

Tennessee Comprehensive Assessment Program

TCAP

TNReady—Science
Grade 5 Item Release





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Metadata Interpretation Guide – Science

Item Information

Item Code: TNS10220	Passage Title:
Standard Code: 0307.1.1	Passage Code:
Standard Text: Identify specific parts of a plant and describe their function.	
Reporting Category: Cells, Flow of Matter & Energy, Heredity	
Correct Answer: B	DOK Level: 2

Item Code: Unique letter/number code used to identify the item.	Passage Title: (if listed): Title of the passage(s) associated with this item.
Standard Code: Primary educational standard assessed.	Passage Code: (if listed): Unique letter/number code used to identify the passage(s) that go with this item.
Standard Text: Text of the educational standard assessed.	
Reporting Category: Text of the Reporting Category the standard assesses.	
Correct Answer: Correct answer. This may be blank for constructed response items where students write or type their responses.	DOK Level (if listed): Depth of Knowledge (cognitive complexity) is measured on a four-point scale. 1= Recall; 2= Skill/Concepts; 3= Strategic Thinking; 3-4 = Strategic/Extended Thinking

Item Information

Item Code: TNS02699

Passage Title:

Standard Code: 0507.1.1

Passage Code:

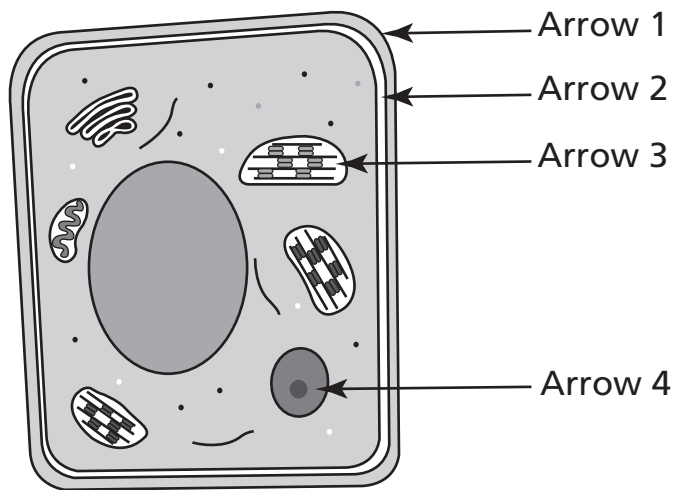
Standard Text: Identify the major parts of plant and animal cells such as, the nucleus, cell membrane, cell wall, and cytoplasm.

Reporting Category: Cells, Flow of Matter & Energy, Heredity

Correct Answer: A

DOK Level: 1

Study the diagram of a plant cell.



Which arrow is pointing to a structure that provides protection and rigid support for plant cells?

- A** Arrow 1
- B** Arrow 2
- C** Arrow 3
- D** Arrow 4

Item Information

Item Code: TNS02709

Passage Title:

Standard Code: 0507.1.1

Passage Code:

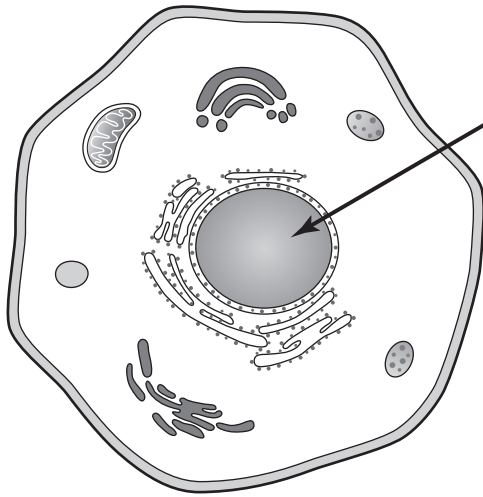
Standard Text: Identify the major parts of plant and animal cells such as, the nucleus, cell membrane, cell wall, and cytoplasm.

Reporting Category: Cells, Flow of Matter & Energy, Heredity

Correct Answer: A

DOK Level: 1

The diagram below shows an animal cell.



Which of these structures does the arrow point to in the diagram?

- A** nucleus
- B** cell wall
- C** chloroplast
- D** cell membrane

Item Information

Item Code:	TNS20031	Passage Title:	
Standard Code:	0507.1.2	Passage Code:	
Standard Text:	Compare and contrast basic structures and functions of plant and animal cells.		
Reporting Category:	Cells, Flow of Matter & Energy, Heredity		
Correct Answer:	D	DOK Level:	1

Which cell structure allows materials to move in and out of both plant and animal cells?

- A** cytoplasm
- B** nucleus
- C** vacuole
- D** cell membrane

Item Information

Item Code: TNS10772

Passage Title:

Standard Code: 0507.10.1

Passage Code:

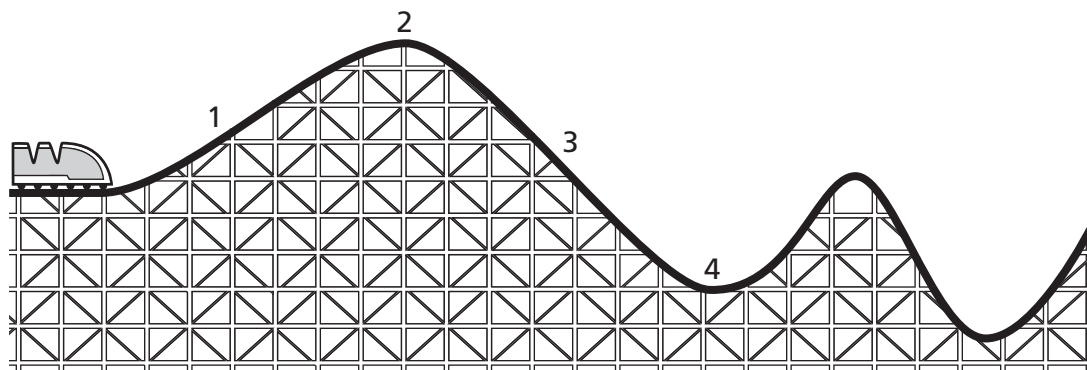
Standard Text: Differentiate between potential and kinetic energy.

Reporting Category: Matter and Energy

Correct Answer: B

DOK Level: 1

The picture shows the path of a roller-coaster ride.



At which position will the roller coaster have the most potential energy?

- A 1
- B 2
- C 3
- D 4

Item Information

Item Code:	TNS20024	Passage Title:	
Standard Code:	0507.10.2	Passage Code:	
Standard Text:	Use data from an investigation to determine the method by which heat energy is transferred from one object or material to another.		
Reporting Category:	Matter and Energy		
Correct Answer:	D	DOK Level:	2

Which of these is the best model to show radiation?

- A** a pot of water boiling on the stove
- B** a metal spoon warming in a cup of hot tea
- C** a hamburger frying in a pan
- D** a sidewalk being warmed by the sun

Item Information

Item Code: TNS10614

Passage Title:

Standard Code: 0507.11.1

Passage Code:

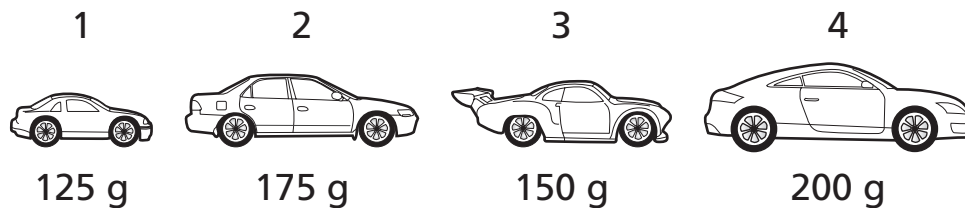
Standard Text: Explain the relationships that exist among mass, force, and distance traveled.

Reporting Category: Motion and Forces in Nature

Correct Answer: A

DOK Level: 2

Some toy cars are shown.



When a student pushes each toy car with an equal amount of force on the same level surface, which car will travel the greatest distance?

- A** 1
- B** 2
- C** 3
- D** 4

Item Information

Item Code: TNS20255

Passage Title:

Standard Code: 0507.2.1

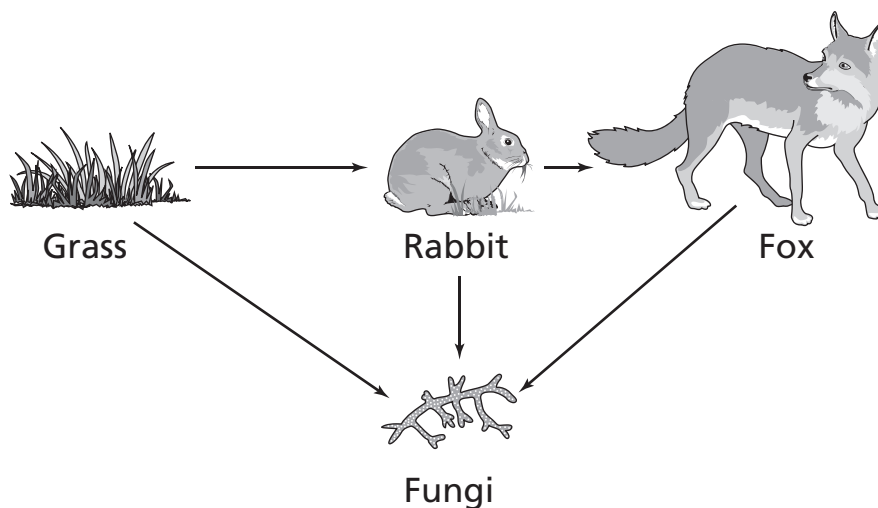
Passage Code:

Standard Text: Describe the different types of nutritional relationships that exist among organisms.

Reporting Category: Interdependence, Biodiversity & Change

Correct Answer: D

DOK Level: 2

A food chain is shown below.**Which organism is a decomposer in this food chain?**

- A** Grass
- B** Rabbit
- C** Fox
- D** Fungi

Item Information

Item Code: TNS10771

Passage Title:

Standard Code: 0507.2.2

Passage Code:

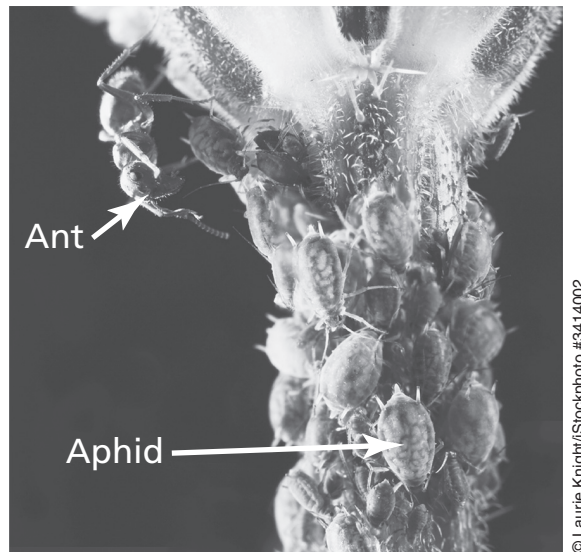
Standard Text: Distinguish among symbiotic, commensal, and parasitic relationships.

Reporting Category: Interdependence, Biodiversity & Change

Correct Answer: C

DOK Level: 2

The picture shows an ant and aphids on a plant.



The ants eat sugar that is released by the aphids. The aphids gain some protection from the ants. Which best describes this relationship?

- A** parasitic
- B** commensal
- C** mutualistic
- D** competitive

Item Information

Item Code:	TNS10420	Passage Title:	
Standard Code:	0507.2.3	Passage Code:	
Standard Text:	Use information about the impact of human actions or natural disasters on the environment to support a simple hypothesis, make a prediction, or draw a conclusion.		
Reporting Category:	Interdependence, Biodiversity & Change		
Correct Answer:	D	DOK Level:	2

When a volcano erupts, a lot of ash can enter the air. The ash in the air may block sunlight for a long time. Which organisms would most likely be affected first when this happens?

- A** parasites
- B** decomposers
- C** carnivores
- D** producers

Item Information

Item Code:	TNS10791	Passage Title:	
Standard Code:	0507.2.3	Passage Code:	
Standard Text:	Use information about the impact of human actions or natural disasters on the environment to support a simple hypothesis, make a prediction, or draw a conclusion.		
Reporting Category:	Interdependence, Biodiversity & Change		
Correct Answer:	C	DOK Level:	2

A developer plans to drain a wetland to build houses and a shopping center. What is the most likely effect on the environment?

- A** decrease in flooding
- B** decrease in air pollution
- C** decrease in native plants
- D** decrease in noise pollution

Item Information

Item Code: TNS01977

Passage Title:

Standard Code: 0507.3.1

Passage Code:

Standard Text: Identify photosynthesis as the food manufacturing process in plants.

Reporting Category: Cells, Flow of Matter & Energy, Heredity

Correct Answer: A

DOK Level: 1

Photosynthesis is the process that plants use to

- A** make food
- B** absorb water
- C** release wastes
- D** produce new plants

Item Information

Item Code: TNS10604

Passage Title:

Standard Code: 0507.3.2

Passage Code:

Standard Text: Compare how plants and animals obtain energy.

Reporting Category: Cells, Flow of Matter & Energy, Heredity

Correct Answer: D

DOK Level: 2

A fifth-grade classroom has a hamster and some bean plants.

Hamster



Bean Plants



Why does the hamster need to be fed every day, but the bean plants do not?

- A** because bean plants get their food from insects
- B** because bean plants do not move around
- C** because bean plants live longer than the hamster
- D** because bean plants use sunlight to make their own food

Item Information

Item Code:	TNS20184	Passage Title:	
Standard Code:	0507.4.2	Passage Code:	
Standard Text:	Distinguish between inherited traits and those that can be attributed to the environment.		
Reporting Category:	Cells, Flow of Matter & Energy, Heredity		
Correct Answer:	B	DOK Level:	1

Which trait could a mouse inherit from its parents?

- A** where it lives
- B** color of its fur
- C** places it finds food
- D** materials it uses for its nest

Item Information

Item Code: TNS20010

Passage Title:

Standard Code: 0507.5.1

Passage Code:

Standard Text: Identify physical and behavioral adaptations that enable animals such as, amphibians, reptiles, birds, fish, and mammals to survive in a particular environment.

Reporting Category: Interdependence, Biodiversity & Change

Correct Answer: B

DOK Level: 2

The pictures show a snowshoe hare during the summer and the winter. In the summer, the hare has a brown coat, and in the winter, the hare has a white coat.



Summer



Winter

Which is the most likely reason the coat of the snowshoe hare changes color?

- A** to attract a mate
- B** to hide from predators
- C** to help it find food
- D** to look like another animal

Item Information

Item Code: TNS20059

Passage Title:

Standard Code: 0507.5.2

Passage Code:

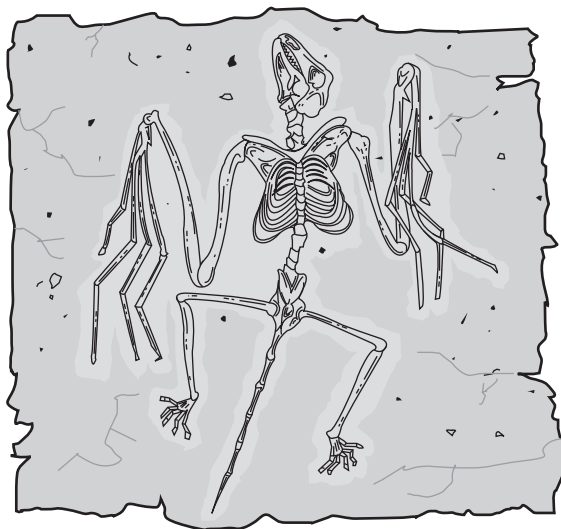
Standard Text: Explain how fossils provide information about the past.

Reporting Category: Interdependence, Biodiversity & Change

Correct Answer: B

DOK Level: 2

A scientist finds the fossil shown.



Based on its structure, this fossil is most likely related to which modern animal?

- A** monkey
- B** bat
- C** dog
- D** frog

Item Information

Item Code: TNS10535

Passage Title:

Standard Code: 0507.6.1

Passage Code:

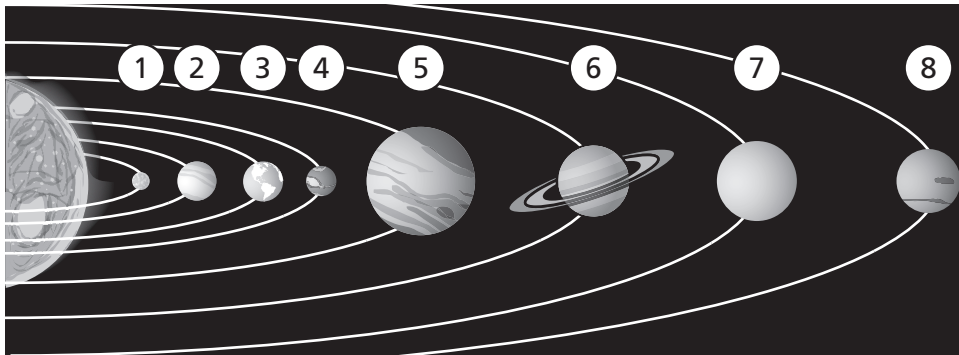
Standard Text: Distinguish among the planets according to their known characteristics such as appearance, location, composition, and apparent motion.

Reporting Category: The Universe, The Earth, The Atmosphere

Correct Answer: D

DOK Level: 2

A diagram of our solar system is shown.



Which planet represents Uranus?

- A** Planet 1
- B** Planet 3
- C** Planet 5
- D** Planet 7

Item Information

Item Code: TNS00346

Passage Title:

Standard Code: 0507.6.1

Passage Code:

Standard Text: Distinguish among the planets according to their known characteristics such as appearance, location, composition, and apparent motion.

Reporting Category: The Universe, The Earth, The Atmosphere

Correct Answer: B

DOK Level: 1

Which planet is blue and has rings?

- A** Jupiter
- B** Neptune
- C** Saturn
- D** Venus

Item Information

Item Code:	TNS10339	Passage Title:	
Standard Code:	0507.6.1	Passage Code:	
Standard Text:	Distinguish among the planets according to their known characteristics such as appearance, location, composition, and apparent motion.		
Reporting Category:	The Universe, The Earth, The Atmosphere		
Correct Answer:	D	DOK Level:	1

What is the third planet from the sun?

- A** Venus
- B** Uranus
- C** Neptune
- D** Earth

Item Information

Item Code: TNS10797

Passage Title:

Standard Code: 0507.7.1

Passage Code:

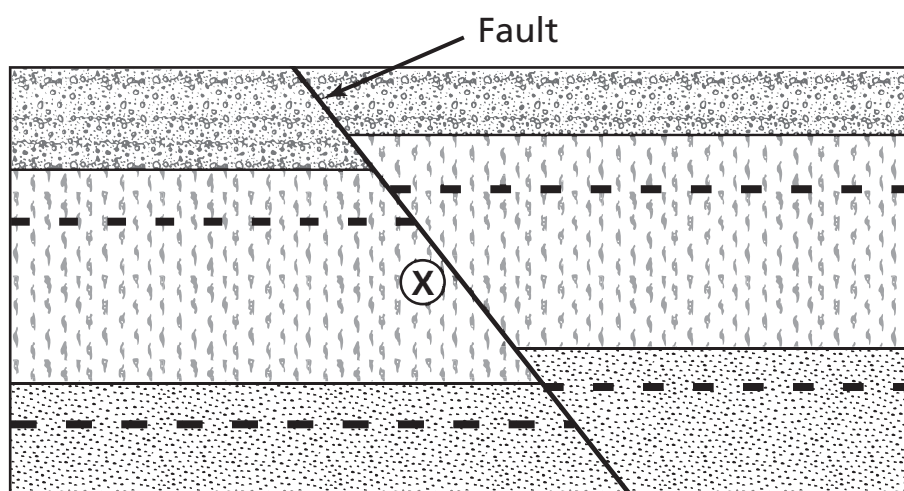
Standard Text: Describe internal forces such as volcanoes, earthquakes, faulting, and plate movements that are responsible for the earth's major geological features such as mountains, valleys, etc.

Reporting Category: The Universe, The Earth, The Atmosphere

Correct Answer: D

DOK Level: 2

A fault is shown.



When there is movement at the fault, which of these most likely happens at point X?

- A** severe weather
- B** glaciers flow
- C** a drought
- D** an earthquake

Item Information

Item Code: TNS20314	Passage Title:
Standard Code: 0507.8.1	Passage Code:
Standard Text: Describe the effects of the oceans on weather and climate.	
Reporting Category: The Universe, The Earth, The Atmosphere	
Correct Answer: D	DOK Level: 3-4

Which best explains why temperatures along the coast change less than temperatures 200 kilometers away from the coast?

- A** Waves keep air temperatures more constant at the coast than farther away.
- B** Winds are weaker near the coast than farther away.
- C** Sand dunes help keep the land warmer than the water.
- D** Temperature of water changes more slowly than the temperature of land.

Item Information

Item Code: TNS10547	Passage Title:
Standard Code: 0507.9.1	Passage Code:
Standard Text: Distinguish between physical and chemical properties.	
Reporting Category: Matter and Energy	
Correct Answer: B	DOK Level: 1

Which describes a physical property of a substance?

- A** Iron rusts.
- B** Gold melts.
- C** Paper burns.
- D** Silver tarnishes.

Item Information

Item Code: TNS10743

Passage Title:

Standard Code: 0507.9.2

Passage Code:

Standard Text: Describe the differences among freezing, melting, and evaporation.

Reporting Category: Matter and Energy

Correct Answer: A

DOK Level: 2

The picture shows an ice cube on a table.



Heat is being

- A** added to cause a solid to melt.
- B** removed to cause a liquid to freeze.
- C** removed to cause a liquid to evaporate.
- D** added to cause a gas to condense.

Item Information

Item Code: TNS10429

Passage Title:

Standard Code: 0507.9.2

Passage Code:

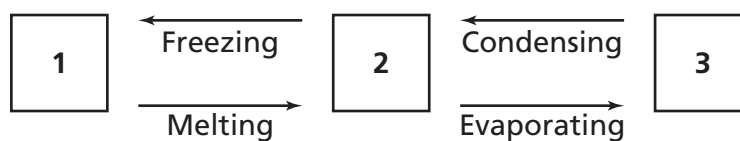
Standard Text: Describe the differences among freezing, melting, and evaporation.

Reporting Category: Matter and Energy

Correct Answer: C

DOK Level: 2

The diagram shows some of the processes that happen when matter changes state.



Which would be the change of water from a liquid to a solid?

- A 1 to 3
- B 1 to 2
- C 2 to 1
- D 3 to 2

Item Information

Item Code: TNS10343

Passage Title:

Standard Code: 0507.9.3

Passage Code:

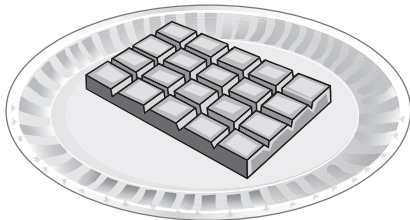
Standard Text: Describe factors that influence the rate at which different types of material freeze, melt, or evaporate.

Reporting Category: Matter and Energy

Correct Answer: B

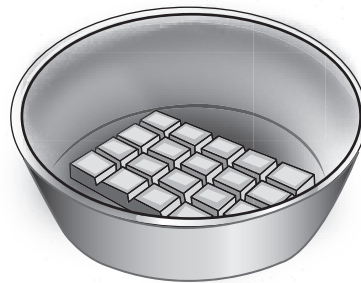
DOK Level: 2

The pictures below show the setup for a heating investigation. Four pieces of chocolate were placed in different conditions.



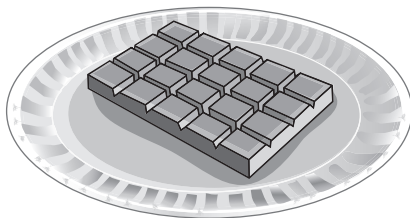
1

On a paper plate in the sun



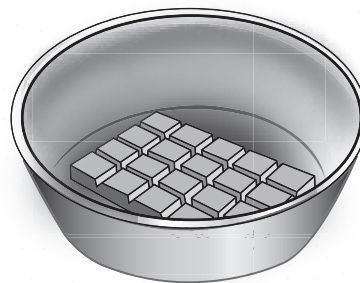
2

In an aluminum pan in the sun



3

On a paper plate in the shade



4

In an aluminum pan in the shade

Which piece of chocolate will most likely melt the fastest?

- A 1
- B 2
- C 3
- D 4

Item Information

Item Code:	TNS20003	Passage Title:	
Standard Code:	5.0507.TE.2	Passage Code:	
Standard Text:	Recognize the connection between a scientific advance and the development of a new tool or technology.		
Reporting Category:	Motion and Forces in Nature		
Correct Answer:	B	DOK Level:	2

Scientists are now able to convert light energy from the sun directly into electricity. Which technology was developed as a result of this scientific advance?

- A** battery-powered flashlights
- B** solar-powered traffic signals
- C** light bulbs
- D** telephones

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