SBA

Standards Based Assessment

**Science
Released Test
Questions
2016**

**GRADE
7**

07.I.I.I.01	Scientific Thinking and Practice: Content Standard I: Benchmark I: Performance Standard 1: Use a variety of print and web resources to collect information, inform investigations, and answer a scientific question or hypothesis.

1. Sarah notices a butterfly flying around in her garden. She wonders whether this butterfly traveled from a colder climate.

   > Sarah can *best* answer her question by —

   A capturing the butterfly and observing it for one week

   B researching butterflies and migration on the Internet

   C planting plants in her garden that attract butterflies

   D drawing the butterfly and analyzing the body structures

07.I.I.III.01	Scientific Thinking and Practice: Content Standard I: Benchmark III: Performance Standard 1: Understand that the number of data (sample size) influences the reliability of a prediction.

2. A new cold medicine will be studied for its effectiveness.

> Which sample of people suffering cold symptoms would give the *most* reliable predictions of the drug's effectiveness among the entire adult population?

   A 130 middle-aged men and women

   B 130 military men

   C 130 teenage girls

   D 130 men and women of different ages

07.I.I.III.02	Scientific Thinking and Practice: Content Standard I: Benchmark III: Performance Standard 2: Use mathematical expressions to represent data and observations collected in scientific investigations.

3. Students helped scientists document the numbers of five species of butterflies in New Mexico. The students walked along a trail and counted how many of each species of butterfly they saw. The table below shows their results.

Code Letter	Species	Number of Butterflies
A	Red-spotted purples	12
B	Tawny emperors	14
C	Longwings	10
D	Monarchs	21
E	Brushfoots	2

In the answer space provided,

A. Use the **Code Letters** in the first column of the table in an expression that shows the average number of butterflies the students counted.

B. Use the **Code Letters** in the first column of the table in an expression that shows the ratio of monarch butterflies to the total number of butterflies the students counted.

Scoring Guide

Score	Description
2	The response demonstrates a thorough understanding of using mathematical expressions to represent data and observations collected in a scientific investigation. The response includes expressions that correctly show the average number of butterflies and the ratio of monarch butterflies to the total.
1	The response demonstrates a partial understanding of using mathematical expressions to represent data and observations collected in scientific investigation.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response.

Scoring Information:

Sample Response:

- A. $\dfrac{(A + B + C + D + E)}{5}$

- B. $\dfrac{D}{(A + B + C + D + E)}$

SCORE POINT 2

3.   Be sure to answer the entire question.

$$\frac{A+b+c+d+E}{5} = \text{average amount of butterflies}$$

$$\frac{D}{A+b+C+d+e} = \text{ratio}$$

The response demonstrates a thorough understanding of using mathematical expressions to represent data and observations collected in a scientific investigation. The expression correctly shows the average number of butterflies and the ratio of monarch butterflies to the total.

SCORE POINT 1

3.   Be sure to answer the entire question.

A) $\dfrac{(A+B+C+D+E)}{5}$

B) $\dfrac{59}{21} = \dfrac{\text{all butterflies}}{\text{Monarchs}}$

$$\begin{array}{r} 12 \\ 14 \\ 10 \\ + \quad 21 \\ 2 \\ \hline 59 \end{array}$$

The response demonstrates a partial understanding of using mathematical expressions to represent data and observations collected in a scientific investigation. Full credit for part A: the expression shows the average number of butterflies the student counted. No credit for part B.

SCORE POINT 0

3.   Be sure to answer the entire question.

A. A=12+B= 14 + C=10+D=21+E= 2=59 butterflies

B. 5:21=59 butterflies

The response demonstrates no understanding of using mathematical expressions to represent data and observations collected in a scientific investigation.

07.II.I.III.01.b	Content of Science: Content Standard I: PHYSICAL SCIENCE: Benchmark III: Performance Standard 1.b: Know that forces cause motion in living systems, including: forces in specific systems in the human body (e.g., how the heart generates blood pressure, how muscles contract and expand to produce motion).

4. The illustration shows an arm bending.

Biceps
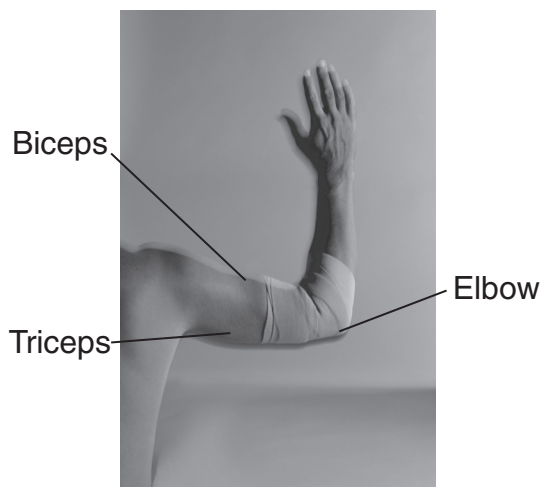
Triceps

Elbow

Which of these needs to occur in the triceps in order for the arm to bend at the elbow?

A The thumb needs to contract.
B Skin needs to be rigid.
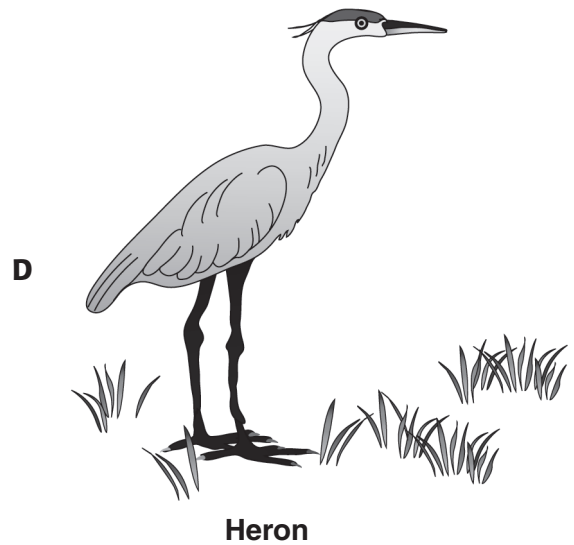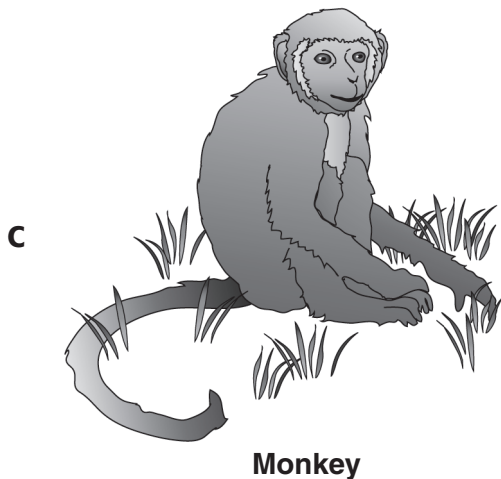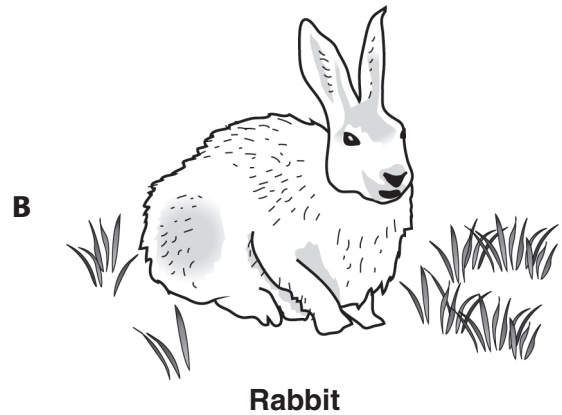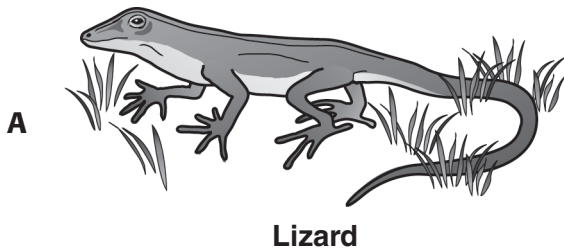C Muscles need to extend.
D Nutrients need to be in bones.

07.II.II.I.02	Content of Science: Content Standard II: LIFE SCIENCE: Benchmark I: Performance Standard 2: Populations and Ecosystems: Explain biomes (i.e., aquatic, desert, rainforest, grasslands, tundra) and describe the New Mexico biome.

5. Which animal is *best* adapted to survive in the tundra?

A Lizard

B Rabbit

C Monkey

D Heron

07.II.II.I.05	Content of Science: Content Standard II: LIFE SCIENCE: Benchmark I: Performance Standard 5: Populations and Ecosystems: Describe how the availability of resources and physical factors limit growth (e.g., quality of light and water, range of temperature, composition of soil) and how the water, carbon, and nitrogen cycles contribute to the availability of those resources to support living systems.

6. Brook trout live in streams and rivers. They need clean water that is free of pollution and sediments. The diagram below shows water cycling through an ecosystem where brook trout are found.
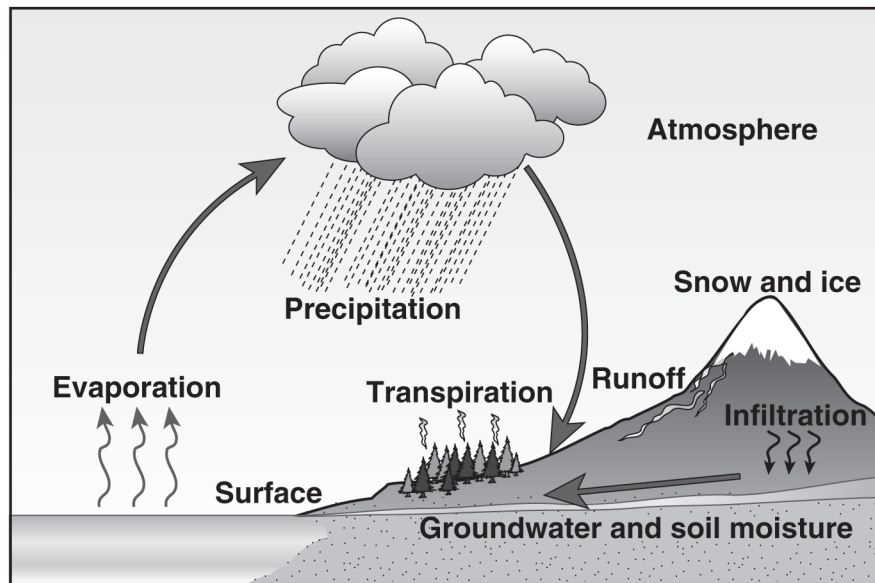
In the answer space provided,

A. Describe *two* ways that water enters into rivers to provide the brook trout population with enough clean water to survive.

B. Explain how polluted or sediment-filled water can enter into the rivers where brook trout live.

Scoring Guide

Score	Description
4	The student demonstrates a thorough understanding of how the availability of resources and physical factors limit growth and how the water, carbon, and nitrogen cycles contribute to the availability of those resources to support living systems. The student correctly describes two ways that water enters into rivers to provide the brook trout population with enough clean water to survive and correctly explains how polluted or sediment-filled water that threatens the survival of brook trout can enter into the rivers where they live.
3	The student demonstrates an understanding of how the availability of resources and physical factors limit growth and how the water, carbon, and nitrogen cycles contribute to the availability of those resources to support living systems. The student describes two ways that water enters into rivers to provide the brook trout population with enough clean water to survive and explains how polluted or sediment-filled water that threatens the survival of brook trout can enter into the rivers where they live. The response contains minor errors.
2	The student demonstrates a partial understanding of how the availability of resources and physical factors limit growth and how the water, carbon, and nitrogen cycles contribute to the availability of those resources to support living systems. The student correctly describes two ways that water enters into rivers to provide the brook trout population with enough clean water to survive OR correctly explains how polluted or sediment-filled water that threatens the survival of brook trout can enter into the rivers where they live.
1	The student demonstrates a minimal understanding of how the availability of resources and physical factors limit growth and how the water, carbon, and nitrogen cycles contribute to the availability of those resources to support living systems. The student correctly describes one way that water enters into rivers to provide the brook trout population with enough clean water to survive OR correctly explains how polluted or sediment-filled water that threatens the survival of brook trout can enter into the rivers where they live. The response contains minor errors.
0	The response is incorrect or irrelevant.
Blank	No response.

Scoring Information:

Part A

Unpolluted precipitation falling directly into rivers provides clean water. Runoff from clean lands or runoff of snow that melts from the mountains also moves fresh water into rivers. Infiltration leads to water that can feed streams.

Part B

Runoff carrying contaminants and soil from the land is one source of pollution or sediment. Another source of pollution is when pollution in the atmosphere falls to the surface with precipitation and is carried into rivers by runoff, or is deposited directly into rivers when the precipitation falls into the river.

6.   Be sure to answer the entire question.

a. Two ways water enters the river to provide the brook trout population with enough clean water to survive is threw precipitation which is when water from the lake gets evaporated and then it rains down again, and another is a runoff which is, when snow and ice at the top of a mountain melt and run down. the mountain and into the stream.

b. Polluted or sediment-filled water can enter into the rivers where brook trout live, by companies dumping their waste into the river and polluting it, or the burning of fossil fuel going up into the i-mosphere and raining down into the river also polluting it.

The response demonstrates a thorough understanding of how the availability of resources and physical factors limit growth and how water, carbon and nitrogen cycles contribute to the availability of those resources to support living systems. The response clearly describes two ways that clean water can enter the river (precipitation and runoff), and gives a couple of detailed examples of how polluted water can enter the river (dumping waste into the river and the burning of fossil fuel).

SCORE POINT 3

6.   Be sure to answer the entire question.

A.
One way clean water enters the rivers is by snow or ice melting melting of the mountain. Another way is when it rains it will go to the river off the mountain.

B. Polluted water can enter the river by humans polluting or dumping waste in water.

The response demonstrates an understanding of how the availability of resources and physical factors limit growth and how water, carbon, and nitrogen cycles contribute to the availability of those resources to support living systems. The response describes two ways that the clean water can enter the river in part A (precipitation, runoff); and gives a brief statement about how contaminated water can enter the river.

SCORE POINT 2

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6.   Be sure to answer the entire question.

A. Well one way is rain and is Snow/ice called run off when it melts into the rivers.

B. Well from ground water it travles out into rivers and oceans.

The response demonstrates a partial understanding of how the availability of resources and physical factors limit growth and how water, carbon, and nitrogen cycles contribute to the availability of those resources to support living systems. The response describes two ways that clean water enters the river (rain, snow runoff). Part B is incorrect. Groundwater is not connected to rivers or streams. Credit is given for part A only.

6.   Be sure to answer the entire question.

A the rain falls from the sky by making good and clean water.

B By the rain hiting the water and making it feel hot and nasty and it can kill the fish;

The response demonstrates a minimal understanding of how the availability of resources and physical factors limit growth and how water, carbon, and nitrogen cycles contribute to the availability of those resources to support living systems. The response only identifies one way that clean water enters the river (precipitation). Credit is given to part A only.

6.   Be sure to answer the entire question.

Ⓐ The tree brinig the water down

Ⓑ the groud water and soil can push it to the river

The response demonstrates no understanding of how the availability of resources and physical factors limit growth and how water, carbon, and nitrogen cycles contribute to the availability of those resources to support living systems. The response is not clear enough to receive any credit.

07.II.II.II.06.a	Content of Science: Content Standard II: LIFE SCIENCE: Benchmark II: Performance Standard 6.a: Heredity: Know that hereditary information is contained in genes that are located in chromosomes, including: determination of traits by genes.

7. Chromosomes contain traits that are passed from one generation to the next.

> Which of the following are the parts of a chromosome that influence one or more traits?
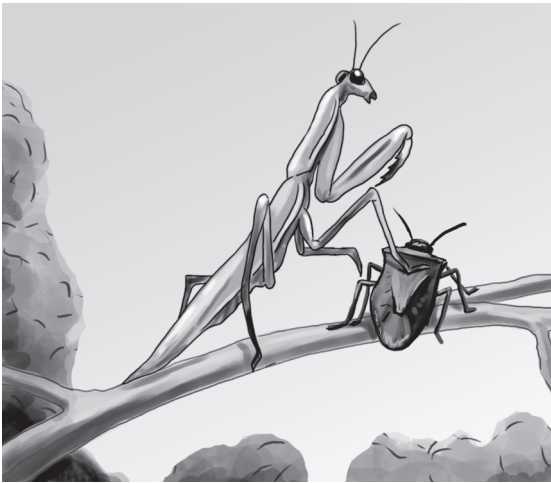
A Plasma
B Carbohydrates
C Genes
D Membranes

07.II.II.II.10	Content of Science: Content Standard II: LIFE SCIENCE: Benchmark II: Performance Standard 10: Biological Evolution: Identify adaptations that favor the survival of organisms in their environments (e.g., camouflage, shape of beak).

8. The picture shows a praying mantis capturing another organism for food.

Which of these is an adaptation that helps the praying mantis capture its prey?

A Blending in with the environment

B Flying long distances to find water

C Producing many offspring

D Detecting noises with sonar

07.II.II.III.01	Content of Science: Content Standard II: LIFE SCIENCE: Benchmark III: Performance Standard 1: Structure of Organisms: Understand that organisms are composed of cells and identify unicellular and multicellular organisms.

9. Which organisms are *always* multicellular?

   A Cacti

   B Yeast

   C Algae

   D Bacteria

07.II.III.I.01	Content of Science: Content Standard III: EARTH AND SPACE SCIENCE: Benchmark I: Performance Standard 1: Explain why Earth is unique in our solar system in its ability to support life.

10. In many ways, Earth is unique from the other planets in the solar system. Living things have not been found on other planets.

> Which of these is *most* important for life to thrive on Earth?

- **A** Active volcanoes
- **B** Granitic crust
- **C** Oceans of liquid water
- **D** Eroding rocks

Grade 7 Science Released Item Information

Released Item Number	1	2	3	4	5	6	7	8	9	10
Strand[1]	I	I	I	II	II	II	II	II	II	II
Benchmark	I	II	II	III	I	I	II	II	III	I
Performance Standard	1	1	2	1.b	2	5	6.a	10	1	1
Depth of Knowledge	2	2	2	2	2	2	1	2	2	2
Item Type[2]	MC	MC	SA	MC	MC	OE	MC	MC	MC	MC
Answer Key	B	D		C	B		C	A	A	C
Total Possible Points	1	1	2	1	1	4	1	1	1	1

[1]Strand: I = Scientific Thinking and Practice; II = Content of Science; III = Science and Society
[2]Item Type: MC = Multiple Choice, SA = Short Answer, OE = Open Ended