

HOLT

Environmental Science

Active Reading Workbook



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TO THE STUDENT

The Active Reading worksheets can be used to develop your reading skills. Each worksheet corresponds to a specific section of your textbook. When you complete these worksheets, you will reinforce both your reading skills and your understanding of the content of your textbook.

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Skills Worksheet

Active Reading**Section: Understanding Our Environment**

Read the passage below and answer the questions that follow.

The agricultural revolution allowed human populations to grow at an unprecedented rate. An area of land can support up to 500 times as many people by farming as it can by hunting and gathering. As populations grew, they began to concentrate in smaller areas. These changes placed increased pressure on local environments.

The agricultural revolution also changed the food we eat. The plants we grow and eat today are descended from wild plants. During harvest season, farmers collected seeds from plants that exhibited the qualities they desired. The seeds of plants with large kernels or sweet and nutritious flesh were planted and harvested again. Over the course of many generations, the domesticated plants became very different from their wild ancestors.

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.

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

1. Why did populations concentrate in smaller areas during the agricultural revolution?

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

- _____ 2. Which of the following best describes the theme of the passage?
- a. The agricultural revolution changed human food preferences.
 - b. Some plants today are similar to their ancestors.
 - c. Farming replaced hunting and gathering.
 - d. Agricultural communities developed from hunter-gatherer communities, and the practice of agriculture introduced new environmental problems.

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

3. The root word *ager* means “field,” and *cultivation* means “the act of tilling.” Using this information, define *agriculture*.

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.

In the space provided, write the term that best completes each sentence in the sequence of statements showing how the food we eat today has changed over time.

4. Step 1: Farmers collected _____ from plants they liked.
5. Step 2: The farmers’ preferred plants were planted and _____.
6. Step 3: _____ plants became very different from their ancestors.

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.

In the space provided, write the letter of the phrase that best completes the statement.

- _____ 7. Farms are to hunting and gathering as
- | | |
|---------------------------|--|
| a. cars are to airplanes. | c. fish hatcheries are to fishing. |
| b. anchors are to ships. | d. compact discs are to vinyl records. |

RECOGNIZING CAUSE AND EFFECT

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

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

8. In what two ways did the human population change as a result of the agricultural revolution?

9. What changes did humans make that affected local environments?

Skills Worksheet

Active Reading**Section: The Environment and Society**

Read the passage below and answer the questions that follow.

The decisions and actions of all people in the world affect our environment. But the unequal distribution of wealth and resources around the world influences the environmental problems that a society faces and the choices it can make. The United Nations generally classifies countries as either developed or developing. Developed countries have higher average incomes, slower population growth, diverse industrial economies, and stronger social support systems. They include the United States, Canada, Japan, and the countries of Western Europe. Developing countries have lower average incomes, simple and agriculture-based economies, and rapid population growth. In between are middle-income countries, such as Mexico, Brazil, and Malaysia.

IDENTIFYING MAIN IDEAS

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

1. What organization has classified countries as developing or developed?

2. List two developed countries.

VOCABULARY DEVELOPMENT

In the space provided, write the letter of the phrase that best completes each statement.

- _____ 3. Developed countries often
- a. have higher average incomes and faster population growth.
 - b. have higher average incomes and slower population growth.
 - c. have faster population growth and diverse industrial economies.
 - d. eventually become developing countries.
- _____ 4. Developing countries often
- a. have lower average incomes and slower population growth.
 - b. have middle incomes.
 - c. include Mexico and Brazil.
 - d. have lower average incomes and faster population growth.

Active Reading *continued*

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 each question and write your answer in the space provided.

5. The suffix *-ed* forms the past participle of a verb: *work* becomes *worked*. The suffix *-ing* is used to form the present participle of a verb: *swim* becomes *swimming*. Using this information, define a developed country.

6. Define a developing country.

7. What type of economy does a developed country have?

8. What type of economy does a developing country have?

9. How do the social support systems of developed countries differ from those of developing countries?

RECOGNIZING CAUSE AND EFFECT

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

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

10. What factor affects environmental problems and the number of choices a society can make?

Skills Worksheet

Active Reading**Section: Scientific Methods**

Read the passage below and answer the questions that follow.

Experiments should be designed to pinpoint cause-and-effect relationships. For this reason, good experiments have two essential characteristics: a single variable is tested, and a control is used. The **variable** (VER ee uh buhl) is the factor of interest, which, in the example in which Keene High School students hypothesized that phosphate in the river was killing dwarf wedge mussels, would be the level of phosphate in the water. To test for one variable, scientists usually study two groups or situations at a time. The variable being studied is the only difference between the groups. The group that receives the experimental treatment is called the **experimental group**. In our example, the experimental group would be those mussels that receive phosphate in their water. The group that does not receive the experimental treatment is called the **control group**. In our example, the control group would be those mussels that do not have phosphate added to their water. If the mussels in the control group thrive while most of those in the experimental group die, the experiment's results support the hypothesis that phosphates from fertilizer are killing the mussels.

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 the main idea.

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

1. What are two essential characteristics of a good experiment?

2. How do scientists usually test for one variable?

3. How should experiments be designed?

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

4. The group that does *not* receive an experimental treatment is called the

_____.

5. The group that receives the experimental treatment is called the

_____.

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 each question and write the answer in the space provided.

6. What do a control group and an experimental group have in common?

7. In the experiment discussed in the passage, what is the variable?

RECOGNIZING CAUSE AND EFFECT

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

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

- _____ 8. The differences observed between control groups and experimental groups can help identify _____ relationships.

a. cause-and-effect

c. conditional

b. inverse-and-converse

d. unconventional

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

9. What is the effect of using both a variable and a control in an experiment?

10. In the example used in this passage, what would the students know if the mussels in the experimental group died?

Skills Worksheet

Active Reading**Section: Statistics and Models**

Read the passage below and answer the questions that follow.

Although statistical populations are composed of similar individuals, these individuals often have different characteristics. For example, in the population of students in your classroom, each student has a different height, weight, and so on.

As part of their experiments, the Keene High School students measured the lengths of dwarf wedge mussels in a population. By adding the lengths of the mussels and then dividing by the number of mussels, students calculated the average length of the mussels, which in statistical terms is called the *mean*. A **mean** is the number obtained by adding up the data for a given characteristic and dividing this sum by the number of individuals. For scientists, the mean provides a single numerical measure for a given aspect of a population. Scientists can easily compare different populations by comparing their means.

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 the main idea.

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

1. Can one individual represent an entire population? Why or why not?

2. How can scientists compare two different populations?

3. How is a mean established?

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

- _____ 4. The mean provides a single numerical measure for one _____ of a population.
- | | |
|---------------|-----------------------|
| a. individual | c. dwarf wedge mussel |
| b. average | d. characteristic |

Skills Worksheet

Active Reading**Section: Making Informed Decisions**

Read the passage below and answer the questions that follow.

Forming an opinion about an environmental issue is often difficult and may even seem overwhelming. It helps to have a systematic way of analyzing the issues and deciding what is important. One way to guide yourself through this process is by using a decision-making model. A **decision-making model** is a conceptual model that provides a systematic process for making decisions.

In a simple decision-making model, the first step is to gather information. In addition to watching news reports and reading newspapers, magazines, and books about environmental issues, you should listen to well-informed people on all sides of an issue. Then consider which values apply to the issue. Explore the consequences of each option. Finally, evaluate all of the information and make a decision.

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 the main idea.

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

- _____ 1. Which of the following can help you when you want to form an opinion or make a decision?
- a. having many friends so they can tell you what they think
 - b. listening to the opinions of all the adults around you
 - c. finding one source of information that can tell you all you need to know
 - d. having a systematic way of analyzing issues
- _____ 2. Which of the following sources should you use when gathering information to help you make a decision about environmental issues?
- a. the TV news
 - b. local newspapers
 - c. books and magazines
 - d. all of the above
- _____ 3. What is a good system of analyzing issues?
- a. using a cause-and-effect chart
 - b. determining the mean for a population
 - c. using a decision-making model
 - d. performing experiments

Active Reading *continued*

- _____ 4. Whose opinions should you seek when you are trying to make a decision?
- a. your relatives' and teachers'
 - b. your friends'
 - c. well-informed people's on all sides of the issue
 - d. well-informed people's on the side of the issue that best matches your values

VOCABULARY DEVELOPMENT

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

5. The suffix *-ate* means "to act on." If the word *values* means "principles or standards we consider important," what is the meaning of the word *evaluate*?

6. What is a decision-making model?

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 decision-making model. 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. Evaluate all the information.
- _____ 8. Explore the consequences of each option.
- _____ 9. Consider which values apply to the issue.
- _____ 10. Make a decision.
- _____ 11. Gather information from many sources.

RECOGNIZING CAUSE AND EFFECT

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

12. What is one effect of using a decision-making model?

Active Reading *continued***VOCABULARY DEVELOPMENT**

In the space provided, write the letter of the description that best matches the term or phrase.

- | | |
|--------------------------|---|
| _____ 5. lithosphere | a. dense layer made of iron and nickel |
| _____ 6. mesosphere | b. rigid layer that includes crust and upper mantle |
| _____ 7. tectonic plates | c. plastic, solid layer of slow-flowing rock |
| _____ 8. inner core | d. lower part of mantle |
| _____ 9. asthenosphere | e. huge pieces of the lithosphere |
| _____ 10. outer core | f. dense liquid layer |

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.

Write the names of the Earth's physical layers in sequence, from the outermost layer to the innermost layer.

- | | |
|-----------|-----------|
| 11. _____ | 14. _____ |
| 12. _____ | 15. _____ |
| 13. _____ | |

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 following question and write the answer in the space provided.

- 16.** How are the outer core and the inner core alike? How are they different?

RECOGNIZING CAUSE AND EFFECT

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

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

- 17.** Why do the tectonic plates move?

Skills Worksheet

Active Reading**Section: The Atmosphere**

Read the passage below and answer the questions that follow.

Solar energy reaches the Earth as electromagnetic radiation, which includes visible light, infrared radiation, and ultraviolet light. The sun releases a vast amount of radiation, but our planet only receives about two-billionths of this energy. This seemingly small amount of radiation contains a tremendous amount of energy, however. About half of the solar energy that enters the atmosphere passes through the atmosphere and reaches the Earth's surface. The rest of the energy is absorbed or reflected in the atmosphere by clouds, gases, and dust, or it is reflected by the Earth's surface. On a sunny day, rocks may become too hot to touch. If the Earth's surface continually absorbed energy, the Earth would get hotter and hotter. The Earth does not continue to get warmer, because the oceans and the land radiate the energy they have absorbed back into the atmosphere.

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. When solar energy reaches Earth, it is in the form of
a. visible light. c. ultraviolet light.
b. infrared radiation. d. All of the above
- _____ 2. How much of the sun's radiation does Earth receive?
a. one-millionth c. half
b. two-hundredths d. two-billionths
- _____ 3. Approximately what percentage of solar energy that passes through the atmosphere reaches Earth?
a. 5 percent
b. 20 percent
c. 25 percent
d. 50 percent

In the space provided, write the letter of the phrase that best completes the statement.

- _____ 4. Visible light, infrared radiation, and ultraviolet light are all forms of
a. ions. c. atmospheric gases.
b. electromagnetic radiation. d. aerosols.

Active Reading *continued*

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 each question and write the answer in the space provided.

5. A park bench may become very hot on a sunny day. Why is the bench like the rock mentioned in the passage above?

6. What happens to the solar energy that is not absorbed by Earth's surface?

RECOGNIZING CAUSE AND EFFECT

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

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

- _____ 7. All of the solar energy that enters Earth's atmosphere does not reach Earth's surface because it is either absorbed or
- | | |
|---------------|---------------------|
| a. scattered. | c. reflected. |
| b. refracted. | d. Both (a) and (c) |

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

8. Explain why Earth's surface does *not* get hotter and hotter.

Skills Worksheet

Active Reading**Section: The Hydrosphere and Biosphere**

Read the passage below and answer the questions that follow.

Life exists on Earth because of several important factors. Life requires liquid water, temperatures between 10°C and 40°C, and a source of energy. The materials that organisms require must continually be cycled. Gravity allows a planet to maintain an atmosphere and to cycle materials. Suitable combinations of the things that organisms need to survive are found only in the biosphere.

The biosphere is located near the Earth's surface because most of the sunlight is available near the surface. Plants on land and in the oceans need sunlight to produce their food, and almost every other organism gets its food from plants and algae. Most of these algae float at the surface of the ocean. These tiny, free-floating, marine algae are known as phytoplankton. Except for bacteria that live at hydrothermal vents, most of the organisms that live deep in the ocean feed on dead plants and animals that drift down from the surface.

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 the question.

- _____ 1. Life requires
- a. temperatures between 10°C and 40°C, electromagnetic radiation, and hydrothermal vents.
 - b. precipitation, sodium chloride, and phytoplankton.
 - c. liquid water, temperatures between 10°C and 40°C, and a source of energy.
 - d. gravity, algae, and bacteria.
- _____ 2. Where on Earth are conditions suitable to most life located?
- a. in the mesosphere
 - b. in the biosphere
 - c. hydrothermal vents
 - d. both (a) and (c)
- _____ 3. Phytoplankton are
- a. bacteria.
 - b. tiny marine algae.
 - c. plants on land.
 - d. dead plants and animals.

Active Reading *continued*

In the space provided, write the letter of the description that best matches the term or phrase.

- | | |
|--|---------------------------------------|
| _____ 4. Materials that organisms require need | a. sunlight. |
| _____ 5. Plants need | b. plants and algae. |
| _____ 6. The biosphere needs | c. to be near Earth's surface. |
| _____ 7. Organisms (other than plants) need | d. to be continually cycled. |
| _____ 8. Most organisms that live deep in the ocean need | e. dead plants and animals. |

VOCABULARY DEVELOPMENT

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

9. Define *biosphere*.

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.

What is needed before the next thing can happen? Read each question and write the answer in the space provided.

10. Before life can exist, it requires a source of energy, temperatures between 10°C and 40°C, and _____.
11. Before a planet can maintain an atmosphere and cycle materials, it must have _____.
12. Before a plant can produce food, it requires _____.
13. Before most organisms (other than plants) can survive, they need to have plants and _____ to eat.

Skills Worksheet

Active Reading**Section: Ecosystems: Everything Is Connected**

Read the passage below and answer the questions that follow.

An ecosystem is made up of both living and nonliving things. Biotic factors are the living and once-living parts of an ecosystem, including all of the plants and animals. **Biotic factors** include dead organisms, dead parts of organisms, such as leaves, and the organisms' waste products. The biotic parts of an ecosystem interact with each other in various ways. They also interact with the **abiotic** (ay bie AHT ik) **factors**, the nonliving parts of the ecosystem. Abiotic factors include air, water, rocks, sand, light, and temperature.

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.

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

1. What is an ecosystem made up of?

2. Biotic parts of an ecosystem interact with _____

_____ and with _____
_____.

VOCABULARY DEVELOPMENT

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

3. Biotic factors are the _____ and

_____ parts of an ecosystem.

4. Abiotic factors are the _____ parts of an ecosystem.

5. The root word *bio* means "life." If you know that *biotic* means "having life," what can you guess is one of the meanings of the prefix *a-*?

Active Reading *continued*

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.

In the space provided, write “B” next to biotic factors and “A” next to abiotic factors.

- _____ 6. animals
- _____ 7. temperature
- _____ 8. air
- _____ 9. dead parts of organisms
- _____ 10. organisms’ waste products
- _____ 11. water
- _____ 12. rocks
- _____ 13. plants
- _____ 14. sand
- _____ 15. dead organisms
- _____ 16. light

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 order in which the information was presented in the passage. Write “1” on the line in front of the first information presented, “2” in front of the next information presented, and so on.

- _____ 17. The definition of biotic factors is given.
- _____ 18. Examples of abiotic factors are given.
- _____ 19. Examples of biotic factors are given.
- _____ 20. Interactions of biotic and abiotic factors are discussed.
- _____ 21. The definition of abiotic factors is given.

Skills Worksheet

Active Reading**Section: Evolution**

Read the passage below and answer the questions that follow.

Resistance is the ability of one or more organisms to tolerate a particular chemical designed to kill it. An organism may be resistant to a chemical when it contains a gene that allows it to break the chemical down into harmless substances. By trying to control pests and bacteria with chemicals, humans promote the evolution of resistant populations.

Consider the evolution of pesticide resistance among corn pests. A pesticide is sprayed on corn to kill grasshoppers. Most of the grasshoppers die, but a few survive. The survivors happen to have a version of a gene that protects them from the pesticide. The surviving insects pass on the gene to their offspring. Each time the corn is sprayed, insects that are resistant to the pesticide will have a greater chance of survival and reproduction. As a result, the insect population will evolve to include more and more resistant members.

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.

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

1. When might an organism be resistant to a chemical?

2. What main idea do the details in the second paragraph support?

VOCABULARY DEVELOPMENT

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

3. Define *resistance*.

4. Write a sentence using the word *resistance*.

Active Reading *continued*

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 in insects' development of resistance to pesticides. Write "1" on the line in front of the first step, "2" on the line in front of the second step, and so on.

- _____ 5. Remaining grasshoppers reproduce, passing on the resistant gene.
- _____ 6. Corn is sprayed with a pesticide.
- _____ 7. Some grasshoppers survive.
- _____ 8. The pesticide is rendered useless after many sprayings.
- _____ 9. The survivors' offspring are sprayed again.
- _____ 10. A cycle continues of the most pesticide-resistant members of the population surviving each spraying and reproducing.

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.

- 11.** What makes an organism resistant to a chemical?

- 12.** What human activity promotes the evolution of organisms that are resistant to certain chemicals?

- 13.** When a pesticide is sprayed and there are still survivors, what can you assume about them?

- 14.** If an organism reproduces quickly, its population can

_____ faster.

Active Reading *continued*

- _____ 5. Most of a fungus's body is its
a. mushroom.
b. miniature skeleton.
c. exoskeleton.
d. underground network of fibers.
- _____ 6. A fungus's cells have
a. nuclei and cell walls.
b. cell walls and chlorophyll.
c. nuclei and chlorophyll.
d. None of the above

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.

- 7.** To what does the author compare the cell walls of a fungus?

- 8. Name two ways in which fungi are similar to bacteria.**

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.

- 9. What important role do fungi play in the environment?**

- 10. Name one undesirable disease that fungi are responsible for?**

- 11. What beneficial effect do fungi have on blue cheese?**

- 12.** What effect do yeasts have on bread?

Skills Worksheet

Active Reading**Section: Energy Flow in Ecosystems**

Read the passage below and answer the questions that follow.

Energy from the sun enters an ecosystem when a plant uses sunlight to make sugar molecules by a process called *photosynthesis*. During photosynthesis, plants, algae, and some bacteria capture solar energy. Solar energy drives a series of chemical reactions that require carbon dioxide and water. The result of photosynthesis is the production of sugar molecules known as *carbohydrates*. Carbohydrates are energy-rich molecules which organisms use to carry out daily activities. As organisms consume food and use energy from carbohydrates, the energy travels from one organism to another. Plants produce carbohydrates in their leaves. When an animal eats a plant, some energy is transferred from the plant to the animal. Organisms use this energy to move, grow, and reproduce.

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. Plants, algae, and some bacteria capture _____ during photosynthesis.
- | | |
|------------------|-------------------|
| a. solar energy | c. carbon dioxide |
| b. carbohydrates | d. organisms |
- _____ 2. The chemical reactions driven by solar energy require
- | | |
|------------------------------|--|
| a. carbon dioxide and water. | c. organisms and water. |
| b. plants and algae. | d. carbon dioxide and sugar molecules. |
- _____ 3. During photosynthesis, plants make
- | | |
|--------------------|----------------------|
| a. carbohydrates. | c. water. |
| b. carbon dioxide. | d. None of the above |
- _____ 4. Where does the production of carbohydrates in a plant take place?
- | | |
|-------------------------|---------------------|
| a. in the carbohydrates | c. in the ecosystem |
| b. in the leaves | d. in the stems |

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

5. Energy-rich molecules that organisms use to carry out daily activities are

_____.

6. The process by which a plant uses sunlight to make sugar molecules is called

_____.

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 in the process of energy production and consumption. 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. Photosynthesis produces carbohydrates.

_____ 8. Plants, algae, and some bacteria capture solar energy.

_____ 9. Energy is transferred from one organism to another.

_____ 10. Solar energy drives a series of chemical reactions.

_____ 11. Other organisms consume carbohydrates found in plants, algae, and some bacteria.

RECOGNIZING CAUSE AND EFFECT

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

In the space provided, write the letter of the effect that best matches the cause.

_____ 12. Organisms consume food and use energy from carbohydrates.

a. Carbohydrates are produced.

b. Energy travels from one organism to another.

_____ 13. A plant uses sunlight for photosynthesis.

c. Energy from the plant is transferred and used to move, grow, and reproduce.

_____ 14. An animal eats a plant.

Skills Worksheet

Active Reading**Section: The Cycling of Materials**

Read the passage below and answer the questions that follow.

When we burn fossil fuels, we release carbon into the atmosphere. The carbon returns to the atmosphere as carbon dioxide. Cars, factories, and power plants rely on these fossil fuels to operate. In the year 2000, vehicles were the source of one-third of all carbon dioxide emitted in the United States. Each year, about 6 billion metric tons of carbon are released into the atmosphere as carbon dioxide by the burning of fossil fuels and the natural burning of wood in forest fires. About half of this carbon dioxide remains in the atmosphere. As a result, the amount of carbon dioxide in the atmosphere has steadily increased.

Increased levels of carbon dioxide may contribute to global warming, which is an overall increase in the temperature of the Earth. What happens to the carbon dioxide that does not remain in the atmosphere? Scientists estimate that, each year, over a billion metric tons of carbon dioxide dissolves into the ocean, which is a carbon sink. Plants probably absorb the remaining carbon dioxide.

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.

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

1. What do most cars, factories, and power plants rely on to operate?

2. In what form does carbon return to the atmosphere after it is released from the burning of fossil fuels?

3. One-third of the United States' carbon consumption is used to operate what?

4. How many tons of carbon are released into Earth's atmosphere every year?

5. Why does the author mention the United States in the fourth sentence?

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

- _____ **6.** Global warming
- a.** is carbon dioxide that dissolves into the ocean.
 - b.** is an overall increase in the temperature of Earth.
 - c.** is caused by natural burning of wood and forest fires.
 - d.** makes up half of Earth's atmosphere.
- _____ **7.** Which of the following statements is true about fossil fuels, carbon, and carbon dioxide?
- a.** Carbon dioxide returns to the atmosphere as carbon when fossil fuels are burned.
 - b.** Fossil fuels return to the atmosphere as carbon dioxide when carbon is burned.
 - c.** Carbon returns to the atmosphere as carbon dioxide when fossil fuels are burned.
 - d.** none of the above

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.** What three things cause carbon to be released into the atmosphere as carbon dioxide?

- 9.** What is one effect of increased levels of carbon dioxide in the atmosphere?

Skills Worksheet

Active Reading**Section: How Ecosystems Change**

Read the passage below and answer the questions that follow.

Another example of secondary succession is *old-field succession*, which occurs when farmland is abandoned. When a farmer stops cultivating a field, grasses and weeds quickly grow and cover the abandoned land. The pioneer grasses and weeds grow rapidly and produce many seeds to cover large areas.

Over time, taller plants such as grasses grow in the area. These plants shade the ground, keeping light from the shorter plants. The long roots of the taller plants also absorb most of the water in the soil. The pioneer plants soon die from lack of sunlight and water. As succession continues, the taller plants are deprived of light and water by growing trees. Finally, slower-growing trees such as oaks, hickories, beeches, and maples take over the area and block sunlight to the smaller trees. The area can eventually establish a climax community dominated by a mature oak forest.

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.

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

1. What type of succession is old-field succession?

2. Summarize what happens to a field when a farmer stops cultivating it.

VOCABULARY DEVELOPMENT

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

3. What key terms are used in this passage?

Active Reading *continued*

4. Define the terms you identified in the previous question.

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 in old-field succession. Write "1" on the line in front of the first step, "2" on the line in front of the second step, and so on.

- _____ 5. Taller plants grow in the area and shade the ground.
- _____ 6. A climax community exists.
- _____ 7. Pioneer grasses and weeds grow and produce many seeds.
- _____ 8. A farmer stops cultivating a field.
- _____ 9. Trees grow and shade the taller plants.
- _____ 10. The taller plants die.
- _____ 11. The pioneer plants die.
- _____ 12. Slower-growing trees shade the smaller trees.

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. What causes pioneer grasses and weeds that have grown in an abandoned field to die?

14. What happens after a farmer abandons a field and the stages of old-field succession take place?

Skills Worksheet

Active Reading**Section: What Is a Biome?**

Read the passage below and answer the questions that follow.

Biomes, climate, and vegetation vary with latitude and altitude.

Latitude is the distance north or south of the equator and is measured in degrees. **Altitude** is the height of an object above sea level. Climate varies with latitude and altitude. For example, climate gets colder as latitude and altitude increase. So, climate also gets colder as you move farther up a mountain.

As latitude and altitude increase, biomes and vegetation change. For example, the trees of tropical rain forests usually grow closer to the equator, while the mosses and lichens of the tundra usually grow closer to the poles. The land located in the temperate region of the world, between about 30° and 60° north latitude and 30° and 60° south latitude, is where most of the food in the world is grown. This region includes biomes such as temperate forests and grasslands, which usually have moderate temperatures and fertile soil that are ideal for agriculture.

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.

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

1. Authors often use examples to help explain the main idea. What examples does this author use to explain how climate varies?

2. What example does the author use to explain how biomes and vegetation change with climate?

3. What clue does the author provide to make you aware that he or she is providing an example?

Active Reading *continued*

4. Where is the temperate region of the world located?

5. Name two biomes that are located in the temperate region.

VOCABULARY DEVELOPMENT

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

6. The distance north or south of the equator is called _____.

7. The height of an object above sea level is called _____.

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 each question and write the answer in the space provided.

8. Compare vegetation near the poles and vegetation near the equator.

9. How are latitude and altitude similar? How are they different?

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.

10. What causes climate to vary?

11. What causes biomes and vegetation to change?

12. Why is the temperate region of the world a good place to grow food?

13. What happens as you move farther up a mountain?

Skills Worksheet

Active Reading**Section: Forest Biomes**

Read the passage below and answer the questions that follow.

Tropical rain forests once covered about 20 percent of Earth's surface. Today, they cover only about 7 percent. Every minute of every day, 100 acres of tropical rain forest are cleared for logging operations, agriculture, or oil exploration. *Habitat destruction* occurs when land inhabited by an organism is destroyed or altered. If the habitat that an organism depends on is destroyed, the organism is at risk of disappearing.

Animals and plants are not the only organisms that live in rain forests. An estimated 50 million native peoples live in tropical rain forests. These native peoples are also threatened by habitat destruction. Because they obtain nearly everything they need from the forest, the loss of their habitat could be devastating. This loss of habitat may force them to leave their homes and move into cities. This drastic change of lifestyle may also cause the native peoples to lose their culture and traditions along the way.

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.

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

1. How much tropical rain forest is cleared every minute?

2. List three organisms that live in the rain forest.

3. How many native peoples are estimated to be living in rain forests?

4. Where might native peoples go when they are threatened by habitat destruction?

VOCABULARY DEVELOPMENT

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

5. When land inhabited by an organism is destroyed or altered,

_____ occurs.

Active Reading *continued*

6. If something is *habitable*, it is suitable for living in. Using this information, how would you define *habitat*?
- _____

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 in the process of habitat destruction. 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 native peoples begin to lose some of their culture and traditions.
- _____ 8. Several acres of a tropical rain forest are cleared for a logging operation.
- _____ 9. The organisms that native peoples depend on begin to disappear.
- _____ 10. Native peoples are forced to leave their homes and move into the cities.

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 each question and write the answer in the space provided.

11. What percentage of Earth's surface was once covered by tropical rain forests? What percentage is covered by tropical rain forests today?
- _____

12. How are animals, plants, and humans similarly affected when a tropical rain forest is cleared?
- _____
- _____

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 are tropical rain forests cleared?
- _____

14. What might be the cause of an organism's disappearance?
- _____
- _____

Skills Worksheet

Active Reading**Section: Grassland, Desert, and Tundra Biomes**

Read the passage below and answer the questions that follow.

All desert plants have adaptations for obtaining and conserving water, which allow the plants to live in dry, desert conditions. Plants called *succulents*, such as cactuses, have thick, fleshy stems and leaves that store water. Their leaves also have a waxy coating that prevents water loss. Sharp spines on cactuses keep thirsty animals from devouring the plant's juicy flesh. Rainfall rarely penetrates deeply into the soil, so many plants' roots spread out just under the surface of the soil to absorb as much rain as possible.

Many desert shrubs drop their leaves during dry periods and grow new leaves when it rains again. When conditions are too dry, some plants die and drop seeds that stay dormant in the soil until the next rainfall. Then, new plants quickly germinate, grow, and bloom before the soil becomes dry again. Some desert plants have adapted so that they can survive even if their water content drops to as low as 30 percent of their mass. Water levels below 50 to 75 percent are fatal for most plants.

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. A waxy coating on a desert plant's leaves prevent it from
a. germinating too quickly. c. losing water.
b. being eaten by thirsty animals. d. Both (b) and (c)
- _____ 2. What types of adaptations help all desert plants survive?
a. adaptations that help the plants obtain and conserve water
b. adaptations that help the plants fend off snakes
c. adaptations that allow the plants to produce more carbohydrates
d. adaptations that allow the plants to quickly germinate
- _____ 3. An example of a succulent is a
a. seed. c. desert plant.
b. cactus. d. spine.

Active Reading *continued*

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 each question and write the answer in the space provided.

4. When most plants lose water, what percentage of water content is low enough to be fatal?

5. When a desert plant loses water, what percentage of water content is low enough to be fatal?

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.

6. Explain how and why a desert plant's roots grow as they do.

7. What adaptations in a desert plant prevent water loss?

8. What adaptation helps desert plants keep animals away?

9. How can a desert plant's death cause more plants to grow?

Skills Worksheet

Active Reading**Section: Freshwater Ecosystems**

Read the passage below and answer the questions that follow.

Aquatic ecosystems contain several types of organisms that are grouped by their location and by their adaptations. Three groups of aquatic organisms include plankton, nekton, and benthos. **Plankton** are the organisms that float near the surface of the water. Two types of plankton are microscopic plants called *phytoplankton*, and microscopic animals called *zooplankton*. Phytoplankton produce most of the food for an aquatic ecosystem. **Nekton** are free-swimming organisms, such as fish, turtles, and whales. **Benthos** are bottom-dwelling organisms, such as mussels, worms, and barnacles. Many benthic organisms live attached to hard surfaces. Decomposers, organisms that break down dead organisms, are also a type of aquatic organism.

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. How are organisms in an aquatic ecosystem grouped?
- a. by size and shape
 - b. by the food they eat
 - c. by how they reproduce
 - d. by location and adaptations
- _____ 2. Where do many benthic organisms live?
- a. attached to hard surfaces
 - b. in open water
 - c. near the surface of the water
 - d. attached to benthos
- _____ 3. How many groups of aquatic organisms are discussed in this passage?
- a. 2
 - b. 3
 - c. 5
 - d. 4
- _____ 4. Which groups of aquatic organisms are discussed?
- a. phytoplankton and zooplankton
 - b. plankton, nekton, and benthos
 - c. plankton, nekton, benthos, and decomposers
 - d. plankton, phytoplankton, zooplankton, nekton, and benthos

Active Reading *continued*

- _____ 5. Most of the food for an aquatic ecosystem is produced by
- a. worms.
 - b. phytoplankton.
 - c. zooplankton.
 - d. fish.

VOCABULARY DEVELOPMENT

In the space provided, write the letter of the term that best matches the description.

- | | |
|---|------------------|
| _____ 6. aquatic organisms that float near the surface of the water | a. phytoplankton |
| _____ 7. aquatic organisms that break down dead organisms | b. plankton |
| _____ 8. microscopic plants | c. nekton |
| _____ 9. microscopic animals | d. benthos |
| _____ 10. aquatic organisms that dwell at the bottom of the water | e. decomposers |
| _____ 11. aquatic organisms that are free-swimming | f. zooplankton |

Write "P" on the line in front of each example of plankton, "N" on the line in front of each example of nekton, and "B" on the line in front of each example of benthos.

- | | |
|-----------------------|-------------------------|
| _____ 12. turtles | _____ 16. mussels |
| _____ 13. worms | _____ 17. barnacles |
| _____ 14. zooplankton | _____ 18. phytoplankton |
| _____ 15. fish | _____ 19. whales |

Skills Worksheet

Active Reading**Section: Marine Ecosystems**

Read the passage below and answer the questions that follow.

Estuaries support many marine organisms because estuaries receive plenty of light for photosynthesis and plenty of nutrients for plants and animals. Rivers supply nutrients that have been washed from the land, and because the water is shallow, sunlight can reach all the way to the bottom of the estuary. The light and nutrients support large populations of rooted plants as well as plankton. The plankton in turn provides food for larger animals, such as fish. Dolphins, manatees, seals, and other mammals often feed on fish and plants in estuaries. Oysters, barnacles, and clams live anchored to marsh grass or rocks and feed by filtering plankton out of the water. Organisms that live in estuaries are able to tolerate variations in salinity because the salt content of the water varies as fresh water and salt water mix when tides go in and out.

Estuaries provide protected harbors, access to the ocean, and connection to a river. As a result, many of the world's major ports are built on estuaries. Of the 10 largest urban areas in the world, 6 were built on estuaries. These 6 cities are Tokyo, New York, Shanghai, Buenos Aires, Rio de Janeiro, and Bombay.

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.

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

1. What types of organisms do estuaries support?

2. How do oysters, barnacles, and clams feed?

3. What do dolphins, seals, and other mammals eat?

4. What two ingredients make estuaries suitable for plants and animals?

5. How many of the world's 10 largest urban areas are built on estuaries? List them.

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

- 6.** Write a title for the first paragraph of the reading selection.

- 7.** Write a title for the second paragraph of the reading selection.

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.** Because water in an estuary is shallow,

_____.

- 9.** Because rivers carry water from places inland to an estuary,

_____.

- 10.** Because estuaries receive plenty of light and nutrients,

_____.

- 11.** Because the light and nutrients support plankton,

_____.

- 12.** Because estuaries provide a connection to rivers, ocean access, and protected harbors,

_____.

- 13.** Because the salt content of the water in an estuary varies as fresh and salt water mix with the changing tides,

Skills Worksheet

Active Reading**Section: How Populations Change in Size**

Read the passage below and answer the questions that follow.

Over time, the growth rates of populations change because birth rates and death rates increase or decrease. Growth rates can be positive, negative, or zero. For a population's growth rate to be zero, the average number of births must equal the average number of deaths. A population would remain the same size if each pair of adults produced exactly two offspring, and each of those offspring survived to reproduce. If the adults in a population are not replaced by new births, the growth rate will be negative and the population will shrink.

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 matches the description.

- | | |
|---|--------------------------------|
| _____ 1. The average number of deaths is greater than the average number of births. | a. positive growth rate |
| _____ 2. The average number of deaths equals the average number of births. | b. negative growth rate |
| _____ 3. The average number of births is greater than the average number of deaths. | c. zero growth rate |
| 4. Growth rate is the birth rate minus the | |

- _____
5. Suppose that every year, one half of the population has two offspring per person, and the other half has none. If all members of the population die after a year, what is the resulting growth rate? Explain your answer.

Active Reading *continued*

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 illustrate zero population growth. Write "1" on the line in front of the first step, "2" on the line in front of the second step, and so on.

- _____ 6. The population size returns to what it was in year x .
- _____ 7. Two adults produce two offspring in year x .
- _____ 8. The offspring, as adults, reproduce one offspring each.
- _____ 9. The parents die.

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 each question and write the answer in the space provided.

- 10.** Explain the difference between negative growth rate and zero growth rate.

- 11.** What is similar about negative growth rate and zero growth rate?

RECOGNIZING CAUSE AND EFFECT

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

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

- 12.** What would be the result if a population did not replace its deaths with new births?

Skills Worksheet

Active Reading**Section: How Species Interact with Each Other**

Read the passage below and answer the questions that follow.

An organism that lives in or on another organism and feeds on the other organism is a *parasite*. The organism the parasite takes its nourishment from is known as the *host*. The relationship between the parasite and its host is called **parasitism**. Examples of parasites are ticks, fleas, tapeworms, heartworms, bloodsucking leeches, and mistletoe.

Photos of parasites may make you feel uneasy, because parasites are somewhat like predators. The differences between a parasite and a predator are that a parasite spends some of its life in or on the host, and that a parasite does not usually kill its host. In fact, the parasite has an evolutionary advantage if it allows its host to live longer. However, the host is often weakened by or exposed to disease from the parasite.

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.

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

1. Give four examples of parasites.

2. What does a parasite get from its host?

3. What is the relationship between a parasite and its host called?

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

- _____ 4. A parasite
- a. takes nourishment from another organism.
 - b. always eventually kills its host.
 - c. cannot live in mistletoe.
 - d. All of the above

- _____ 5. A host
- a. is like a predator.
 - b. is the organism a parasite lives on or in.
 - c. may make you feel uneasy.
 - d. usually kills its parasite.

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

6. The prefix *para-* means “alongside,” while the Greek word *sitos* means “grain” or “food.” Use this information to define *parasite*.

7. If the suffix *-ism* means “the practice of,” how would you define *parasitism*?

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 each question and write the answer in the space provided.

8. How are parasites and predators alike?

9. How are parasites and predators different?

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.

10. Why is it beneficial for a parasite to allow its host to live?

11. What effect does a parasite’s presence usually have on its host?

Skills Worksheet

Active Reading**Section: Studying Human Populations**

Read the passage below and answer the questions that follow.

The average number of years a person is likely to live is that person's **life expectancy**. Life expectancy is most affected by *infant mortality*, the death rate of infants less than a year old. In 1900, worldwide life expectancy was about 40 years and the infant mortality rate was very high. By 2000, the rate of infant mortality was less than one-third of the rate in 1900. Average life expectancy has increased to more than 67 years worldwide. For people in many developed countries, life expectancy is almost 80 years.

Expensive medical care is not needed to prevent infant deaths. The infant mortality rate differs greatly among countries that have the same average income. Instead, infant health is more affected by the parents' access to education, food, fuel, and clean water. Even in poor areas, many people now know that babies simply need to be fed well and kept clean and warm. If these basic needs are met, most children will have a good chance of surviving.

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.

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

- _____ 1. What was the worldwide average life expectancy in 2000?
- a. about 40
 - b. more than 67
 - c. almost 80
 - d. none of the above
- _____ 2. What was the worldwide life expectancy in 1900?
- a. about 40
 - b. more than 67
 - c. almost 80
 - d. It was not measured in 1900.
- _____ 3. What is the life expectancy for people in many developed countries today?
- a. almost 70 years
 - b. almost 80 years
 - c. almost 95 years
 - d. almost 40 years
- _____ 4. What do most infants need in order to survive?
- a. to have expensive medical care
 - b. to live in a developed country
 - c. to have access to education
 - d. to be fed well and kept clean and warm

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

5. Unscramble the term below. What is the term's definition?

FILE CATPYXNECE

6. Do most people want to have a low infant mortality rate or a high infant mortality rate? Explain your answer.

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.

7. How did worldwide infant mortality and life expectancy change between 1900 and 2000?

RECOGNIZING CAUSE AND EFFECT

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

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

- _____ 8. Which factor would be most likely to cause a low life expectancy for a country?

- a. high-tech medical care
- b. high average incomes
- c. low infant mortality rates
- d. diminished food supply

- _____ 9. Which factors might have the greatest effect on infant mortality in a country?

- a. low life expectancy and women's fertility rates
- b. the country's average income and parents' access to good medical care
- c. burning of fossil fuels and population booms
- d. parents' access to education, food, fuel, and clean water

Skills Worksheet

Active Reading**Section: Changing Population Trends**

Read the passage below and answer the questions that follow.

In many of the poorest countries, wood is the main fuel source. When populations are stable, people use fallen tree limbs for fuel, which does not harm the trees. When populations grow rapidly, deadwood does not accumulate fast enough to provide enough fuel. People begin to cut down living trees, which reduces the amount of wood available in each new year. Parts of Africa, Asia, and India have been cleared of vegetation by people collecting fuelwood.

A supply of fuel ensures that a person can boil water and cook food. In many parts of the world, water taken directly from wells or public supplies is not safe to drink because it may carry water-borne parasites or other diseases. The water can be sterilized by boiling it, but fuel is needed to do so. Also, food is often unsafe or harder to digest unless it is cooked. Without enough fuelwood, many people suffer from disease and malnutrition.

IDENTIFYING MAIN IDEAS

One reading skill is the ability to identify the main ideas 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.

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

1. The main source of fuel for many poorer countries is _____.
2. People use fallen tree limbs for fuel when their population is _____.
3. If a population grows quickly, people begin to cut down _____
_____ for fuelwood.
4. Public water supplies are unsafe in some parts of the world because the water may carry _____ and _____.
5. Explain how an area of land can become cleared of vegetation because a population grows.

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

6. Define *deadwood* in the context of these two sentences: "When populations are stable, people use fallen tree limbs for fuel, which does not harm the trees. When populations grow rapidly, *deadwood* does not accumulate fast enough to provide fuel."

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 to a shortage of fuelwood. 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 growing population begins to cut down living trees for fuel.
- _____ 8. The area in which the population lives may become cleared of vegetation.
- _____ 9. The amount of available wood decreases.
- _____ 10. A stable population that was using deadwood starts to grow rapidly.
- _____ 11. The deadwood does not accumulate fast enough to provide the population with enough fuel.

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.

12. What purpose does fuelwood serve?

13. What is the result of an inadequate supply of fuelwood?

Skills Worksheet

Active Reading**Section: What Is Biodiversity?**

Read the passage below and answer the questions that follow.

Humans benefit from biodiversity every time they eat. Most of the crops produced around the world originated from a few areas of high biodiversity. Most new crop varieties are *hybrids*, crops developed by combining genetic material from other populations. History has shown that depending on too few plants for food is risky. For example, famines have resulted when an important crop was wiped out by disease. But some crops have been saved from diseases by being crossbred with wild plant relatives. In the future, new crop varieties may come from species not yet discovered.

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.

- _____ 1. Depending on a few plants for food is
a. healthy for humans.
b. risky for humans.
c. good for crops.
d. beneficial for some species.
- _____ 2. Relying on one important crop can cause
a. famine if the crop is wiped out.
b. hybrids if the crop mixes with another population.
c. disease if the crop came from wild plants.
d. a new crop variety if a new species is introduced.
- _____ 3. Some types of crops can be saved from disease if
a. they can be genetically isolated.
b. they are sprayed with enough pesticide.
c. areas of high biodiversity are destroyed.
d. they are crossbred with their wild plant relatives.

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

4. What is the main idea of this passage?

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

5. What key term is in this passage?

6. What is a hybrid crop?

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.

7. How is a hybrid different from its originating crops?

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. The crops we enjoy today originated from

_____.

9. A hybrid crop is developed by

_____.

10. Explain one reason why a famine might occur.

11. How can crossbreeding help save a type of crop plant?

Skills Worksheet

Active Reading**Section: Biodiversity at Risk**

Read the passage below and answer the questions that follow.

Like rain forests, coral reefs occupy a small fraction of the marine environment yet contain the majority of the biodiversity there. Reefs provide millions of people with food, tourism revenue, coastal protection, and sources of new chemicals. One study in 1998 estimated the value of these services to be \$375 billion per year. But reefs are poorly studied and not as well protected by laws as terrestrial areas are. Nearly 60 percent of Earth's coral reefs are threatened by human activities, such as development along waterways, overfishing, and pollution. Similar threats affect coastal ecosystems, such as swamps, marshes, shores, and kelp beds. Coastal areas are travel routes for many migrating species as well as links to ecosystems on land.

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.

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

1. How much of the marine environment do coral reefs make up?

2. What percentage of coral reefs are threatened by human activity?

3. How much of the marine environment's biodiversity is contained in Earth's coral reefs?

4. How much money are the coral reefs worth, according to one study?

5. Which are better protected by laws, terrestrial areas or coral reef areas?

6. Name four reasons why coral reefs are beneficial to humans.

7. Name four types of coastal ecosystems.

Active Reading *continued*

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 each question and write the answer in the space provided.

- 8.** What are the similarities between coral reefs and coastal ecosystems?

- 9.** What three human activities are threatening both coral reefs and coastal ecosystems?

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.

- 10.** Why are coral reefs perhaps in more danger than inland areas?

- 11.** What two purposes do coastal areas serve for wildlife?

- 12.** List three reasons why it is beneficial to humans to protect coral reefs.

Skills Worksheet

Active Reading**Section: The Future of Biodiversity**

Read the passage below and answer the questions that follow.

In 1973, the U.S. Congress passed the **Endangered Species Act** and has amended it several times since. This law is designed to protect plant and animal species in danger of extinction. Under the first provision, the U.S. Fish and Wildlife Service (USFWS) must compile a list of all endangered and threatened species in the United States. As of 2002, 983 species of plants and animals were listed as endangered or threatened. Dozens more are considered for the list each year. The second main provision of the act protects listed species from human harm. Anyone who harms, buys, or sells any part of these species is subject to a fine. The third provision prevents the federal government from carrying out any project that jeopardizes a listed species.

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 answers each question.

- _____ 1. What law protects plant and animal species in danger of extinction?
a. the U.S. Fish and Wildlife Service c. the species recovery plan
b. the Endangered Species Act d. the captive breeding plan
- _____ 2. Who was responsible for passing this law?
a. the state of California c. the U.S. Fish and Wildlife Service
b. Greenpeace d. the U.S. Congress
- _____ 3. Who is responsible for compiling a list of all endangered and threatened species in the U.S.?
a. the U.S. Fish and Wildlife Service c. individual states
b. the U.S. Congress d. forest rangers

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

4. How many species were listed as endangered or threatened in 2002?

5. Who or what is restricted by the third provision of the Endangered Species Act?

Active Reading *continued*

6. How does the third provision protect plant and animal species that are in danger of extinction?

7. Who or what is restricted by the second provision of the Endangered Species Act?

VOCABULARY DEVELOPMENT

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

- _____ 8. The second sentence in the passage begins, "This law." To what do those words refer?
- | | |
|-----------------------------------|-------------------------------|
| a. U.S. Fish and Wildlife Service | c. the third provision |
| b. the second provision | d. the Endangered Species Act |
- _____ 9. What words does the author use to organize the information in the passage?
- | |
|---|
| a. first, second, third |
| b. U.S. Congress, Fish and Wildlife Service, federal government |
| c. endangered, extinct |
| d. threatened, endangered, extinct |

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.

10. Because of the first provision of the Endangered Species Act, what is the U.S. Fish and Wildlife Service required to do?

11. What consequence must any violator of the second provision of the Endangered Species Act face?

12. What actions are considered violations of the second provision?

Skills Worksheet

Active Reading**Section: Water Resources**

Read the passage below and answer the questions that follow.

Most of the fresh water that is available for human use cannot be seen—it exists underground. When it rains, some of the water that falls onto the land flows into lakes and streams. But much of the water percolates through the soil and down into the rocks beneath. Water stored beneath the Earth's surface in sediment and rock formations is called **groundwater**.

As water travels beneath the Earth's surface, it eventually reaches a level where the rocks and soil are saturated with water. This level is known as the *water table*. In wet regions, the water table may be at the Earth's surface and a spring of fresh water may flow out onto the ground. But in deserts, the water table may be hundreds of meters beneath the Earth's surface. The water table is actually not as level as its name implies. The water table has peaks and valleys that match the shape of the land above it. Just as surface water flows downhill, groundwater tends to flow slowly from the peaks of the water table to the valleys.

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.

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

1. Where is most fresh water that is available for human consumption found?

2. How does water get beneath Earth's surface after it rains?

VOCABULARY DEVELOPMENT

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

3. Water stored in sediments and rocks beneath Earth's surface is called

_____.

4. The level where rocks and soil become saturated with water is called

_____.

Active Reading *continued*

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.

Read each question and write the answer in the space provided to show the sequence of the process in which groundwater is formed.

5. Water that will become groundwater falls on the surface of Earth when _____.
6. Water first percolates through the _____.
7. Then, water reaches the _____ beneath.
8. Eventually, the water reaches the _____, where the rocks and soil are already _____ with water.

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 each question and write the answer in the space provided.

9. Why is a water table *not* like a table in your home?
- _____
- _____
10. Explain the difference between water tables in wet and desert regions.
- _____
- _____

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.

11. What movement occurs with groundwater? What causes this movement?
- _____
- _____
12. Why might a spring flow out of the ground in a wet region?
- _____
- _____

Active Reading *continued*

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

- 5.** For what three purposes is water used in industry?

- 6.** Name four items that the author uses as examples of the goods produced by industry.

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.

Write the three steps that show how a power plant's cooling system works.

- 7.** First,

- 8.** Next,

- 9.** Finally,

RECOGNIZING CAUSE AND EFFECT

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

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

- _____ **10.** Because water is used to cool power plants, it is returned to its source
- | | |
|--------------------|-------------------|
| a. cleaner. | c. hotter. |
| b. faster. | d. cooler. |

- _____ **11.** Industry uses water to
- | | |
|------------------------------|----------------------------|
| a. manufacture goods. | c. generate power. |
| b. dispose of waste. | d. All of the above |

Skills Worksheet

Active Reading**Section: Water Pollution**

Read the passage below and answer the questions that follow.

The natural process of eutrophication is accelerated when inorganic plant nutrients, such as phosphorus and nitrogen, enter the water from sewage and fertilizer runoff. Eutrophication caused by humans is called **artificial eutrophication**. Fertilizer from farms, lawns, and gardens is the largest source of nutrients that cause artificial eutrophication. Phosphates in some laundry and dish-washing detergents are another major cause of eutrophication. Phosphorus is a plant nutrient that can cause the excessive growth of algae. In bodies of water polluted by phosphorus, algae can form large floating mats, called *algal blooms*. As the algae die and decompose, most of the dissolved oxygen is used and fish and other organisms suffocate in the oxygen-depleted water.

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. Which of these are examples of inorganic plant nutrients?
a. eutrophication and oxygen c. oxygen and algal bloom
b. phosphorus and nitrogen d. farms and lawns
- _____ 2. Eutrophication caused by humans is called
a. artificial eutrophication. c. phosphates.
b. algal bloom. d. fertilizer.
- _____ 3. Which of the following is the best statement of the main idea of this passage?
a. Decomposing algal blooms deplete oxygen from bodies of water.
b. Fertilizer runoff causes artificial eutrophication.
c. Artificial eutrophication damages bodies of water.
d. Phosphates in detergents are the major cause of eutrophication.

VOCABULARY DEVELOPMENT

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

4. What is an algal bloom?

Active Reading *continued*

- 5.** Remember that eutrophication is the natural process by which a body of water gains an abundance of nutrients. Explain the distinction between eutrophication and artificial eutrophication.

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.

- 6.** Artificial eutrophication is caused by _____.
- 7.** It happens when

- 8.** What is the greatest cause of artificial eutrophication?

- 9.** Name another cause of artificial eutrophication.

- 10.** What substance causes an algal bloom to form?

- 11.** Why do fish die in a body of water where an algal bloom has formed?

Skills Worksheet

Active Reading**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.

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?

Skills Worksheet

Active Reading**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

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. Long, thin fibers made of minerals that are valued for strength and heat resistance are called
- | | |
|--------------------|----------------|
| a. insulation. | c. asbestos. |
| b. fire retardant. | d. asbestosis. |
- _____ 2. Asbestos has been used mainly in
- | | |
|--------------------------------|-------------------------------|
| a. water treatment facilities. | c. commercial food packaging. |
| b. chicken farms. | 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. |

Active Reading *continued*

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?

Skills Worksheet

Active Reading**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

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. 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?
- _____

Active Reading *continued*

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*?

6. What does a pH number tell you?

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?

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?

Skills Worksheet

Active Reading**Section: Climate and Climate Change**

Read the passage below and answer the questions that follow.

You know that the temperature and precipitation change with the seasons. But do you know what causes the seasons? The seasons result from the tilt of Earth's axis (about 23.5° relative to the plane of its orbit). Because of this tilt, the angle at which the sun's rays strike the Earth changes as the Earth moves around the sun.

During summer in the Northern Hemisphere, the Northern Hemisphere tilts toward the sun and receives direct sunlight. The number of hours of daylight is greatest in the summer. Therefore, the amount of time available for the sun to heat the Earth becomes greater. During summer in the Northern Hemisphere, the Southern Hemisphere tilts away from the sun and receives less direct sunlight. During summer in the Southern Hemisphere, the situation is reversed. The Southern Hemisphere is tilted toward the sun, whereas the Northern Hemisphere is tilted away.

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.

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

1. How much does Earth tilt on its axis?

2. The number of hours of daylight is greatest when?

3. Where is the Northern Hemisphere in relation to the sun in summer?

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

- _____ 4. Which of the following sentences best states the main idea of the passage?
- a. The amount of time for the sun to heat Earth becomes greater.
 - b. The seasons result from the tilt of Earth on its axis.
 - c. The Southern Hemisphere is tilted away from the sun.
 - d. Temperature and precipitation change with the seasons.

Active Reading *continued*

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 each question and write the answer in the space provided.

5. What season is it in the Northern Hemisphere when the Southern Hemisphere is tilted toward the sun?

6. What season is it in the Southern Hemisphere when the Northern Hemisphere is tilted away from the sun?

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.

7. What causes the seasons?

8. How does the tilt of Earth affect sunlight?

9. How does the amount of time in which the sun can warm Earth affect the seasons?

10. Where is the Southern Hemisphere in relation to the sun when it is summer in the Northern Hemisphere?

11. Where is the Northern Hemisphere in relation to the sun when it is summer in the Southern Hemisphere?

Skills Worksheet

Active Reading**Section: The Ozone Shield**

Read the passage below and answer the questions that follow.

High levels of UV light can kill single-celled organisms called *phytoplankton* that live near the surface of the ocean. The loss of phytoplankton could disrupt ocean food chains and reduce fish harvests. In addition, a reduction in the number of phytoplankton would cause an increase in the amount of carbon dioxide in the atmosphere.

Some scientists believe that increased UV light could be especially damaging for amphibians, such as toads and salamanders. Amphibians lay eggs that lack shells in the shallow water of ponds and streams. UV light at natural levels kills many eggs of some species by damaging unprotected DNA. Higher UV levels might kill more eggs and put amphibian populations at risk. Ecologists often use the health of amphibian populations as an indicator of environmental change due to the environmental sensitivity of these creatures.

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.

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

1. Authors sometimes use one person, place, or thing as the main focus of their writing. What group of organisms is the center of focus in the first paragraph of this passage?

2. Where do these organisms live?

3. What group of organisms is the center of focus in the second paragraph?

4. Where do these organisms lay their eggs?

5. In your own words, state the main idea of this passage.

Active Reading *continued*

6. What is notable about the eggs of these organisms?

7. Why do ecologists use amphibians to gauge environmental change?

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. What effect does a high level of UV light have on phytoplankton?

9. If the number of phytoplankton decreases, what happens to the amount of carbon dioxide in the atmosphere?

10. If the number of phytoplankton decreases, what happens to the food chains in the ocean?

11. What effect does UV light have on amphibians?

12. What in an amphibian egg is damaged by UV light?

13. If UV levels are increased, what is likely to happen to amphibian populations?

Active Reading *continued*

5. What is another key term for this chapter that appears in this passage?

6. *Global* can mean “worldwide.” Given this definition, whom would you say is affected by global warming?

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 each question and write the answer in the space provided.

7. What do those scientists who believe the Earth is experiencing global warming use as evidence to support their claims?

8. What do these scientists say is the cause of global warming?

9. What do those scientists who do *not* believe the Earth is experiencing global warming use as evidence to support their claims?

10. What do these scientists say is the cause of the increase in temperature throughout the 20th century?

Skills Worksheet

Active Reading**Section: How We Use Land**

Read the passage below and answer the questions that follow.

We use land for many purposes, including farming, mining, building cities and highways, and recreation. Land cover is what you find on a patch of land, and it often depends on how the land is used. For example, land cover might be a forest, a field of grain, or a parking lot. There are different types of land cover and different human uses for each cover type.

Land that is covered mainly with buildings and roads is called **urban** land. For the purposes of determining land use and residence trends, the U.S. Census Bureau defines an urban area as an area that contains 2,500 or more people and usually has a governing body, such as a city council. Any population not classified as urban is considered rural. Land that contains relatively few people and large areas of open space are **rural** areas. Most land provides one or more resources that humans consume. These resources include wood in forests, crops in farmland, and mineral resources.

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 the main idea.

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

1. What is land cover?

2. List three examples of land cover.

3. According to the U.S. Census Bureau, how many people must an urban area contain?

4. What else must an urban area have?

5. Name three consumable resources that land may provide.

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

6. Rural areas contain large areas of _____ and _____ people.
7. Urban areas are covered with _____, and _____, and contain _____ people.

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 each question and write the answer in the space provided.

8. How is a population determined to be rural instead of urban?

9. How does land use differ between urban and rural populations?

RECOGNIZING CAUSE AND EFFECT

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

In the space provided, write the letter of the description that best matches the term or phrase.

- a. land use
- b. land cover
- c. land resource

- | | |
|--------------------------|--|
| _____ 10. field of grain | _____ 15. recreation |
| _____ 11. mining | _____ 16. forest |
| _____ 12. wood | _____ 17. minerals |
| _____ 13. farming | _____ 18. food crop |
| _____ 14. parking lot | _____ 19. building cities and highways |

Skills Worksheet

Active Reading**Section: Urban Land Use**

Read the passage below and answer the questions that follow.

Environmental conditions in the center of a city are different from those of the surrounding countryside. Cities both generate and trap more heat. The increased temperature in the city is called a **heat island**. Heat is generated by the infrastructure that makes a city run. Roads and buildings absorb more heat than vegetation does. They also retain heat longer. Atlanta, Georgia, is an example of a city that has a significant heat island.

Scientists are beginning to see that heat islands can affect local weather patterns. Hot air rises over a city, cooling as it rises, and eventually produces rain clouds. In Atlanta and many other cities, increased rainfall is a side effect of the heat island. The heat-island effect may be moderated by planting trees for shade and by installing rooftops that reflect rather than retain heat.

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 the main idea.

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

1. Authors often include a main idea in one sentence of a passage. In the space below, write the sentence that you think best summarizes the main idea of this passage.

2. Why does the author mention Atlanta, Georgia?

3. Scientists use conditional words such as *many*, *sometimes*, *could*, and *might* when they are writing a statement of probability rather than of fact. What conditional word does this author use? Which sentence is it in?

4. What does this conditional word suggest about the statement in which it is used?

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

5. What is the condition that causes increased temperatures in a city called?

6. The prefix *infra-* means “within” or “below.” A *structure* is something that is built. Use this information to define the *infrastructure* of a city.

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 each question and write the answer in the space provided.

7. How is temperature in urban areas different from temperature in surrounding rural areas?

8. How might the weather be different in the city than it is in the surrounding countryside?

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.

9. What is the result of increased temperature in a city?

10. Explain how heat can affect a city’s weather.

11. What can city dwellers do to counteract the heat-island effect?

Skills Worksheet

Active Reading**Section: Land Management and Conservation**

Read the passage below and answer the questions that follow.

People use enormous amounts of wood. The worldwide average is 1,800 cm³ of wood used per person each day. However, on average, each person in the United States uses about 3.5 times this amount. This is the equivalent of each person in the United States cutting down a tree that is 30 m tall every year. About 1.5 billion people in developing countries depend on firewood as their main source of fuel.

The timber industry classifies forest lands into three categories—virgin forest, which is forest that has never been cut; native forest, which is forest that is planted and managed; and tree farms, which are areas where trees are planted in rows and harvested like other crops. The two most widely used methods of harvesting trees are clear-cutting and selective cutting. *Clear-cutting* is the process of removing all of the trees from an area of land. Clear-cutting large areas destroys wildlife habitat and causes soil erosion. The main alternative is selective cutting, which is usually practiced on smaller areas owned by individuals. *Selective cutting* is the process of cutting and removing only middle-aged or mature trees. Selective cutting is more expensive than clear-cutting, but selective cutting is usually much less destructive.

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 the main idea.

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

- _____ 1. How many people in developing countries rely on firewood for fuel?
- | | |
|----------------|----------------|
| a. 30 million | c. 1.5 billion |
| b. 3.5 billion | d. 1.5 million |
- _____ 2. How much wood does the average person (worldwide) use per day?
- | | |
|--------------------------|----------|
| a. 3.5 cm ³ | c. 30 m |
| b. 1,800 cm ³ | d. 1.5 m |
- _____ 3. How much wood does the average person in the United States use per day?
- | | |
|--------------------------|--------------------------|
| a. 1,800 cm ³ | c. 6,300 cm ³ |
| b. 5,400 cm ³ | d. 1,050 m |

Active Reading *continued*

VOCABULARY DEVELOPMENT

In the space provided, write the letter of the description that best matches the term or phrase.

- | | |
|----------------------------|---|
| _____ 4. clear-cutting | a. forest that is planted and managed |
| _____ 5. virgin forest | b. forest that has never been cut |
| _____ 6. selective cutting | c. the process of cutting and removing only middle-aged or mature trees |
| _____ 7. tree farms | d. the process of removing all trees from an area of land |
| _____ 8. native forest | e. areas where trees are planted in rows and harvested like other crops |

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 each question and write the answer in the space provided.

9. What comparison does the author use to show how much wood a person in the United States uses?

10. What are the similarities between clear-cutting and selective cutting?

11. What are the differences between clear-cutting and selective cutting?

12. What are the advantages and disadvantages of clear-cutting versus selective cutting?

Skills Worksheet

Active Reading**Section: Feeding the World**

Read the passage below and answer the questions that follow.

Between 1950 and 1970, Mexico increased its production of wheat eight-fold and India doubled its production of rice. Worldwide, increases in crop yields resulted from the use of new crop varieties and the application of modern agricultural techniques. These changes were called the *green revolution*. Since the 1950s, the green revolution has changed the lives of millions of people.

However, the green revolution also had some negative effects. Most new varieties of grain produce large yields only if they receive large amounts of water, fertilizer, and pesticides. In addition, the machinery, irrigation, and chemicals required by new crop varieties can degrade the soil if they are not used properly. As a result of the overuse of fertilizers and pesticides, yields from green revolution crops are falling in many areas. Grain production in the United States has decreased since 1990, partly because the amount of water used for irrigation has decreased during the same period.

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.

Write the letter of the term or phrase in the space provided, that best completes each statement.

- _____ 1. Between 1950 and 1970, the green revolution led to
a. increases in crop yields worldwide.
b. the failure of new crop varieties.
c. water shortages in the United States.
d. grain shortages in Mexico and India.
- _____ 2. *Irrigation* refers to
a. varieties of crop yields. c. fertilizer used to increase crop yields.
b. water used for crops. d. machinery used to harvest crops.
- _____ 3. According to the passage, one problem with the green revolution is that
a. few people have access to new techniques and machinery.
b. it did not last long enough to make a difference in grain production.
c. it led to widespread drought.
d. it led to the overuse of fertilizers and pesticides.

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

4. The verb *yield* means “to bear or bring forth as a natural product.” Use this information to define *crop yield*.

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 each question and write the answer in the space provided.

5. How did Mexico benefit from the green revolution between 1950 and 1970?
How did India benefit?

6. How was agriculture after the green revolution different from agriculture before the green revolution?

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.

7. What do new varieties of grain require to produce large yields?

8. Why has grain production in the United States decreased since 1990?

9. Why are yields from green revolution crops falling in many areas?

10. What effect do the machinery, irrigation, and chemicals required by new crop varieties have on soil?

Skills Worksheet

Active Reading**Section: Crops and Soil**

Read the passage below and answer the questions that follow.

In North America, insects eat about 13 percent of all crops. Crops in tropical climates suffer even greater insect damage because the insects grow and reproduce faster in these climates. In Kenya, for example, insects destroy more than 25 percent of the nation's crops. Worldwide, pests destroy about 33 percent of the world's potential food harvest.

Insects are one of several types of organisms considered pests. A *pest* is any organism that exists where you do not want it or that exists in large enough numbers to cause economic damage. Humans try to control populations of many types of pests, including plants, fungi, and microorganisms.

Wild plants often have more protection from pests than do crop plants. Wild plants grow throughout a landscape, so pests have a harder time finding and feeding on a specific plant. Crop plants, however, are usually grown together in large fields, which provide pests with a one-stop source of food. Wild plants are also protected from pests by a variety of pest predators that live on or near the plants. Some wild plants have also evolved defenses to many pests, such as poisonous chemicals that repel pests.

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.

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

1. What is a *pest*?

2. List three types of pest populations that humans try to control.

Write the letter of the phrase in the space provided, that best answers the question.

- _____ 3. How much of the potential food harvest do pests destroy worldwide?
- | | |
|----------------|---------------|
| a. 100 percent | c. 33 percent |
| b. 50 percent | d. 10 percent |

Active Reading *continued*

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 each question and write the answer in the space provided.

4. How does insect damage to crops in Kenya compare to insect damage to crops in North America?

5. Why do crop plants have less protection from pests than do wild plants?

The following statements apply to either wild plants or to crop plants. In the space provided, write "WP" if the statement applies to wild plants or "CP" if the statement applies to crop plants.

- _____ 6. grow throughout a landscape
- _____ 7. provide pests with a one-stop source of food
- _____ 8. have evolved defenses against many pests
- _____ 9. are protected from pests by pest predators that live on or near the plants
- _____ 10. grow together in large fields

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.

11. Why do crops in tropical climates suffer greater damage than crops in North America?

12. Why do humans try to control pest populations?

Active Reading *continued***VOCABULARY DEVELOPMENT**

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

5. The prefix *aqua-* refers to “water.” The verb *culture* means “to foster the growth of living things.” Use this information to define *aquaculture*.

In the space provided, write the letter of the definition that best matches the term.

- | | |
|--------------------|-----------------------------------|
| _____ 6. migrate | a. gather in |
| _____ 7. circulate | b. reach adulthood |
| _____ 8. harvest | c. flow without obstruction |
| _____ 9. mature | d. move from one place to another |

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 in the process of raising and harvesting salmon. Write “1” on the line in front of the first step, “2” on the line in front of the second step, and so on.

- _____ 10. The salmon are released.
- _____ 11. The salmon return to their birthplace.
- _____ 12. The salmon are raised on a ranch until they reach a certain age.
- _____ 13. The salmon are captured and harvested.
- _____ 14. The salmon migrate downstream to the ocean.
- _____ 15. The salmon grow to adulthood.

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.

16. How does circulating clean water contribute to the operation of a fish farm?

17. Why do salmon return to their birthplace after they mature?

Skills Worksheet

Active Reading**Section: Minerals and Mineral Resources**

Read the passage below and answer the questions that follow.

Certain metals are of major economic and industrial importance. Some metals can be pounded or pressed into various shapes or stretched very thinly without breaking. Other metals are good conductors of heat and electricity, or are prized for their durability and resistance to corrosion. Often, two or more metals are combined to form *alloys*. Alloys are important because they often combine the most desirable properties of the metals used to make them. Many new technologies depend on the mining of metallic minerals.

Nonmetals are among the most widely used minerals in the world. For example, gypsum has many applications in the construction industry. It is used to make Sheetrock™, or wallboard, for homes and commercial buildings. It is also a major component of concrete, which is used to build roads, buildings, and other structures. Industrial sand and gravel have uses that range from glassmaking to the manufacture of computer chips. Some non-metallic minerals, called *gemstones*, are prized purely for their beauty, rarity, or durability. Important gemstones include diamond, ruby, sapphire, emerald, aquamarine, topaz, and tourmaline.

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 the main idea.

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

- _____ 1. The value of a mineral is determined by its
a. properties.
b. mining technique.
c. gemstones.
d. alloys.
- _____ 2. What types of minerals are among the most widely used in the world?
a. metals
b. alloys
c. gemstones
d. nonmetals
- _____ 3. Which of the following is an example of a gemstone?
a. gypsum
b. sapphire
c. gravel
d. glass

Active Reading *continued*

VOCABULARY DEVELOPMENT

In the space provided, write the letter of the description that best matches the term or phrase.

- | | |
|--------------------------|---|
| _____ 4. gypsum | a. the combination of two or more metals |
| _____ 5. gemstones | b. a major component of concrete |
| _____ 6. industrial sand | c. conductors of heat and electricity |
| _____ 7. alloy | d. topaz and tourmaline |
| _____ 8. certain metals | e. a substance used in manufacturing computer chips |

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

9. The verb *corrode* means “wear away gradually, usually by a chemical reaction.” A metal that is prized for its “resistance to corrosion” has what property?

10. *Aqua* means “water” or “a light blue color.” *Marine* refers to the sea. Use this information to determine what the gemstone *aquamarine* might look like.

RECOGNIZING CAUSE AND EFFECT

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

In the space provided, write the letter of the phrase that best answers the question.

- _____ 11. Why do people value gemstones?
- | | |
|--------------------------------------|------------------------------------|
| a. for their use in industry | c. for their beauty and rarity |
| b. for their resistance to corrosion | d. for their benefit to technology |

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

12. Why are alloys especially important?

13. What are some properties of metals that give them economic and industrial importance?

Skills Worksheet

Active Reading**Section: Mineral Exploration and Mining**

Read the passage below and answer the questions that follow.

Through mineral exploration, mining companies can identify areas where there is a high likelihood of finding valuable mineral resources in quantities that are worth mining. Usually, a mineral deposit has 100 to 1,000 times the concentration of the mineral than ordinary rocks do and enough material to justify opening a mine.

Exploring rock for mineralization is the first step in finding an ore deposit. Planes that carry instruments for identifying patterns in gravity, magnetism, or radioactivity fly over and collect these data as well as images and photographs of an area. When used with satellite images, these data and aerial photographs can be used to create an accurate geological map of the surface. Rock samples are then taken from the exploration area. The samples are analyzed to determine ore grade—the metal content of an ore. If the ore grade is high enough, the companies will drill test holes that help them estimate the three-dimensional extent of the ore. If the ore grade is high enough and the deposit extensive enough, the cost to open a mine may be warranted.

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 the main idea.

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

- _____ 1. Mining companies conduct mineral exploration to
- a. find mineral deposits.
 - b. identify new types of minerals.
 - c. create geological maps.
 - d. collect rock samples.
- _____ 2. Airplanes used in mineral exploration carry instruments that detect
- a. gravity.
 - b. radioactivity.
 - c. magnetism.
 - d. All of the above
- _____ 3. What is ore grade?
- a. the three-dimensional extent of an ore
 - b. the radioactivity of an ore
 - c. the metal content of an ore
 - d. the magnetism of an ore

Active Reading *continued***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.

Beginning with step 1, write the five steps involved in finding an ore deposit in the order in which they occur. Write the steps in the space provided.

4. Step 1: _____
5. Step 2: _____
6. Step 3: _____
7. Step 4: _____
8. Step 5: _____

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 each question and write your answer in the space provided.

9. How is a mineral deposit different from ordinary rocks?

10. How do both satellites and airplanes aid mining companies in finding ore deposits?

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.

11. What do mining companies learn from rock samples taken from an exploration area?

12. How does drilling test holes help mining companies determine whether to open a mine in a specific area?

Skills Worksheet

Active Reading**Section: Mining Regulations and Mine Reclamation**

Read the passage below and answer the questions that follow.

Mines on land in the United States are regulated by federal and state laws. To ensure that contaminants from mines do not threaten water quality, mining companies must comply with regulations of the Clean Water Act and the Safe Drinking Water Act. The release of hazardous substances into the air, soil, and water by mining is regulated by the Comprehensive Response Compensation and Liability Act. In addition, all mining operations must comply with the Endangered Species Act. This act ensures that mining activities will not affect threatened or endangered species and their habitats.

The process of returning land to its original or better condition after mining is completed is called reclamation. The Surface Mining Control and Reclamation Act of 1977 (SMCRA) created a program for the regulation of surface coal mining on public and private land. The act set standards that would minimize the surface effects of coal mining on the environment. SMCRA also established a fund that is administered by the federal government and is used to reclaim land and water resources that have been adversely affected by past coal-mining activities.

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 the main idea.

In the space provided, write the letter of the phrase that best completes each statement.

- _____ 1. Which act ensures that mining activities will not affect the habitats of some species?
- a. Comprehensive Response Compensation and Liability Act
 - b. Safe Drinking Water Act
 - c. Surface Mining Control and Reclamation Act
 - d. Endangered Species Act
- _____ 2. What is reclamation?
- a. returning land to its original or better condition after mining
 - b. returning land to a useful condition after mining
 - c. regulation of the effect of mining on water
 - d. regulation of the effect of mining on air and soil
- _____ 3. The Comprehensive Response Compensation and Liability Act regulates
- a. reclamation.
 - b. endangered species.
 - c. hazardous substances.
 - d. past coal-mining activities.

Active Reading *continued*

VOCABULARY DEVELOPMENT

In the space provided, write the letter of the description that best matches the term or phrase.

- | | |
|--|--|
| _____ 4. Clean Water Act | a. minimizes the surface effects of mining on the environment |
| _____ 5. Safe Drinking Water Act | b. ensures that contaminants from mining do not threaten water resources |
| _____ 6. Comprehensive Response Compensation and Liability Act | c. ensures that mining will not affect threatened species |
| _____ 7. Endangered Species Act | d. ensures that contaminants from mining do not threaten drinking water |
| _____ 8. Surface Mining Control and Reclamation Act | e. regulates release of hazardous substances into the air, soil, or water |

RECOGNIZING CAUSE AND EFFECT

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

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

- 9.** Which of the acts mentioned in the passage regulate mining directly?

- 10.** Which of the acts mentioned in the passage are *not* directly related to mining?

- 11.** What are the effects of the Surface Mining Control and Reclamation Act of 1977?

Active Reading

Section: Energy Resources and Fossil Fuels

Read the passage below and answer the questions that follow.

When petroleum fuels are burned, they release pollutants. Internal combustion engines in vehicles that burn gasoline pollute the air in many cities. These pollutants contribute to the formation of smog and cause health problems. Emissions regulations and technology such as catalytic converters have reduced air pollution in many areas. However, in developing countries, cars are generally older, and the gasoline that they burn contains significantly more sulfur, a pollutant that contributes to acid precipitation. Many scientists also think that the carbon dioxide released from burning petroleum fuels contributes to global warming.

Oil spills are another potential environmental problem of oil use. In recent years, new measures have been taken to prevent oil spills from tankers. These measures include requiring that new tankers be double-hulled so that puncturing the outer hull does not allow the oil to leak out. Also, response times to clean up oil spills have improved. While oil spills are dramatic, much more oil pollution comes from everyday sources, such as leaking cars. However, measures to reduce everyday contamination of our waterways from oil lag far behind the efforts made to prevent large spills.

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 the main idea.

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

1. What are two potential hazards associated with oil use?

2. What is one reason the air in cities is often polluted?

3. What factor might be contributing to global warming?

4. What measures have been taken to prevent oil spills from tankers?

5. What does the author note about oil spill cleanup?

Active Reading *continued*

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 each question and write the answer in the space provided.

- 6.** What is the difference between cars in developed countries and cars in developing countries?

- 7.** Which spills more oil: oil spills from tankers or oil leaks from cars? Why?

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.** What negative effects do pollutants from vehicles cause in cities?

- 9.** What problem does the burning of gasoline with sulfur contribute to?

- 10.** Name two things that have reduced air pollution in many areas.

- 11.** How is a double-hulled oil tanker safer than one that is not double-hulled?

- 12.** What does the author suggest will reduce the negative effects of using oil?

Skills Worksheet

Active Reading**Section: Nuclear Energy**

Read the passage below and answer the questions that follow.

Inside a nuclear reactor, metal fuel rods that contain solid uranium pellets are bombarded with neutrons. The chain reaction that results releases energy and produces more neutrons. The reactor core contains control rods, which are made of a material such as boron or cadmium, that absorb the neutrons to prevent an uncontrolled chain reaction. When the control rods are lowered between the fuel rods, they slow the fission reactions. If the control rods are lowered completely, they prevent fission and shut down the reactor.

The heat released during nuclear reactions is used to generate electricity in the same way that power plants burn fossil fuels to generate electricity. In a nuclear power plant, energy released from the fission reactions heats a closed loop of water that heats another body of water. As the water boils, it produces steam that drives a steam turbine, which is used to generate electricity.

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 the main idea.

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

1. What must metal fuel rods inside a nuclear reactor be bombarded with in order to start a chain reaction?

2. List two materials that can absorb neutrons.

RECOGNIZING CAUSE AND EFFECT

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

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

3. How can a chain reaction be controlled?

4. What happens when the control rods in a reactor core are completely lowered between the fuel rods?

Active Reading *continued***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 in the process of how nuclear energy generates electricity. Write “1” on the line in front of the first step, “2” on the line in front of the second step, and so on.

- _____ 5. Control rods are lowered between fuel rods.
- _____ 6. The closed loop of water heats another body of water.
- _____ 7. A chain reaction results that releases energy and produces more neutrons.
- _____ 8. The body of water boils.
- _____ 9. Energy released from the fission reaction heats a closed loop of water.
- _____ 10. The boiling water produces steam.
- _____ 11. Metal fuel rods containing uranium pellets are bombarded with neutrons.
- _____ 12. The turbine generates electricity.
- _____ 13. The steam drives a steam turbine.
- _____ 14. The fission reactions are slowed.

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 each question and write the answer in the space provided.

- 15.** How are nuclear power plants like other power plants?

- 16.** How are nuclear power plants different from other power plants?

Skills Worksheet

Active Reading**Section: Renewable Energy Today**

Read the passage below and answer the questions that follow.

Solar cells, also called *photovoltaic cells*, convert the sun's energy into electricity. Solar cells were invented more than 120 years ago, and now they are used to power everything from calculators to space stations. Solar cells have no moving parts, and they run on nonpolluting power from the sun. So why don't solar cells meet all of our energy needs? A solar cell produces a very small electrical current. So meeting the needs of a small city would require covering hundreds of acres with solar panels. Solar cells also require extended periods of sunshine to produce energy. This energy is stored in batteries, which supply electricity when the sun is not shining.

Despite these limitations, energy production from solar cells has doubled every four years since 1985. Solar cells have become increasingly efficient and less expensive. Solar cells have great potential for use in developing countries, where energy consumption is minimal and electricity networks are limited. Currently, solar cells provide energy for more than 1 million households in the developing world.

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. Solar cells convert the sun's energy into
a. light.
b. heat.
c. electricity.
d. pollution.
- _____ 2. What factor regarding solar cells has doubled every four years since 1985?
a. the number of solar cells produced
b. the amount of energy produced by solar cells
c. the number of people who use solar cells
d. the price of solar cells
- _____ 3. Solar cells have great potential for use in
a. cities.
b. private homes.
c. factories.
d. developing countries.

Active Reading *continued***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 following questions and write the answers in the space provided.

- 4.** How are solar cells different from most other power sources?

- 5.** How are solar cells of today superior to solar cells of the 1980s?

VOCABULARY DEVELOPMENT

In the space provided, write the letter of the definition that best matches the term or phrase.

- | | |
|---|---|
| _____ 6. <i>photovoltaic cells</i> | a. power usage |
| _____ 7. solar panels | b. store energy collected by solar cells |
| _____ 8. energy consumption | c. convert the sun's energy into electricity |
| _____ 9. batteries | d. collections of solar cells |

RECOGNIZING CAUSE AND EFFECT

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

Read the following questions and write the answers in the space provided.

- 10.** How are solar cells used today?

- 11.** Why are solar cells particularly suitable for developing countries?

- 12.** Why aren't solar cells used to meet all of our energy needs?

Skills Worksheet

Active Reading**Section: Alternative Energy and Conservation**

Read the passage below and answer the questions that follow.

The average household in the United States spends more than \$1,200 on energy bills each year. Unfortunately, much of that energy is wasted. Most of the energy lost from homes is lost through poorly insulated windows, doors, walls, and the roof. So a good way to increase energy efficiency is to add to the insulation of a home. Replacing old windows with new, high-efficiency windows can reduce your energy bill by 15 percent. Two of the best places to look for ways to conserve energy are doors and windows. Much of the energy lost from a home escapes as hot air in winter or cold air in summer passes through gaps around doors and windows. Hold a ribbon up to the edges of doors and windows. If it flutters, you've found a leak. Sealing these leaks with caulk or weather stripping will help conserve energy. There are dozens of other ways to reduce energy use around the home.

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.

- _____ 1. The average household in the United States spends \$1,200 a year on
a. repairs to the home.
b. windows and doors.
c. insulation.
d. energy bills.
- _____ 2. Much of the energy in homes in the United States is
a. efficient.
b. wasted.
c. conserved.
d. reduced.
- _____ 3. People can increase energy efficiency in their homes by
a. keeping doors and windows closed at all times.
b. replacing their roofs.
c. adding to the insulation in their homes.
d. using more hot air in winter and more cold air in summer.

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

4. The term *efficient* means “productive without waste.” Use this information to define *energy efficiency*.

5. *Insulate* comes from the Latin word for “island” and means “isolate” or “protect.” From what does insulation isolate or protect homes?

In the space provided, write the letter of the term that best answers the question.

- _____ 6. What is used for sealing leaks around windows and doors?
- a. ribbon
 - b. insulation
 - c. weather stripping
 - d. replacement parts

RECOGNIZING CAUSE AND EFFECT

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

In the space provided, write the letter of the phrase that best completes the statement.

- _____ 7. Replacing old windows with new, more efficient windows can
- a. reduce an energy bill up to 15 percent.
 - b. cause leaks that lead to energy loss.
 - c. increase an energy bill as much as 15 percent.
 - d. eliminate the need for other improvements to the home.

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

8. The greatest loss of energy in a home results from poor insulation in what four areas of the home?

9. How can a person detect leaks around windows and doors?

10. What happens to much of the energy that is used to heat and cool homes?

Skills Worksheet

Active Reading**Section: Solid Waste**

Read the passage below and answer the questions that follow.

Solid waste from manufacturing, mining, and agriculture makes up much of the total solid waste produced in the United States. Solid waste from manufacturing makes up 56 percent of the total solid waste produced and includes items such as scrap metal, plastics, paper, sludge, and ash. Although consumers do not directly produce waste from manufacturing, they indirectly create it by purchasing products that have been manufactured.

Waste from mining consists of the rocks and minerals that are left over from excavation and processing. This waste is left exposed in large heaps, is dumped in oceans or rivers, or is disposed of by refilling and landscaping abandoned mines. Agricultural waste makes up 9 percent of the total solid waste produced and includes crop wastes and manure. Because agricultural waste is biodegradable, it can be broken down and returned to the soil. However, the increasing use of fertilizers and pesticides may cause agricultural waste to become more difficult to dispose of because the waste may be harmful if returned to the soil.

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 the main idea.

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

- _____ 1. Solid waste from manufacturing includes
a. crop wastes. c. minerals.
b. rocks. d. plastics.
- _____ 2. Waste from mining
a. is biodegradable.
b. is sometimes dumped in oceans or rivers.
c. includes paper and plastics.
d. is produced by consumers.
- _____ 3. What portion of the solid waste produced in the United States is agricultural waste?
a. 56 percent c. 9 percent
b. 20 percent d. 90 percent

Active Reading *continued***VOCABULARY DEVELOPMENT**

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

4. The verb *degrade* means “break down.” The prefix *bio-* refers to living things. The suffix *-able* means “capable of.” Use this information to define *biodegradable*.

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.

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

- _____ 5. Agricultural waste may be easier to dispose of than other types of solid waste because agricultural waste
- a. can be broken down and returned to the soil.
 - b. is often left exposed in large heaps.
 - c. may be used to refill abandoned mines.
 - d. makes up a small percentage of the total solid waste.
- _____ 6. Manufacturing waste is different from mining waste in that manufacturing waste
- a. is processed and then purchased by consumers.
 - b. is most difficult to dispose of.
 - c. includes products created by human beings.
 - d. is biodegradable.

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.

7. How do consumers indirectly create manufacturing waste?

8. The increasing use of which products may cause agricultural waste to become difficult to dispose of?

9. How does the use of these products make agricultural waste more difficult to dispose of?

Skills Worksheet

Active Reading**Section: Reducing Solid Waste**

Read the passage below and answer the questions that follow.

When most people think about recycling, they probably think of only the first step of bringing their bottles, cans, and newspapers to a recycling center or putting these things at the curb in specially marked containers. However, recycling actually involves a series of steps that must happen for recycling to work.

First, the discarded materials must be collected and sorted by type. Next, each type of material must be taken to a facility where it can be cleaned and made ready to be used again. For example, glass is sorted by color and is crushed, and paper is sorted by type and made into pulp with water. Then the materials are used to manufacture new products. Finally, the new products are sold to consumers. If more people buy products made from recycled materials, there will be an increase in the demand for these products. This demand encourages manufacturers to build facilities to make recycled products. When such facilities are built, it becomes easier for communities to sell the materials they collect from residents for recycling.

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 the main idea.

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

1. What types of products do people commonly recycle?

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

- _____ 2. Before glass is recycled, it is sorted by
a. size. c. type.
b. shape. d. color.
- _____ 3. Which of the following is the first step of recycling?
a. sorting materials by type
b. cleaning and preparing materials
c. taking bottles, cans, and newspapers to a recycling center
d. using recycled materials to make new products

Active Reading *continued*

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.

Beginning with step 1, write the four steps involved in recycling in the sequence in which they occur. Write each step in the space provided.

4. Step 1: _____

5. Step 2: _____

6. Step 3: _____

7. Step 4: _____

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

8. What happens to discarded paper before it is used to make new products?

9. What happens to discarded glass after it is sorted but before it is made into new products?

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.

10. How might manufacturers react to increased demand for recycled products?

11. What effect does an increase in the number of facilities that make recycled products have on communities?

Skills Worksheet

Active Reading**Section: Hazardous Waste**

Read the passage below and answer the questions that follow.

Some hazardous wastes are disposed of by burning, often in specially designed incinerators. Incinerators can be a safe way to dispose of waste, but they have several problems. Incineration is generally the most expensive form of waste disposal because incinerators require a lot of energy to operate. Incinerators also need pollution-control devices and need to be carefully monitored so that hazardous gases and particles are not released into the air. Also, after hazardous waste is incinerated, the leftover ash needs to be buried. This ash is usually buried in a hazardous waste landfill.

When we put hazardous waste into disposal facilities for long-term storage, the wastes do not disappear. Instead, they must be closely monitored. For example, disposal of radioactive wastes from nuclear reactors is an especially difficult storage problem. The only way to make the radioactive wastes nonhazardous is to let them sit for thousands of years until the radioactivity decreases to safe levels. Therefore, engineers and geologists search for disposal sites that probably will not be damaged by movements of the Earth for thousands of years.

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 the main idea.

In the space provided, write the letter of the phrase that best completes each statement.

- _____ 1. Incinerators are used to
a. control pollution. c. burn hazardous wastes.
b. store hazardous wastes. d. dispose of radioactive wastes.
- _____ 2. After hazardous waste is incinerated, the leftover ash is
a. stored in a long-term storage facility. c. left to sit for thousands of years.
b. buried in a special landfill. d. monitored for hazardous gases.
- _____ 3. Wastes from nuclear reactors are
a. radioactive. c. gaseous.
b. nonhazardous. d. expensive.

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

4. A *hazard* is a “source of danger.” *Waste* is “something that is discarded.” What is *hazardous waste*?

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 in the process of disposing of radioactive waste. Write “1” on the line in front of the first step, “2” on the line in front of the second step, and so on.

- _____ 5. Sites are closely monitored.
- _____ 6. Scientists locate a site that will not be damaged by Earth movements.
- _____ 7. Radioactive wastes are stored.
- _____ 8. Disposal facilities are built.
- _____ 9. Wastes sit for thousands of years.

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.

10. Name two reasons why incinerators are the most expensive form of waste disposal.

11. Why must incinerators be carefully monitored?

12. Why do engineers and geologists try to find disposal sites that are unlikely to be damaged by movements of the Earth?

Skills Worksheet

Active Reading**Section: Pollution and Human Health**

Read the passage below and answer the questions that follow.

We are exposed to small amounts of chemicals every day, in food, in the air we breathe, and sometimes in the water we drink. Almost any chemical can be harmful if taken in, or *ingested*, in large enough amounts. The question is whether the concentration of any particular chemical in the environment is high enough to be harmful.

To determine the effect of a pollutant on health, we need to know several things. We need to know how much of the pollutant is in the environment and how much gets into the body. Then we need to determine what concentration of the toxin damages the body. The amount of a harmful chemical to which a person is exposed is called the **dose** of that chemical. The damage to health that results is called the *response*.

Whether a chemical has a toxic effect depends in part on the dose. The response also depends on the number of times a person is exposed, the person's size, and how well the person's body breaks down the chemical.

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. How are people exposed to chemicals on a daily basis?
- a. in the food they eat
 - b. in the air they breathe
 - c. in the water they drink
 - d. all of the above
- _____ 2. The amount of a harmful chemical to which a person is exposed is the
- a. dose.
 - b. response.
 - c. pollutant.
 - d. toxin.
- _____ 3. Almost any chemical can be harmful if
- a. it is present in the environment.
 - b. a person is exposed to it repeatedly.
 - c. it is ingested in large enough amounts.
 - d. a person has never been exposed to it before.

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

4. The verb *concentrate* means “gather” or “collect.” The suffix *-ion*, used to form nouns, means “state” or “condition.” Use this information to define the noun *concentration*.

5. *Pollute* means “to make impure.” *Pollution* is “the act of polluting.” If the suffix *-ant* means “something that performs an action,” what is a *pollutant*?

6. A *response* is a “reply” or a “reaction.” Use this information to explain why the health damage that results after exposure to a harmful chemical is called a *response*.

RECOGNIZING CAUSE AND EFFECT

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

In the space provided, write the letter of the phrase that best answers each question.

- _____ 7. What information is *not* necessary for determining the effects of a pollutant on individual health?
- a. how much of the pollutant gets into the body
 - b. how many people have been exposed to the pollutant
 - c. what concentration of the pollutant damages the body
 - d. how much of the pollutant is in the environment
- _____ 8. Which factors determine whether exposure to a chemical will have a toxic effect?
- | | |
|---------------------------|-------------------------------|
| a. concentration and dose | c. concentration and response |
| b. dose and exposure | d. exposure and response |

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

9. What factors determine the response to a chemical?

Skills Worksheet

Active Reading**Section: Biological Hazards**

Read the passage below and answer the questions that follow.

Our actions cause pathogens to evolve resistance to antibiotics that are used to kill them. For example, in the United States, large quantities of antibiotics are fed to livestock each year to speed their growth. As a result, *Salmonella*, *Escherichia coli* (*E. coli*), and other bacteria that live in livestock evolve resistance to antibiotics. These bacteria now make thousands of U.S. citizens sick each year when they eat contaminated meat that has been improperly refrigerated or undercooked.

We also use enormous amounts of antibiotics to treat human illnesses. In 1979, 6 percent of European strains of pneumonia bacteria were resistant to antibiotics. Ten years later, 44 percent of the strains were resistant. Tuberculosis (TB) is another illness treated with antibiotics. The spread of TB in recent years is mostly due to the evolution of antibiotic resistance in the bacterium that causes TB.

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.

Read the following question and write your answer in the space provided.

1. How have pathogens changed as a result of human action?

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

- _____ 2. Why are livestock in the United States fed large quantities of antibiotics?
- a. to treat the many animals that become sick
 - b. to speed the animals' growth
 - c. so bacteria in livestock will develop a resistance to the antibiotics
 - d. to prevent people who eat meat from becoming sick
- _____ 3. People use large quantities of antibiotics in order to
- a. prevent human illnesses.
 - c. prevent the spread of disease.
 - b. treat contaminated meat.
 - d. treat human illnesses.

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

4. The prefix *anti-* means “against” or “opposing.” *Biotic* means “way of life.” Use this information and information from the passage to define *antibiotic*.

5. *Patho-* refers to disease. The suffix *-gen* means “producer.” What is a *pathogen*?

In the space provided, write the letter of the term that best completes the statement.

- _____ 6. Food that contains bacteria such as *Salmonella* and *E. coli* is
- | | |
|-----------------|------------------|
| a. resistant. | c. contaminated. |
| b. undercooked. | d. antibiotic. |

RECOGNIZING CAUSE AND EFFECT

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

In the space provided, write the letter of the phrase that best completes the statement.

- _____ 7. Tuberculosis (TB) has spread in recent years because
- more people are exposed to TB than were exposed in the past.
 - antibiotics are unavailable in many parts of the world.
 - no cure has yet been found for TB.
 - the bacterium that causes TB has become resistant to antibiotics.

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

8. How are people in the U.S. exposed to such bacteria as *Salmonella* and *E. coli*?

9. Give two reasons why pathogens have evolved resistance to antibiotics in recent years.

Skills Worksheet

Active Reading**Section: Economics and International Cooperation**

Read the passage below and answer the questions that follow.

Businesses and private organizations also play roles in addressing environmental problems. Businesses may donate land for parks or preserves, or donate money to environmental causes. Many businesses have found that recycling their wastes can save costs and improve their public image.

Private organizations often cooperate with each other and with governments. Such cooperation may include conducting research or creating plans for environmental management.

The Nature Conservancy is a nonprofit organization that uses a simple economic strategy to preserve ecosystems. This organization collects donations of money and land. If the donated land is not targeted for preservation, the organization trades or sells the land. Large preserves are put together by a combination of donations, exchanges, and purchases of land. The organization has created preserves in all 50 states and in 28 other countries.

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 the main idea.

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

- _____ 1. What is the Nature Conservancy?
- a. a business that recycles its waste
 - b. a nonprofit organization that preserves ecosystems
 - c. a government organization that oversees preserves
 - d. a private company that targets land for preservation
- _____ 2. The Nature Conservancy forms large preserves by
- a. combining donations, exchanges, and purchases of land.
 - b. working with the government to target land for preservation.
 - c. persuading businesses to donate land for parks.
 - d. conducting research to determine what land is suitable for preservation.

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

3. What does the Nature Conservancy do with donated land that is not targeted for preservation?

Active Reading *continued*

VOCABULARY DEVELOPMENT

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

- _____ 4. A private organization working with a government to create a plan for environmental management is an example of
- | | |
|----------------------|----------------|
| a. preservation | c. cooperation |
| b. economic strategy | d. exchange |

In the space provided, write the letter of the description that best matches the term or phrase.

- | | |
|-----------------------------------|--|
| _____ 5. preserve | a. a plan for taking care of the environment |
| _____ 6. recycling | b. reuse of waste material |
| _____ 7. environmental management | c. land whose ecosystems are protected |

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.

8. Businesses and private organizations both play roles in addressing environmental problems. How are their roles different?

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.

9. How do businesses benefit from recycling waste?

10. How do private organizations cooperate with each other and with governments?

Skills Worksheet

Active Reading**Section: Environmental Policies in the United States**

Read the passage below and answer the questions that follow.

Throughout the 1900s, U.S. citizens became more aware of environmental problems. Widespread crop disasters in the 1930s showed the country that poor farming practices were causing soil erosion and poverty. Policies to encourage soil conservation were adopted. People objected to living near smelly garbage dumps, so research on better methods of waste disposal began. The public began to complain about pollution. The first Earth Day, celebrated around the world in 1970, was a sign of widespread environmental awareness. In the same year, the U.S. Environmental Protection Agency (EPA) was created.

U.S. lawmakers have created many policies and federal agencies to manage environmental affairs. For example, the EPA enforces the Clean Air Act and the Clean Water Act. These acts set standards for acceptable levels of pollutants in air and water. The EPA uses regulations and economic incentives to encourage individuals and businesses to meet these standards.

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 the main idea.

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

- _____ 1. Throughout the 1900s, U.S. citizens
- a. complained about pollution.
 - b. celebrated Earth Day.
 - c. experienced widespread crop disasters.
 - d. became more aware of environmental problems.
- _____ 2. What did the celebration of the first Earth Day signify?
- a. the need for cleaner air and water
 - b. widespread interest in environmental issues
 - c. a movement toward government regulation of pollutants
 - d. the government's concern with the environment
- _____ 3. What is the purpose of the Clean Air Act and the Clean Water Act?
- a. to create better methods of waste disposal
 - b. to establish the Environmental Protection Agency
 - c. to set standards for acceptable levels of pollutants in air and water
 - d. to raise public awareness about environmental problems

Active Reading *continued*

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 events below to show the order in which they occurred. Write "1" on the line in front of the first step, "2" on the line in front of the second step, and so on.

- _____ 4. the adoption of policies to encourage soil conservation
- _____ 5. the creation of the Environmental Protection Agency
- _____ 6. widespread public complaint about pollution
- _____ 7. widespread crop disasters in the United States
- _____ 8. the enforcement of the Clean Air Act and the Clean Water Act

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

9. What two significant events relating to the environment occurred in 1970?

RECOGNIZING CAUSE AND EFFECT

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

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

- _____ 10. Research on better methods of waste disposal was prompted by
 - a. public complaints about the smell of garbage dumps.
 - b. recommendations from the Environmental Protection Agency.
 - c. policies created by U.S. lawmakers.
 - d. the passage of the Clean Air Act and the Clean Water Act.

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

11. How have U.S. lawmakers attempted to manage environmental affairs?

12. How does the Environmental Protection Agency enforce the Clean Air Act and the Clean Water Act?

Skills Worksheet

Active Reading**Section: The Importance of the Individual**

Read the passage below and answer the questions that follow.

One of the most important decisions you may make is in the act of voting. The people we elect will make decisions that affect our environmental future. You have the right to support the candidates and laws that you think are best in both local and national elections. You can easily find out what a candidate thinks about environmental issues before an election. You can find information about candidates through the media, voter organizations, and Web sites.

One way to take action on environmental problems is as part of a group of people who share your concerns and interests. You can find many groups in your community asking for volunteers for activities such as planting trees, picking up trash, or maintaining trails. Many large nonprofit organizations hold meetings, educational activities, and trips to natural areas all over the country.

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 the main idea.

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

1. Where can voters find information about candidates who are running for office?

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

- _____ 2. One way for people to take action on environmental problems is to join groups that
- | | |
|-----------------------|--|
| a. organize meetings. | c. ask for volunteers. |
| b. are nonprofit. | d. share their concerns and interests. |
- _____ 3. What can individuals do to help influence what the environment will be like in the future?
- | |
|--|
| a. visit Web sites to learn about environmental issues |
| b. travel to natural areas throughout the country |
| c. vote in local and national elections |
| d. none of the above |

Active Reading *continued***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 each question and write the answer in the space provided.

4. Both community groups and large nonprofit organizations take action on environmental issues. Explain how the activities of the smaller local groups are different from those of the larger organization.

5. What do community groups and large environmental organizations have in common?

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.

In the space provided, write the letter of the phrase that best answers the question.

6. What action should individuals take *before* an election if they are concerned about environmental issues?
- a. volunteer in the community
 - b. learn what candidates think about environmental issues
 - c. attend a meeting sponsored by a large nonprofit organization
 - d. vote for candidates who support environmental issues

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.

7. In what ways do elected officials affect the environment of the future?

8. How do many nonprofit organizations help to raise public awareness about environmental issues?
