

MCA Paper Student  
Readiness Tool  
High School Science





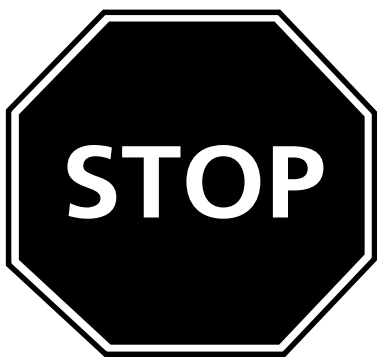
# Symbols on the Test

You will see the following symbols in your test book:



**Go on to the next page.**

This symbol means you can continue answering questions on the next page.



This symbol means you have finished a segment of the test. You must wait until you are told to go to the next segment.



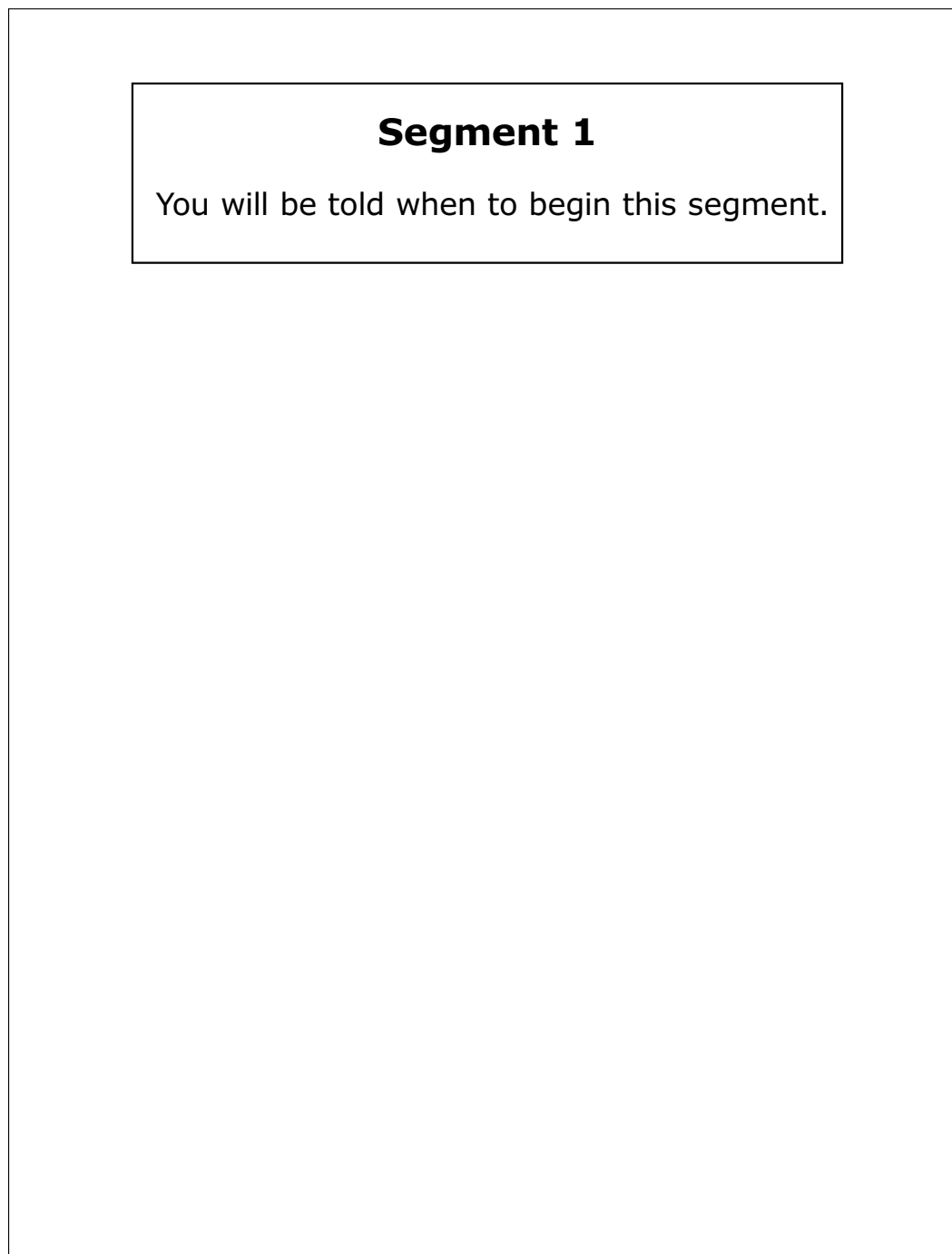
This symbol indicates where to place the sticker given to you by the Test Monitor to seal a finished segment.



**Go on to the next page.**

# Science Test General Information

- Your test will contain different segments. Segment pages look like this:



Put sticker  
here

- You can write notes in your test book or on scratch paper, but you must answer each question in the test book.
- You may use a handheld calculator for some questions.
- Your science test includes scenarios and different types of diagram, graphing, and multiple-choice questions.

**Go on to the next page.**

For some diagram questions, you will need to circle the answer you want to choose. The sample scenario and sample questions show you how to do this.



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# Sample Scenario and Questions Answered in Test Book:

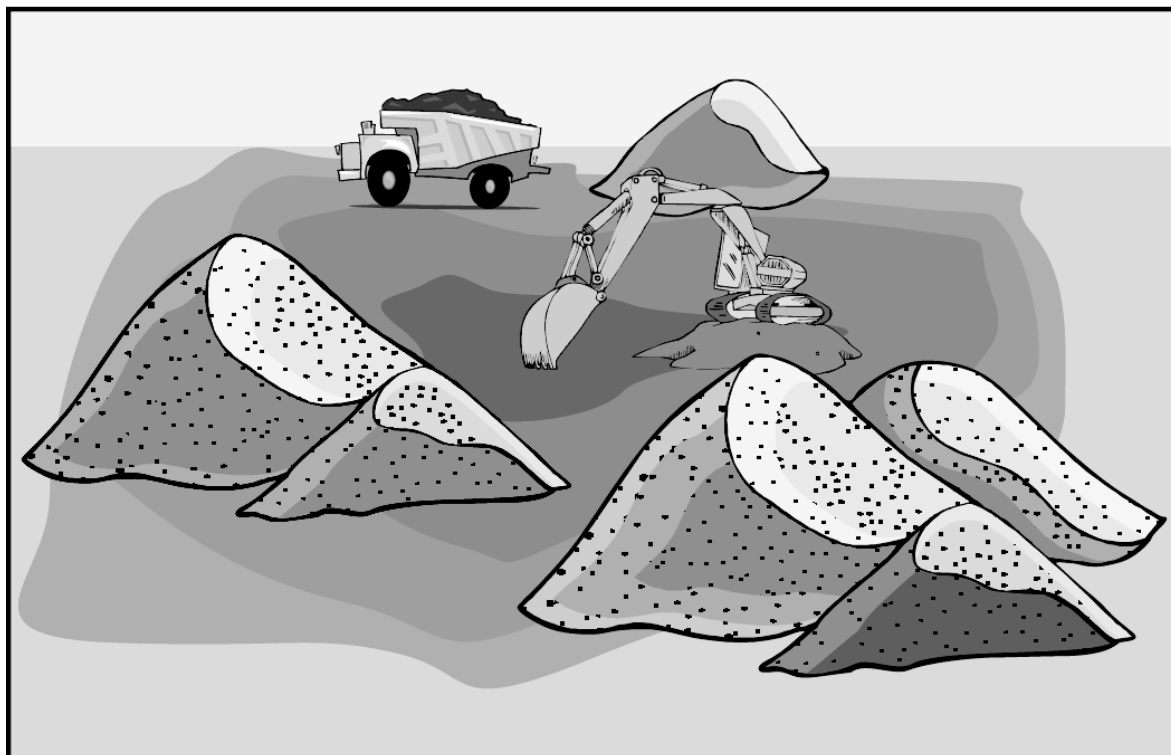
## Sample Scenario

Before this area was mined, the land looked very different.

### Before Mining



### After Mining



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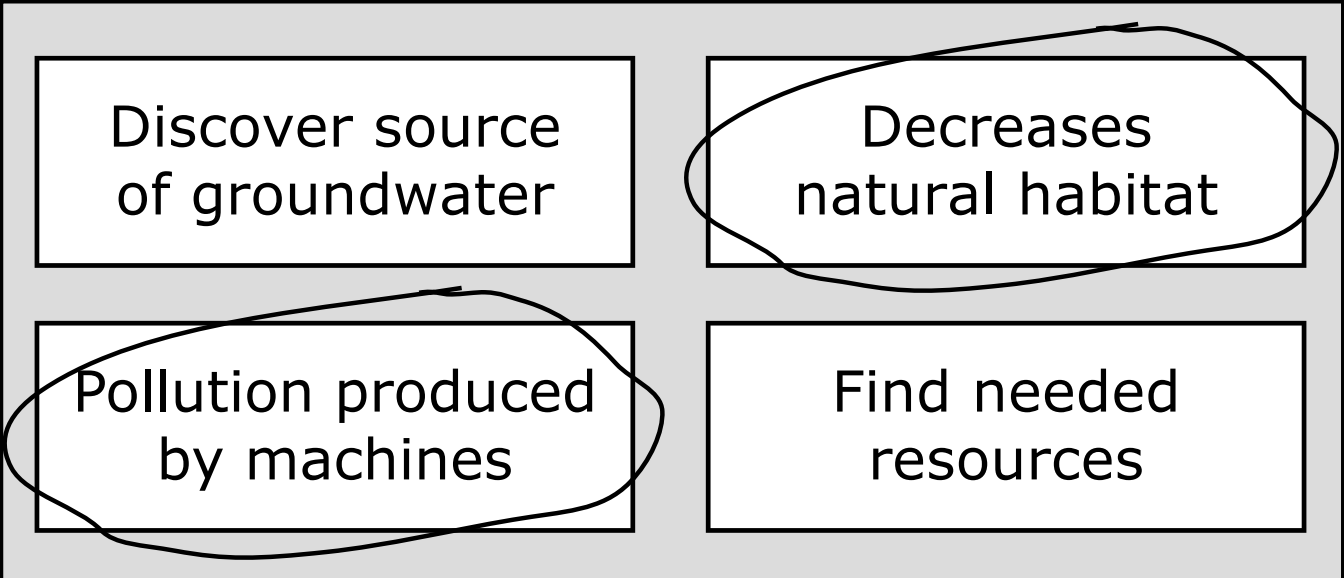
## Sample Question

Mining in a forest area can have positive and negative effects. Identify 2 possible negative effects on the environment.

Circle the 2 effects you want to choose.

### Possible Effects

Discover source of groundwater	Decreases natural habitat
Pollution produced by machines	Find needed resources

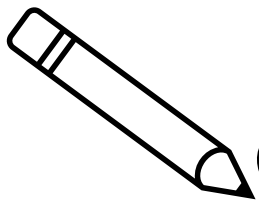


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## Sample Question

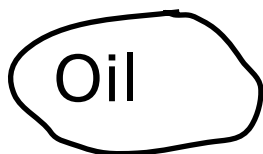
Natural resources are often used to supply energy to peoples' homes. Identify resources that are a source of nonrenewable energy.

Circle each resource you want to choose.



Coal

Water



Oil

Wind

Solar

**Go on to the next page.**

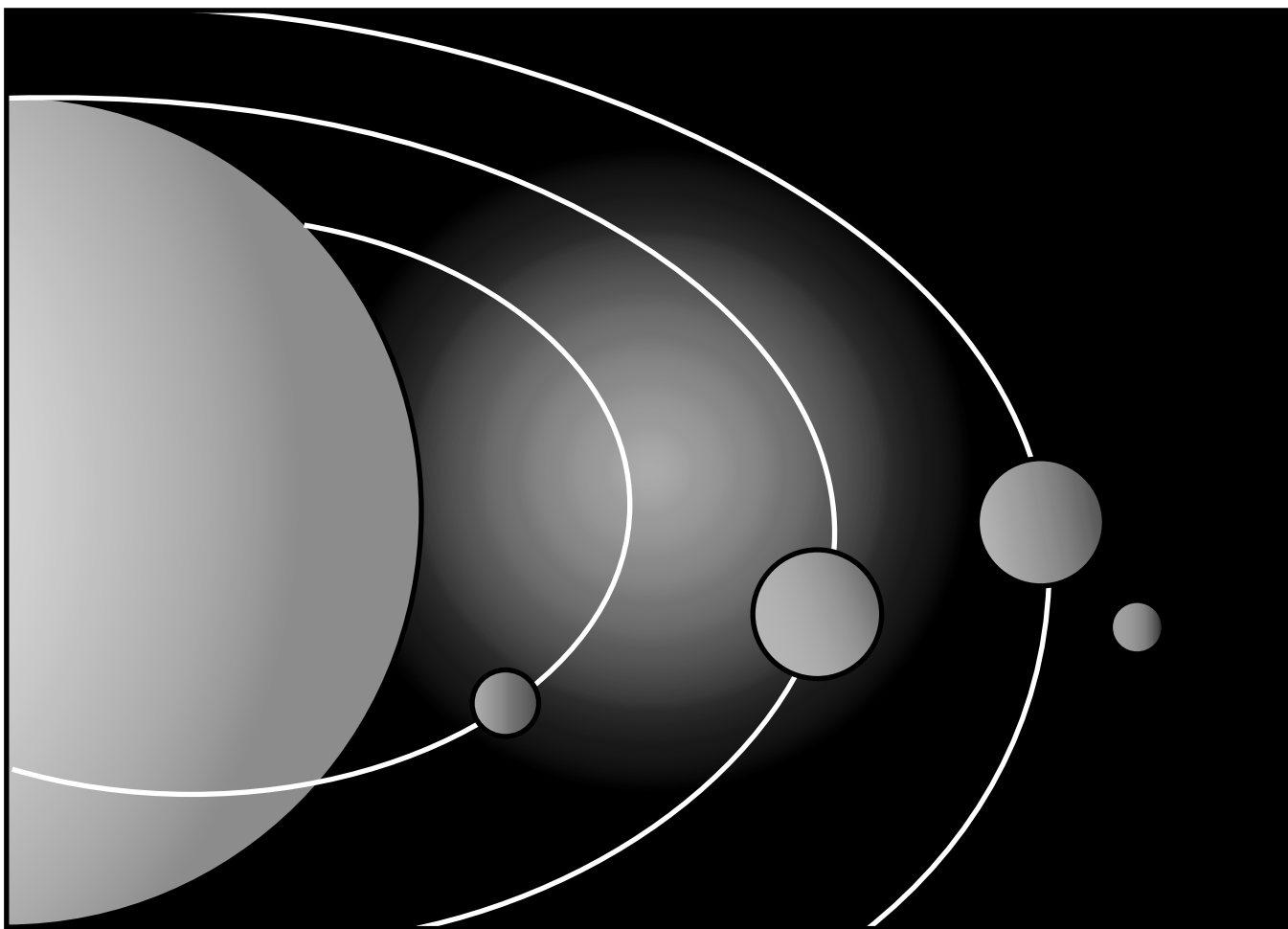


## Practice

Practice answering this diagram question by circling Moon and Earth.

### Scenario

Satellites are natural or artificial objects that orbit a planet or star. The Moon and Earth are both natural satellites. For thousands of years, humans have used natural satellites and stars to determine the time of day and predict the change of the seasons.



**Go on to the next page.**

## Question

1. Satellites move in regular, predictable patterns. Identify 2 natural satellites.

Circle 2 natural satellites you want to choose.

Moon

Stars

Meteors

Earth



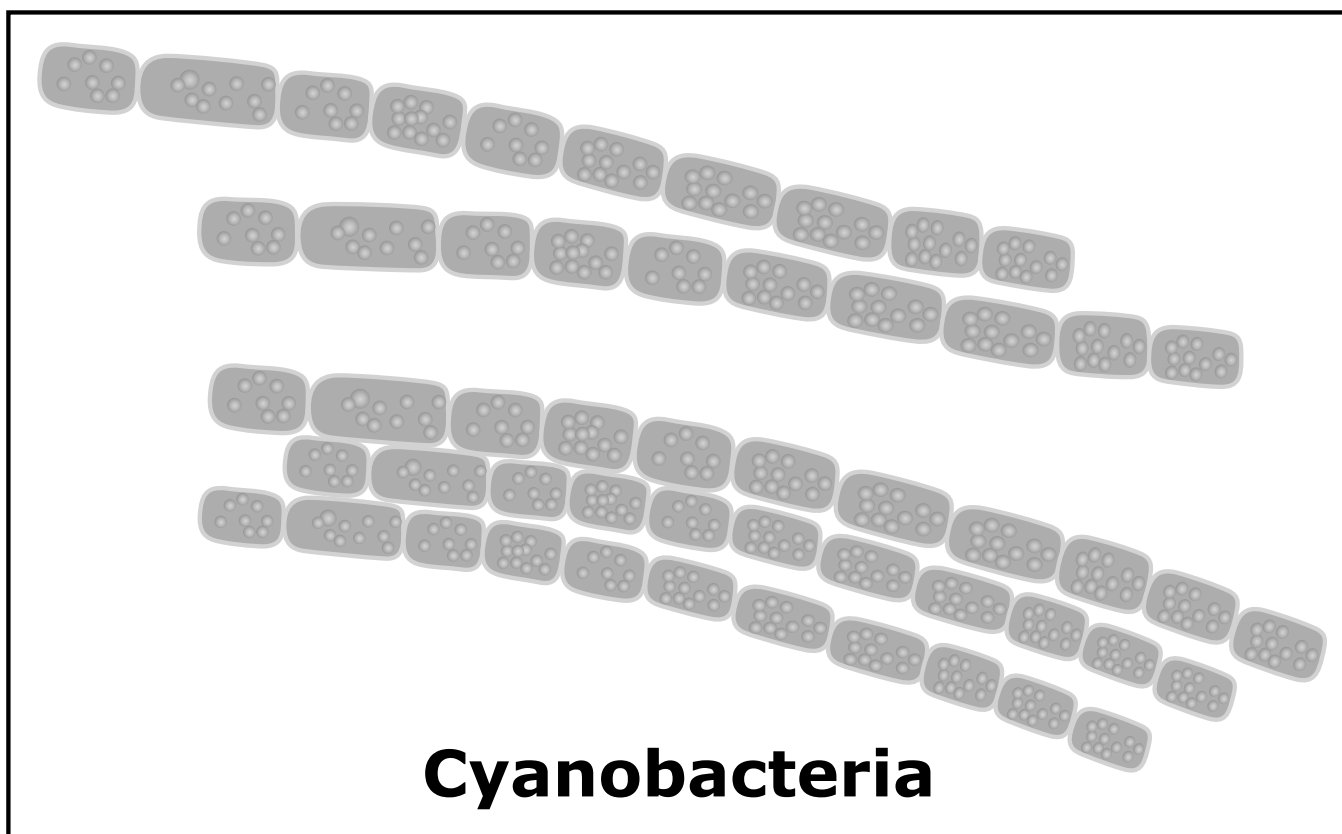
**Go on to the next page.**

For some diagram questions, you will need to write the label letters (such as A, B, C) in the boxes. The sample scenario and sample question show you how to do this.

## **Sample Scenario and Question Answered in Test Book:**

### **Sample Scenario**

Unlike most kinds of bacteria, cyanobacteria contain chlorophyll and perform photosynthesis. Because they contain chlorophyll, most cyanobacteria are green.



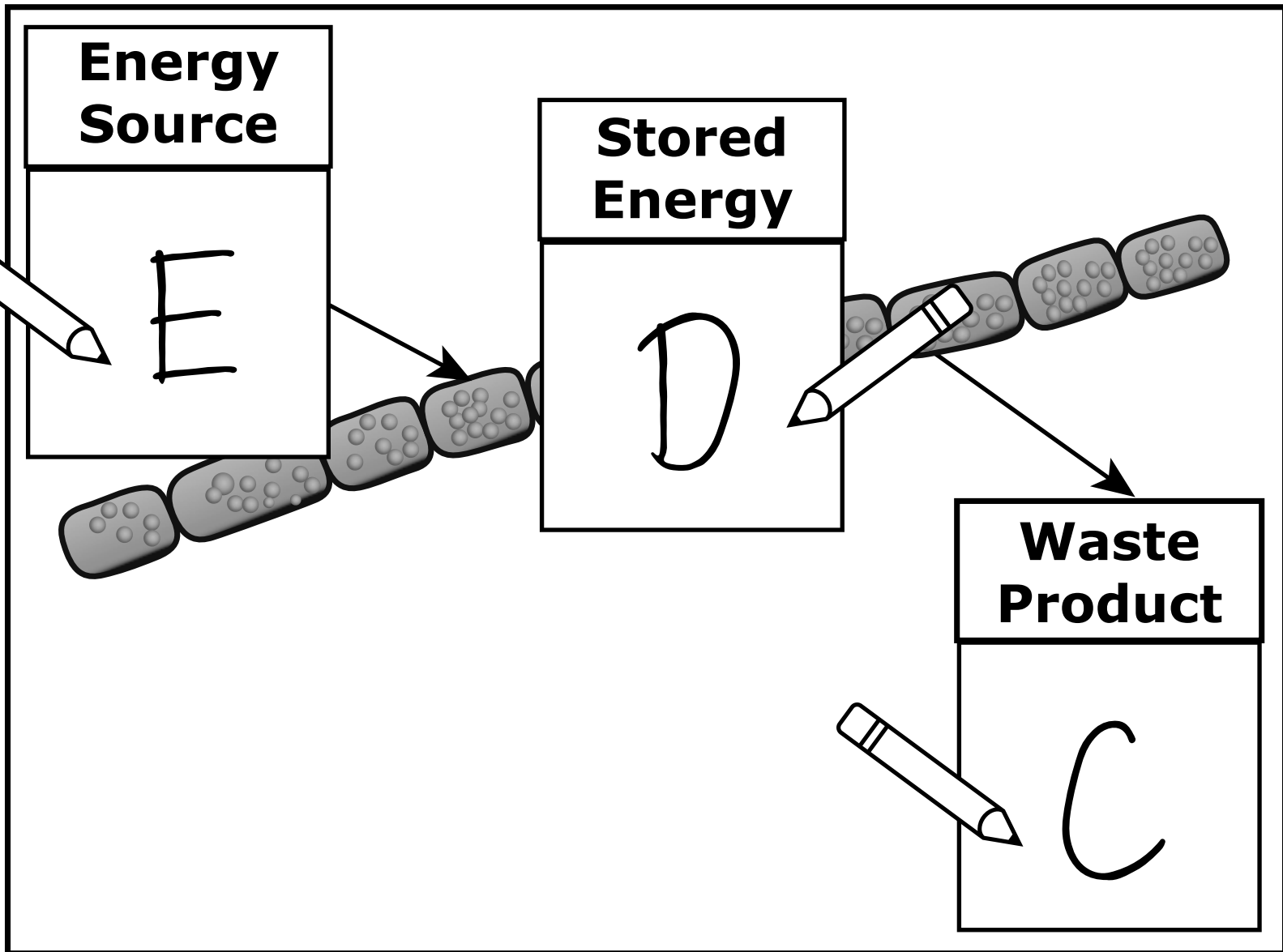
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## Sample Question

Identify 3 objects involved in photosynthesis.

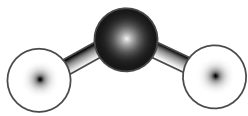
Each object is labeled A, B, C, D, E, or F. Write the letter of the correct object in each empty box in the diagram. Three of the objects will be used.

**Go on to the next page.**



**Objects**

**A.**



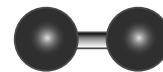
**Water  
(H<sub>2</sub>O)**

**B.**



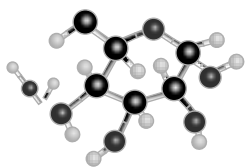
**Carbon  
dioxide  
(CO<sub>2</sub>)**

**C.**



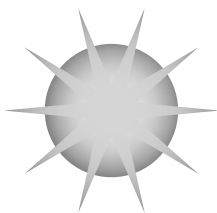
**Oxygen  
(O<sub>2</sub>)**

**D.**



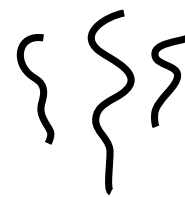
**Glucose  
(C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>)**

**E.**



**Sunlight**

**F.**



**Heat**

**Go on to the next page.**

## Practice

Practice answering this diagram question by writing letter C in the first box, letter A in the second box, and letter B in the third box.

### Scenario

Athletes who increase their  $VO_2$  max, or the maximum amount of oxygen a person can consume during one minute of intense physical effort, may improve their performance during competition.

The table shows the race times for 3 athletes before and after they trained in high altitudes.

**Athletes' Race Times**

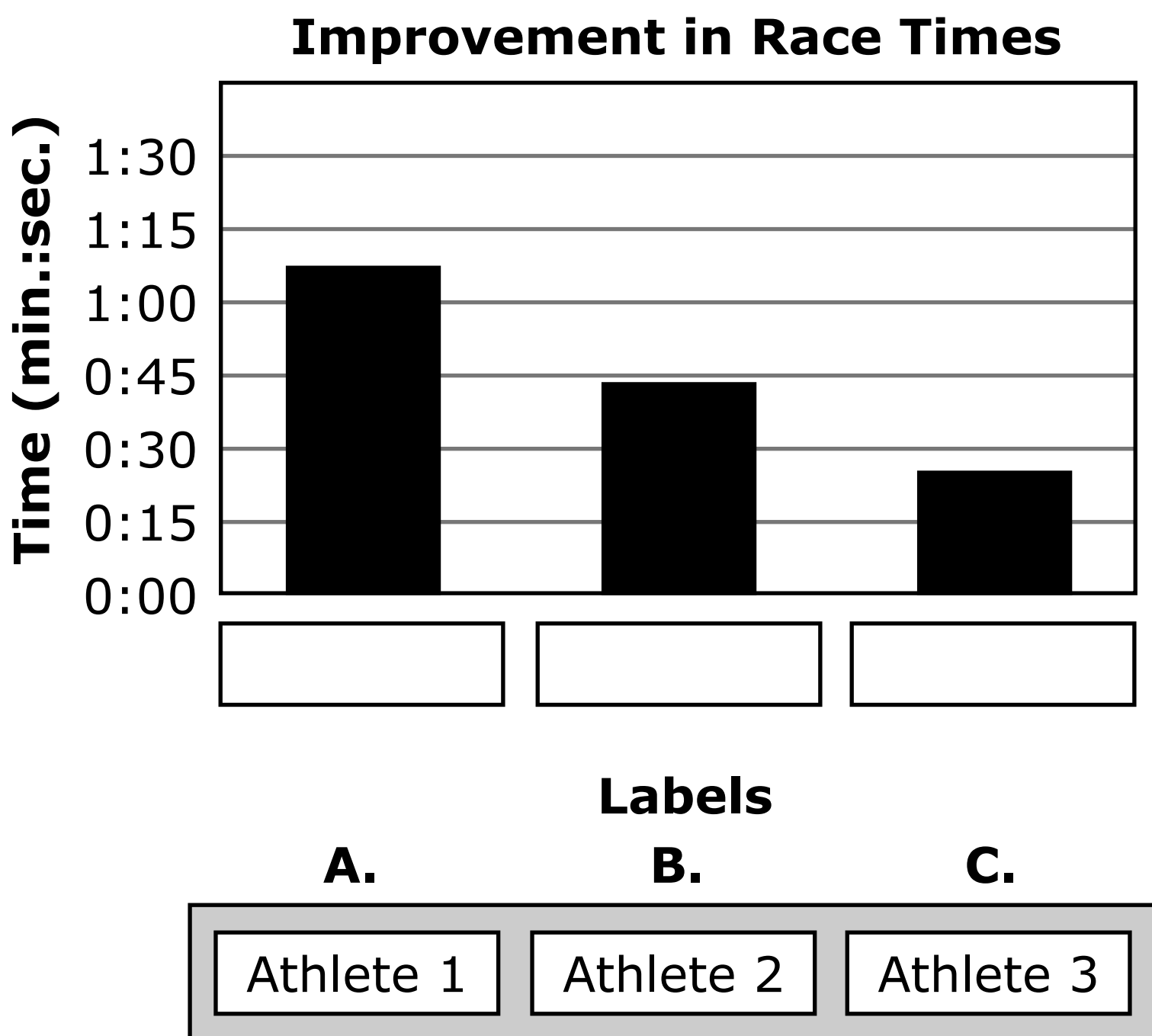
	<b>Before Training (min.:sec.)</b>	<b>After Training (min.:sec.)</b>
<b>Athlete 1</b>	17:46	17:02
<b>Athlete 2</b>	16:58	16:32
<b>Athlete 3</b>	17:24	16:12
<b>Average</b>	17:23	16:35

**Go on to the next page.**

## Question

2. The graph shows the improvement in race times (min.:sec.) for each of the 3 athletes. Complete the graph by putting labels on the x-axis.

Each label is marked A, B, or C. Write the letter of the correct label in each empty box. You may use each letter 1 time.



**Go on to the next page.**

For some graphing questions, you will need to write a “+” above each bar where the top of the bar should be. The sample shows you how to do this.

### **Sample Question Answered in Test Book:**

Make a graph of the air temperatures inside and outside of a cave at 7 a.m.

#### **Air Temperature**

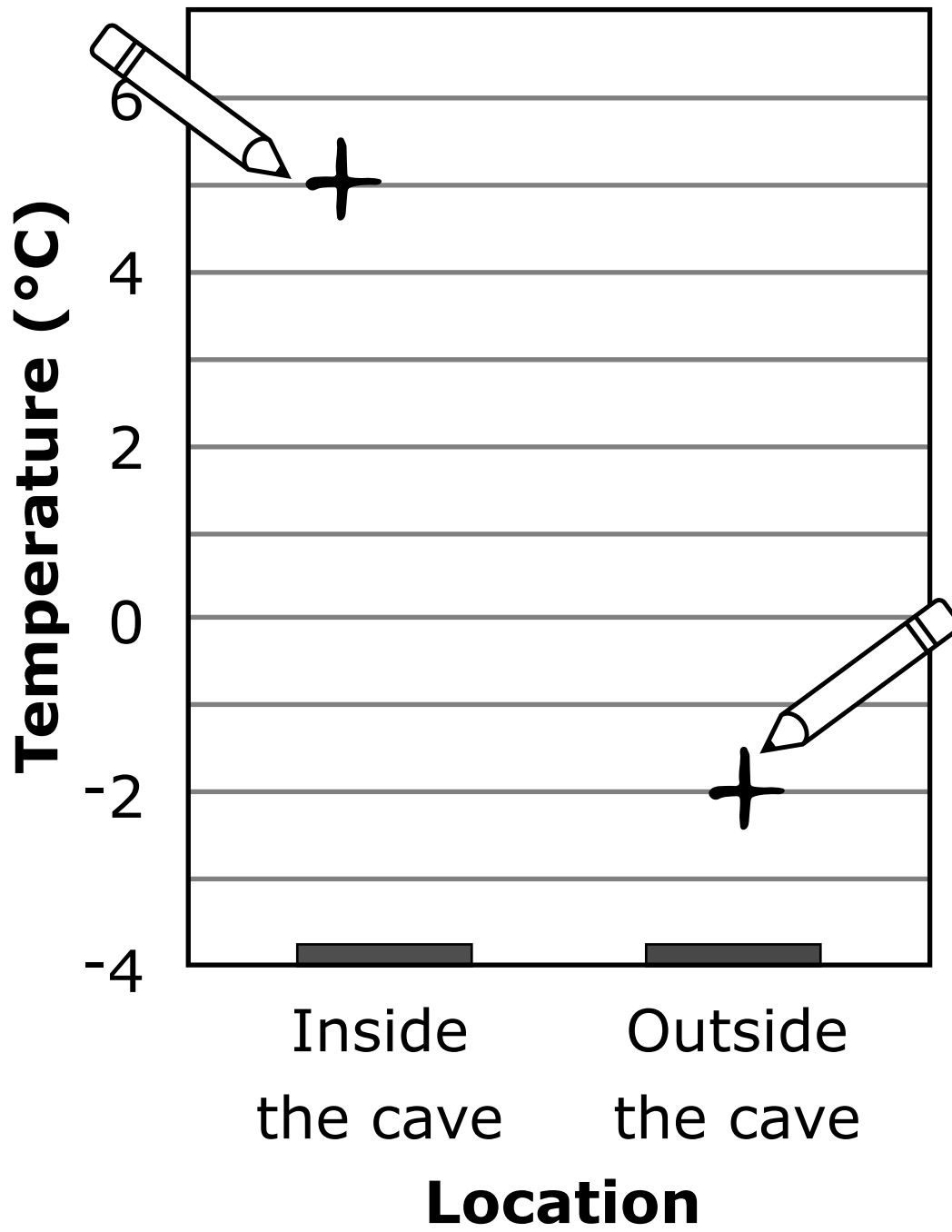
	<b>Inside</b>	<b>Outside</b>
<b>7 a.m.</b>	5°C (41°F)	– 2°C (28°F)

**Go on to the next page.**



Write a "+" above each bar where the top of the bar should be.

### Air Temperature at 7 a.m.



Go on to the next page.

## Practice

Practice answering this graphing question by writing a "+" above "Inside the cave" at 13°C and a "+" above "Outside the cave" at 18°C.

3. Make a graph of the air temperatures inside and outside of a cave at 6 p.m.

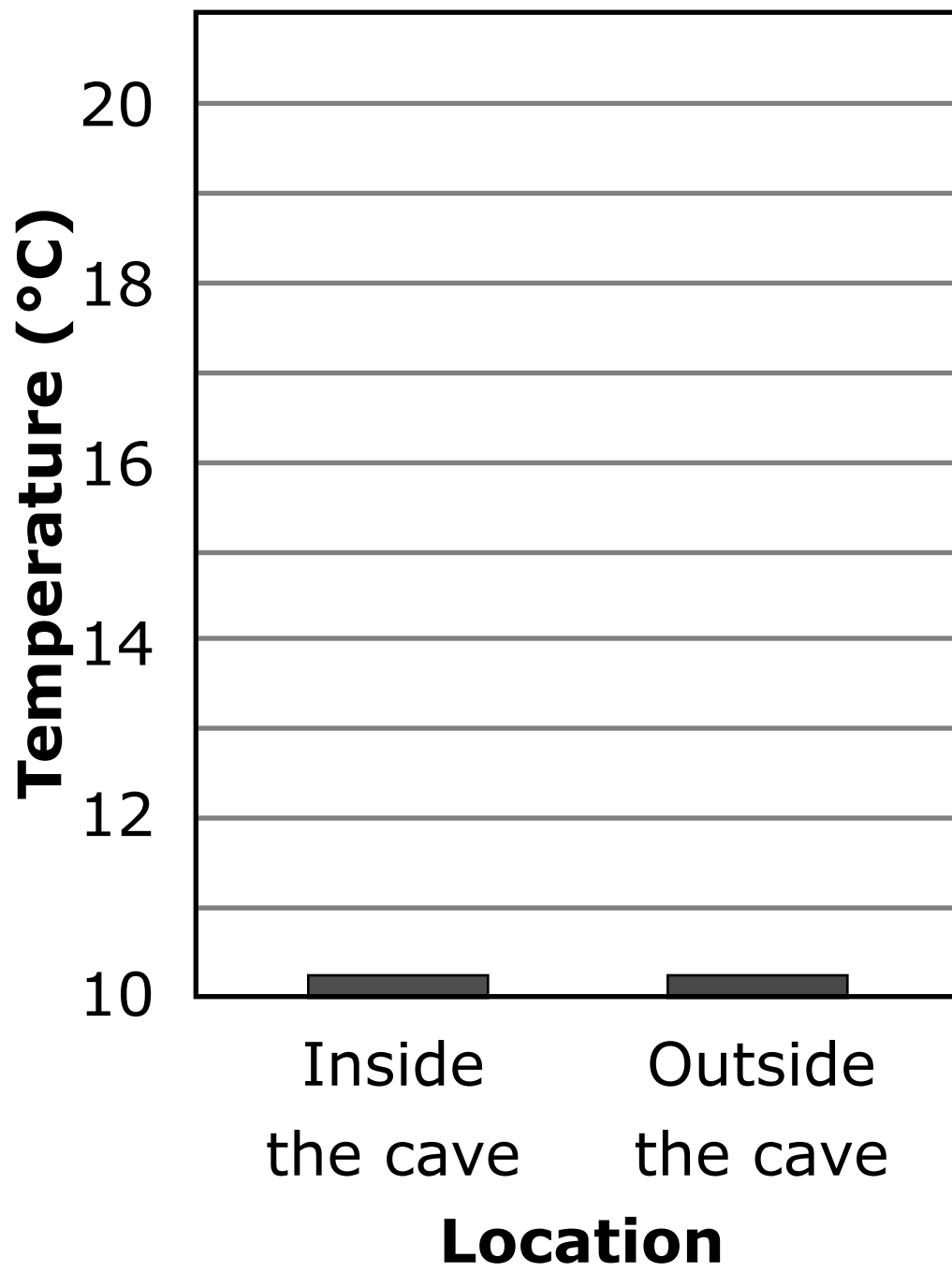
### Air Temperature

	Inside	Outside
6 p.m.	13°C (55°F)	18°C (65°F)

**Go on to the next page.**

Write a "+" above each bar where the top of the bar should be.

### Air Temperature at 6 p.m.

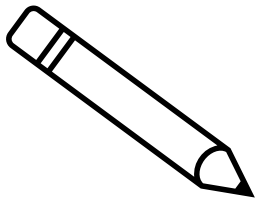


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For multiple-choice questions, circle the answer in your test book. The sample below shows you how to do this.

## Sample Question Answered in Test Book:

Which of the following is a renewable resource?



- A.** Wind
- B.** Coal
- C.** Natural Gas
- D.** Oil

**Go on to the next page.**

# Practice

Practice answering this multiple-choice question by circling option C.

- 4.** What happens when water evaporates?
- A.** The water gets hotter.
  - B.** The water changes color.
  - C.** The water turns into a gas.
  - D.** The water turns into a solid.

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