

Environmental Science- Class work and Active Reading Workbook Assignments

***Write your name on the Active reading workbook and complete the work inside the workbook on the assigned pages. All workbook assignments can be completed in the workbook and returned for credit.**

Week 1- Completing Unit 4 that we were already working on in class.

1. **Types of Species Chart-** Complete the chart by finding the definition and examples of each type of species. This can be done by looking the information up online.
2. **Environmental Science-Active Reading Workbook Assignments. All workbook assignments can be completed in the workbook and returned for credit.**
 - Page 39-40 Read and answer questions
 - Page 41-42 Read and answer questions
 - Page 43-44 Read and answer questions
 - Page 45-46 Read and answer questions

Week 2- Start of Unit 5- Land, Water, and Air

1. **Air Pollution Notes Sheet-** Complete the notes with the Air Pollution PowerPoint. These can both be found on Google Classroom.
2. **Environmental Science-Active Reading Workbook Assignments. All workbook assignments can be completed in the workbook and returned for credit.**
 - Page 59-60 Read and answer questions
 - Page 63-64 Read and answer questions
 - Page 65-66 Read and answer questions
 - Page 67-68 Read and answer questions
 - Page 69-70 Read and answer questions
 - Page 71-72 Read and answer questions
 - Page 75-76 Read and answer questions
 - Page 77-78 Read and answer questions
 - Page 79-80 Read and answer questions
 - Page 81-82 Read and answer questions

***If you have any questions concerning the work, contact me at fking@dcboe.com.**

TYPE OF SPECIES	DEFINITION	EXAMPLES
Keystone		
Invasive		
Native		
Endemic		
Indicator		
Endangered		
Extinct		

AIR POLLUTION NOTES

Air Pollution- any visible or invisible _____ or _____ found in the _____ that is not part of the original, normal composition.

- Natural –
- Unnatural-

Air Pollutants- substances in the atmosphere that have _____ effects.

- **Primary Pollutants-** emitted _____ into the air.
 - EX. _____
- **Secondary Pollutants-** produced when _____ pollutants undergo further reactions in the atmosphere.
 - EX. _____

Air Quality Index- indicated whether _____ in air may cause _____ concerns

- Measures particulate matter (PM) and ozone.
 - Ranges from 0 _____ to 500 _____.

Air Quality Index - Particulate Matter	
301 - 500	Hazardous
201 - 300	Very Unhealthy
151 - 200	Unhealthy
101 - 150	Unhealthy for Sensitive Groups
51 - 100	Moderate

5 Major Pollutants Measured by EPA

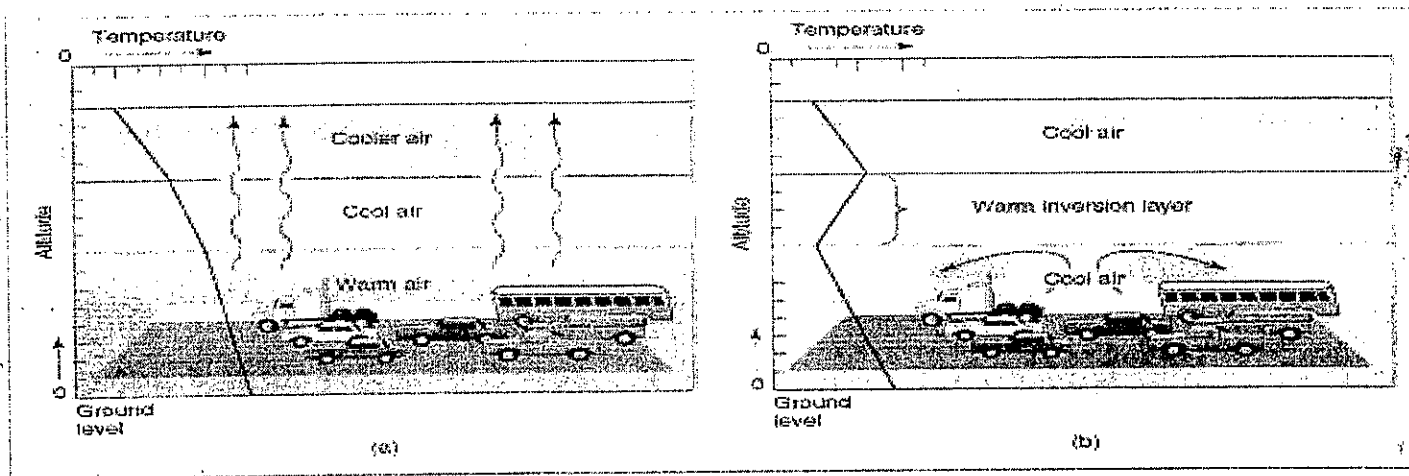
POLLUTANT	PRODUCTION	SOURCE	HEALTH EFFECTS
CARBON MONOXIDE			
SULFUR DIOXIDE			
NITROGEN DIOXIDE			
PARTICULATE MATTER			
GROUND LEVEL OZONE			

AIR POLLUTION NOTES

SMOG- secondary air pollutant

- _____ - combination of PM, Sulfur cmpds, and water vapor that form during _____, _____ weather
- _____ - forms with _____ and _____ react with other gases. Occurs often with _____ traffic, _____ temp., and _____ winds.

TEMPERATURE INVERSIONS- _____ air layer occurs above _____ layer causing pollutants to become trapped.



EFFECTS-

- Limits _____
- _____ UV radiation
- Yellow/black color over cities
- Causes _____ problems and bronchial related deaths

Other problems related to air pollution.....

AIR POLLUTION REGULATIONS-

Clean Air Act- regulates _____

Kyoto Protocol- regulates _____

Montreal Protocol – banned _____

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.

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

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.

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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

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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

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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.

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

- _____ 1. What was the worldwide average life expectancy in 2000?
- | | |
|-----------------|----------------------|
| a. about 40 | c. almost 80 |
| b. more than 67 | d. none of the above |
- _____ 2. What was the worldwide life expectancy in 1900?
- | | |
|-----------------|---------------------------------|
| a. about 40 | c. almost 80 |
| b. more than 67 | d. It was not measured in 1900. |
- _____ 3. What is the life expectancy for people in many developed countries today?
- | | |
|--------------------|--------------------|
| a. almost 70 years | c. almost 95 years |
| b. almost 80 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

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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

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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?

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

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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: Acid Precipitation**

Read the passage below and answer the questions that follow.

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

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

IDENTIFYING MAIN IDEAS

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

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

VOCABULARY DEVELOPMENT

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

4. What three forms can acid precipitation take?
- _____

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

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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?

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

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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

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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

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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?

Skills Worksheet

Active Reading**Section: Global Warming**

Read the passage below and answer the questions that follow.

Many scientists think that the increasing greenhouse gases in our atmosphere result in increasing the average temperature on Earth. The result, they believe, will be a warmer Earth. This predicted increase in global temperature is known as **global warming**. Earth's average global temperature increased during the 20th century. Many scientists project that the warming trend that began in the 20th century will continue throughout the 21st century. However, not all scientists agree that the observed global warming is due to greenhouse gases. Some scientists believe that the warming is part of natural climatic variability. They point out that widespread fluctuations in temperature have occurred throughout geologic time.

IDENTIFYING MAIN IDEAS

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

- _____ 1. Earth's average temperature _____ during the 20th century.
- | | |
|--------------|--------------------|
| a. increased | c. stayed the same |
| b. decreased | d. fluctuated |
- _____ 2. Scientists predict that the Earth's average temperature will _____ throughout the 21st century.
- | | |
|-------------------------|---------------------------|
| a. stabilize | c. begin to decrease |
| b. continue to increase | d. fluctuate more sharply |
- _____ 3. Many scientists blame the presence of _____ in the atmosphere for Earth's increased average temperature.
- | | |
|-----------|---------------------|
| a. CFCs | c. ozone |
| b. oxygen | d. greenhouse gases |

VOCABULARY DEVELOPMENT

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

4. The predicted increase in Earth's average temperature is known as _____
- _____

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

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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.

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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

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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 |

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.

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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.
 - b. water used for crops.
 - c. fertilizer used to increase crop yields.
 - 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

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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?
