

# GRADE 8

## STUDENT PRACTICE TEST BOOKLET

Student Name: \_\_\_\_\_



# MEA

Maine Educational Assessment

## RELEASED 2019 SCIENCE ITEMS

Maine Department of Education

# SCIENCE PRACTICE TEST

This practice session has ten multiple-choice and two constructed-response questions.

Choose the best answer for each multiple-choice question and mark your answer choices for questions 1 through 10 in the spaces provided on page 2 of your practice test answer booklet.

- 1 A student in Maine records the times of sunrise and sunset for one week. The table below shows her data.

|        | Sunrise<br>(A.M.) | Sunset<br>(P.M.) |
|--------|-------------------|------------------|
| Mon.   | 4:23              | 6:49             |
| Tues.  | 4:21              | 6:50             |
| Wed.   | 4:20              | 6:52             |
| Thurs. | 4:19              | 6:53             |
| Fri.   | 4:18              | 6:54             |
| Sat.   | 4:16              | 6:55             |
| Sun.   | 4:15              | 6:56             |

Which statement explains why the sunrise and sunset times change as shown?

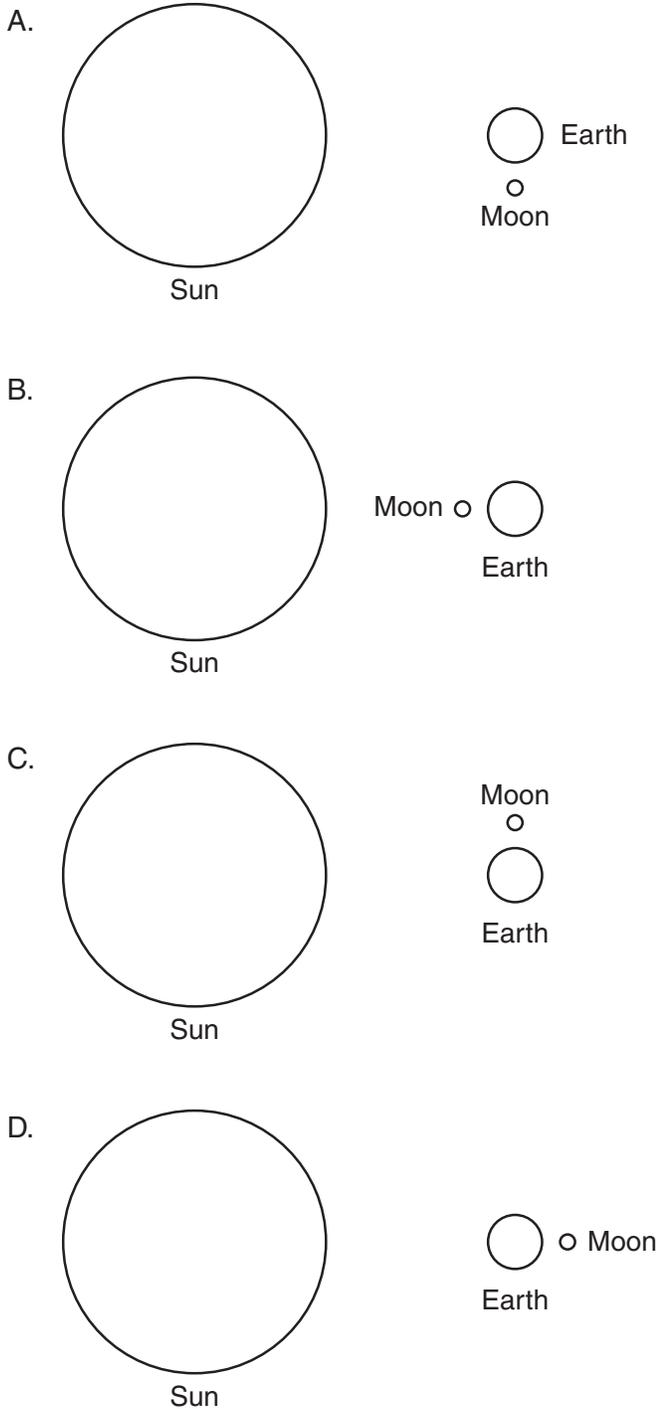
- A. Earth is the third planet from the Sun.
- B. Earth has a moon that revolves around it.
- C. Earth moves closer to the Sun at certain times of the year.
- D. Earth rotates on a tilted axis as it revolves around the Sun.

- 2 Which action would **decrease** the gravitational attraction between two objects?

- A. decrease the mass of one object
- B. increase the speed of both objects
- C. increase the density of one object
- D. decrease the temperature of both objects

PLEASE GO ON →

3 Which picture shows possible positions of the Sun, Moon, and Earth during a solar eclipse?



4 What should a scientist look for in a specimen to find out if it was once alive?

- A. a complicated structure
- B. eggs or sperm
- C. a brain
- D. cells

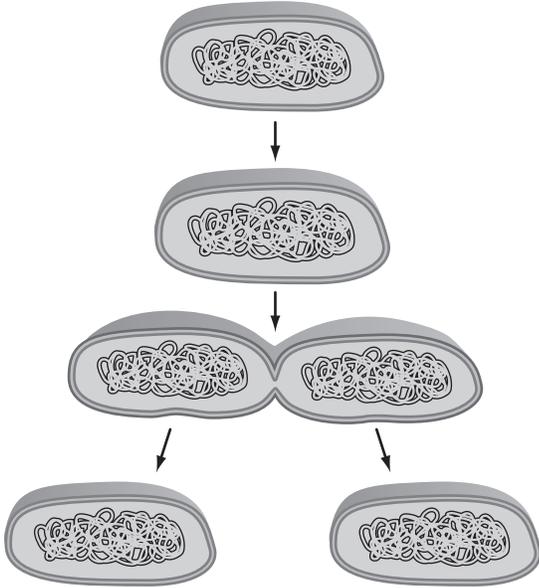
5 Aphids are small insects. When aphids eat the leaves of a certain plant, the plant releases a chemical that attracts ladybugs.

How does this response help the plant survive?

- A. The chemical gives the aphids a survival advantage.
- B. The chemical stops the aphids from growing any larger.
- C. The chemical attracts ladybugs, which feed on the aphids.
- D. The chemical attracts ladybugs, which give the plant nutrients to heal.

PLEASE GO ON →

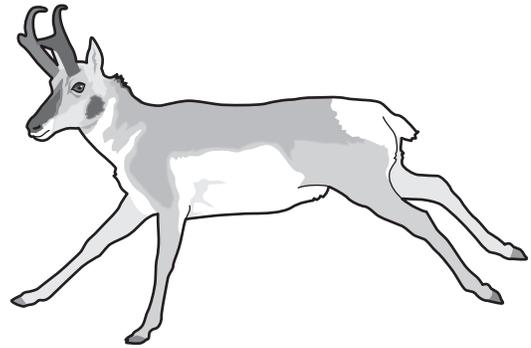
- 6 The diagram below shows a bacterium performing a reproductive function.



Which statement correctly compares the two new cells?

- A. The new cells have the same genetic material as each other and the parent cell.
- B. The new cells have the same genetic material as each other but not as the parent cell.
- C. The cells have the same genetic information but different inherited traits.
- D. The cells have different genetic information and different inherited traits.

- 7 The picture below shows an antelope. In a group of antelopes, some antelopes can run 60 mph and some can run only 30 mph.



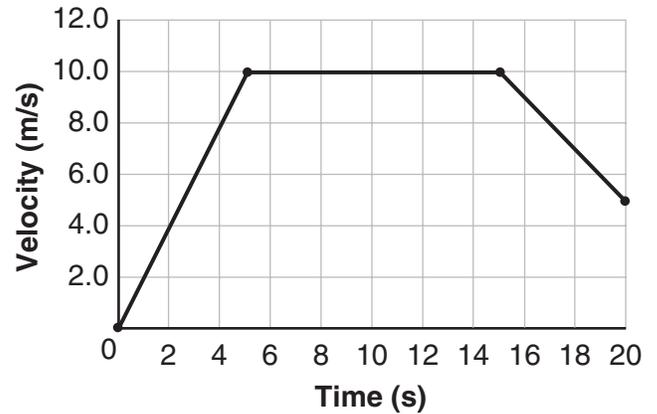
Why would the number of faster-running antelopes increase over time?

- A. The slow antelopes learn from the fast antelopes how to run faster.
- B. The slow antelopes run faster to avoid fast predators.
- C. The fast antelopes outrun predators and survive to reproduce.
- D. The slow antelopes find new grass that gives them more energy to run faster.

PLEASE GO ON ➔

- 8 A power drill is plugged into a wall socket. Which type of force causes the motor in the power drill to rotate a drill bit?
- A. electromagnetic
  - B. frictional
  - C. gravitational
  - D. chemical
- 9 Which of the following has the **least** influence on ocean currents?
- A. the migration of fish
  - B. heat energy from the Sun
  - C. the movement of air in the jet stream
  - D. density differences between warm and cold water

- 10 The graph below shows the velocity of a car over time.



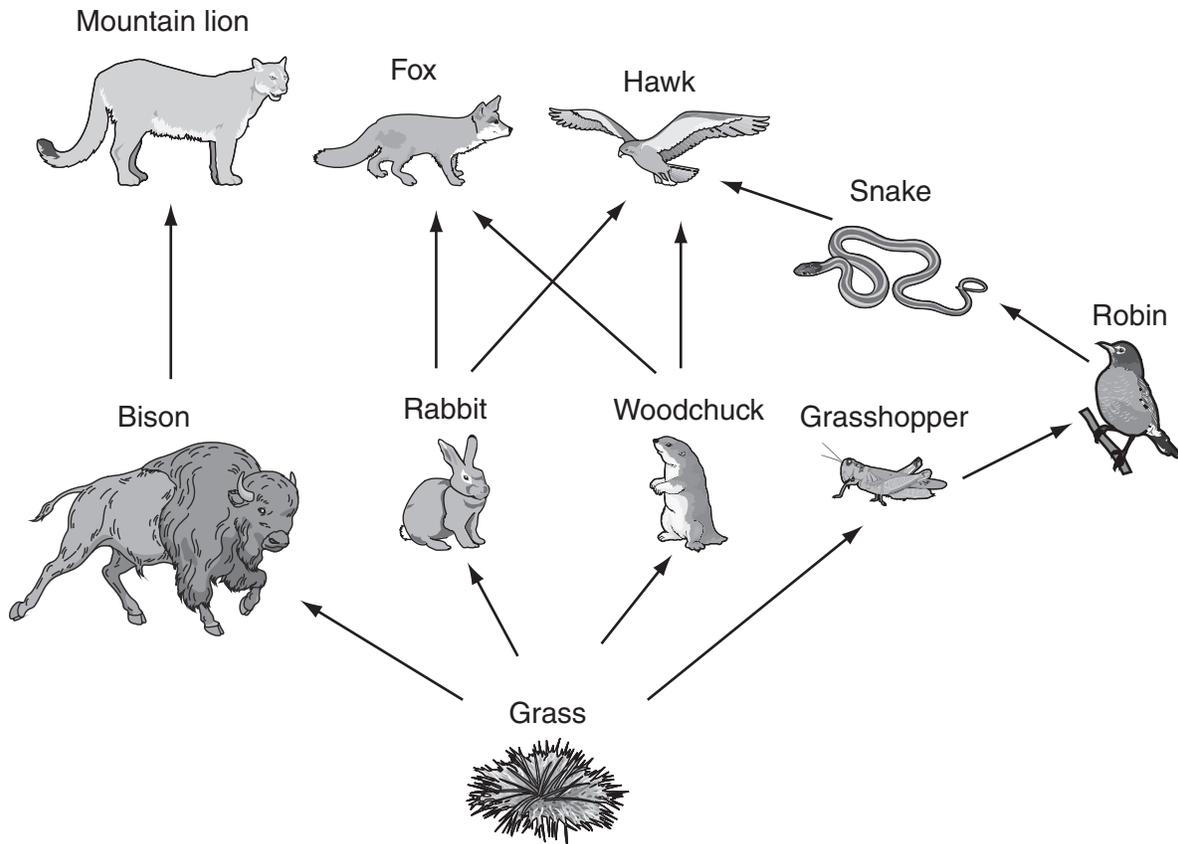
What **most likely** happened between 15 and 20 seconds?

- A. The car stopped and then coasted forward.
- B. The car continued at the same speed.
- C. The brakes applied increased force to the wheels.
- D. The engine applied increased force to the wheels.

PLEASE GO ON →

Write your answers to constructed-response questions 11 and 12 in the boxes provided on pages 2 and 3 of your practice test answer booklet. Be sure to answer and label all parts (a, b, c, etc.) of the questions.

11 The diagram below shows a grassland food web and the flow of energy and matter.



- Identify the source of the energy for all land-based food webs.
- Describe how the energy flows through each level of the food web shown in the diagram. Include the name of the organism(s) for each level described.

PLEASE GO ON ➔

12 Listed below are four examples of matter undergoing change.

1. Sugar dissolving
2. Starch being digested
3. Ice melting
4. Candle wax burning

- a. Choose **three** examples from the list and identify each as a chemical change or a physical change.
- b. Explain your answer for each example you chose in part a.

# STOP

