

Student Name: _____

Posttest

Grade 5 • Science



Student Test Booklet

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Directions:

Today you will be taking a test about science topics. It will help your teacher determine what you have learned about these topics. Three different types of questions appear on this test—multiple choice, short answer, and extended response.

When you take this test, remember these important things:

1. Read each question carefully. Think about what is being asked. Look carefully at illustrations, graphs, or diagrams. They provide important information for the questions.
2. When questions ask you to write an answer, use a pencil. Write neatly and clearly in the space provided in the Answer Document. Do not write any answers in the Student Test Booklet, as they will not be counted toward your score.
3. Multiple-choice questions are worth one point. Short-answer questions are worth two points. Extended-response questions are worth four points.
4. For multiple-choice questions, completely shade in the circle next to your choice in the Answer Document. Shade only one answer choice for each question. If you change an answer, erase it completely.
5. If you are stuck on a question, go on to the next question. Return to that question after answering the remaining questions.
6. Check over your work when you are finished.

Science

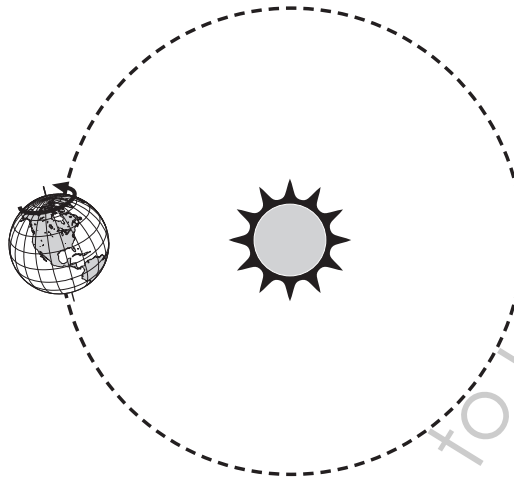
1. Which statement best describes the orbits of objects in our solar system?
 - A. Earth orbits the moon.
 - B. The moon orbits Earth.
 - C. The sun orbits the moon.
 - D. The sun orbits comets.

2. Which best describes where you are on Earth at night?
 - A. in the shadow created by the opaque Earth
 - B. in the shadow created by the opaque moon
 - C. under the stars that are at rest during the night
 - D. under the dark because the sun is at rest at night

3. Which statement best explains why the stars seem to move across the night sky?
 - A. Earth stops spinning on its axis at night.
 - B. The sun's orbit makes the stars appear to move.
 - C. The spinning Earth makes the stars appear to move.
 - D. Light from the stars is reflected off the orbiting moon.

4. Seasons occur because Earth's axis is tilted.

Based on the diagram below, identify what season the United States is experiencing and explain why. (2 points)



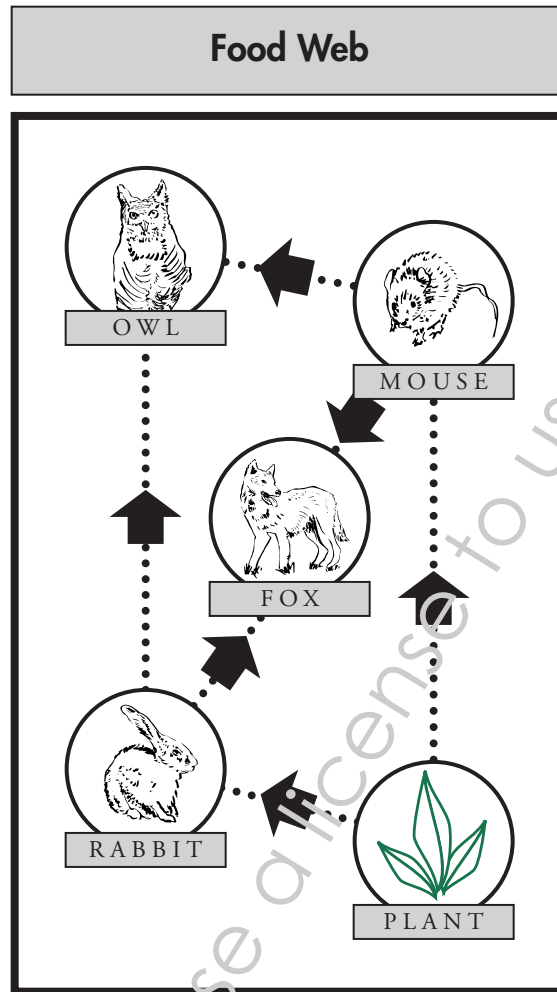
5. Which is a tool scientists use to magnify the appearance of objects in the solar system?

- A. telescope
- B. barometer
- C. anemometer
- D. thermometer

6. What is an organism called that eats only producers?

- A. carnivore
- B. omnivore
- C. herbivore
- D. decomposer

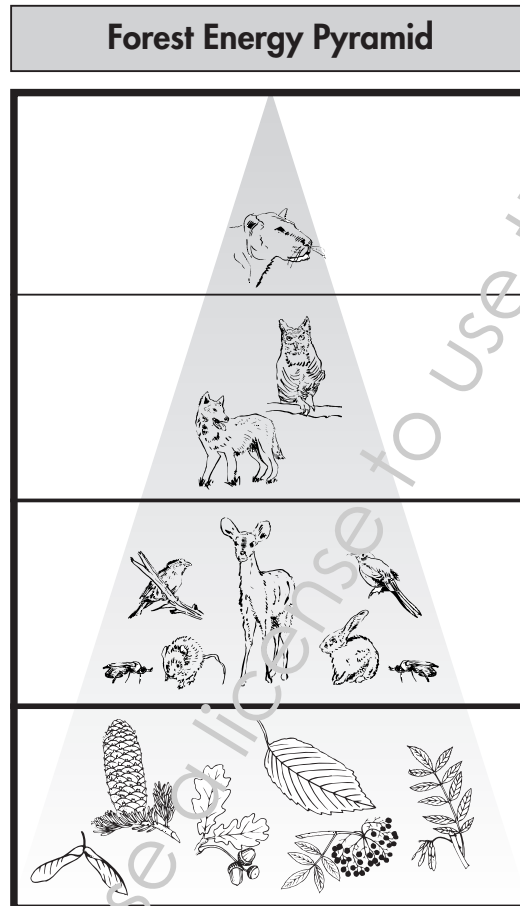
Use the following Food Web to answer question 7.



7. What role does the mouse play in the food web?
- A. The mouse is a producer providing energy for the plant.
 - B. The mouse is an omnivore providing energy for the rabbit.
 - C. The mouse is a carnivore providing energy for the owl and fox.
 - D. The mouse is a herbivore providing energy for the owl and fox.

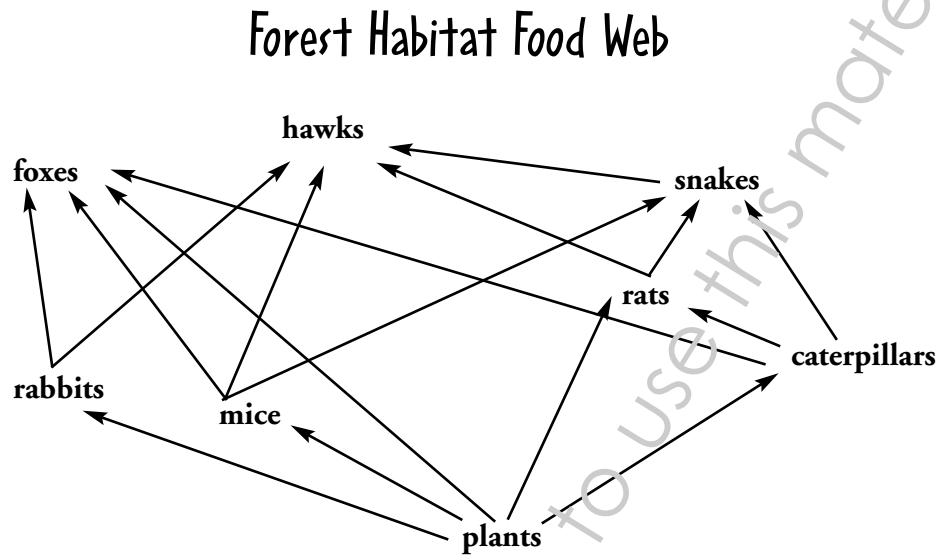
Use the following Forest Energy Pyramid to answer question 8.

8. In this forest energy pyramid, which organism is a producer?



- A. fox
- B. deer
- C. plant
- D. cougar

9. Below is a diagram of a forest habitat food web.



In your Answer Document, identify an omnivore shown in the food web. Then, explain why there are fewer foxes than mice living in the habitat. (2 points)

10. Fleas live on household pets, such as cats and dogs, and suck their blood. They cause the animal discomfort and skin irritations.

What type of relationship is this?

- A. predation
- B. parasitism
- C. mutualism
- D. commensalism

11. What is a force that can cause a moving object to slow down?
- A. gravity
 - B. friction
 - C. magnetism
 - D. acceleration
12. What will happen to an object if a force is applied in the opposite direction of the object's motion?
- A. The object will speed up.
 - B. The object will slow down.
 - C. The object change direction.
 - D. The object will not change its motion.
13. Which of the following is the correct formula for determining the speed of an object?
- A. $\text{speed} = \text{time} \div \text{weight}$
 - B. $\text{speed} = \text{weight} \div \text{force}$
 - C. $\text{speed} = \text{distance} \div \text{time}$
 - D. $\text{speed} = \text{distance} \div \text{force}$

14. A small, light ball and a large, heavy ball are rolling down the same sloped surface.

In your answer document, identify which ball will likely travel farther. Explain why. (2 points)

15. Light travels in a straight line until it hits something.

Which is NOT a way light can behave when it hits an object?

- A. Light can be reflected.
 - B. Light can be absorbed.
 - C. Light can be refracted.
 - D. Light can be conducted.
16. What is a material called that does not let light pass through?
- A. opaque
 - B. translucent
 - C. transparent
 - D. conductive

Science

17. Sound is a form of energy. It travels in waves. Sound is effected when it hits the surface of an object.

Identify two ways sound is affected when it hits the surface of an object. Explain how sound behaves in each case. (4 points)

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Answer Document

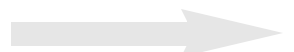
Science

1. (A) (B) (C) (D)

2. (A) (B) (C) (D)

3. (A) (B) (C) (D)

4. Write your response to question 4 in the space below.



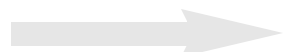
5. (A) (B) (C) (D)

6. (A) (B) (C) (D)

7. (A) (B) (C) (D)

8. (A) (B) (C) (D)

9. Write your response to question 9 in the space below.



Science

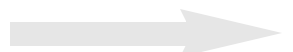
10. (A) (B) (C) (D)

11. (A) (B) (C) (D)

12. (A) (B) (C) (D)

13. (A) (B) (C) (D)

14. Write your response to question 14 in the space below.



15. (A) (B) (C) (D)

16. (A) (B) (C) (D)

17. Write your response to question 17 in the space below.



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Answer Key and
Content Statements Covered



Question 1 • Grade 5: Earth and Space Science
Multiple Choice

Content Statement: The solar system includes the sun and all celestial bodies that orbit the sun. Each planet in the solar system has unique characteristics.

Correct Response: B. The moon orbits Earth.

Question 2 • Grade 5: Earth and Space Science
Multiple Choice

Content Statement: Most of the cycles and patterns of motion between the Earth and sun are predictable.

Correct Response: A. in the shadow created by the opaque Earth

Question 3 • Grade 5: Earth and Space Science
Multiple Choice

Content Statement: Most of the cycles and patterns of motion between the Earth and sun are predictable.

Correct Response: C. The spinning Earth makes stars appear to move.



Question 4 • Grade 5: Earth and Space Science
Short Answer

Content Statement: The sun is one of many stars that exist in the universe.

Scoring Guidelines

Points	Student Response
2 pts	<p>The answer correctly identifies winter and explains that the tilt of Earth causes it.</p> <p>Exemplar Response The United States is experiencing winter. The northern hemisphere is tilted away from the sun. The sun's rays do not hit the northern hemisphere as directly as when it is tilted toward the sun. Therefore, the United States is colder during this time.</p>
1 pt	<p>The answer identifies the season as winter, but does not correctly explain why.</p>
0 pts	<p>Neither correctly identifies or explains; leaves blank or states, "I don't know."</p>

Question 5 • Grade 5: Earth and Space Science
Multiple Choice

Content Statement: The solar system includes the sun and all celestial bodies that orbit the sun. Each planet in the solar system has unique characteristics.

Correct Response: A. telescope



Question 6 • Grade 5: Life Science
Multiple Choice

Content Statement: Organisms perform a variety of roles in an ecosystem.

Correct Response: C. herbivore

Question 7 • Grade 5: Life Science
Multiple Choice

Content Statement: Organisms perform a variety of roles in an ecosystem.

Correct Response: D. The mouse is a herbivore providing energy for the owl and fox.

Question 8 • Grade 5: Life Science
Multiple Choice

Content Statement: Organisms perform a variety of roles in an ecosystem.

Correct Response: C. plant



Question 9 • Grade 5: Life Science
Short Answer

Content Statement: All of the processes that take place within organisms require energy.

Scoring Guidelines

Points	Student Response
2 pts	The answer correctly identifies foxes as omnivores and explains why there are fewer foxes than mice. Exemplar Response Foxes are omnivores because they eat both plants and animals. There are fewer foxes because they are higher up in the food web. Each level up has fewer animals because it takes more living things to support a higher level.
1 pt	The answer identifies foxes but does not explain why there are fewer foxes than mice.
0 pts	Neither correctly identifies or explains; leaves blank or states, "I don't know."

Question 10 • Grade 5: Life Science
Multiple Choice

Content Statement: Organisms perform a variety of roles in an ecosystem.

Correct Response: B. parasitism



Question 11 • Grade 5: Physical Science
Multiple Choice

Content Statement: The amount of change in movement of an object is based on the weight of the object and the amount of force exerted.

Correct Response: B. friction

Question 12 • Grade 5: Physical Science
Multiple Choice

Content Statement: The amount of change in movement of an object is based on the weight of the object and the amount of force exerted.

Correct Response: B. The object will slow down.

Question 13 • Grade 5: Physical Science
Multiple Choice

Content Statement: The amount of change in movement of an object is based on the weight of the object and the amount of force exerted.

Correct Response: C. $\text{speed} = \text{distance} \div \text{time}$



Question 14 • Grade 5: Physical Science
Short Answer

Content Statement: The amount of change in movement of an object is based on the weight of the object and the amount of force exerted.

Scoring Guidelines

Points	Student Response
2 pts	The answer identifies the large, heavy ball traveling farther and explains that heavier objects are harder to stop than lighter objects. Exemplar Response The large, heavy ball will travel farther because heavier objects are harder to stop than lighter objects.
1 pt	The answer identifies the large, heavy ball, but does not explain why the ball will travel farther.
0 pts	Neither correctly identifies or explains; leaves blank or states, "I don't know."

Question 15 • Grade 5: Life Science
Multiple Choice

Content Statement: Light and sound are forms of energy that behave in predictable ways.

Correct Response: D. Light can be conducted.



Question 16 • Grade 3: Life Science
Multiple Choice

Content Statement: Light and sound are forms of energy that behave in predictable ways.

Correct Response: A. opaque.

Question 17 • Grade 5: Physical Science
Extended Response

Content Statement: Light and sound are forms of energy that behave in predictable ways.

Scoring Guidelines

Points	Student Response
4 pts	The answer correctly identifies reflected and absorbed and explains how sound behaves in each instance. Exemplar Response Sound can be reflected or absorbed when it hits a surface. When sound is reflected, it bounces back off the surface. When sound is absorbed, it moves into the surface.
3 pts	Answer correctly identifies the two properties but only explains one.
2 pts	Answer correctly identifies and explains only one property -OR- correctly identifies two properties but does not explain either.
1 pt	Answer only correctly identifies one property with no explanation.
0 pts	Answer shows a complete lack of understanding; leaves blank or states, "I don't know."



Answer Key—Grade 5 Posttest

Multiple choice answers are 1 point

1. (A) (B) (C) (D)
2. (A) (B) (C) (D)
3. (A) (B) (C) (D)
4. Short Answer (2 points)
5. (A) (B) (C) (D)
6. (A) (B) (C) (D)
7. (A) (B) (C) (D)
8. (A) (B) (C) (D)
9. Short Answer (2 points)
10. (A) (B) (C) (D)
11. (A) (B) (C) (D)
12. (A) (B) (C) (D)
13. (A) (B) (C) (D)
14. Short Answer (2 points)
15. (A) (B) (C) (D)
16. (A) (B) (C) (D)
17. Extended Response (4 points)

