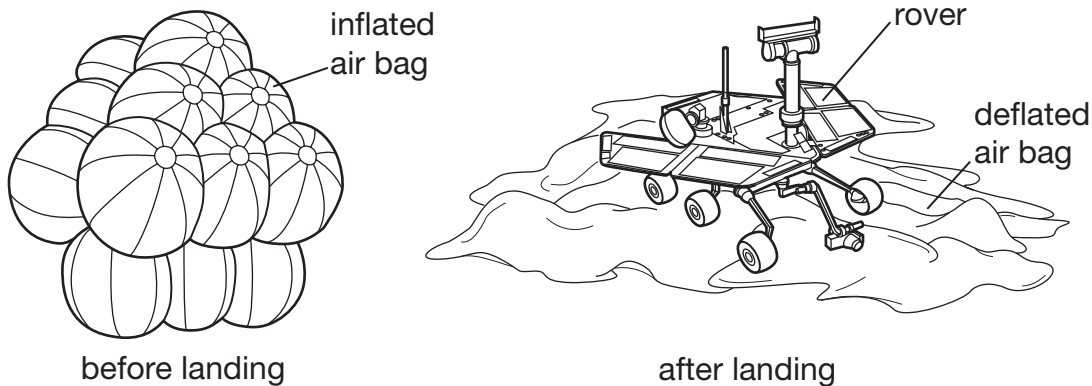
Mars Exploration Rover Landing System

inflated
air bag

rover

deflated
air bag

before landing   after landing

17. The landing system for the Mars Exploration Rover spacecraft used a system of air bags to protect its fragile rover during landing. Engineers first used a computer simulation to test the new air bag design; then they used crash tests with various types of vehicles.

Part A: Describe one benefit of using a computer simulation to test the air bag design before conducting crash tests.

They will know if the product works or not.

Part B: Explain how crash tests help engineers test the air bag design.

They can use vehicles that arnt important to test things for vehicles that are important.

This response provides insufficient evidence to demonstrate understanding of the concepts being tested. "They will know if the product works or not" does not describe a benefit of using computer simulations prior to conducting crash tests. The response in Part B is unclear. The use of "important" vs. unimportant vehicles does not explain how crash tests help engineers test their design.

PSSA SCIENCE GRADE 8

WBTE Preview

Albert Einstein

Question 18

Describe two ways that animals respond to the seasonal weather changes in Pennsylvania.

1.

EQ

0 / 1000

2.

EQ

0 / 1000

Review/End Test   Pause   Flag   Options   Back

SCORING GUIDE

#18 ITEM INFORMATION

Alignment	S8.B.3.2.3	Depth of Knowledge	2	Mean Score	1.50

ITEM-SPECIFIC SCORING GUIDELINE

Score	Description
2	The response demonstrates a *thorough* understanding of the response of organisms to environmental changes (e.g., changes in climate, hibernation, migration, coloration) by describing **two** ways that animals respond to the seasonal weather changes in Pennsylvania. The response is clear, complete, and correct.
1	The response demonstrates a *partial* understanding of the response of organisms to environmental changes (e.g., changes in climate, hibernation, migration, coloration) by describing **one** way that animals respond to the seasonal weather changes in Pennsylvania. The response may contain some work that is incomplete or unclear.
0	The response provides *insufficient* evidence to demonstrate any understanding of the concept being tested.
Non-scorables	B – No response written R – Refusal to respond F – Foreign language K – Off task U – Unreadable

Note: No deductions should be taken for misspelled words or grammatical errors.

Responses that will receive credit:

Ways that animals respond (1 point each):

- Some animals hibernate, go into torpor, or become dormant in the winter.
- Some animals migrate to a warmer climate in the fall and return in the spring.
- Some animals' fur turns a lighter color (white) in winter and turns darker in spring.
- Some animals grow thicker fur / fat layers in preparation for winter.
- Some animals store food in the fall.
- Some animals find winter shelter.

PSSA SCIENCE GRADE 8

WBTE Preview

Question 18 ▽

Albert Einstein

?

Describe two ways that animals respond to the seasonal weather changes in Pennsylvania.

1.

EQ

Birds fly south for the winter so they can be in warmer weather and not cold here.

82 / 1000

2.

EQ

Mice travel into houses and people places because it is so cold during the winter.

82 / 1000

Review/End Test   Pause   Flag 🏳   Options

Back

This response demonstrates a thorough understanding of the response of organisms to environmental changes by describing two different responses. "Birds fly south" and "mice travel into houses and people places" are acceptable descriptions of animal responses to a seasonal weather change. The response is clear, complete, and correct.

WBTE Preview

Albert Einstein

Question 18

Describe two ways that animals respond to the seasonal weather changes in Pennsylvania.

1.

EQ

Some mammals hibernate. That means they fall asleep during winter.

66 / 1000

2.

EQ

Other animals adapt to the different seasons every season.

58 / 1000

Review/End Test   Pause   Flag   Options

Back

This response demonstrates a partial understanding of the response of organisms to environmental changes. "Some mammals hibernate" is an acceptable description of an animal response. "Other animals adapt to the different seasons" is too vague for credit. This response contains some work that is incomplete and unclear.

WBTE Preview

Albert Einstein

Question 18

Describe two ways that animals respond to the seasonal weather changes in Pennsylvania.

1.

EQ

the animals know what to do during the kind of season.

54 / 1000

2.

EQ

they respond differently then humans do due to the weather.

59 / 1000

Review/End Test   Pause   Flag   Options   Back

This response provides insufficient evidence to demonstrate any understanding of the response of organisms to environmental changes. "The animals know what to do" does not describe specifically what it is that they do. The student fails to provide descriptions of two ways animals respond to seasonal changes, and the responses given do not demonstrate any understanding of the concept being tested.

SCIENCE GRADE 8—SUMMARY DATA

MULTIPLE-CHOICE

Sample Number	Alignment	Answer Key	Depth of Knowledge	p-values			
				A	B	C	D
1	S8.A.1.1.3	D	2	10%	4%	16%	70%
2	S8.A.1.2.4	D	2	14%	13%	7%	66%
3	S8.A.1.3.1	C	2	10%	9%	74%	7%
4	S8.A.2.1.1	A	2	63%	12%	13%	12%
5	S8.A.2.1.4	C	2	18%	5%	72%	5%
6	S8.A.2.2.2	A	2	84%	5%	8%	3%
7	S8.A.3.1.5	D	2	8%	8%	17%	68%
8	S8.B.2.2.2	A	1	62%	7%	12%	19%
9	S8.B.3.1.1	D	2	5%	4%	7%	84%
10	S8.B.3.1.3	C	2	5%	5%	84%	6%
11	S8.C.1.1.1	B	2	8%	72%	9%	11%
12	S8.C.1.1.3	A	2	64%	23%	6%	7%
13	S8.C.2.1.1	C	2	18%	6%	70%	6%
14	S8.D.1.1.4	C	2	14%	4%	74%	8%
15	S8.D.1.3.1	A	1	76%	8%	9%	6%
16	S8.D.3.1.3	D	2	18%	13%	6%	63%

OPEN-ENDED

Sample Number	Alignment	Points	Depth of Knowledge	Mean Score
17	S8.A.3.2.2	2	2	1.35
18	S8.B.3.2.3	2	2	1.50