

Chapter Resources

Resources

Includes:

Reproducible Student Pages

ASSESSMENT

- ✓ Chapter Tests
- ✓ Chapter Review

HANDS-ON ACTIVITIES

- ✓ Lab Worksheets for each Student Edition Activity
- ✓ Laboratory Activities
- ✓ Foldables—Reading and Study Skills activity sheet

MEETING INDIVIDUAL NEEDS

- ✓ Directed Reading for Content Mastery
- ✓ Directed Reading for Content Mastery in Spanish
- ✓ Reinforcement
- ✓ Enrichment
- ✓ Note-taking Worksheets

TRANSPARENCY ACTIVITIES

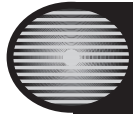
- ✓ Section Focus Transparency Activities
- ✓ Teaching Transparency Activity
- ✓ Assessment Transparency Activity

Teacher Support and Planning

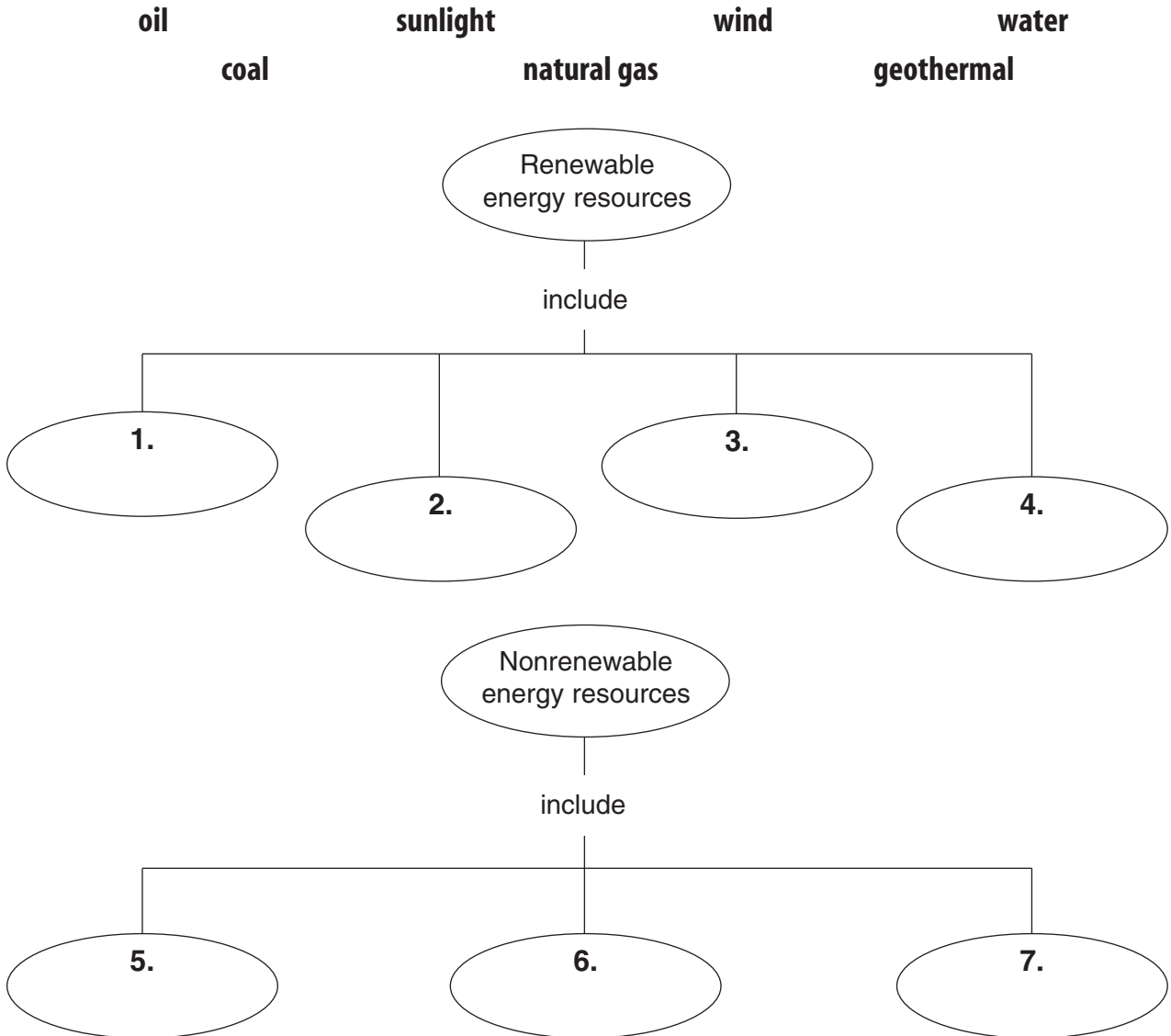
- ✓ Content Outline for Teaching
- ✓ Spanish Resources
- ✓ Teacher Guide and Answers



Glencoe

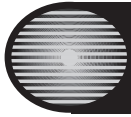


Directions: Use the following terms to complete the concept map below.



Directions: For the following questions, write **T** for true or **F** for false.

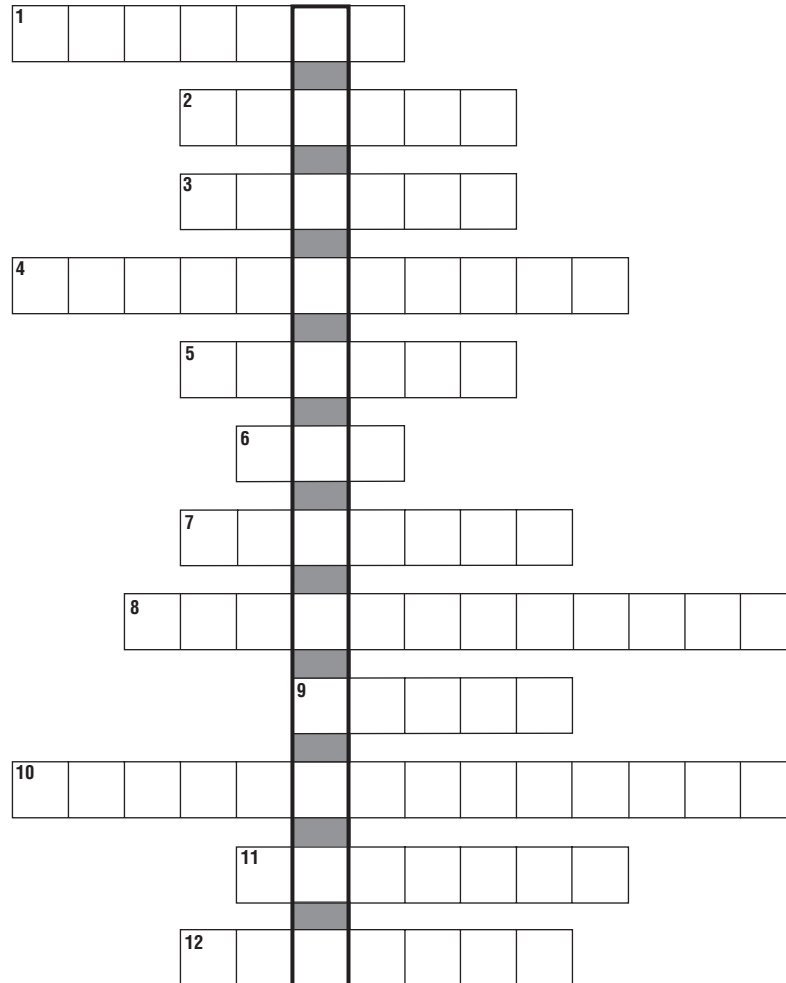
- _____ 8. Water pollution that comes from a large area, rather than a single source, is called point source pollution.
- _____ 9. Useable water is freshwater, which can be groundwater or surface water.
- _____ 10. Land is considered a renewable resource because it can be reused over time, but land still must be used wisely.



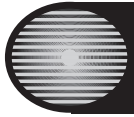
Directed Reading for
Content Mastery

Section 3 ■ Water
Section 4 ■ Land

Directions: Use the missing words from the sentences below to complete the puzzle. The verticle boxed letters will complete sentence 13.



1. ____ water is found in lakes, streams, and rivers.
2. ____ water collects in small spaces between bits of soil and rock.
3. ____ is the process of removing ores from Earth's crust.
4. Pollution that can be traced to a specific point of origin is ____ pollution.
5. The largest amount of water on Earth is salt water, in the ____.
6. A mineral resource that can be mined at a profit is a(n) ____.
7. About ____ percent of Earth is covered by water.
8. The removal of all the trees in one area is called ____.
9. Even though ____ are considered renewable, forests are not.
10. ____ pollution comes from many different sources.
11. One benefit from ____ is that they absorb carbon dioxide and produce oxygen.
12. Metal objects come from ____ resources.
13. ____ is the careful use of resources with the goal of reducing damage to the environment.



Directed Reading for
Content Mastery

Key Terms Resources

Directions: Write the correct term next to its description below.

hydroelectric	pollution	nonrenewable	geothermal	ore
groundwater	solar	point source	nuclear	
conservation	fossil fuels	renewable	acid rain	nonpoint source

- _____ 1. resources that cannot be replaced within 100 years
- _____ 2. water that collects between bits of rock and soil
- _____ 3. energy resources formed from decaying remains of ancient plants and animals
- _____ 4. energy from the Sun
- _____ 5. energy produced by splitting atomic nuclei
- _____ 6. heat energy from Earth
- _____ 7. introduction of harmful substances into the environment
- _____ 8. electricity produced using water
- _____ 9. a single, identifiable source of pollution
- _____ 10. produced when gases from burning coal and oil mix with water vapor that then condenses
- _____ 11. type of resource that wind is
- _____ 12. pollution from many different sources
- _____ 13. a profitable mineral resource
- _____ 14. the careful use of resources

SECTION
1

Reinforcement

Energy Resources

Directions: Choose from the following terms. Complete the sentences below. Some of the terms will not be used.

acid rain

electrical

energy

fossil fuels

lignite

nonrenewable

oceans

pollution

nuclear

swamps

- Resources that cannot be replaced by natural processes in less than 100 years are _____.
- When gases released by burning coal and oil mix with water in the form of precipitation, _____ forms.
- The coal we use today formed in _____ millions of years ago.
- Energy resources formed from the decaying remains of ancient plants and animals are called _____.
- The main sources of energy for homes and factories in the United States are _____ power plants.
- _____ is a type of soft, brown coal.
- _____ can change the temperature, speed, or direction of an object.
- The introduction of harmful chemicals, waste products, and other substances into our environment is called _____.

Directions: Answer the following questions on the lines provided.

- Name three types of fossil fuels.

- Once oil and natural gas have formed, in which direction do they move through the surrounding rock and pore water? Why?

- What might form a barrier to trap oil and natural gas?

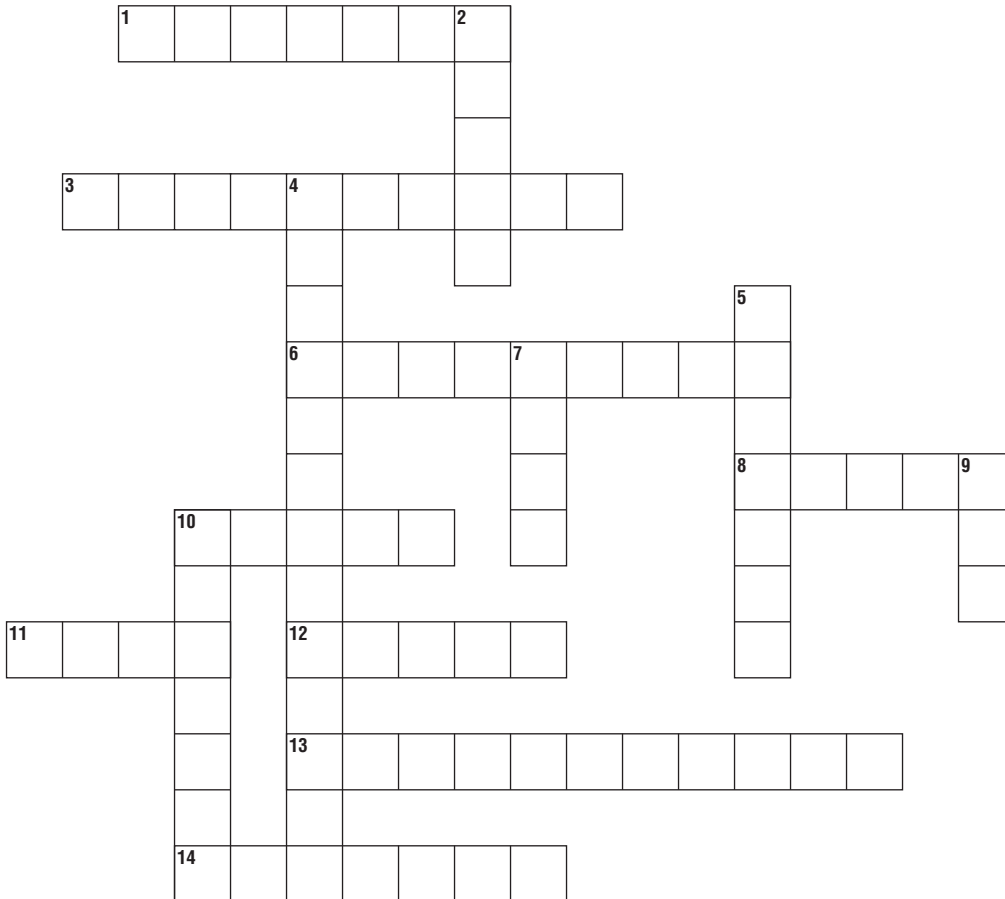
- When engineers drill into Earth and find a supply of both oil and natural gas, do they usually find the oil above the natural gas, the natural gas above the oil, or the two mixed together? Why?

SECTION 2

Reinforcement

Alternative Energy Resources

Directions: Use the clues to complete the puzzle.



Across

1. Ore commonly used in nuclear power plants
3. Heat energy from Earth
6. Energy resources that can be recycled or replaced by natural processes in less than 100 years
8. Solar _____ that power solar calculators
10. Energy from the Sun
11. _____ rods, housed within a nuclear reactor
12. Reaction that occurs when uranium atoms are split
13. State of nuclear waste for more than 10,000 years
14. Energy generated from splitting atoms

Down

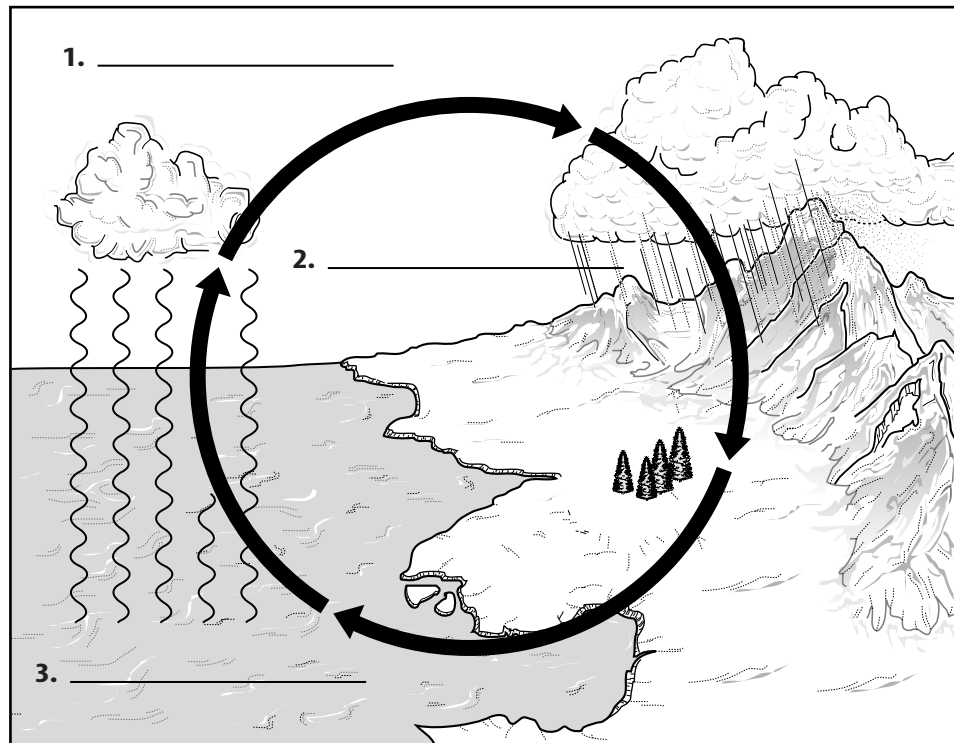
2. Hot molten rock deep in Earth's crust
4. Production of electricity by water
5. Nuclear _____, a large chamber where fuel rods are located
7. Farm that has many windmills
9. Source of solar power
10. Hard, dark-colored element used in solar cells

SECTION
3

Reinforcement

Water

Directions: Label each process shown in the illustration.



4. The illustration represents the _____.

Directions: Match the percentage with its description by writing the correct letter in the space provided.

_____ 5. 97 percent

a. amount of Earth's total water supply that is salt water

_____ 6. 1 percent or less

b. amount of Earth covered by water

_____ 7. 70 percent

c. amount of Earth's water that is available for human use

Directions: Complete the following sentences using the correct terms.

8. Water that collects between bits of soil and rock under Earth's surface is _____.

9. Water that can be seen in rivers, lakes, and streams is _____.

10. Pollution from a single, identifiable source is called _____ pollution.

11. The _____ is a set of government standards for safe drinking water.

SECTION
4

Reinforcement

Land

Directions: Match the descriptions in Column I with the terms in Column II. Write the letter of the correct term in the blank at the left.

Column I

- _____ 1. the careful use of resources with the goal of reducing damage to the environment
- _____ 2. method of forest conservation in which a limited number of trees are cut down and new trees planted in their place
- _____ 3. the place where an organism lives
- _____ 4. a mineral resource in quantity enough that it can be mined at a profit
- _____ 5. method of forest harvesting in which all the trees in a specific area are cut down
- _____ 6. a type of resource found in rocks
- _____ 7. a rise in temperatures around the world

Column II

- a. habitat
- b. global warming
- c. mineral
- d. conservation
- e. ore
- f. select cutting
- g. clear-cutting

Directions: Answer the following questions on the lines provided.

8. Name two resources that the land provides for humans.

9. Besides providing valuable resources, what are some other important uses for land?

10. How do forests help keep Earth's atmosphere in balance?

SECTION
1

Enrichment

The Greenhouse Effect and Global Warming

Have you ever opened the door to a car that had been sitting in the hot sun all day? If so, you probably noticed that the air inside was stifling hot and the interior surfaces were very hot. The radiant heat of sunlight passed through the windows and was trapped inside the car. This process is similar to the greenhouse effect experienced on Earth.

In Earth's atmosphere, trace gases, such as carbon dioxide, methane, and nitrous oxide, allow solar radiation to reach the surface. These gases then trap, absorb, and reradiate some of the Sun's heat. This produces a low level atmospheric warming known as the greenhouse effect.

Increased Warming

This warming is a natural effect, without which the surface of Earth would be frozen. In recent years, however, there has been an increase in the amounts of greenhouse gases being produced. This is due, primarily, to an increase in the burning of fossil fuels.

Scientists are concerned that these additional trace gases in Earth's atmosphere will enhance the greenhouse effect. This could lead to an average global temperature increase of from one to four degrees.

Far-reaching Effects

Increased warming could affect water availability and alter the climate. A higher evaporation rate could lead to increased rainfall in some areas, flooding, and a possible rise in sea level. In other areas, changing precipitation patterns could cause a decrease in rainfall, possibly resulting in droughts. Increased levels of water vapor in the air could add to the warming effect, as water vapor is a powerful greenhouse gas. Some surface and glacial ice at the poles could also melt, raising the height of the oceans. All these changes could have a substantial impact on agriculture, wildlife, and humans.

1. The absorption of energy from the Sun by greenhouse gases is necessary for life on Earth. Without it, the average yearly temperature of Earth's surface would be about -25°C ! So, why are scientists concerned about greenhouse gases?

2. Unlike many pollutants that affect small regions, global warming affects people worldwide. How do you think the world should approach this problem?

SECTION

2

Enrichment

Tidal Power

Tidal power is a source of energy that could play an important role in generating electric power during the coming years. Tides are the rhythmic rise and fall of the ocean's surface caused by the gravitational pull on the water by the Moon and, to a lesser extent, the Sun. This back and forth flow of ocean water can provide a source of energy that does not pollute and will never run out.

Tidal energy can be used in coastal regions wherever the tidal range is at least 5 m, as well as having a suitable tidal basin. During high tide the tidal basin fills with water. During low tide, the level of the ocean drops below the level of the water stored behind the dam. The stored water is then released. As the water falls, it drives turbines that generate electricity.

Worldwide Use

The first and largest tidal power plant in the world began to operate in France in 1966.

1. List some advantages to using tidal power.

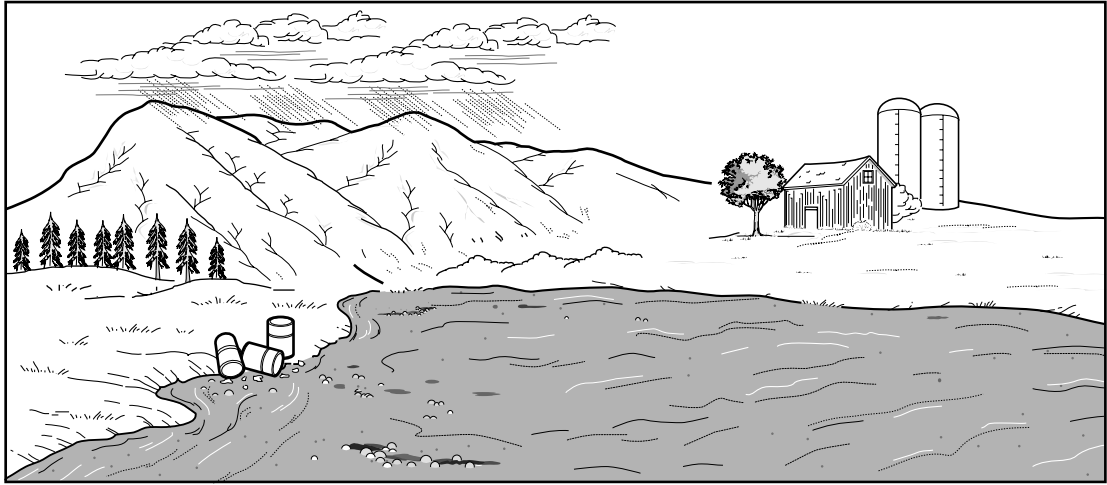
2. What possible disadvantages to using tidal power can you think of in addition to those mentioned above?

Located on the northern coast of France, the Rance Power Plant generates about 320 megawatts of electricity, or approximately one-third the output of a typical hydroelectric plant. A dam equipped with reversible turbines permits the tidal flow to work in both directions—from the sea to the tidal basin on the incoming tide and from the basin to the sea on the outgoing tide. Russia, Canada, and China also have tidal power plants.

Some disadvantages to tidal power plants include their expense to build and maintain. Also, tidal power plants are not always able to provide energy when it is needed. The amount of energy generated varies according to time of day and with the seasons. This makes it difficult to produce enough electricity to offset maintenance and construction costs.

SECTION
3
Enrichment

The Effect of Pollution on the Life Cycle of a Lake



Lakes and ponds go through definite life cycles. When a lake first forms, it contains pure freshwater and little life. Plants and animals begin to live in the lake as it grows older. The organic matter from the plants and animals provides nutrients for other life to grow. A healthy lake has a balance of nutrients and organisms.

Throughout its life cycle, a lake naturally becomes smaller as sediments and decayed plants fill its bottom. Plants grow in from the edges, eventually filling the lake. After a length of time the lake disappears.

The process can take a few decades to several thousand years.

However, this process is greatly accelerated by runoff containing sewage, industrial waste, and fertilizers feeding into a lake. The lake becomes clogged by plants and algae that use the nutrients in these pollutants. When the plants and algae die, bacteria in the lake use oxygen to break them down. As more plants grow, more die, resulting in more bacteria and less oxygen in the water. Fish and other organisms eventually die from this lack of oxygen. The lake can die due to the effect of the pollution.

1. How are lakes affected by pollution?

2. If lakes are going to disappear when their life cycle is complete anyway, why is pollution such a problem?

SECTION
4

Enrichment

Saving the Wetlands

A wetland is an area that is covered with shallow water or that has wet soils. Wetlands include swamps, marshes, fens, and bogs. Wetlands are home to a variety of plant and animal life and exist throughout the world.

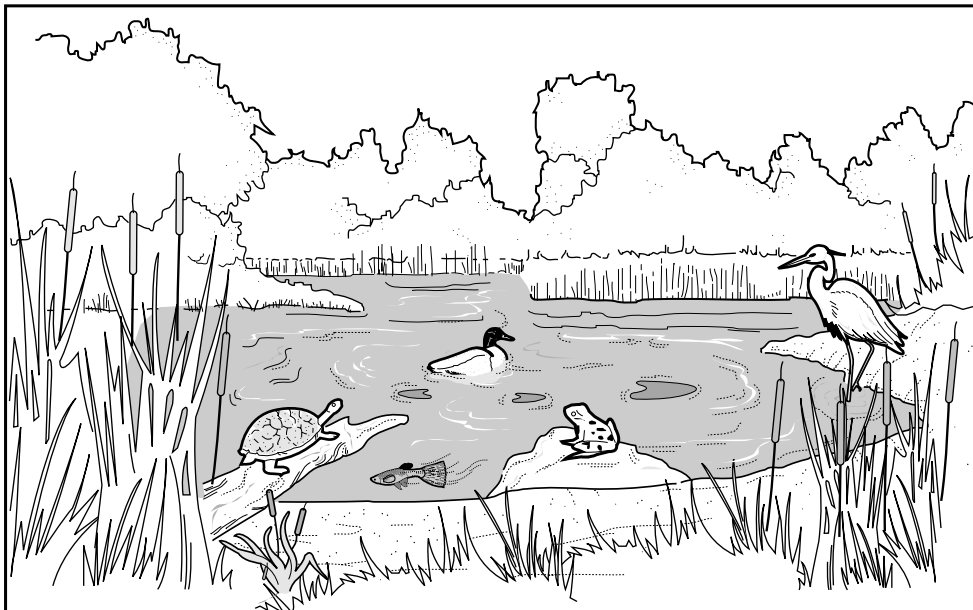
For many years, people thought that wetlands were useless. For this reason, more than 35 percent of the wetlands in the United States had been drained and destroyed by the 1970s. Wetlands were drained or filled in to make way for houses, shopping malls, and other developments. However, since the early 1970s, there has been an increasing awareness of the ecological value of wetlands.

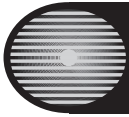
Wetlands help to minimize flooding because they absorb excess water and release it slowly, making flooding less likely. In addition, wetlands store and clean large amounts of water.

Wetlands also provide rich environments for wildlife. Mammals such as moose, muskrats, and mink find food and shelter in the wetlands. Numerous varieties of birds make their homes there as well. Coastal wetlands are the breeding grounds for many species of fish and crustaceans. Many states have enacted laws to protect wetlands.

1. What are two functions of wetlands?

2. How do you think our environment might be different today if so many wetlands had not been destroyed in the past?





Note-taking Worksheet

Resources

Section 1 Energy Resources

- A. _____—energy resources formed from ancient decayed organisms
1. _____—formed in swampy regions from decayed plants and sediment
 - a. Pressure and _____ caused chemical reactions
 - b. Peat to _____
 - c. Lignite to _____ coal
 2. Oil and _____—formed in oceans from decayed algae, plankton, and sediment
 - a. _____ and heat caused chemical reactions.
 - b. Move upward—less _____ than surrounding rock
- B. _____—caused by burning fossil fuels
1. _____—gases released by burning coal or oil mix with water in the air
 - a. Pollutes _____—harms plants and trees
 - b. Pollutes _____—harms aquatic life
- C. _____ fossil fuels—used up faster than nature can replace them
1. World's energy needs provided by coal: ____ percent; oil and natural gas: ____ percent
 - a. Coal—could last _____ years
 - b. Oil—could last _____ years
 - c. Natural gas—could last _____ years
 2. Conserving _____—one way to reduce the use of fossil fuels and reduce pollution

Section 2 Alternative Energy Resources

- A. _____ resources—energy that can be recycled or replaced
- B. _____—energy from the Sun
1. _____—change light into electricity
 2. Disadvantages:
 - a. Available only when the Sun is _____
 - b. No _____ to harness all the Sun's energy

Note-taking Worksheet (continued)

C. Wind energy—_____ generate electricity worldwide

1. _____—many windmills in one area
2. Disadvantages:
 - a. Not _____
 - b. Only a few regions with _____ enough winds

D. _____—uses moving water

1. Sources of moving water
 - a. Natural _____
 - b. Concrete _____
2. Disadvantages:
 - a. Increased _____ downstream
 - b. _____ habitats disturbed
 - c. Some places not near _____

E. _____—uses magma and hot rocks beneath Earth's surface

1. When magma close to Earth's surface—_____ erupts
2. Disadvantages:
 - a. Can be harmful to _____
 - b. Few places have _____ near Earth's surface
 - c. Places with no magma near the surface need deep _____.

F. _____—produced by splitting nuclei of certain elements

1. _____—the process of splitting nuclei of certain elements
2. Most common element used in nuclear power plants—_____
3. Disadvantages:
 - a. Produces _____ nuclear waste
 - b. Possible problems in _____ nuclear waste

Note-taking Worksheet (continued)**Section 3 Water**

A. _____—vital to life on Earth

1. ____ percent of Earth covered by water
2. Less than ____ percent available for human use

B. Two major sources of public water supply

1. _____—water found under Earth's surface
2. _____—water from streams, rivers, ponds, lakes, and reservoirs

C. Water _____—harmful debris, chemicals, or biological materials added to water

1. _____—pollution from a single, identifiable source
2. _____—pollution from industries, homes, farms that cannot be traced to a source

D. Laws to _____ water pollution

1. _____—ensures safe drinking water
2. _____—gives states money to build water treatment plants

Section 4 Land

A. Land—_____ resource

1. Amount of usable land is _____.
2. People must use land _____.
 - a. Preserve _____
 - b. Reduce soil _____

B. _____—land resource—trees

1. Important product—_____
2. _____—careful use of resources to reduce environmental damage
 - a. _____—Limited number of trees in one area are cut down and replaced.
 - b. _____—All trees in one area are cut down and replaced.

Note-taking Worksheet (continued)

3. Tree—_____ resource—can plant a new tree
 4. Forest—_____ resource-complex ecosystem
- C. _____—land resource found in rocks
1. _____—mineral mined at a profit
 - a. Found _____ Earth's surface
 - b. _____—such as iron
 2. _____—process used to reach ore
 - a. Moves large quantities of soil and rock
 - b. Affects the _____