

**Active Reading**

Ch. 12

**Section: What Causes Air Pollution?**

Read the passage below and answer the questions that follow.

Many industries and power plants that generate our electricity must burn fuel to get the energy they need. They usually burn fossil fuels. Burning fossil fuels releases huge quantities of sulfur dioxide and nitrogen oxide into the air. Power plants that produce electricity emit at least two-thirds of all sulfur dioxide and more than one-third of all nitrogen oxides that pollute the air.

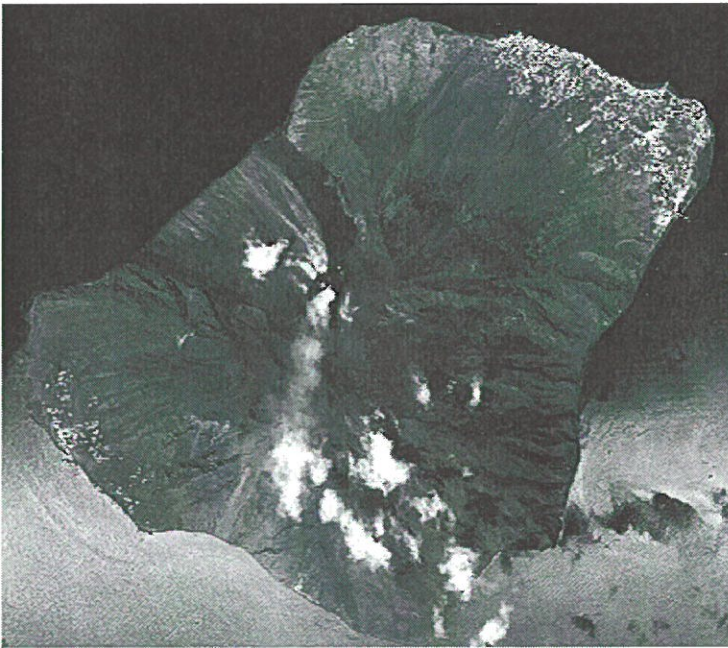
Some industries also produce VOCs, which are chemical compounds that form toxic fumes. Some of the chemicals used in dry cleaning are sources of VOCs. Oil refineries, chemical manufacturing plants, furniture refinishers, and automobile repair shops also contribute to the VOCs in the air. When people use some of the products that contain VOCs, more VOCs are added to the air.

**IDENTIFYING MAIN IDEAS**

One reading skill is the ability to identify the main idea of a passage. The main idea is the main focus or key idea. Frequently, a main idea is accompanied by supporting information that offers detailed facts about main ideas.

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

- \_\_\_\_\_ 1. What do most industries and power plants use for energy?
  - a. VOCs
  - b. nitrogen oxide
  - c. sulfur dioxide
  - d. fossil fuels
  
- \_\_\_\_\_ 2. What type of industry produces two-thirds of all sulfur dioxide that pollutes the air?
  - a. air conditioning manufacturers
  - b. dry cleaners
  - c. long-distance trucking companies
  - d. electrical power plants
  
- \_\_\_\_\_ 3. Which of the following does *not* produce volatile organic compounds (VOCs)?
  - a. organic farm
  - b. oil refinery
  - c. furniture refinisher
  - d. automobile repair shop
  
- \_\_\_\_\_ 4. What happens when people use a product that contains VOCs?
  - a. They get very sick.
  - b. Nothing happens.
  - c. More VOCs are added to the air.
  - d. The VOCs return to the atmosphere as carbon dioxide.



1. What is the name of this geological structure?
2. Describe what is on the northeast portion of the picture.
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7. Describe the elevation and appearance of the volcano's surface features. Why are there differences in color and texture on all areas of the island?

**Active Reading** *continued*

- \_\_\_\_\_ 5. Power plants that produce electricity emit  
a. sulfur dioxide and nitrogen oxide. c. nitrogen oxide and VOCs.  
b. sulfur dioxide and VOCs. d. fossil fuels.

**Read each question and write the answer in the space provided.**

6. What are VOCs?

\_\_\_\_\_

7. Reread the first four sentences of this passage. Given this information, do you think sulfur dioxide and nitrogen oxides in the air are harmful or beneficial? Explain your answer.

\_\_\_\_\_  
\_\_\_\_\_

**RECOGNIZING CAUSE AND EFFECT**

One reading skill is the ability to recognize cause and effect.

**Read each question and write the answer in the space provided.**

8. Why do power plants emit such a high percentage of pollutants?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

9. List four examples of industries that can be sources of VOCs in the air.

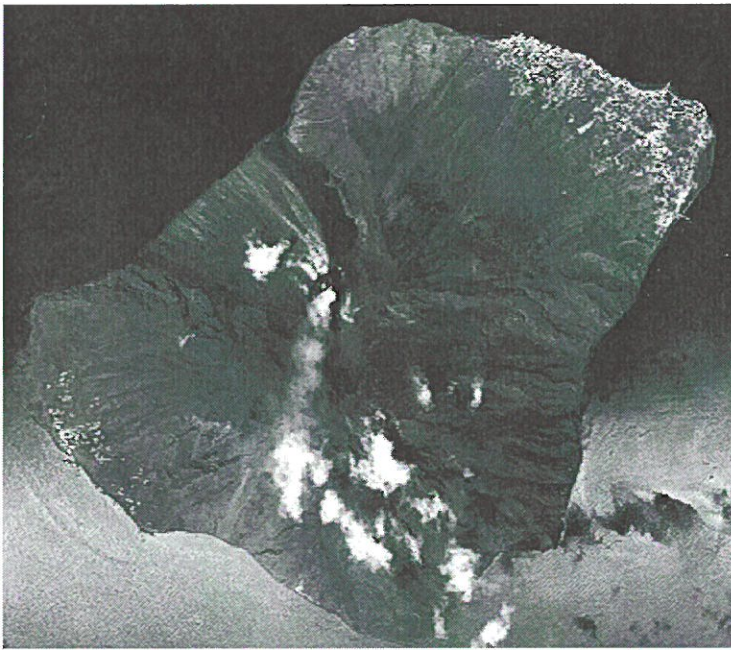
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. What percentage of pollutants do electrical power plants emit into the air?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11. What can you do to help reduce the amount of VOCs in the air?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



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# Active Reading

Ch. 12

## Section: Air, Noise, and Light Pollution

Read the passage below and answer the questions that follow.

Several minerals that form in long, thin fibers and that are valued for their strength and resistance to heat are called **asbestos**. Asbestos is primarily used as an insulator and as a fire retardant, and it was used extensively in building materials. The U.S. government banned the use of most asbestos products in the early 1970s. Exposure to asbestos in the air is dangerous. Asbestos fibers that are inhaled can cut and scar the lungs, which causes the disease asbestosis. Victims of the disease have more and more difficulty breathing and may eventually die of heart failure. Schools in the United States have taken this threat seriously. Billions of dollars have been spent to remove asbestos from school buildings.

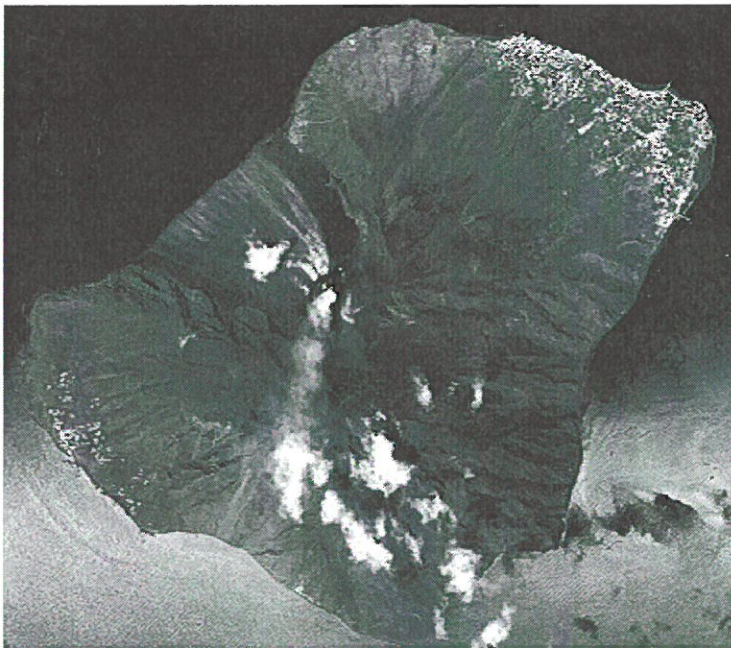
### IDENTIFYING MAIN IDEAS

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In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

- \_\_\_\_\_ 1. Long, thin fibers made of minerals that are valued for strength and heat resistance are called
  - a. insulation.
  - b. fire retardant.
  - c. asbestos.
  - d. asbestosis.
  
- \_\_\_\_\_ 2. Asbestos has been used mainly in
  - a. water treatment facilities.
  - b. chicken farms.
  - c. commercial food packaging.
  - d. building materials.
  
- \_\_\_\_\_ 3. Why is asbestos used?
  - a. to control unpleasant smells by neutralizing enzymes
  - b. to insulate and to serve as a fire retardant
  - c. to filter air for those who have damage to their lungs
  - d. to repair walls in old buildings
  
- \_\_\_\_\_ 4. Why isn't asbestos used much in the U.S. today?
  - a. The government banned the use of most asbestos products.
  - b. Inflation has made it too expensive for most people.
  - c. A better form of insulation has been discovered.
  - d. The original manufacturer went out of business.





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**Active Reading** *continued*

Ch. 12

**VOCABULARY DEVELOPMENT**

Read each question and write the answer in the space provided.

5. Define *asbestos*.

\_\_\_\_\_  
\_\_\_\_\_

6. Define *asbestosis*.

\_\_\_\_\_  
\_\_\_\_\_

**SEQUENCING INFORMATION**

One reading skill is the ability to sequence information, or to logically place items or events in the order in which they occur.

Sequence the statements below to show the steps of the disease asbestosis. Write "1" on the line in front of the first step, "2" on the line in front of the second step, and so on.

- \_\_\_\_\_ 7. Asbestos fibers are inhaled.
- \_\_\_\_\_ 8. A person is exposed to asbestos in the air.
- \_\_\_\_\_ 9. The person has an increasingly difficult time breathing.
- \_\_\_\_\_ 10. Inhaled fibers cut and scar the person's lungs.
- \_\_\_\_\_ 11. The person may die of heart failure.
- \_\_\_\_\_ 12. The disease asbestosis develops.

**RECOGNIZING CAUSE AND EFFECT**

One reading skill is the ability to recognize cause and effect.

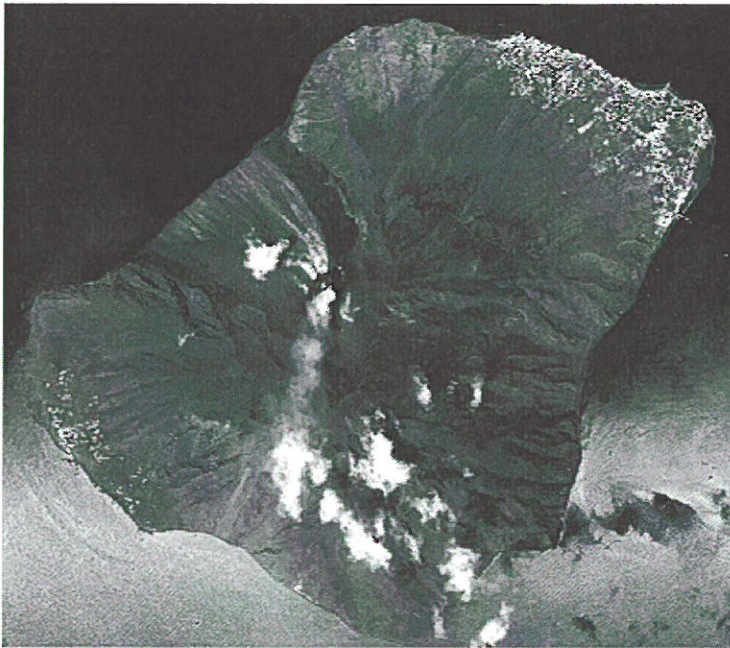
Read each question and write the answer in the space provided.

13. Why did people in the U.S. use asbestos in building materials before the 1970s?

\_\_\_\_\_  
\_\_\_\_\_

14. Why would school officials spend money to remove asbestos from school buildings?

\_\_\_\_\_  
\_\_\_\_\_



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**Section: Acid Precipitation**

Read the passage below and answer the questions that follow.

Thousands of lakes throughout the world are victims of acid precipitation, which is also known as acid rain. **Acid precipitation** is precipitation such as rain, sleet, or snow that contains a high concentration of acids. When fossil fuels are burned, they release oxides of sulfur and nitrogen. When the oxides combine with water in the atmosphere, they form sulfuric acid and nitric acid, which fall as acid precipitation. This acidic water flows over and through the ground, and into lakes, rivers, and streams. Acid precipitation can kill living things, and can result in the decline or loss of some local animal and plant populations.

A **pH** (power of hydrogen) number is a measure of how acidic or basic a substance is. The lower the number on a pH scale, the more acidic a substance is; the higher a pH number is, the more basic a substance is. Each whole number on the pH scale indicates a tenfold change in acidity.

**IDENTIFYING MAIN IDEAS**

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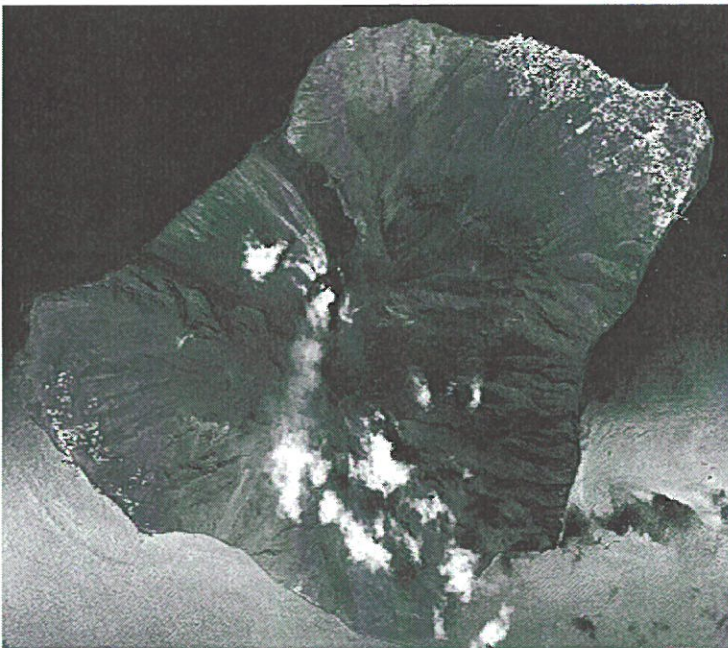
In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

- \_\_\_\_\_ 1. In which of these forms does acid precipitation reach the surface of Earth?
- |           |                  |
|-----------|------------------|
| a. light  | c. precipitation |
| b. energy | d. oxides        |
- \_\_\_\_\_ 2. What is harmed by acid precipitation?
- |                               |                       |
|-------------------------------|-----------------------|
| a. lakes, rivers, and streams | c. animal populations |
| b. plant populations          | d. all of the above   |
- \_\_\_\_\_ 3. What does acid precipitation contain that is harmful to living things?
- |                       |                                  |
|-----------------------|----------------------------------|
| a. particulate matter | c. sulfuric acid and nitric acid |
| b. fossil fuels       | d. calcium carbonate             |

**VOCABULARY DEVELOPMENT**

Read each question and write the answer in the space provided.

4. What three forms can acid precipitation take?
- \_\_\_\_\_



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**Active Reading** *continued*

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5. When an author puts something in parentheses, he or she is often explaining the word or term that came just before. How does this author use parentheses to explain *pH*?

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6. What does a pH number tell you?

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**SEQUENCING INFORMATION**

One reading skill is the ability to sequence information, or to logically place items or events in the order in which they occur.

**Sequence the statements below to trace the path of acid precipitation. Write "1" on the line in front of the first step, "2" on the line in front of the second step, and so on.**

- \_\_\_\_\_ 7. The oxides combine with water in the atmosphere.
- \_\_\_\_\_ 8. Acid precipitation falls.
- \_\_\_\_\_ 9. Sulfuric acid and nitric acid are formed.
- \_\_\_\_\_ 10. The decline or loss of plant and animal populations can occur.
- \_\_\_\_\_ 11. Fossil fuels are burned, releasing sulfur and nitrogen oxides.
- \_\_\_\_\_ 12. Acidic water runs over and through the ground, and into lakes, rivers, and streams.

**RECOGNIZING SIMILARITIES AND DIFFERENCES**

One reading skill is the ability to recognize similarities and differences between two phrases, ideas, or things. This is sometimes known as comparing and contrasting.

**Read the question and write the answer in the space provided.**

13. What does it mean when something has a high pH level? a low pH level?

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**RECOGNIZING CAUSE AND EFFECT**

One reading skill is the ability to recognize cause and effect.

**Read each question and write the answer in the space provided.**

14. What is the basic cause of acid precipitation? What are some effects?

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