

HOLT

Environmental Science

Study Guide



HOLT, RINEHART AND WINSTON

A Harcourt Education Company

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TO THE STUDENT

This Study Guide contains Concept Review worksheets, which can be used in several ways to guide you through your textbook. The worksheets can be used as a pre-reading guide to each chapter to help you identify the main concepts of each chapter before your initial reading. You can also use the worksheets after reading each chapter to test your understanding of the chapter's main concepts and terminology. Finally, you can use the worksheets to prepare for your environmental science exams. Regardless of how you and your teacher use the *Holt Environmental Science Study Guide*, it will help you determine which topics you have learned well and which topics you need to study further.

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ISBN-13: 978-0-03-093112-3

ISBN-10: 0-03-093112-6

1 2 3 4 5 6 7 862 09 08 07 06

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Skills Worksheet

Concept Review**MATCHING**

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

- | | |
|--|--|
| _____ 1. practice of growing, breeding, and caring for plants and animals used for a variety of purposes | a. loss of biodiversity |
| _____ 2. study of how living things interact with each other and with their nonliving environments | b. supply and demand |
| _____ 3. conflict between short-term interests of individuals and long-term welfare of society | c. “The Tragedy of the Commons” |
| _____ 4. declining number and variety of the species in an area | d. agriculture |
| _____ 5. study of how humans interact with the environment | e. developed nation |
| _____ 6. law describing the relationship between an item’s availability and its value. | f. environmental science |
| _____ 7. characterized by low population growth rate, high life expectancy, and diverse industrial economies | g. ecology |
| _____ 8. characterized by high population growth rate, low energy use, and very low personal wealth | h. developing nation |
| _____ 9. state in which a human population can survive indefinitely | i. renewable resource |
| _____ 10. natural material that can be replaced relatively quickly through natural processes | j. sustainability |

MULTIPLE CHOICE

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

- _____ 11. Which of the following sciences contribute to the field of environmental science?
- | | |
|-------------------------------------|----------------------------|
| a. physics and chemistry | c. social sciences |
| b. biology and earth science | d. all of the above |

Concept Review *continued*

- _____ 12. All of the following make up the three major categories of environmental problems *except*
- a. loss of biodiversity.
 - b. overpopulation.
 - c. resource depletion.
 - d. pollution.
- _____ 13. During the period of human history known as the _____, human populations grew rapidly because of advances in farming methods.
- a. Industrial Revolution
 - b. agricultural revolution
 - c. "Tragedy of the Commons"
 - d. hunter-gatherer period
- _____ 14. Which major changes in human society and the environment occurred during the Industrial Revolution?
- a. People lived in small tribes; many mammals went extinct.
 - b. Domesticated plants were altered; forest was replaced with farmland.
 - c. Fossil fuel consumption, technological efficiency, and environmental pollution increased.
 - d. Common grazing areas were replaced with closed fields.
- _____ 15. What did hunter-gatherers do to alter the environment?
- a. introduce plants to new regions
 - b. overhunt large mammals
 - c. burn prairie to maintain grassland
 - d. all of the above
- _____ 16. Developed nations make up about _____ percent of the world's population and consume about _____ percent of its resources.
- a. 20, 75
 - b. 50, 75
 - c. 75, 20
 - d. 75, 50
- _____ 17. Hardin's "Tragedy of the Commons" essay addressed the conflicts associated with which environmental challenge?
- a. preventing pollution
 - b. preserving biodiversity
 - c. curbing overpopulation
 - d. protecting shared resources
- _____ 18. The ecological footprint for a person in a particular country takes into account what requirements of supporting that individual?
- a. land used for crops
 - b. land taken up by housing
 - c. forest area that absorbs pollution
 - d. all of the above
- _____ 19. Attempts to create a sustainable society strive to achieve what?
- a. greater resource consumption
 - b. stable resource consumption
 - c. negative population growth
 - d. restrictions on technology
- _____ 20. A cost-benefit analysis balances the cost of an action against
- a. those who benefit from the action.
 - b. those who perform the analysis.
 - c. what consumers and taxpayers are willing to pay.
 - d. the benefits one expects to receive.

Skills Worksheet

Concept Review**MATCHING**

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

- | | |
|---------------------------|---|
| _____ 1. control group | a. a logical statement about what will happen in an experiment |
| _____ 2. prediction | b. a verbal or graphical explanation for how a system works or how it is organized |
| _____ 3. physical model | c. in an experiment, that which does not receive the experimental treatment |
| _____ 4. risk | d. a three-dimensional model you can touch |
| _____ 5. conceptual model | e. principles or standards considered to be important |
| _____ 6. value | f. the probability of an unwanted outcome |
| _____ 7. experiment | g. information gathered during an experiment |
| _____ 8. statistics | h. procedure designed to test a hypothesis |
| _____ 9. data | i. collection and classification of data |

MULTIPLE CHOICE

Choose the best response. Write the letter of that choice in the space provided.

- _____ 10. When it is not possible to conduct an experiment, scientists test their predictions by
- | | |
|-----------------------------------|-------------------------------------|
| a. examining correlations. | c. testing for one variable. |
| b. using a control. | d. remaining skeptical. |
- _____ 11. An essential feature of every good experiment is that it should
- | | |
|-----------------------------------|----------------------------|
| a. use a control. | c. graph data. |
| b. test a single variable. | d. Both (a) and (b) |
- _____ 12. The experimental method includes which of the following steps?
- | |
|---|
| a. remaining skeptical, organizing data, and analyzing data |
| b. drawing conclusions, being open to new ideas, and communicating results |
| c. observing, hypothesizing, predicting, experimenting, and communicating results |
| d. being curious, imagining, being able to see patterns, observing, and predicting |
- _____ 13. What is not a description of a good hypothesis?
- | |
|--|
| a. It makes logical sense. |
| b. It is a testable explanation of an observation. |
| c. It follows from what you already know about a situation. |
| d. It is a guess based on previous experiments. |

Concept Review *continued*

- _____ **14.** One of the key habits of mind of scientists is _____ , which allows scientists to expand the boundaries of what we know.
- a.** intellectual honesty
 - b.** imagination
 - c.** replication
 - d.** correlation
- _____ **15.** A road map is an example of a
- a.** graphical model.
 - b.** mathematical model.
 - c.** conceptual model.
 - d.** physical model.
- _____ **16.** Statistics are not used by scientists to
- a.** compare data.
 - b.** analyze data.
 - c.** gather data.
 - d.** All of the above
- _____ **17.** In a scientific investigation, the size of the sample population should be large enough to
- a.** reflect the probability of an unwanted outcome.
 - b.** give an accurate estimate of the whole population.
 - c.** closely resemble the system they represent.
 - d.** All of the above
- _____ **18.** If you consider what will add to our understanding of the natural world in making an environmental decision, you are examining a(n) _____ value.
- a.** ethical/moral
 - b.** aesthetic
 - c.** environmental
 - d.** scientific
- _____ **19.** What is the first step in an environmental decision-making model?
- a.** Explore the consequences of each option.
 - b.** Consider which values apply to the issue.
 - c.** Make a decision.
 - d.** Gather information.
- _____ **20.** When you examine a scientific value in making an environmental decision, you
- a.** consider what is right or wrong.
 - b.** consider what will maintain human health.
 - c.** use your understanding of the natural world.
 - d.** think about what will promote learning.
- _____ **21.** Which of the following is a possible short-term consequence of creating a nature preserve?
- a.** decrease in habitat destruction
 - b.** an increase in property values near the preserve
 - c.** a restriction of recreational activities on private land within the preserve by state officials
 - d.** all of the above

Concept Review

MATCHING

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

- | | |
|---|----------------------------|
| _____ 1. boundary between warm and cold water in an ocean or a lake | a. mantle |
| _____ 2. the pieces that compose the lithosphere | b. ozone |
| _____ 3. a mountain built from magma | c. fault |
| _____ 4. transfer of energy through space | d. salinity |
| _____ 5. water movements in the ocean that are driven by the wind | e. tributaries |
| _____ 6. layer of Earth between the crust and the core | f. tectonic plates |
| _____ 7. a molecule made up of three oxygen atoms | g. thermocline |
| _____ 8. smaller streams or rivers that flow into larger ones | h. volcano |
| _____ 9. the total quantity of dissolved salts in the ocean | i. surface currents |
| _____ 10. break in Earth's crust | j. radiation |

MULTIPLE CHOICE

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

- _____ 11. The part of Earth that contains the air we breathe is called the
- | | |
|------------------------|-------------------------|
| a. hydrosphere. | c. geosphere. |
| b. atmosphere. | d. envirosphere. |
- _____ 12. The thin outermost layer of the solid Earth is called the
- | | |
|--------------------------|-----------------------|
| a. asthenosphere. | c. outer core. |
| b. mantle. | d. crust. |
- _____ 13. An earthquake of magnitude 5.0 releases how much more energy than an earthquake of magnitude 4.0?
- | |
|--|
| a. twice the energy |
| b. three times the energy |
| c. one hundred times the energy |
| d. none of the above |

Concept Review *continued*

- _____ **14.** Volcanoes occur at tectonic plate boundaries that are
a. colliding.
b. slipping past one another.
c. separating from one another.
d. Both (a) and (c)
- _____ **15.** The removal and transport of surface material by wind and water is called
a. seismicity.
b. erosion.
c. tectonics.
d. vulcanism.
- _____ **16.** The stratosphere is the atmospheric layer above the
a. troposphere.
b. ionosphere.
c. mesosphere.
d. thermosphere.
- _____ **17.** Which of the following gases is an important greenhouse gas?
a. hydrogen
b. nitrogen
c. carbon dioxide
d. oxygen
- _____ **18.** The most abundant gas in Earth's atmosphere is
a. oxygen.
b. carbon dioxide.
c. nitrogen.
d. hydrogen.
- _____ **19.** The transfer of heat by air currents (or currents in a liquid) is called
a. radiation.
b. conduction.
c. convection.
d. condensation.
- _____ **20.** The warmest temperature zone of the ocean is the
a. thermocline.
b. deep zone.
c. open ocean.
d. surface zone.
- _____ **21.** Stream-like movements of cold, dense water near the ocean floor are called
a. surface currents.
b. deep currents.
c. bottom currents.
d. mixing currents.
- _____ **22.** One of the most important roles of the ocean is to
a. add oxygen to the atmosphere.
b. trap heat near Earth.
c. regulate temperatures in Earth's atmosphere.
d. absorb ultraviolet radiation.
- _____ **23.** The narrow layer of Earth where life-supporting conditions exist is called the
a. crust.
b. surface zone.
c. troposphere.
d. biosphere.
- _____ **24.** With respect to matter, Earth is mostly
a. an open system.
b. a closed system.
c. an ecosystem.
d. a biosphere.
- _____ **25.** The most important dissolved elements in ocean water are
a. calcium and magnesium.
b. calcium and potassium.
c. calcium and sodium.
d. sodium and chlorine.

Skills Worksheet

Concept Review**MATCHING**

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

- | | |
|---|----------------------|
| _____ 1. an individual living thing | a. ecosystem |
| _____ 2. a group of various species that live in the same place and interact with each other | b. population |
| _____ 3. living or once living part of an ecosystem | c. natural selection |
| _____ 4. unequal survival and reproduction that results from the presence or absence of particular traits | d. organism |
| _____ 5. all the organisms living in an area and their physical environment | e. resistance |
| _____ 6. change in the genetic characteristics of a population from one generation to the next | f. abiotic factor |
| _____ 7. all the members of the same species that live in the same place at the same time | g. evolution |
| _____ 8. nonliving part of an ecosystem | h. species |
| _____ 9. ability of one or more organisms to tolerate a particular chemical designed to kill it | i. community |
| _____ 10. group of organisms that are closely related and that can mate to produce fertile offspring | j. biotic factor |

MULTIPLE CHOICE

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

- _____ 11. What kind of habitat does a red backed salamander need to survive?
- damp forest floor
 - sunny top of a tree
 - dry forest floor
 - sunny desert rock

Concept Review *continued*

- _____ **12.** Which of the following kingdoms include organisms that can make their own food?
- protists and plants
 - plants and animals
 - fungi and plants
 - fungi and protists
- _____ **13.** The Chihuahua is a dog that exists because of
- natural selection.
 - artificial selection.
 - resistance.
 - abiotic factors.
- _____ **14.** Humans have promoted the evolution of insects that are resistant to insecticides by
- trying to control pests with chemicals.
 - using insecticides that are outdated.
 - using the wrong insecticide.
 - breeding more useful insects.
- _____ **15.** Which of the following is *not* true of an adaptation?
- It is an advantage to an organism in certain environments.
 - It increases an organism's chance of reproducing.
 - It increases an organism's chance of survival.
 - It decreases an organism's chance of evolving.
- _____ **16.** Which of the following is *not* one of the kingdoms of living things?
- archaebacteria
 - protobacteria
 - eubacteria
 - protists
- _____ **17.** One way that bacteria and fungi are important to the environment is that they
- produce oxygen.
 - use the sun's energy to make their own food.
 - are a major food source in many ecosystems.
 - break down dead organisms.
- _____ **18.** Phytoplankton are important protists because they are the initial source of
- food in most land ecosystems.
 - food in most ocean and freshwater ecosystems.
 - oxygen in the atmosphere.
 - Both (a) and (b)
- _____ **19.** Many angiosperms depend on
- other animals in the oceans.
 - gymnosperms for reproducing.
 - plants for food.
 - animals to carry pollen and disperse seeds.
- _____ **20.** Which of the following characteristics is shared by bacteria, fungi, and plants?
- They usually have cell walls.
 - They have cell nuclei.
 - They are single celled.
 - They have the ability to make their own food.

Skills Worksheet

Concept Review**MATCHING**

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

- | | |
|---|---------------------------------------|
| _____ 1. two types of consumers | a. photosynthesis |
| _____ 2. a diagram showing the many feeding relationships that are in an ecosystem | b. rabbit and coyote |
| _____ 3. the process in which energy from the sun is used by plants to make sugar molecules | c. fossil fuels |
| _____ 4. illustrates the loss of energy from one trophic level to the next | d. producers |
| _____ 5. organisms that get their energy by eating other organisms | e. food web |
| _____ 6. stored carbon from the remains of plants and animals that died millions of years ago | f. consumers |
| _____ 7. organisms that make their own food | g. atmospheric CO ₂ |
| _____ 8. change that occurs on an abandoned farm | h. energy pyramid |
| _____ 9. a part of the carbon cycle | i. algal bloom |
| _____ 10. results from excessive use of fertilizers | j. atmospheric N ₂ |
| _____ 11. organisms that transform atmospheric nitrogen into usable nitrogen compounds | k. food chain |
| _____ 12. part of the nitrogen cycle | l. old-field succession |
| _____ 13. transfer of energy from one organism to another | m. nitrogen-fixing bacteria |

Concept Review *continued***MULTIPLE CHOICE**

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

- _____ 14. What are the first organisms to colonize any newly available area called?
- climax species
 - ferns
 - pioneer species
 - mosses
- _____ 15. Which of the following is a producer that breaks down rock?
- pioneer producer
 - fungal species
 - algae
 - lichen
- _____ 16. Humans are affecting the balance of the carbon cycle by
- burning fossil fuels.
 - using carbonates at an alarming rate.
 - using fertilizers.
 - replanting the rain forests.
- _____ 17. What is a pattern of change that occurs on a surface where an ecosystem has previously existed?
- primary succession
 - secondary succession
 - tertiary succession
 - climax community
- _____ 18. What do deep-ocean bacteria use to make their food?
- the sun
 - hydrogen sulfide
 - carbon dioxide
 - sugar molecules
- _____ 19. Which of the following is an herbivore?
- cow
 - lion
 - bear
 - grass
- _____ 20. Which of the following is a producer?
- oak tree
 - raccoon
 - cockroach
 - human
- _____ 21. Which of the following is a process in the cell whereby glucose and oxygen produce carbon dioxide, water, and energy?
- photosynthesis
 - cellular respiration
 - synthesis
 - decomposition
- _____ 22. Which of the following organisms would be found at the top of an energy pyramid?
- alga
 - krill
 - leopard seal
 - killer whale
- _____ 23. Humans usually get the phosphorus that their bodies need from
- eating plants and animals that contain phosphorus.
 - mining.
 - food additives.
 - drinking water.

Skills Worksheet

Concept Review**MATCHING**

Match each example in the left column with the appropriate term from the right column.

- | | |
|---|----------------------|
| _____ 1. regions that have distinctive climates and organisms | a. latitude |
| _____ 2. the broad band of coniferous forest located just below the Arctic Circle | b. understory |
| _____ 3. plant with thick, fleshy stems | c. savanna |
| _____ 4. sleeping through the dry season | d. estivation |
| _____ 5. characterized by dry conditions, short summers, and thin soil | e. succulent |
| _____ 6. tropical and subtropical grasslands, wet summers, dry winters | f. altitude |
| _____ 7. includes trees and shrubs adapted to shade | g. biomes |
| _____ 8. the distance north or south of the equator, measured in degrees | h. tundra |
| _____ 9. lies beneath the topsoil of the tundra | i. permafrost |
| _____ 10. height of an object above sea level | j. taiga |

MULTIPLE CHOICE

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

- _____ 11. Thin soil, high humidity, and high rainfall represent a
- tropical rain forest.
 - temperate rain forest.
 - desert.
 - grassland.
- _____ 12. Birds that migrate during winter, coniferous plants, and cold temperatures represent
- the South Pole.
 - taiga.
 - a temperate rain forest.
 - a chaparral.

Concept Review *continued*

- _____ **13.** The top layer in a tropical rain forest is the
- a.** canopy.
 - b.** understory.
 - c.** emergent layer.
 - d.** tree line.
- _____ **14.** Extreme temperatures, abundant precipitation, rich, deep soils, and a growing season of four to six months represent a
- a.** tropical rain forest.
 - b.** taiga.
 - c.** temperate deciduous forest.
 - d.** savanna.
- _____ **15.** The biome with the highest species diversity is the
- a.** taiga.
 - b.** tundra.
 - c.** tropical rain forest.
 - d.** savanna.
- _____ **16.** Hot summers and cold winters, low to moderate rainfall, few trees, and rich, fertile soil represent a
- a.** tundra.
 - b.** temperate grassland.
 - c.** temperate deciduous forest.
 - d.** desert.
- _____ **17.** As you move from the equator toward the North Pole, you would be likely to see
- a.** rain forests, then deserts, then taiga.
 - b.** tundra, then deserts, then grasslands.
 - c.** grasslands, then tundra, then rain forests.
 - d.** temperate deciduous forests, then taiga, then rain forests.
- _____ **18.** Factors that influence where plants grow include
- a.** longitude.
 - b.** climate.
 - c.** biome maps.
 - d.** Both (a) and (b)

Skills Worksheet

Concept Review

MATCHING

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

- | | |
|--|--------------------------|
| _____ 1. wetland dominated by nonwoody plants | a. swamp |
| _____ 2. precipitation that can carry pollutants into aquatic ecosystems | b. benthic zone |
| _____ 3. amount of dissolved salts in water | c. dams |
| _____ 4. wetland dominated by woody plants | d. decomposers |
| _____ 5. area where fresh water mixes with salt water | e. littoral zone |
| _____ 6. limestone ridges built by tiny animals | f. eutrophication |
| _____ 7. located near the bottom of a pond or lake | g. overfishing |
| _____ 8. organisms that break down dead organisms | h. salinity |
| _____ 9. increase in nutrients in an aquatic ecosystem | i. runoff |
| _____ 10. aquatic zone found near the shore | j. marsh |
| _____ 11. threat against a river ecosystem | k. coral reefs |
| _____ 12. threat against marine organisms | l. estuary |

MULTIPLE CHOICE

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

- _____ 13. Estuaries are productive ecosystems because they constantly receive nutrients from
- rivers and oceans.
 - coral reefs.
 - lakes and ponds.
 - photosynthesis.
- _____ 14. Which of the following is a factor that influences where an organism lives in an aquatic ecosystem?
- sunlight
 - nutrient availability
 - temperature
 - all of the above

Concept Review *continued*

- _____ **15.** In which of the following aquatic ecosystems are both littoral and benthic zones most likely found?
- a.** open ocean
 - b.** coral reef
 - c.** lake
 - d.** none of the above
- _____ **16.** What is the source of most ocean pollution?
- a.** activities on land
 - b.** climate changes
 - c.** aquatic animals
 - d.** none of the above
- _____ **17.** Estuaries
- a.** are always saltwater ecosystems.
 - b.** are always freshwater ecosystems.
 - c.** are ecosystems where both fresh water and salt water are present.
 - d.** prevent the development of salt marshes.
- _____ **18.** All of the following are examples of saltwater ecosystems except
- a.** mangrove swamps.
 - b.** coral reefs.
 - c.** salt marshes.
 - d.** the Florida Everglades.
- _____ **19.** One way in which wetlands control flooding is by
- a.** filtering out water pollutants.
 - b.** absorbing water from rivers.
 - c.** providing habitats for migratory wildlife.
 - d.** reducing the amount of carbon dioxide released into the air.
- _____ **20.** Which of the following is not a threat to coral reefs?
- a.** silt runoff
 - b.** excessive nutrients
 - c.** growth of algae
 - d.** zooplankton

Skills Worksheet

Concept Review**MATCHING**

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

- | | |
|--|--|
| _____ 1. interaction between two species in which both are harmed | a. density |
| _____ 2. the functional role of a species within an ecosystem | b. growth rate |
| _____ 3. one of the three main properties of a population | c. reproductive potential |
| _____ 4. development of adaptations as a result of symbiotic relationships | d. carrying capacity |
| _____ 5. maximum population that an ecosystem can support indefinitely | e. density independent regulation |
| _____ 6. close interaction between two species in which one organism benefits while the other organism is harmed | f. niche |
| _____ 7. the ratio of births to deaths in a population | g. habitat |
| _____ 8. maximum number of offspring that each member of a population can produce | h. competition |
| _____ 9. a reduction in population size caused by a natural disaster | i. parasitism |
| _____ 10. the location where an organism lives | j. coevolution |

MULTIPLE CHOICE

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

- _____ 11. A territory is
- a.** a place where one animal lives.
 - b.** a place where people eat.
 - c.** an area defended by one or more individuals.
 - d.** a place for sleeping.
- _____ 12. Which of the following is an example of a parasite?
- a.** worm in your intestine
 - b.** a lion hunting zebras
 - c.** bee stinger in your arm
 - d.** honeybee on a flower

Concept Review *continued*

- _____ **13.** Bacteria in your intestines are an example of mutualism if they
- a.** make you sick.
 - b.** have no effect on you.
 - c.** are destroyed by digestive juices.
 - d.** help you break down food.
- _____ **14.** Predators _____ kill their prey.
- a.** always
 - b.** usually
 - c.** never
 - d.** try not to
- _____ **15.** What property of a population may be described as even, clumped, or random?
- a.** dispersion
 - b.** density
 - c.** size
 - d.** growth rate
- _____ **16.** What can occur if a population has plenty of food and space, and has no competition or predators?
- a.** reduction of carrying capacity
 - b.** exponential growth
 - c.** zero population growth
 - d.** coevolution
- _____ **17.** A grizzly bear can be all of the following *except* a
- a.** parasite.
 - b.** competitor.
 - c.** mutualist.
 - d.** predator.
- _____ **18.** The “co-” in coevolution means
- a.** apart.
 - b.** together.
 - c.** two.
 - d.** predator-prey.
- _____ **19.** Which of the following has the greatest effect on reproductive potential?
- a.** producing more offspring at a time
 - b.** reproducing more often
 - c.** having a longer life span
 - d.** reproducing earlier in life
- _____ **20.** Members of a species may compete with one another for
- a.** running faster.
 - b.** social dominance.
 - c.** giving birth.
 - d.** mutualism.
- _____ **21.** A robin that does not affect the tree in which it nests is an example of
- a.** parasitism.
 - b.** commensalism.
 - c.** mutualism.
 - d.** predation.
- _____ **22.** Two species can be indirect competitors for food if they
- a.** use the same food source at different times.
 - b.** have different food sources.
 - c.** fight over food.
 - d.** eat together peacefully.

Skills Worksheet

Concept Review

MATCHING

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

- | | |
|---|-------------------------------------|
| _____ 1. highest birth rates | a. demography |
| _____ 2. the distribution of ages in a specific population at a certain time | b. age structure |
| _____ 3. percentage of members of a group that are likely to survive to a given age | c. emigration |
| _____ 4. movement of individuals out of a population | d. infrastructure |
| _____ 5. the study of populations | e. arable land |
| _____ 6. movement of people into cities from rural areas | f. least-developed countries |
| _____ 7. the basic facilities and services that support a community | g. survivorship |
| _____ 8. land that can be used to grow crops | h. demographic transition |
| _____ 9. a model that describes how changes in a population may occur | i. urbanization |
| _____ 10. average number of children a woman gives birth to in her lifetime | j. total fertility rate |

MULTIPLE CHOICE

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

- | | |
|---|---|
| _____ 11. The human population doubled from 2 billion to 4 billion people in | _____ 13. Suburban sprawl, overcrowded schools, polluted rivers, and inadequate housing are symptoms of |
| a. about 130 years. | a. stable population size. |
| b. about 44 years. | b. overwhelming population growth. |
| c. about 95 years. | c. declining population size. |
| d. about 175 years. | d. slow population growth. |
| _____ 12. Some under-developed countries have tried to control population growth by | |
| a. increasing fertility rate. | |
| b. decreasing fertility rate. | |
| c. increasing emigration. | |
| d. decreasing emigration. | |

Concept Review *continued*

- _____ **14.** Access to adequate food, clean water, and safe sewage disposal have resulted in a decline in
- life expectancy.
 - the birth rate.
 - the death rate.
 - infant health.
- _____ **15.** According to the theory of demographic transition, populations in Stage 1 tend to
- increase.
 - decrease.
 - remain the same.
 - be large.
- _____ **16.** Suburban sprawl results in
- traffic jams.
 - inadequate infrastructure.
 - reduction of land for farms, ranches, and wildlife habitat.
 - All of the above
- _____ **17.** A population's age structure is represented by a
- population pyramid.
 - survivorship curve.
 - total fertility rate.
 - migration rate.
- _____ **18.** What is the main source of energy in the poorest countries?
- coal
 - solar collectors
 - wood
 - nuclear reactors
- _____ **19.** The graph of human population growth since 1200 BCE looks like
- a J-curve.
 - an S-curve.
 - a horizontal line.
 - a straight 45° line.
- _____ **20.** Infant mortality rates are least effected by
- average income.
 - parents' access to education.
 - clean water.
 - adequate food.
- _____ **21.** Life expectancy in sub-Saharan Africa has declined due to the epidemic of
- tuberculosis.
 - AIDS.
 - influenza.
 - bubonic plague.
- _____ **22.** A population will shrink if deaths + emigrants exceeds
- deaths + births.
 - immigration – emigration.
 - births + immigrants.
 - the carrying capacity of a nation.
- _____ **23.** Which of the following is *not* part of a community's infrastructure?
- public water supply
 - power plants
 - sewer lines
 - arable land
- _____ **24.** The movement of individuals between areas is called
- migration.
 - life expectancy.
 - survivorship.
 - urbanization.

Concept Review

MATCHING

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

- | | |
|--|-------------------------------------|
| _____ 1. a species that is not native to a particular region | a. keystone species |
| _____ 2. any species that is likely to become endangered if it is not protected | b. exotic species |
| _____ 3. species that are very important to the functioning of an ecosystem | c. extinct species |
| _____ 4. any species whose numbers have fallen so low that it is likely to become extinct in the near future | d. endangered species |
| _____ 5. a species when the very last individual dies | e. threatened species |
| _____ 6. most unknown species belong to this group | f. sustainable land use |
| _____ 7. growing crops among native plants instead of on cleared land | g. vertebrates |
| _____ 8. humans and familiar animals belong to this group | h. habitat conservation plan |
| _____ 9. designed to protect groups of animal species by managing lands in a protected area | i. insects |
| _____ 10. critical ecosystems with high species diversity | j. fungi |
| _____ 11. many antibiotics are derived from chemicals that come from this group | k. biodiversity hotspot |

Concept Review *continued***MULTIPLE CHOICE**

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

- _____ 12. Members of a population may be prone to inherited genetic diseases if
- a. the level of genetic diversity of the population is high.
 - b. inbreeding takes place frequently within the population.
 - c. a variety of habitats are available to the population.
 - d. interaction between populations takes place in an ecosystem.
- _____ 13. The human diet has been enriched with native food products such as sweet potatoes, beans, tomatoes, and corn that come from
- a. Pacific islands.
 - b. Southwest Asia.
 - c. Madagascar and Africa.
 - d. Central and South America.
- _____ 14. What level of biodiversity is most commonly equated with the overall concept of biodiversity?
- a. genetic diversity
 - b. species diversity
 - c. ecosystem diversity
 - d. all of the above
- _____ 15. What groups of organisms are most in danger of extinction?
- a. those with small populations
 - b. those that migrate or need special habitats
 - c. those with large populations that breed quickly
 - d. both (a) and (b)
- _____ 16. Which of the following is not one of the ways in which coral reefs are threatened by human activities?
- a. development along waterways
 - b. creation of artificial reefs
 - c. overharvesting of fish
 - d. pollution
- _____ 17. How does preserving biodiversity come into conflict with human interests?
- a. Additional land is used for agriculture or housing in response to population growth.
 - b. Species may represent food or a source of income.
 - c. both (a) and (b)
 - d. none of the above
- _____ 18. Which of the following is *not* a provision of the Endangered Species Act?
- a. No products from endangered or threatened species may be sold.
 - b. Protected plants may be uprooted.
 - c. Government projects may not further endanger endangered species.
 - d. A species recovery plan must be created.

Skills Worksheet

Concept Review

MATCHING

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

- | | |
|---|------------------------------|
| _____ 1. Mississippi River | a. pathogen |
| _____ 2. area above an aquifer | b. recharge zone |
| _____ 3. bottled water | c. nonpoint-source pollution |
| _____ 4. bacteria | d. potable |
| _____ 5. multiple sources | e. watershed |
| _____ 6. fertilizer runoff | f. artificial eutrophication |
| _____ 7. law designed to improve water quality | g. 1972 Clean Water Act |
| _____ 8. surface water that percolates through soil | h. groundwater |

MULTIPLE CHOICE

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

- _____ 9. Ninety-seven percent of the world's water resources are found in
- | | |
|-----------------|--------------------------|
| a. fresh water. | c. icecaps and glaciers. |
| b. salt water. | d. groundwater. |
- _____ 10. Earth's surface water is found in
- | | |
|------------|---------------------|
| a. lakes. | c. streams. |
| b. rivers. | d. All of the above |
- _____ 11. Most of the oil that pollutes the ocean comes from
- | |
|---|
| a. operating boats and personal watercraft. |
| b. spills from oil tankers. |
| c. runoff from cities and towns. |
| d. leaking underground storage facilities. |
- _____ 12. The three major global uses of fresh water are
- | |
|--|
| a. manufacturing goods, wastewater disposal, and irrigation. |
| b. drinking, bathing, and growing crops. |
| c. drinking, manufacturing goods, and generating power. |
| d. residential, agricultural, and industrial uses. |

Concept Review *continued*

- _____ **13.** What is the purpose of adding alum to water during the water treatment process?
- a.** to filter and remove large organisms and trash
 - b.** to form flocs that bacteria and other impurities will cling to
 - c.** to prevent bacterial growth
 - d.** to remove unwanted gases
- _____ **14.** How is fresh water used in industry?
- a.** in manufacturing processes
 - b.** in the disposal of waste products
 - c.** to generate power
 - d.** all of the above
- _____ **15.** Many areas of the world that do not have adequate fresh water have become habitable because
- a.** rainfall patterns have changed.
 - b.** water management projects have diverted water to the areas.
 - c.** icebergs have been towed in to provide fresh water.
 - d.** people have practiced water conservation.
- _____ **16.** A hole that is dug into the ground to obtain fresh water is called
- a.** the recharge zone.
 - b.** a well.
 - c.** an aquifer.
 - d.** a watershed.
- _____ **17.** Which of the following is one way that a person can conserve water?
- a.** Take a bath instead of a shower.
 - b.** Wash laundry in small, partial loads.
 - c.** Use a low-flow shower head to take short showers.
 - d.** Water the lawn daily and at mid-day.
- _____ **18.** Which of the following is a source of point-pollution?
- a.** unlined landfill
 - b.** runoff from city streets
 - c.** precipitation containing air pollution
 - d.** runoff from farms
- _____ **19.** Animal feces would be classified as which type of water pollutant?
- a.** pathogens
 - b.** organic matter
 - c.** inorganic chemicals
 - d.** heavy metals
- _____ **20.** Polluted groundwater is difficult to clean up because
- a.** groundwater is deep in the ground and dispersed through large areas of rock.
 - b.** pollutants cling to the materials that make up the aquifer and contaminate the clean water.
 - c.** the recycling process of groundwater can take hundreds or thousands of years.
 - d.** All of the above

Skills Worksheet

Concept Review

MATCHING

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

- | | |
|--|----------------------------|
| _____ 1. ground-level ozone | a. primary pollutant |
| _____ 2. scrubber | b. secondary pollutant |
| _____ 3. radon gas | c. indoor air pollution |
| _____ 4. nitrogen oxides | d. pollution control |
| _____ 5. decreased pH | e. acid precipitation |
| _____ 6. possible long-term effect of air pollution | f. temperature inversion |
| _____ 7. necessary to control acid precipitation | g. lung cancer |
| _____ 8. atmospheric condition trapping pollution | h. deafness |
| _____ 9. possible short-term effect of air pollution | i. international agreement |
| _____ 10. possible long-term effect of noise pollution | j. nausea |

MULTIPLE CHOICE

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

- | | |
|--|--|
| _____ 11. Which of the following is an example of a primary pollutant? | _____ 12. Which of the following would be a potential cause of sick-building syndrome? |
| a. ground-level ozone | a. acid precipitation |
| b. soot from smoke | b. smog |
| c. radon | c. fungi |
| d. All of the above | d. all of the above |

Concept Review *continued*

- _____ **13.** Catalytic converters, scrubbers, and electrostatic precipitators are examples of
- technologies used to treat sick-building syndrome.
 - technologies used to counteract the effects of acid precipitation on aquatic ecosystems.
 - technologies used to capture radon gas.
 - technologies used to control pollution emissions.
- _____ **14.** During a temperature inversion,
- sulfur oxides and nitrogen oxides combine with water in the atmosphere.
 - an influx of acidic water causes a rapid change in the pH of water.
 - levels of ground-level ozone decrease.
 - pollutants are trapped near Earth's surface.
- _____ **15.** What is *not* a consequence of acid precipitation?
- an increase in the pH of soil and water
 - the death of aquatic plants and animals
 - the destruction of calcium carbonate in building materials
 - a change in the balance of soil chemistry
- _____ **16.** High blood pressure and stress are both human health effects linked to
- smog.
 - air pollution.
 - light pollution.
 - noise pollution.
- _____ **17.** Oil refineries and gasoline stations are both sources of
- particulate matter.
 - volatile organic compounds.
 - smog.
 - All of the above
- _____ **18.** Uranium-bearing rocks underneath a house can be a source of
- ozone.
 - asbestos.
 - radon.
 - formaldehyde.
- _____ **19.** An increase in the pH of a lake would most likely indicate
- the lake suffers from acid shock.
 - calcium carbonate has been released into the lake.
 - the area in which the lake is located suffers from acid precipitation.
 - higher than average sulfur oxide levels in the atmosphere.
- _____ **20.** Acid precipitation is formed when
- sulfur oxides or nitrogen oxides combine with water.
 - sulfur oxides combine with nitrogen oxides.
 - ozone combines with automobile exhaust.
 - nitric or sulfuric acids combine with ozone.

Skills Worksheet

Concept Review**MATCHING**

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

- | | |
|---|--------------------------------|
| _____ 1. international agreement to limit CFC production | a. El Niño |
| _____ 2. destroyed by CFCs | b. atmospheric CO ₂ |
| _____ 3. caused by wind and influenced by Earth's rotation | c. stratospheric ozone |
| _____ 4. increases when fossil fuels are burned | d. winter |
| _____ 5. low-angle sunlight | e. Montreal Protocol |
| _____ 6. winds push warm water eastward in the Pacific Ocean | f. greenhouse effect |
| _____ 7. heat trapped by atmosphere near Earth's surface | g. DNA damage |
| _____ 8. potential result of high UV radiation at Earth's surface | h. surface ocean currents |
| _____ 9. water is cooler than usual in the eastern Pacific Ocean | i. prevailing winds |
| _____ 10. trade winds, westerlies, and polar easterlies | j. La Niña |

MULTIPLE CHOICE

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

- | | |
|--|--|
| _____ 11. Climate in a region is | _____ 12. Rain frequently results whenever |
| a. the long-term, prevailing atmospheric conditions. | a. cold, moist air rises. |
| b. determined only by seasonal daylight hours. | b. warm, moist air rises. |
| c. the atmospheric conditions on a given day. | c. warm, dry air sinks. |
| d. never affected by ocean currents. | d. cold, dry air sinks. |

Concept Review *continued*

- _____ **13.** Latitude strongly influences climate because _____ solar energy falls on areas that are closer to the equator than to the poles.
- less
 - the same amount of
 - more
 - sometimes less
- _____ **14.** An important property of air circulation is
- warm air is denser than cold air.
 - cold air and warm air have the same density.
 - cold air is denser than warm air.
 - air has no mass.
- _____ **15.** Which of the following gases is *most* responsible for the greenhouse effect?
- nitrous oxide
 - methane
 - oxygen
 - water vapor
- _____ **16.** Which of the following reduce(s) CO₂ in the atmosphere?
- phytoplankton
 - tropical rain forests
 - oceans
 - all of the above
- _____ **17.** During the summer, sunlight in the Northern Hemisphere shines
- obliquely for long days.
 - slanting for short days.
 - more directly for long days.
 - less directly for short days.
- _____ **18.** Ozone in the stratosphere
- causes skin cancer.
 - prevents DNA repair.
 - absorbs UV light.
 - destroys CFCs.
- _____ **19.** Ozone holes appear in polar regions during springtime when ozone-destroying
- chlorine atoms are released from polar stratospheric clouds.
 - chlorine atoms are captured by polar stratospheric clouds.
 - CFCs are synthesized on polar stratospheric clouds.
 - CFCs magnify ultraviolet light.
- _____ **20.** Once in the atmosphere, CFCs
- quickly become harmless.
 - destroy ozone for only a short time.
 - persist but stop destroying ozone.
 - persist and continue to destroy ozone for decades.
- _____ **21.** La Niña is the _____ phase of the El Niño-Southern Oscillation (ENSO) cycle.
- warm
 - cold
 - neutral
 - mixing
- _____ **22.** The average global temperature has _____ during the 20th century.
- remained the same
 - increased every year
 - risen some years and fallen other years but has increased overall
 - risen some years and fallen other years but has decreased overall

Skills Worksheet

Concept Review**MATCHING**

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

- | | |
|-----------------------------------|-----------------------|
| _____ 1. damaged rangeland | a. infrastructure |
| _____ 2. protected land | b. urbanization |
| _____ 3. purified water | c. deforestation |
| _____ 4. bridges | d. rural |
| _____ 5. low population density | e. wilderness |
| _____ 6. development | f. ecosystem services |
| _____ 7. clear-cutting | g. overgrazing |
| _____ 8. rangeland and urban land | h. human uses of land |

MULTIPLE CHOICE

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

- _____ 9. Land that contains relatively few people and large areas of open space is considered
- rural.
 - urban.
 - suburban.
 - rangelands.
- _____ 10. All of the following is allowed in wilderness *except*
- research.
 - camping.
 - development.
 - fishing.
- _____ 11. The timber industry classifies forestlands into three categories called
- softwoods, hardwoods, and mixed woods.
 - pine, redwood, and mixed.
 - evergreen, deciduous, and mixed.
 - virgin forest, native forest, and tree farms.

Concept Review *continued*

- _____ 12. A heat island can
- a. affect weather patterns over a city.
 - b. reduce the average temperatures in a city.
 - c. absorb less heat than vegetation.
 - d. have a lower temperature than the surrounding countryside.
- _____ 13. Tree harvesting methods include
- a. selective cutting.
 - b. reforestation.
 - c. clear-cutting.
 - d. Both (a) and (c)
- _____ 14. A fire station is an example of
- a. infrastructure.
 - b. suburbanization.
 - c. land-use planning.
 - d. renovation.
- _____ 15. Which of the following is *not* a method of preventing overgrazing?
- a. limiting herd size
 - b. rotating the breed of cattle
 - c. removing herds to allow vegetation to recover
 - d. replanting native vegetation
- _____ 16. Which of the following is *not* an environmental benefit of open spaces?
- a. moderation of temperatures
 - b. absorption of rainwater runoff
 - c. provision of aesthetic value
 - d. source of lumber for homes
- _____ 17. Which of the following is a benefit of preserving farmland?
- a. prime locations for home sites
 - b. soil erosion protection
 - c. productive land for growing crops
 - d. a greenbelt for crowded urban areas
- _____ 18. Which of the following uses the largest amount of land in the United States?
- a. forestland
 - b. rangeland and pasture
 - c. cropland
 - d. parks and preserves

Skills Worksheet

Concept Review

MATCHING

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

- | | |
|--|-------------------------------|
| _____ 1. less erosion | a. green revolution |
| _____ 2. resistance to pesticides | b. overuse of land |
| _____ 3. poverty | c. fertile soil |
| _____ 4. desirable traits transferred | d. high pesticide use |
| _____ 5. desertification | e. integrated pest management |
| _____ 6. action of living organisms | f. no-till farming |
| _____ 7. new crop varieties,
increased yields | g. irrigation and evaporation |
| _____ 8. minimize economic damage
from pests | h. genetic engineering |
| _____ 9. depleted fish populations | i. overharvesting |
| _____ 10. salinization | j. malnutrition |

MULTIPLE CHOICE

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

- | | |
|---|--|
| _____ 11. A given plot of land can produce more food when used to grow plants than when used to raise animals because | _____ 12. The green revolution depended on |
| a. 1 Cal animal protein requires 10 Cal from plants. | a. new biodegradable pesticides. |
| b. one-tenth of a plant's mass can be used as food. | b. high-yielding grain varieties. |
| c. plants provide more nutrients per gram. | c. clearing forest for crop land. |
| d. Both (a) and (b) | d. organic fertilizers. |

Concept Review *continued*

- _____ **13.** Most of the living organisms in fertile soil are found in
- the surface litter and topsoil.
 - the leaching zone.
 - the subsoil.
 - the bedrock.
- _____ **14.** Erosion is a danger whenever the soil is
- bare and exposed to wind and rain.
 - plowed along the contour of the land.
 - covered with grass.
 - covered by forest.
- _____ **15.** The development of pesticide resistance is an example of
- malnutrition.
 - persistence.
 - pest control.
 - evolution.
- _____ **16.** All of the following describe typical types of malnutrition *except*
- amino acid deficiency.
 - insufficient variety of foods.
 - diet of mostly vegetables and grains.
 - low Calorie consumption.
- _____ **17.** Livestock in developing countries provide
- manure.
 - eggs and meat.
 - leather and wool.
 - All of the above
- _____ **18.** Biological pest control aims to do all the following *except*
- maintain tolerable pest levels.
 - reduce all insects to low levels.
 - leave non-pest species unharmed.
 - boost plants' natural defenses.
- _____ **19.** Plowing with machines, irrigating with drip systems, and _____ are all modern agricultural methods.
- using manure
 - applying chemical fertilizers
 - irrigating with ditches
 - Both (a) and (b)
- _____ **20.** Earth's available arable land is being reduced by
- fast-growing human populations.
 - soil erosion.
 - desertification.
 - All of the above
- _____ **21.** All of these contribute to famine *except*
- crop failure.
 - green revolution.
 - unequal distribution of food.
 - drought.
- _____ **22.** Almost _____ of the seafood consumed in the world is produced through aquaculture.
- one-half
 - one-third
 - one-fourth
 - three-fourths

Skills Worksheet

Concept Review**MATCHING**

Write the letter of the term or phrase on the right that best matches the description on the left in the space provided.

- | | |
|---|--------------------|
| _____ 1. process of returning land to its original or better condition after mining | a. alloy |
| _____ 2. the wall of a coal seam | b. surface mining |
| _____ 3. minerals that contain valuable substances | c. longwall |
| _____ 4. two or more metals that are combined | d. subsidence |
| _____ 5. open pit used to mine materials near the surface | e. ore minerals |
| _____ 6. process by which crushed ore is melted at high temperatures to separate impurities from molten metal | f. aggregates |
| _____ 7. mining method used when ore deposits are located close to Earth's surface | g. reclamation |
| _____ 8. sand, gravel, and crushed rock | h. quarry |
| _____ 9. minerals concentrated by wind and water movement into surface deposits | i. smelting |
| _____ 10. the sinking of regions of the ground with little or no horizontal movement | j. placer deposits |

MULTIPLE CHOICE

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

- _____ 11. The first step in surface coal mining is
- a. to remove and set aside the soil that covers the area to be mined.
 - b. to use heavy equipment to take core samples.
 - c. to test to see if quarrying would be more effective.
 - d. to make cuts in the coal for easier removal.
- _____ 12. A serious hazard of coal mining is
- a. a high-pressure water blast.
 - b. an aggregation.
 - c. excess overburden.
 - d. an underground mine fire.

Concept Review *continued*

- _____ 13. Dredging streambeds may be an effective technique for mining
- a. silica.
 - b. coal.
 - c. gold.
 - d. sulfur.
- _____ 14. Before mining a site, a mining company must do all of the following *except*
- a. obtain permits from state agencies.
 - b. comply with federal regulations.
 - c. obtain bonding.
 - d. cut into a section of the longwall.
- _____ 15. What is the arrangement of atoms in a mineral?
- a. porous, woven patterns
 - b. regular, repeating geometric patterns
 - c. irregular patterns
 - d. clumped groups of like elements
- _____ 16. Nonmetallic minerals prized mainly for their beauty, rarity, or durability are called
- a. aggregates.
 - b. overburden.
 - c. native elements.
 - d. gemstones.
- _____ 17. Which of the following is *not* affected when soil is removed from a surface mine?
- a. plant life
 - b. soil nutrients
 - c. animal habitat
 - d. deep coal seams
- _____ 18. Mining companies can identify areas of valuable mineral resources by
- a. mineral exploration.
 - b. smelting.
 - c. mineral excavation.
 - d. dredging.
- _____ 19. Solar evaporation is practical in order to obtain salt from sea water in climates where rainfall is exceeded by
- a. evaporation.
 - b. snowfall.
 - c. high-speed winds.
 - d. humidity.
- _____ 20. Which of the following is *not* a way that ore minerals may form?
- a. cooling of magma
 - b. circulation of hydrothermal solutions through rocks
 - c. flooding of empty streambeds and rivers
 - d. evaporation of water that contains salts
- _____ 21. Which of the following is one reason why undersea mining has been largely unsuccessful to date?
- a. Deposits at great water depths are difficult to work.
 - b. Ocean water is too salty.
 - c. There is too much aggregate on the ocean floor.
 - d. Magma exists under the ocean floor.

Skills Worksheet

Concept Review**MATCHING**

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

- | | |
|---|--|
| _____ 1. fossil fuels | a. Middle East |
| _____ 2. region with the most coal deposits | b. fission and fusion |
| _____ 3. electric generator | c. oil, natural gas, and coal |
| _____ 4. site of world's worst nuclear reactor accident | d. magnetic fields and rotating turbines |
| _____ 5. nuclear energy | e. gasoline and plastics |
| _____ 6. used in a nuclear reaction | f. Asia |
| _____ 7. made from petroleum | g. uranium |
| _____ 8. region with the most oil deposits | h. Chernobyl |
| _____ 9. used in nuclear fusion | i. Europe |
| _____ 10. region with the most natural gas deposits | j. deuterium and tritium |

MULTIPLE CHOICE

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

- _____ 11. Which of the following is *not* a main use of fuel?
- | | |
|-------------------|----------------------------------|
| a. transportation | c. heating and cooling buildings |
| b. manufacturing | d. cooking |
- _____ 12. The energy in fossil fuels is often converted into
- | | |
|---------------------|------------------|
| a. electricity. | c. uranium. |
| b. magnetic fields. | d. power plants. |
- _____ 13. Which country uses the least amount of energy per person?
- | | |
|--------------|------------------|
| a. Argentina | c. United States |
| b. Japan | d. Canada |
- _____ 14. Much of the oil and natural gas in the United States is located in
- | |
|---|
| a. Alaska, Minnesota, New York, and Texas. |
| b. Alaska, California, Michigan, and Nevada. |
| c. Texas, Colorado, New York, and the Gulf of Mexico. |
| d. Alaska, Texas, California, and the Gulf of Mexico. |

Concept Review *continued*

- _____ **15.** Most of the world's fossil fuel reserves are made up of
- a.** oil.
 - b.** natural gas.
 - c.** coal.
 - d.** waste rock.
- _____ **16.** Crude oil is another name for
- a.** fossil fuel.
 - b.** natural gas.
 - c.** petroleum.
 - d.** methane.
- _____ **17.** Internal combustion engines release
- a.** carbon dioxide into the atmosphere.
 - b.** nuclear waste into the atmosphere.
 - c.** iodized oil into the atmosphere.
 - d.** methane into the atmosphere.
- _____ **18.** Oil production is still increasing, but it
- a.** will start decreasing in the next year.
 - b.** is increasing much more dramatically than it did in the past.
 - c.** will start decreasing in the next five years.
 - d.** is increasing much more slowly than it did in the 1960s.
- _____ **19.** A large oil reserve
- a.** was discovered in Morocco in the year 2000.
 - b.** has not been discovered in the past decade.
 - c.** has only been discovered in Saudi Arabia.
 - d.** will probably be discovered on the moon.
- _____ **20.** Which of the following is *not* a consequence of using nuclear energy?
- a.** production of electricity
 - b.** reduction in the use of fossil fuels
 - c.** a safer environment for humans
 - d.** release of less radioactivity into the atmosphere than burning coal
- _____ **21.** Nuclear fusion and nuclear fission are different because
- a.** fusion releases no energy.
 - b.** fission is a consequence of fusion.
 - c.** nuclei unite during fusion and split during fission.
 - d.** fission does not produce nuclear waste.
- _____ **22.** Which of the following is *not* true?
- a.** Uranium-bearing rocks are in unlimited supply.
 - b.** Building and maintaining a safe reactor is very expensive.
 - c.** It is difficult to find a safe place to store nuclear waste.
 - d.** The fission process can get out of control.
- _____ **23.** The most serious nuclear accident in the United States occurred at
- a.** Chernobyl.
 - b.** Yucca Mountain.
 - c.** Diablo Canyon.
 - d.** Three Mile Island.

Skills Worksheet

Concept Review

MATCHING

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

- | | |
|---|---|
| _____ 1. plant material, manure, and wood | a. passive solar heating |
| _____ 2. uses collectors with moving parts to capture the sun's energy | b. ocean thermal energy conversion (OTEC) |
| _____ 3. saves energy | c. alternative energy |
| _____ 4. energy sources that are still in development | d. biomass fuel |
| _____ 5. energy produced from moving water | e. fuel cell |
| _____ 6. uses the sun's energy to heat something directly, without moving parts | f. active solar heating |
| _____ 7. energy from heat in Earth's interior | g. energy efficiency |
| _____ 8. uses low pressure and warm ocean water to boil colder ocean water | h. energy conservation |
| _____ 9. percentage of energy that does useful work in a system | i. hydroelectric energy |
| _____ 10. uses hydrogen as an energy source | j. geothermal energy |

MULTIPLE CHOICE

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

- _____ 11. Wind, moving water, sunlight, and heat from Earth's interior are sources of
- | | |
|------------------------|--------------------------|
| a. alternative energy. | c. renewable energy. |
| b. geothermal energy. | d. ocean thermal energy. |
- _____ 12. Which of the following uses solar collectors to heat water?
- | | |
|--------------------------|-----------------------|
| a. passive solar heating | c. photovoltaic cells |
| b. active solar heating | d. all of the above |

Concept Review *continued*

- _____ **13.** Which of the following is the fastest-growing source of energy in the world?
- a.** passive solar heating
 - b.** photovoltaic cells
 - c.** fuel cells
 - d.** wind power
- _____ **14.** Which of the following is a major source of biomass fuel in developing countries?
- a.** wood
 - b.** dung
 - c.** corn
 - d.** both (a) and (b)
- _____ **15.** A geothermal power plant gets energy by
- a.** pumping heated water or steam from rock formations.
 - b.** circulating fluid underground.
 - c.** holding water behind a dam.
 - d.** using methane from decomposition.
- _____ **16.** Tidal power, hydrogen fuel cells, and ocean thermal energy conversion are sources of
- a.** alternative energy.
 - b.** geothermal energy.
 - c.** nonrenewable energy.
 - d.** hydroelectric energy.
- _____ **17.** Which of the following descriptions of hybrid cars is correct?
- a.** Hybrid cars do not use gasoline engines.
 - b.** Hybrid cars have not been made yet.
 - c.** Hybrid cars are energy-efficient.
 - d.** Hybrid cars rely on biomass fuel.
- _____ **18.** Which of the following statements about hydrogen as a fuel source is correct?
- a.** The amount of hydrogen on Earth is too small to meet our fuel needs.
 - b.** Hydrogen can be burned as a fuel or used to produce electricity chemically.
 - c.** When hydrogen is burned, it releases pollutants.
 - d.** Generating hydrogen by burning fossil fuels is inexpensive.
- _____ **19.** Sunlight falls on a semiconductor, causing it to release electrons, in a
- a.** photovoltaic cell.
 - b.** fuel cell.
 - c.** battery.
 - d.** solar collector.
- _____ **20.** People can conserve energy in their daily lives by driving a vehicle
- a.** mostly for short distances.
 - b.** instead of taking a bus or train.
 - c.** with a large gas tank.
 - d.** that is fuel-efficient.

Skills Worksheet

Concept Review

MATCHING

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

- | | |
|--------------------|--|
| a. compost | f. Resource Conservation and Recovery Act (RCRA) |
| b. biodegradable | g. incinerator |
| c. landfill | h. mining waste |
| d. solid waste | i. leachate |
| e. hazardous waste | j. surface impoundment |

- _____ 1. any discarded solid material
- _____ 2. can be broken down by biological processes
- _____ 3. requires producers of hazardous waste to keep records of how wastes are handled
- _____ 4. place to dispose of waste by burying it
- _____ 5. water that contains dissolved chemicals from wastes that have been buried
- _____ 6. rocks and minerals left over from excavation and processing
- _____ 7. facility for burning trash
- _____ 8. nutrient-rich material made from decomposed plant and animal materials
- _____ 9. any toxic, corrosive, or explosive waste
- _____ 10. process used for disposing of wastes involving a pond with a sealed bottom

MULTIPLE CHOICE

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

- _____ 11. Solid waste includes all of the following *except*
- | | |
|------------------------|----------------|
| a. agricultural waste. | c. plastics. |
| b. methane. | d. food waste. |
- _____ 12. The ash produced when solid waste is incinerated is _____ than the original solid waste.
- | | |
|---------------|--------------------|
| a. less toxic | c. as toxic |
| b. more toxic | d. more recyclable |

Concept Review *continued*

- _____ **13.** If an owner of a business illegally dumps hazardous waste, which law allows the EPA to sue the owner and force the owner to pay for the cleanup?
- a.** the Superfund Act
 - b.** the Incinerator Act
 - c.** RCRA
 - d.** the Love Canal Act
- _____ **14.** Surface impoundment includes which physical process?
- a.** decontamination
 - b.** evaporation
 - c.** injection
 - d.** all of the above
- _____ **15.** One disadvantage of biodegradable plastic is that
- a.** it has to be blended with plant sugars in order to be useful.
 - b.** it has to be left in the sun for months before it can begin to degrade.
 - c.** it is toxic and useful only in industry.
 - d.** the plastic parts are reduced to smaller pieces but are not completely degraded.
- _____ **16.** Which regulation requires producers of hazardous wastes to document how their wastes are handled?
- a.** the Superfund Act
 - b.** the Resource Conservation and Recovery Act
 - c.** the United States Environmental Protection Agency (EPA)
 - d.** the Love Canal Act
- _____ **17.** Which of the following is the most important function of a landfill?
- a.** to provide leachate for other industrial processes
 - b.** to contain buried waste and prevent it from contaminating the environment
 - c.** to be as inexpensive as possible to build
 - d.** all of the above
- _____ **18.** Which of the following would *not* reduce the amount of municipal solid waste going to landfills?
- a.** composting yard waste
 - b.** eliminating recycling programs
 - c.** reusing products
 - d.** all of the above

Skills Worksheet

Concept Review

MATCHING

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

- | | |
|---|------------------------|
| _____ 1. organism that causes disease | a. toxicology |
| _____ 2. study of the harmful effects of substances on organisms | b. dose |
| _____ 3. study of the spread of disease | c. dose-response curve |
| _____ 4. particles in the air that are small enough to breathe into the lungs | d. epidemiology |
| _____ 5. amount of a particular chemical to which a person is exposed | e. risk assessment |
| _____ 6. transmitter of a disease to people | f. particulates |
| _____ 7. organism in which a pathogen lives all or part of its life | g. pathogen |
| _____ 8. estimate of the risk posed by an action or substance | h. host |
| _____ 9. previously unknown cause of disease | i. vector |
| _____ 10. shows the relative effect of various doses of a drug or chemical on an organism | j. emerging virus |

MULTIPLE CHOICE

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

- | | |
|---|---|
| _____ 11. Which of the following pollutants is used in agriculture and landscaping and might cause nerve damage, birth defects, and cancer in humans?
a. particulate matter
b. lead
c. pesticides
d. bacteria | _____ 12. Which of the following pollutants is found in old paint and gasoline and can cause brain damage and learning problems?
a. particulate matter
b. lead
c. coal dust
d. pesticides |
|---|---|

Concept Review *continued*

- _____ **13.** Toxicology is used to determine
- a.** the classification of a pathogen.
 - b.** the vectors of a disease.
 - c.** how poisonous a substance is.
 - d.** what emerging viruses cause disease.
- _____ **14.** After an outbreak of an illness, scientists use epidemiology to try to find
- a.** the origin of the disease.
 - b.** how the disease spreads.
 - c.** how to prevent the disease from spreading.
 - d.** All of the above
- _____ **15.** Radon, a pollutant that causes cancer, comes from
- a.** cigarette smoke.
 - b.** granite bedrock.
 - c.** processed foods.
 - d.** drinking water.
- _____ **16.** What percentage of commercial chemicals have been tested for toxicity?
- a.** 10 percent
 - b.** 30 percent
 - c.** 50 percent
 - d.** 90 percent
- _____ **17.** Which of the following statements is correct?
- a.** Landfills solved pollution problems caused by waste disposal.
 - b.** Wastewater from cities no longer carries toxic chemicals into waterways.
 - c.** Laws regulating waste disposal have put an end to pollution problems caused by wastes.
 - d.** Much of the pollution in our environment is a byproduct of inadequate waste disposal.
- _____ **18.** The environment is an important factor in the spread of cholera and dysentery because
- a.** air can carry the pathogens.
 - b.** water provides a habitat in which the pathogens breed.
 - c.** the pathogens reproduce in soil.
 - d.** the disease is transmitted by mosquitoes.
- _____ **19.** Which of the following environmental changes is most likely to lead to the spread of parasites such as hookworm?
- a.** overuse of pesticides
 - b.** global warming
 - c.** overuse of antibiotics
 - d.** soil erosion
- _____ **20.** Which of the following is an emerging virus?
- a.** West Nile
 - b.** measles
 - c.** diphtheria
 - d.** schistosomiasis

Skills Worksheet

Concept Review

MATCHING

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

- | | |
|---|---|
| <p>_____ 1. when environmental and social conditions are linked worldwide</p> <p>_____ 2. allows individuals to affect environmental policy</p> <p>_____ 3. increase in the flow of money and products within a market</p> <p>_____ 4. document that assesses the environmental impact of projects or policies</p> <p>_____ 5. resulted in Agenda 21—a plan to address a range of environmental issues while allowing economic growth</p> <p>_____ 6. enforces Endangered Species Act</p> <p>_____ 7. self-contained economic systems</p> <p>_____ 8. organized attempt to influence lawmakers' decisions</p> <p>_____ 9. payment for actions that benefit society</p> <p>_____ 10. Economists view these as market failures.</p> <p>_____ 11. the study of the choices people make as they use and distribute limited resources</p> <p>_____ 12. leader in the conservation of natural areas</p> <p>_____ 13. resulted in an agreement to reduce global emissions of greenhouse gases</p> <p>_____ 14. Paul Ehrlich was its author.</p> <p>_____ 15. something individuals can do to help the environment</p> <p>_____ 16. Rachel Carson was its author.</p> | <p>a. markets</p> <p>b. Earth Summit of 1992</p> <p>c. economics</p> <p>d. <i>The Population Bomb</i></p> <p>e. <i>Silent Spring</i></p> <p>f. globalization</p> <p>g. lobbying</p> <p>h. recycling</p> <p>i. voting</p> <p>j. economic incentive</p> <p>k. Kyoto Protocol</p> <p>l. EIS</p> <p>m. environmental problems</p> <p>n. economic growth</p> <p>o. U.S. Fish and Wildlife Service</p> <p>p. Theodore Roosevelt</p> |
|---|---|

Concept Review *continued*

MULTIPLE CHOICE

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

- _____ **17.** Which tends to be most responsive to citizen input?
- a.** local government
 - b.** state government
 - c.** federal government
 - d.** an international agency
- _____ **18.** Which is *not* an international environmental agreement?
- a.** Agenda 21
 - b.** Kyoto Protocol
 - c.** EIS
 - d.** Law of the Sea
- _____ **19.** Which of the following is an example of a private effort to help the environment?
- a.** An individual donates money for a park.
 - b.** A business recycles its waste.
 - c.** A nonprofit group buys land for preservation.
 - d.** all of the above
- _____ **20.** What factors can limit the usefulness of television news as a source of information on environmental issues?
- a.** News reports are brief.
 - b.** News reports may leave out information.
 - c.** The information comes from only one source.
 - d.** all of the above
- _____ **21.** It is difficult to achieve global sustainability because
- a.** it is an unrealistic goal.
 - b.** governments do not
- _____ **22.** What is the Nature Conservancy?
- a.** an organization that collects resources to buy land and establishes nature preserves
 - b.** an organization that rescues endangered species
 - c.** an organization that runs breeding programs for endangered species
 - d.** an agency of the EPA that manages wilderness areas
- _____ **23.** Economic systems _____
- _____ natural systems.
- a.** operate within
 - b.** are independent of
 - c.** have no relation to
 - d.** are equal to
- _____ **24.** A policy that rewards a company financially for reducing the amount of waste produced is an example of
- a.** the relationship between economics and the environment.
 - b.** an economic incentive.
 - c.** economic growth.
 - d.** globalization.
- _____ always agree on how to solve environmental problems.
- c.** international agreements are not binding.
 - d.** globalization is increasing.