HOLT CALIFORNIA

Life Science

Study Guide A
with Directed Reading Worksheets

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TO THE STUDENT

Do you need to review the concepts in the text? If so, this booklet will help you. The *Study Guide* is an important tool to help you organize what you have learned from the chapter so that you can succeed in your studies. The booklet contains a Directed Reading worksheet and a Vocabulary and Section Summary worksheet for each section of the chapter.

Use these worksheets in the following ways:

- as a reading guide to identify and study the main concepts of each chapter before or after you read the text
- as a place to record and review the main concepts and definitions from the text
- as a reference to determine which topics you have learned well and which topics you may need to study further

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Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Asking About Life (pp. 8–11)

Write the letter of the correct answer in the space provided.

_____ **1.** What is the first step in a scientific investigation?
- **a.** drawing a conclusion
- **b.** doing research
- **c.** asking questions
- **d.** solving problems

_____ **2.** What is the study of living things called?
- **a.** technology
- **b.** life science
- **c.** investigation
- **d.** asking questions

STARTING WITH A QUESTION

_____ **3.** What do algae, redwood trees, and whales show?
- **a.** the diversity of life
- **b.** life science
- **c.** lab investigations
- **d.** asking questions

_____ **4.** What is NOT a question you could ask about a living thing?
- **a.** How does it get food?
- **b.** Where does it live?
- **c.** How can I build one?
- **d.** Why does it behave this way?

In Your Own Backyard

_____ **5.** Which of the following is a life science question you might ask about an organism?
- **a.** Can that model airplane fly?
- **b.** What is your dog's name?
- **c.** Are you happy today?
- **d.** Why do leaves change color in the fall?

Touring the World

_____ **6.** What will you find just about anywhere in the world you go?
- **a.** deserts
- **b.** oceans
- **c.** organisms
- **d.** forests

INVESTIGATION: THE SEARCH FOR ANSWERS

_____ **7.** Once you ask a question, what should you do next?
- **a.** Stop investigating.
- **b.** Come to a conclusion.
- **c.** Start another project.
- **d.** Look for an answer.

Research

_____ **8.** What is the only information that scientists use?
- **a.** information from reliable sources
- **b.** information from their families
- **c.** information from the government
- **d.** information from the World Wide Web

Observation

Match the correct description with the correct term. Write the letter in the space provided.

_____ **9.** looking for information in print and electronic sources

_____ **10.** doing an activity designed to answer a question

_____ **11.** looking carefully at something

- **a.** research
- **b.** observation
- **c.** experimentation

WHY ASK QUESTIONS?

Fighting Diseases

Use the terms from the following list to complete the sentences below.

pollution environment
food diseases

12. Life scientists learn about _____ such as AIDS in order to try to find cures.

13. Some life scientists study ways to produce enough _____ to feed everyone.

14. Scientists find solutions to such problems as the extinction of wildlife by studying the _____.

15. One environmental problem that can harm the health of living organisms is _____.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Scientific Methods (pp. 12–19)

WHAT ARE SCIENTIFIC METHODS?

Use the terms from the following list to complete the sentences below.

asking questions scientific methods

1. The _____ are a series of steps scientists use to solve problems.

2. One step of the scientific methods is _____.

ASK A QUESTION

Write the letter of the correct answer in the space provided.

_____ **3.** What usually happens when you observe something that is hard to explain?
- **a.** You ask questions.
- **b.** You do experiments
- **c.** You forget about it.
- **d.** You do nothing.

MAKE OBSERVATIONS

Use the terms from the following list to complete the sentences below.

counting accurate measurements

4. The students made observations by _____ deformed frogs and normal frogs.

5. The students photographed the frogs and took _____ of them, as well as writing descriptions.

6. Observations are useful only if they are _____.

Types of Observations

Write the letter of the correct answer in the space provided.

_____ **7.** What is any information that you gather through your senses called?
- **a.** research.
- **b.** observation
- **c.** experimentation
- **d.** question

_____ **8.** What is a tool scientists use to make observations?
- **a.** a hammer
- **b.** a calculator
- **c.** a microscope
- **d.** a spoon

FORM A HYPOTHESIS

_____ **9.** What is a possible explanation or answer to a question called?
- **a.** an experiment
- **b.** a hypothesis
- **c.** an observation
- **d.** a measurement

_____ **10.** What is true of a good hypothesis?
- **a.** It is an experiment.
- **b.** It is easy to remember.
- **c.** It is always true.
- **d.** It can be tested.

_____ **11.** What should a hypothesis be based on?
- **a.** observation
- **b.** tools
- **c.** explanation
- **d.** a statement

Predictions

_____ **12.** What is a statement of cause and effect that can help test a hypothesis?
- **a.** an experiment.
- **b.** an observation
- **c.** a prediction
- **d.** a measurement

_____ **13.** How are predictions usually stated?
- **a.** as a question
- **b.** in an if-then format
- **c.** in code
- **d.** as a hypothesis

TEST THE HYPOTHESIS

Use the terms from the following list to complete the sentences below.

controlled experiment variable factor

14. Anything in an experiment that can influence an experiment's outcome is considered a(n) _____.

15. An experiment that tests only one factor at a time is a(n) _____.

16. The factor that differs between groups in an experiment is the _____.

Designing an Experiment

Write the letter of the correct answer in the space provided.

_____ **17.** What must be considered when you design an experiment?
- **a.** every factor
- **b.** temperature
- **c.** many variables
- **d.** light

_____ **18.** What guidelines must scientists use when designing an experiment?
- **a.** artistic
- **b.** ethics
- **c.** historical
- **d.** controlled

Collecting Data

_____ **19.** Why do scientists try to test many individuals?
- **a.** to be more certain of their data
- **b.** to get a good hypothesis
- **c.** to have many variables
- **d.** to have a big experiment

_____ **20.** What is one way that scientists can support their conclusions?
- **a.** by stopping their investigation
- **b.** by telling their family
- **c.** by repeating experiments
- **d.** by asking questions

ANALYZE THE RESULTS

_____ **21.** What do scientists do before they analyze the results of an experiment?
- **a.** They organize the data.
- **b.** They begin a new experiment.
- **c.** They draw a conclusion.
- **d.** They write up their results.

DRAW CONCLUSIONS

_____ **22.** What are scientists deciding when they draw conclusions?
- **a.** whether to put the data in a graph
- **b.** which factor is the variable
- **c.** whether the results support their hypothesis
- **d.** which group should be the control group

_____ **23.** What must a scientist do when a hypothesis is proved wrong?
- **a.** organize the data again
- **b.** find another explanation
- **c.** tell people it was right
- **d.** retire from science

What Is the Answer?

_____ **24.** What is true about finding an answer to a question?
- **a.** It may begin another investigation.
- **b.** No more questions can arise.
- **c.** The question was not good.
- **d.** The experiment was done wrong.

COMMUNICATE RESULTS

_____ **25.** Why do scientists share their results?
- **a.** so other scientists can make money from them
- **b.** so other scientists can repeat the experiments
- **c.** to practice writing
- **d.** to hide their mistakes

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Tools and Measurement (pp. 20–25)

Write the letter of the correct answer in the space provided.

_____ **1.** What do life scientists use to make observations and to handle information?
- **a.** ideas
- **b.** tools
- **c.** hypotheses
- **d.** conclusions

TECHNOLOGY IN SCIENCE

_____ **2.** Which of the following means the use of science for practical purposes?
- **a.** scientific methods
- **b.** problem solving
- **c.** technology
- **d.** measurement

Calculators and Computers

Use the terms from the following list to complete the sentences below.

computers calculations equations

3. Calculators and computers can be used by scientists to make quick and accurate _____ of data.

4. Some calculators and computers can be programed to solve _____.

5. Scientists use _____ to share data and ideas and to publish reports of their work.

Binoculars

Match the correct description with the correct term. Write the letter in the space provided.

_____ **6.** bounces electrons off something to make a 3-D image

_____ **7.** helps scientists make observations from a distance

_____ **8.** passes electrons through something to make a flat image

_____ **9.** uses lenses to magnify small objects so they can be seen

a. binoculars
b. scanning electron microscope
c. compound light microscope
d. transmission electron microscope

MEASUREMENT

The International System of Units

Write the letter of the correct answer in the space provided.

_____ **10.** Which is an important skill in science?
- **a.** the ability to make reliable measurements
- **b.** knowledge of astronomy
- **c.** knowing the length of a foot
- **d.** the ability to guess about sizes

_____ **11.** Which is an advantage of the SI system?
- **a.** It is based on grains of wheat.
- **b.** It helps scientists share information.
- **c.** It is based on astronomy.
- **d.** It works most of the time.

_____ **12.** Why is the SI system easy to use?
- **a.** Most SI units are based on 10.
- **b.** Most SI units are inches, feet, and quarts.
- **c.** Most SI units are very large.
- **d.** There are a great number of SI units.

Length

_____ **13.** Which unit is used for measuring length?
- **a.** grams (g)
- **b.** milliliters (mL)
- **c.** millimeters (mm)
- **d.** cubic centimeters (cm^3)

Area

_____ **14.** What is a measure of how much surface an object has?
- **a.** area
- **b.** length
- **c.** micrometers
- **d.** volume

_____ **15.** How is area stated?
- **a.** in meters and centimeters
- **b.** in volumes
- **c.** in liters
- **d.** in square units

Volume

_____ **16.** What is the term for the size of an object in three-dimensional space?
- **a.** its length
- **b.** its area
- **c.** its volume
- **d.** its mass

_____ **17.** Which of the following is NOT used to measure volume?
- **a.** square micrometer
- **b.** cubic centimeter
- **c.** milliliter
- **d.** liter

_____ **18.** What tool could you use to measure the volume of a liquid?
- **a.** a meter stick
- **b.** a balance
- **c.** a microscope
- **d.** a graduated cylinder

_____ **19.** How do you find the volume of a box-shaped object?
- **a.** Multiply its length by its width.
- **b.** Multiply its length by its width and then by its height.
- **c.** Divide its length by its width.
- **d.** Add its width, length, and height.

Mass and Weight

_____ **20.** What term means the amount of matter in an object?
- **a.** its length
- **b.** its area
- **c.** its volume
- **d.** its mass

_____ **21.** Which of the following is NOT true about the mass of an object?

a. It changes depending on where it is.
b. It is the same anywhere in the universe.
c. It can be measured by using a balance.
d. It can be described in grams.

_____ **22.** What is weight?

a. a measure of surface area
b. a measure of the amount of matter
c. a measure of the force of gravity
d. a measure of volume

Temperature

Use the terms from the following list to complete the sentences below.

energy kelvin temperature

23. The measure of how hot or cold something is is called _____.

24. Temperature actually shows the amount of _____ within matter.

25. Scientists use degrees Celsius to describe temperature, but the official SI unit is the _____.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Scientific Models and Knowledge (pp. 26–31)

TYPES OF SCIENTIFIC MODELS

Write the letter of the correct answer in the space provided.

_____ **1.** What is a representation of an object or system?
- **a.** a model
- **b.** a prediction
- **c.** an observation
- **d.** a limitation

_____ **2.** What is a problem with models?
- **a.** They are small.
- **b.** They are not real.
- **c.** They are on computers.
- **d.** They may be physical.

_____ **3.** Which of these is NOT a type of scientific model?
- **a.** fashion model
- **b.** conceptual model
- **c.** mathematical model
- **d.** physical model

Physical Models

_____ **4.** Which is a physical model?
- **a.** an equation
- **b.** a comparison
- **c.** a toy rocket
- **d.** human bones

Mathematical Models

_____ **5.** What kind of model is made of numbers and equations?
- **a.** mathematical model
- **b.** scientific method
- **c.** physical model
- **d.** conceptual model

_____ **6.** Which of the following is an example of a mathematical model?
- **a.** a plastic skeleton
- **b.** a model airplane
- **c.** a graph of life expectancy
- **d.** a drawing of a human cell

_____ **7.** What is NOT true of computers?
- **a.** They are useful for creating mathematical models.
- **b.** They always make correct models.
- **c.** They can keep track of many variables.
- **d.** They make fewer mistakes than humans.

Conceptual Models

_____ **8.** What kind of scientific model is a diagram that shows how something works?
- **a.** mathematical model
- **b.** physical model
- **c.** simple model
- **d.** conceptual model

_____ **9.** What can a conceptual model show?
- **a.** what a dinosaur looked like
- **b.** where a city is located
- **c.** how parts of a system affect one another
- **d.** how long people live

USING SCALE IN MODELS

Use the terms from the following list to complete the sentences below.

proportions scale

10. The relationship between the measurement of a model and the measurement of the real object is called _____.

11. Scale models, maps, and diagrams have _____ that match those of the real object.

BENEFITS OF MODELS

Write the letter of the correct answer in the space provided.

_____ **12.** What are models NOT used for?
- **a.** to read diagrams and maps
- **b.** to show animals that no longer exist
- **c.** to represent very complicated machines
- **d.** to show things that are very large or small

_____ **13.** What can be a kind of hypothesis?
- **a.** a question
- **b.** a model
- **c.** a limitation
- **d.** an observation

BUILDING SCIENTIFIC KNOWLEDGE

_____ **14.** What happens to scientific knowledge when scientists find new answers?
- **a.** It changes and gets smaller.
- **b.** It grows and changes.
- **c.** It disappears.
- **d.** It is no longer respected.

Scientific Theories

Match the correct description with the correct term. Write the letter in the space provided.

_____ **15.** a summary of many experimental results that rarely changes

_____ **16.** an explanation that ties together many related facts and observations

- **a.** theory
- **b.** law

Combining Scientific Ideas

Write the letter of the correct answer in the space provided.

_____ **17.** What kinds of laws are at work inside your cells?
- **a.** simple laws
- **b.** laws of measurement
- **c.** civil laws
- **d.** laws of chemistry

_____ **18.** Why are there few laws within life science?
- **a.** because there are many theories
- **b.** because living organisms are simple
- **c.** because living organisms are complex
- **d.** because there are no investigations

Scientific Change

_____ **19.** What did computer models of *Apatosaurus's* neck show?
- **a.** that scientific ideas can change
- **b.** that old ideas are the best
- **c.** that scientific ideas never change
- **d.** that models are not useful

Evaluating Scientific Ideas

_____ **20.** What kind of theory do most scientists accept?
- **a.** those that will make them money
- **b.** those that the government supports
- **c.** those that their families like
- **d.** those supported by the most evidence

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Safety in Science (pp. 32–37)

THE IMPORTANCE OF SAFETY RULES

Write the letter of the correct answer in the space provided.

_____ **1.** What is the state of being free of injury or danger?
- **a.** experiments
- **b.** science
- **c.** accidents
- **d.** safety

_____ **2.** What is the most important safety rule in science?
- **a.** Follow your teacher's directions.
- **b.** Wear an apron.
- **c.** Don't do experiments.
- **d.** Don't ask questions.

Preventing Accidents

_____ **3.** Why should you obey safety rules?
- **a.** to please your teacher
- **b.** to prevent accidents
- **c.** to learn more science
- **d.** to have more fun

Preventing Injury

_____ **4.** How can safety rules help you avoid or reduce injury?
- **a.** by preventing all accidents
- **b.** by protecting you when accidents happen
- **c.** by protecting lab equipment from ever being damaged
- **d.** by preventing only the worst accidents

ELEMENTS OF SAFETY

_____ **5.** What can safety symbols alert you to?
- **a.** ways to make friends
- **b.** new experiments
- **c.** possible dangers
- **d.** new ways to learn

Safety Symbols

_____ **6.** Which of the following are on your chart of safety symbols?
- **a.** toy safety, sports safety
- **b.** electrical safety, chemical safety
- **c.** water safety, boating safety
- **d.** automobile safety, traffic safety

_____ **7.** What is NOT something that the animal safety symbol tells you to do?
- **a.** Use animals provided by your teacher.
- **b.** Bring wild animals into the classroom.
- **c.** Wash your hands after the activity.
- **d.** Pick up the animals the way your teacher tells you to.

Reading and Following Directions

_____ **8.** What should you do before every science experiment?
- **a.** Turn on your hot plate.
- **b.** Read all the instructions carefully.
- **c.** Ask your friend what to do.
- **d.** Tell your friends what to do.

_____ **9.** If you don't understand directions, what should you do?
- **a.** Do another experiment.
- **b.** Skip over them.
- **c.** Ask your friend to explain them.
- **d.** Ask your teacher to explain them.

Neatness Counts!

_____ **10.** Why should you arrange your materials neatly during an experiment?
- **a.** so you can find them easily
- **b.** to make your teacher happy
- **c.** so your work area looks nice
- **d.** so you can go home early

Using Proper Safety Equipment

_____ **11.** What should you do if you need to handle hot objects?
- **a.** Use your apron.
- **b.** Ask your friend to handle them.
- **c.** Wear heat-resistant gloves.
- **d.** Give them to your teacher.

Proper Cleanup Procedures

_____ **12.** What should you do with open bottles after an activity?
- **a.** Leave them open.
- **b.** Place the caps back on them.
- **c.** Take them home.
- **d.** Wash and dry them.

Match the correct description with the correct element of safety. Write the letter in the space provided.

_____ **13.** clearing your backpack off your work area

_____ **14.** washing your glassware

_____ **15.** wearing goggles and protective gloves

_____ **16.** knowing what the symbol of a flame means

_____ **17.** reading instructions before you start an activity

- **a.** recognizing safety symbols
- **b.** following directions
- **c.** practicing neatness
- **d.** using the right safety equipment
- **e.** cleaning up properly

PROPER ACCIDENT PROCEDURES

Match the correct description with the correct safety step. Write the letter in the space provided.

_____ **18.** Help your teacher with clean up or first aid.

_____ **19.** Secure the area around the accident.

_____ **20.** Remain calm and check the situation.

_____ **21.** Tell your teacher or call for help.

- **a.** step 1
- **b.** step 2
- **c.** step 3
- **d.** step 4

Write the letter of the correct answer in the space provided.

_____ **22.** What should you know about emergency equipment in your classroom?
- **a.** who made it and what it is called
- **b.** how to use it and where it is kept
- **c.** when it was made and how to use it
- **d.** who made it and where it is kept

PROPER FIRST-AID PROCEDURES

_____ **23.** What is first aid?
- **a.** a healthful fruit drink
- **b.** food and water for sick people
- **c.** hospital care for injured people
- **d.** temporary emergency medical care for injured people

_____ **24.** Which of the following is first aid for a small cut?
- **a.** Hold it under running water for 15 minutes.
- **b.** Clean, cover with gauze, and apply pressure.
- **c.** Rinse with eyewash.
- **d.** Leave the injury alone.

_____ **25.** How would you treat a minor heat-related burn?
- **a.** Hold it under running water for 15 minutes.
- **b.** Rinse with eyewash.
- **c.** Clean, cover with gauze, and apply pressure.
- **d.** Put butter on it.

_____ **26.** What should an injured person do after being treated with a first-aid procedure?
- **a.** eat some healthy food
- **b.** do nothing else
- **c.** send a report to the police
- **d.** see a doctor for more treatment

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Asking About Life

VOCABULARY

In your own words, write a definition of the following term in the space provided.

1. life science

_____

_____

_____

SECTION SUMMARY

Read the following section summary.

- Science is a process of gathering knowledge about the natural world. Science includes making observations and asking questions. Life science is the study of living things.
- To find answers to your questions, you can make observations, do experiments, or use print and electronic resources to do research.
- Life science can help find cures for diseases, can research food sources, can monitor pollution, and can help living things survive.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Scientific Methods

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. scientific methods

2. hypothesis

3. controlled experiment

4. variable

SECTION SUMMARY

Read the following section summary.

- Scientific methods are the ways in which scientists follow steps to answer questions and solve problems.
- Any information gathered through the senses is an observation. Observations often lead to the formation of questions and hypotheses.
- A hypothesis is a possible explanation or answer to a question. A well-formed hypothesis may be tested by experiments.
- A controlled experiment tests only one factor at a time and consists of a control group and one or more experimental groups.
- After testing a hypothesis, scientists analyze the results and draw conclusions about whether the hypothesis is supported.
- Communicating results allows others to check the results, add to their knowledge, and design new experiments.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Tools and Measurement

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. technology

2. compound light microscope

3. electron microscope

4. area

5. volume

6. mass

7. weight

8. temperature

SECTION SUMMARY

Read the following section summary.

- Life scientists use tools to collect, store, organize, analyze, and share data.
- Scientists use technology such as calculators, computers, binoculars, and microscopes.
- The International System of Units (SI) is a simple and reliable system of measurement that is used by most scientists.
- Graduated cylinders measure the volume of liquids, rulers measure length, thermometers measure temperature, and balances measure mass.
- You can calculate the area and volume of box-shaped solids by using measurements taken with a ruler.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Scientific Models and Knowledge

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. model

2. scale

3. theory

4. law

SECTION SUMMARY

Read the following section summary.

- A model is a representation of an object or system. Models often use familiar things to represent unfamiliar things. Three main types of models are physical, mathematical, and conceptual models.
- Scale models, maps, or diagrams match the proportions of the objects they represent.
- Scientific knowledge is built as scientists form and revise scientific hypotheses, models, theories, and laws.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Safety in Science

VOCABULARY

In your own words, write a definition of the following term in the space provided.

1. first aid

_____

_____

_____

SECTION SUMMARY

Read the following section summary.

- Following safety rules helps prevent accidents and helps reduce injury.
- Five elements of safety are recognizing safety symbols, following directions, being neat, using proper safety equipment, and using proper cleanup procedures.
- Animals used in scientific research require special care.
- When an accident happens, you should assess the situation, secure the area, tell your teacher, and help your teacher with cleanup or first aid.
- First aid is emergency medical care. Some first-aid procedures can be done without training.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Characteristics of Living Things (pp. 52–55)

Write the letter of the correct answer in the space provided.

_____ **1.** How many characteristics do all living things share?
- **a.** one
- **b.** five
- **c.** six
- **d.** ten

LIVING THINGS HAVE CELLS

_____ **2.** How many cells do all living things have?
- **a.** one or more
- **b.** none
- **c.** only two
- **d.** only five

_____ **3.** What is one characteristic that all living things share?
- **a.** All living things have eyes.
- **b.** All living things have cells.
- **c.** All living things have hair.
- **d.** All living things have skin.

_____ **4.** What is the smallest functional and structural unit of life called?
- **a.** cell membrane
- **b.** bacterium
- **c.** cell
- **d.** organism

_____ **5.** Which of the following separates a cell's contents from the cell's environment?
- **a.** outer husk
- **b.** watery cushion
- **c.** hard shell
- **d.** cell membrane

LIVING THINGS SENSE AND RESPOND TO CHANGE

_____ **6.** What are all living things able to do?
- **a.** All living things can sense and respond to change.
- **b.** All living things can smell.
- **c.** All living things can taste.
- **d.** All living things can see.

_____ **7.** A change that affects an organism's activity is called what?
- **a.** cell
- **b.** stimulus
- **c.** protist
- **d.** bacterium

_____ **8.** Which of the following is NOT a stimulus?
- **a.** sound
- **b.** light
- **c.** hunger
- **d.** bacterium

Homeostasis

Use the terms from the following list to complete the sentences below.

homeostasis environment shivering

9. Maintenance of a constant internal state in a changing environment is called _____.

10. When you are _____, your body is trying to return its temperature to normal.

11. Some organisms control body temperature by moving from one _____ to another.

LIVING THINGS REPRODUCE

Match the correct definition with the correct term. Write the letter in the space provided.

_____ **12.** process in which two parents produce offspring that share both parents' traits

_____ **13.** process in which one parent produces offspring that are identical to the parent

- **a.** asexual reproduction
- **b.** sexual reproduction

LIVING THINGS HAVE DNA

Use the terms from the following list to complete the sentences below.

heredity DNA

14. The cells of all living things contain _____, also known as deoxyribonucleic acid.

15. The passing of traits, or _____, occurs when parents pass copies of their DNA to their offspring.

LIVING THINGS USE ENERGY

Write the letter of the correct answer in the space provided.

_____ **16.** How do living things carry out the chemical activities of life?
- **a.** by shivering
- **b.** by reproducing
- **c.** by growing
- **d.** by using energy

_____ **17.** The sum of all chemical processes that occur in an organism is called what?
- **a.** homeostasis
- **b.** heredity
- **c.** metabolism
- **d.** stimulus

LIVING THINGS GROW AND DEVELOP

_____ **18.** Which of the following statements about growth and development is NOT true?
- **a.** All living things grow during parts of their lives.
- **b.** A single-celled organism grows and divides.
- **c.** A multicellular organism shrinks and divides.
- **d.** Living things may develop and change.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: The Necessities of Life (pp. 56–61)

Write the letter of the correct answer in the space provided.

_____ **1.** Which of the following is NOT a basic need for almost every organism?
- **a.** air
- **b.** electricity
- **c.** food
- **d.** water

WATER

_____ **2.** What is the human body mostly made of?
- **a.** air
- **b.** fat
- **c.** skin
- **d.** water

_____ **3.** The cells of most living things are made up of approximately how much water?
- **a.** 5%
- **b.** 50%
- **c.** 70%
- **d.** 99%

_____ **4.** Which of the following does metabolism require?
- **a.** water
- **b.** electricity
- **c.** carbon monoxide
- **d.** gravity

_____ **5.** About how many days can a person survive without water?
- **a.** one
- **b.** three
- **c.** seven
- **d.** ten

AIR

_____ **6.** Which of the following is NOT a gas that makes up air?
- **a.** nitrogen
- **b.** carbon dioxide
- **c.** kerosene
- **d.** oxygen

_____ **7.** Which of the following do most living things use to release energy from food?
- **a.** carbon monoxide
- **b.** oxygen
- **c.** helium
- **d.** sulfur dioxide

_____ **8.** Which of the following do green plants need to release energy from food?
- **a.** carbon dioxide and helium
- **b.** oxygen and hydrogen
- **c.** carbon monoxide and hydrogen
- **d.** oxygen and carbon dioxide

_____ **9.** What are organisms that can live without air called?
- **a.** anaerobic
- **b.** asexual
- **c.** metabolic
- **d.** aerobic

A PLACE TO LIVE

_____ **10.** What do all living things need to have where they live?
- **a.** ocean water and algae
- **b.** tall trees and shrubs
- **c.** nitrogen and carbon monoxide
- **d.** things needed to survive

FOOD

_____ **11.** Which of the following do living things use to replace cells and build body parts?
- **a.** hydrogen from photosynthesis
- **b.** nutrients from food
- **c.** oxygen from homeostasis
- **d.** DNA from cells

Making Food

Use the terms from the following list to complete the sentences below.

consumers producers decomposers

12. Organisms that can make their own food are called _____.

13. Organisms that eat other organisms to get food are called _____.

14. Organisms that get food by breaking down the nutrients in dead organisms are called _____.

PUTTING IT ALL TOGETHER

Use the terms from the following list to complete the sentences below.

molecules nutrients compounds

15. All organisms break down food to use the _____ in it.

16. Substances made when two or more atoms combine are called _____.

17. Molecules made up of different kinds of atoms are called _____.

PROTEINS

Use the terms from the following list to complete the sentences below.

proteins enzymes
amino acids hemoglobin

18. Molecules that are needed to repair and regulate the body are called _____.

19. Living things break down proteins in food to supply cells with _____.

20. A protein in red blood cells that binds oxygen is called _____.

21. Proteins that speed up chemical reactions in cells are called _____.

CARBOHYDRATES

Write the letter of the correct answer in the space provided.

_____ **22.** What is the class of molecules that includes sugar, starches, and fiber called?
- **a.** proteins
- **b.** amino acids
- **c.** enzymes
- **d.** carbohydrates

_____ **23.** Which of the following provide and store energy for cells?
- **a.** carbohydrates
- **b.** amino acids
- **c.** DNA molecules
- **d.** proteins

Simple Carbohydrates

Use the terms from the following list to complete the sentences below.

simple carbohydrates glucose complex carbohydrates

24. One sugar molecule or a few linked sugar molecules make up _____.

25. The most common source of energy for cells is called _____.

26. Living things store extra sugar as _____, which are made of hundreds of sugar molecules.

LIPIDS

Write the letter of the correct answer in the space provided.

_____ **27.** What is a fat molecule that can store energy called?
- **a.** amino acid
- **b.** protein
- **c.** lipid
- **d.** carbohydrate

Phospholipids

_____ **28.** Which of the following form much of the cell membrane?
- **a.** carbohydrates
- **b.** phospholipids
- **c.** enzymes
- **d.** proteins

_____ **29.** Which of the following statements about cell membranes is true?
- **a.** The cell membrane does not protect the cell.
- **b.** The cell membrane does not help maintain homeostasis.
- **c.** Water cannot pass through a cell membrane.
- **d.** Water can pass through a cell membrane.

Fats and Oils

_____ **30.** What do fats and oils do?
- **a.** store energy
- **b.** produce DNA
- **c.** carry out photosynthesis
- **d.** produce proteins

ATP

_____ **31.** Which of the following is the major energy-carrying molecule in a cell?
- **a.** carbohydrate
- **b.** lipid
- **c.** ATP
- **d.** nucleic acid

_____ **32.** Which of the following molecules transfer energy to ATP to provide fuel for cells?
- **a.** carbohydrates and lipids
- **b.** enzymes and amino acids
- **c.** amino acids and proteins
- **d.** lipids and enzymes

NUCLEIC ACIDS

Match the correct description with the correct term. Write the letter in the space provided.

_____ **33.** molecules that carry the directions for how proteins are made

_____ **34.** smaller molecules that make up nucleic acids

_____ **35.** an example of a nucleic acid

- **a.** nucleotides
- **b.** DNA
- **c.** nucleic acids

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Characteristics of Living Things

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. cell

2. homeostasis

3. sexual reproduction

4. asexual reproduction

5. metabolism

SECTION SUMMARY

Read the following section summary.

- Organisms are made up of one or more cells.
- Organisms detect and respond to stimuli.
- Organisms reproduce through sexual or asexual reproduction.
- Organisms have DNA.
- Organisms use energy to carry out their activities.
- Organisms grow and develop.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

The Necessities of Life

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. producer

2. consumer

3. decomposer

4. protein

5. carbohydrate

6. lipid

7. phospholipid

8. ATP

9. nucleic acid

_____

_____

SECTION SUMMARY

Read the following section summary.

- The cells of living things need water to function.
- The cells of some living things need gases, such as oxygen, to release the energy contained in food.
- Living things must have a place to live.
- Cells store energy in carbohydrates, which are made up of sugars.
- Proteins are made up of amino acids. Some proteins are enzymes.
- Lipids store energy and make up cell membranes.
- Cells use molecules of ATP to fuel their activities.
- Nucleic acids, such as DNA, are made up of nucleotides.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: The Electromagnetic Spectrum (pp. 76–81)

Write the letter of the correct answer in the space provided.

_____ **1.** How are ultraviolet light and visible light similar?
- **a.** Neither form of light can be seen by bees.
- **b.** Neither form of light can be seen by humans.
- **c.** Both forms of light are energy that travels as waves.
- **d.** Both forms of light can be seen by humans.

LIGHT: AN ELECTROMAGNETIC WAVE

_____ **2.** How is light different from other kinds of waves?
- **a.** Light does not need to travel through matter.
- **b.** Light cannot travel through empty space.
- **c.** Light must travel through matter.
- **d.** Light cannot travel through matter.

_____ **3.** What kind of wave is light?
- **a.** water wave
- **b.** electric wave
- **c.** sound wave
- **d.** electromagnetic (EM) wave

_____ **4.** What does an electromagnetic wave consist of?
- **a.** changing chemical fields
- **b.** changing electric and magnetic fields
- **c.** changing gravitational fields
- **d.** changing motion fields

A SPECTRUM OF WAVES

_____ **5.** Which of the following is NOT an EM wave?
- **a.** radio wave
- **b.** infrared wave
- **c.** water wave
- **d.** X ray

_____ **6.** What is the entire range of EM waves called?
- **a.** cosmic spectrum
- **b.** electromagnetic spectrum
- **c.** electric spectrum
- **d.** magnetic spectrum

_____ **7.** Which of the following makes up only a small band within the electromagnetic spectrum?
- **a.** visible light waves
- **b.** sound waves
- **c.** water waves
- **d.** invisible light waves

Wavelength and the EM Spectrum

_____ **8.** How do EM waves differ from each other?
- **a.** Each EM wave has a different sound.
- **b.** Each EM wave has a different wavelength.
- **c.** Each EM wave is made of different matter.
- **d.** Each EM wave has a different weight.

_____ **9.** The distance between identical points on two waves is called what?
- **a.** waveform
- **b.** wave speed
- **c.** frequency
- **d.** wavelength

INFRARED WAVES

_____ **10.** Which of the following statements about infrared waves is NOT true?
- **a.** Infrared waves from the sun warm Earth.
- **b.** Only the sun gives off infrared waves.
- **c.** Warm objects give off more infrared waves than cool objects.
- **d.** All things give off infrared waves.

_____ **11.** The amount of infrared waves an object gives off depends on what?
- **a.** the wave's speed and weight
- **b.** the wave's frequency and surface properties
- **c.** the object's weight and temperature
- **d.** the object's temperature and surface properties

VISIBLE LIGHT

_____ **12.** What is the range of the wavelengths of visible light?
- **a.** between 1 nm and 15 nm
- **b.** between 400 nm and 700 nm
- **c.** between 50 nm and 60 nm
- **d.** between 25 nm and 100 nm

Match the correct description with the correct term. Write the letter in the space provided.

_____ **13.** narrow range of wavelengths that humans can see

_____ **14.** process by which plants change visible light energy into chemical energy

_____ **15.** visible light of all wavelengths combined

a. photosynthesis
b. white light
c. visible light

Colors of Light

Write the letter of the correct answer in the space provided.

_____ **16.** What do the capital letters in the name ROY G. BiV stand for?
- **a.** the last letter of each color of visible light
- **b.** the first letter of each color of visible light
- **c.** the first letter of each type of EM wave
- **d.** the first letter of the word indigo

Match the correct description with the correct term. Write the letter in the space provided.

_____ **17.** color of the longest wavelength of visible light

_____ **18.** color of the shortest wavelength of visible light

_____ **19.** range of colors of light

a. violet light
b. visible spectrum
c. red light

ULTRAVIOLET LIGHT

Write the letter of the correct answer in the space provided.

_____ **20.** Which of the following statements about ultraviolet (UV) light is true?
- **a.** UV light has longer wavelengths than visible light does.
- **b.** UV light has shorter wavelengths than visible light does.
- **c.** UV light has wavelengths of 15 nm to 40 nm.
- **d.** UV light has wavelengths of 1 nm to 20 nm.

Bad Effects

_____ **21.** What type of cancer is caused by getting too much ultraviolet light?
- **a.** bone cancer
- **b.** lung cancer
- **c.** skin cancer
- **d.** breast cancer

_____ **22.** How can you protect your skin from getting too much ultraviolet light?
- **a.** Wear a short-sleeved shirt.
- **b.** Use sunscreen without an SPF.
- **c.** Use sunscreen with a high SPF.
- **d.** Wear short pants.

Good Effects

_____ **23.** Which of the following is a good effect of ultraviolet light?
- **a.** Ultraviolet light kills bacteria on food.
- **b.** Ultraviolet light can damage your eyes.
- **c.** Ultraviolet light attracts bacteria.
- **d.** Ultraviolet light converts light energy into chemical energy.

_____ **24.** What do skin cells produce when they are exposed to ultraviolet light?
- **a.** vitamin D
- **b.** vitamin A
- **c.** vitamin B
- **d.** vitamin C

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Interactions of Light with Matter (pp. 82–89)

REFLECTION

Write the letter of the correct answer in the space provided.

_____ **1.** What happens when light travels through a material that does not change?
- **a.** Light bounces off the material and disappears.
- **b.** Light travels in straight lines.
- **c.** Light travels in wavy lines.
- **d.** Light bounces off the material.

_____ **2.** Which of the following occurs when light waves bounce off an object?
- **a.** refraction
- **b.** incidence
- **c.** reflection
- **d.** diffraction

The Law of Reflection

_____ **3.** Which of the following angles are equal according to the law of reflection?
- **a.** angle of electromagnetism and angle of visible light
- **b.** angle of incidence and angle of visible light
- **c.** angle of reflection and angle of electromagnetism
- **d.** angle of incidence and angle of reflection

Match the correct description with the correct term. Write the letter in the space provided.

_____ **4.** line perpendicular to a mirror's surface

_____ **5.** beam of light reflected off a mirror

_____ **6.** beam of light traveling toward a mirror

- **a.** incident beam
- **b.** normal
- **c.** reflected beam

Match the correct description with the correct term. Write the letter in the space provided.

_____ **7.** arrival of a beam of light at a surface

_____ **8.** angle between the incident beam and the normal

_____ **9.** angle between the reflected beam and the normal

- **a.** angle of incidence
- **b.** angle of reflection
- **c.** incidence

Types of Reflection

Write the letter of the correct answer in the space provided.

_____ **10.** Which of the following occurs when light beams reflect at the same angle?
- **a.** regular reflection
- **b.** irregular reflection
- **c.** diffuse reflection
- **d.** angular reflection

_____ **11.** Which of the following occurs when light beams reflect at many different angles?
- **a.** regular reflection
- **b.** irregular reflection
- **c.** diffuse reflection
- **d.** angular reflection

Light Source or Reflection?

_____ **12.** Why can you see a light source in the dark?
- **a.** Your eyes reflect light emitted by the light source.
- **b.** Your eyes detect light emitted by the light source.
- **c.** Your eyes detect light that reflects off the object.
- **d.** Your eyes diffuse light emitted by the light source.

_____ **13.** Which of the following terms describes an object that emits visible light?
- **a.** luminous
- **b.** ominous
- **c.** illuminated
- **d.** shiny

_____ **14.** Which of the following terms describes a visible object that reflects light?
- **a.** luminous
- **b.** ominous
- **c.** illuminated
- **d.** normal

_____ **15.** Why can you see an object that is NOT a light source?
- **a.** Your eyes diffuse light that reflects off the object.
- **b.** Your eyes reflect light emitted by the light source.
- **c.** Your eyes detect light emitted by the light source.
- **d.** Your eyes detect light that reflects off the object.

ABSORPTION AND SCATTERING

Absorption of Light

_____ **16.** What happens during the process of absorption?
- **a.** Light energy is transferred to particles of matter.
- **b.** Light energy is diffused by particles of matter.
- **c.** Light energy is reflected by particles of matter.
- **d.** Light energy is illuminated by particles of matter.

_____ **17.** What happens to light when air particles absorb energy from the light?
- **a.** The light becomes bright.
- **b.** The light becomes dim.
- **c.** The light becomes infrared.
- **d.** The light becomes ultraviolet.

Scattering of Light

_____ **18.** What happens when light is scattered?
- **a.** Light is absorbed.
- **b.** Light is reflected.
- **c.** Light becomes brighter.
- **d.** Light changes direction.

_____ **19.** Which of the following makes the sky look blue?
- **a.** absorption
- **b.** reflection
- **c.** incidence
- **d.** scattering

LIGHT AND MATTER

_____ **20.** What is the passing of light through matter called?
- **a.** absorption
- **b.** radiation
- **c.** transmission
- **d.** reflection

_____ **21.** Why can you see objects outside through a glass window?
- **a.** Light is absorbed by the glass.
- **b.** Light is transmitted through the glass.
- **c.** Light is reflected off the glass.
- **d.** Light is dissolved by the glass.

_____ **22.** Why can you see your reflection in a window?
- **a.** Light is absorbed by the glass.
- **b.** Light is dissolved by the glass.
- **c.** Light is reflected off the glass.
- **d.** Light is transmitted through the glass.

_____ **23.** Why does a glass window feel warm when you touch it?
- **a.** Some light is absorbed by the glass.
- **b.** Some light is dissolved by the glass.
- **c.** Some light is magnified through the glass.
- **d.** Some light is transferred by the glass.

Types of Matter

Use the terms from the following list to complete the sentences below.

opaque transparent translucent

24. Visible light is easily transmitted through _____ objects such as glass and water.

25. Matter that transmits and scatters light, such as wax paper, is _____.

26. Matter that does not transmit light, such as metal, is _____.

COLORS OF OBJECTS

Write the letter of the correct answer in the space provided.

_____ **27.** Which of the following is determined by the wavelengths of light that reach your eyes?
- **a.** an object's texture
- **b.** an object's weight
- **c.** an object's color
- **d.** an object's temperature

Colors of Opaque Objects

_____ **28.** What happens when white light strikes a colored opaque object?
- **a.** Colors of light are absorbed and reflected.
- **b.** Colors of light are scattered and transmitted.
- **c.** Colors of light are absorbed and transmitted.
- **d.** Colors of light are absorbed and scattered.

_____ **29.** The color of an opaque object is based on what?
- **a.** the colors of light that are reflected
- **b.** the colors of light that are absorbed
- **c.** the colors of light that are transmitted
- **d.** the colors of light that are dissolved

_____ **30.** How many colors of light are reflected by a white object?
- **a.** none
- **b.** only green
- **c.** only purple
- **d.** all

_____ **31.** How many colors of light are absorbed by a black object?
- **a.** none
- **b.** only red
- **c.** only blue
- **d.** all

Colors of Transparent and Translucent Objects

_____ **32.** Why is ordinary window glass colorless in white light?
- **a.** The window glass transmits all colors of light.
- **b.** The window glass converts all colors of light.
- **c.** The window glass reflects all colors of light.
- **d.** The window glass absorbs all colors of light.

_____ **33.** Which of the following is seen through colored transparent or translucent objects?
- **a.** the color of light absorbed through the material
- **b.** the color of light dissolved through the material
- **c.** the color of light reflected by or transmitted through the material
- **d.** the color of light illuminated through the material

_____ **34.** What happens to colors that are NOT transmitted through or reflected by transparent or translucent objects?
- **a.** The colors are absorbed.
- **b.** The colors are dissolved.
- **c.** The colors are reflected.
- **d.** The colors are detected.

PIGMENTS AND COLOR

_____ **35.** What is the material that gives all substances their color called?
- **a.** chlorophyll
- **b.** pigment
- **c.** melanin
- **d.** SPF

Color Subtraction

_____ **36.** How many colors of light does each pigment absorb?
- **a.** at least one
- **b.** only two
- **c.** only three
- **d.** none

_____ **37.** Which of the following does mixing pigments involve?
- **a.** color correction
- **b.** color coding
- **c.** color subtraction
- **d.** color deficiency

_____ **38.** Which of the following are the primary pigments?
- **a.** yellow, cyan, and magenta
- **b.** white and black
- **c.** red, green, and blue
- **d.** blue, yellow, and red

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Refraction (pp. 90–97)

REFRACTION AND MEDIA

Write the letter of the correct answer in the space provided.

_____ **1.** When does a light wave refract?
- **a.** when a medium's density does not change
- **b.** when the medium it travels in changes
- **c.** when the wave changes light energy into chemical energy
- **d.** when the medium it travels in does not change

Use the terms from the following list to complete the sentences below.

refraction medium

2. A substance through which a wave travels is called a(n) _____.

3. The bending of a wave as it passes at an angle from one medium to another is called _____.

Refraction and Optical Illusions

Write the letter of the correct answer in the space provided.

_____ **4.** How does your brain interpret light when it reflects off an object?
- **a.** as traveling in a straight line
- **b.** as traveling in a wavy line
- **c.** as traveling in an S-shaped line
- **d.** as traveling in a curved line

_____ **5.** Which of the following can cause people to see optical illusions?
- **a.** transmission
- **b.** reflection
- **c.** refraction
- **d.** absorption

Refraction and Color Separation

_____ **6.** Which of the following make up white light?
- **a.** all wavelengths of ultraviolet light
- **b.** two wavelengths of ultraviolet light
- **c.** two wavelengths of visible light
- **d.** all wavelengths of visible light

_____ **7.** During which of the following processes does white light separate into different colors?
- **a.** absorption
- **b.** refraction
- **c.** scattering
- **d.** transmission

_____ **8.** Which of the following processes describes how rainbows form?
- **a.** color separation by refraction
- **b.** color separation by absorption
- **c.** color addition by refraction
- **d.** color subtraction by transmission

LENSES AND REFRACTION OF LIGHT

_____ **9.** What do cameras, telescopes, and the human eye have in common?
- **a.** They all use ultraviolet light to form images.
- **b.** They all use lenses to form images.
- **c.** They all use infrared waves to form images.
- **d.** They all use reflected light to form images.

Match the description with the correct term. Write the letter in the space provided.

_____ **10.** transparent object that forms an image by refracting light

_____ **11.** point at which light beams cross after passing through a lens

_____ **12.** distance between the lens and focal point

- **a.** focal point
- **b.** lens
- **c.** focal length

Convex Lenses

Write the letter of the correct answer in the space provided.

_____ **13.** Which of the following statements about convex lens images is NOT true?
- **a.** A real image is smaller than the object.
- **b.** A virtual image is smaller than the object
- **c.** A real image is larger than the object.
- **d.** A virtual image cannot be projected onto a screen.

_____ **14.** What do a magnifying glass and the human eye have in common?
- **a.** Both are concave lenses.
- **b.** Both are convex lenses.
- **c.** Neither contains lenses.
- **d.** Neither can refract light.

Match the correct description with the correct term. Write the letter in the space below.

_____ **15.** is thicker in the middle than at the edges

_____ **16.** is formed when an object is less than 1 focal length from a convex lens

_____ **17.** is formed when an object is more than 2 focal points from a convex lens

a. convex lens
b. virtual image
c. real image

Animal Eyes

Write the letter of the correct answer in the space provided.

_____ **18.** Which of the following animals has compound eyes?
- **a.** horse
- **b.** dog
- **c.** cat
- **d.** dragonfly

Concave Lenses

_____ **19.** How can a concave lens be described?
- **a.** thinner in the middle than at the edges
- **b.** thicker in the middle than at the edges
- **c.** always smaller than a convex lens
- **d.** always larger than a convex lens

_____ **20.** What happens to light rays when they travel through a concave lens?
- **a.** Light rays are transmitted.
- **b.** Light rays are absorbed.
- **c.** Light rays bend toward each other.
- **d.** Light rays bend away from each other.

_____ **21.** Which of the following images are formed by concave lenses?
- **a.** convex images
- **b.** both real and virtual images
- **c.** only virtual images
- **d.** only real images

OPTICAL INSTRUMENTS AND REFRACTION

Cameras

Use the terms from the following list to complete the sentences below.

aperture	shutter
lens	film

22. The longer the _____ is open, the more light enters the camera.

23. A camera has a convex _____ that focuses light on the film.

24. A camera stores an image on _____.

25. An opening that lets light into a camera is called a(n) _____.

Telescopes

Use the terms from the following list to complete the sentences below.

objective lens	refracting telescope	light microscope
eyepiece lens	convex lenses	

26. A tool that is used to see large, distant objects is called a(n) _____.

27. A real image is formed by a(n) _____.

28. A real image is magnified by a(n) _____.

29. A tool that is used to see tiny, nearby objects is called a(n) _____.

30. Light microscopes and refracting telescopes have two _____.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

The Electromagnetic Spectrum

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. electromagnetic wave

_____

_____

_____

2. electromagnetic spectrum

_____

_____

_____

SECTION SUMMARY

Read the following section summary.

- Light is an electromagnetic wave (EM wave). An EM wave can travel through matter or space.
- The entire range of EM waves is called the *electromagnetic spectrum*.
- Infrared waves from the sun warm Earth and everything on Earth.
- Visible light is the narrow range of wavelengths in the electromagnetic spectrum that humans can see.
- Humans see different wavelengths of visible light as different colors.
- Ultraviolet light is both harmful and helpful to living things.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Interactions of Light with Matter

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. reflection

_____

_____

2. absorption

_____

_____

3. scattering

_____

_____

4. transmission

_____

_____

SECTION SUMMARY

Read the following section summary.

- Light travels in straight lines if the material that the light is traveling through does not change.
- The law of reflection states that the angle of incidence is equal to the angle of reflection.
- Things that are luminous can be seen because they emit light. Things that are illuminated can be seen because they reflect light.
- Absorption is the transfer of light energy to particles of matter. Scattering is an interaction of light with matter that causes light to change direction.
- Light can be reflected, transmitted, and absorbed by matter.
- Colors of opaque objects are determined by the colors of light that they reflect.
- Colors of translucent and transparent objects are determined by the colors of light they transmit and reflect.
- Pigments give objects color. The primary pigments are magenta, cyan, and yellow.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Refraction

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. refraction

_____

_____

2. lens

_____

_____

3. convex lens

_____

_____

4. concave lens

_____

_____

SECTION SUMMARY

Read the following section summary.

- Light travels in straight lines if the medium through which the light travels does not change.
- Refraction is the bending of a wave, such as light, as it passes at an angle from one medium to another.
- Refraction of light can create optical illusions and can separate white light into different colors.
- Lenses form images by refracting light.
- Convex lenses produce both real images and virtual images.
- A magnifying glass and the lens of the human eye are convex lenses.
- Concave lenses produce only virtual images.
- Cameras, telescopes, and microscopes are optical instruments that use lenses to form images.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: The Characteristics of Cells (pp. 114–119)

Write the letter of the correct answer in the space provided.

_____ **1.** What is the smallest structural and functional unit of living things?
- **a.** organ
- **b.** cell
- **c.** tissue
- **d.** atom

CELLS AND THE CELL THEORY

_____ **2.** What did Robert Hooke build so he could see tiny objects?
- **a.** a microscope
- **b.** a telescope
- **c.** a spectrascope
- **d.** a camera

_____ **3.** What did Hooke call the little boxes that cork bark is made of?
- **a.** crates
- **b.** boxes
- **c.** cells
- **d.** atoms

_____ **4.** Why didn't Hooke think animals were made of cells?
- **a.** Hooke couldn't see animal cells.
- **b.** Animals do not have cells.
- **c.** Animal cells have cell walls.
- **d.** Animal cells are too dry.

Finding Cells in Other Organisms

_____ **5.** Where did Leeuwenhoek find what he called *animalcules*?
- **a.** in animal blood
- **b.** in bread dough
- **c.** in cells
- **d.** in pond scum

_____ **6.** What are the single-celled living things found in pond water called?
- **a.** blood
- **b.** proteins
- **c.** protists
- **d.** yeast

The Cell Theory

_____ **7.** What theory says that living things are made of cells?
- **a.** organic theory
- **b.** tissue theory
- **c.** structural theory
- **d.** cell theory

_____ **8.** According to cell theory, what is the basic piece of all living things?
- **a.** organ
- **b.** tissue
- **c.** blood
- **d.** cell

_____ **9.** According to cell theory, where do all cells come from?
- **a.** water
- **b.** air
- **c.** cells
- **d.** food

CELL SIZE

A Few Large Cells

_____ **10.** What is one cell that is big enough to be seen without a microscope?
- **a.** a chicken egg yolk
- **b.** a cork bark cell
- **c.** a blood cell
- **d.** a bacteria cell

Many Small Cells

_____ **11.** What keeps a cell from getting too big?
- **a.** surface area–to-volume ratio
- **b.** size of the nucleus
- **c.** amount of fluid in the cell
- **d.** hardness of the cell wall

_____ **12.** What do cells use to bring in food and get rid of water?
- **a.** their outer surface
- **b.** their inner surface
- **c.** their nucleus
- **d.** their yolk

_____ **13.** How do you figure out the surface area–to-volume ratio of a cell?

a. surface area × volume

b. surface area − volume

c. $\frac{\text{volume}}{\text{surface area}}$

d. $\frac{\text{surface area}}{\text{volume}}$

PARTS OF A CELL

Use the terms from the following list to complete the sentences below.

nucleus organelles cytoplasm
cell membrane DNA

14. The layer that protects every cell from its environment is the _____.

15. The fluid inside every cell is called _____.

16. Structures in every cell that have specific jobs are called _____.

17. At some time in its life, every cell has a(n) _____.

18. Plant and animal cells store DNA in an organelle called a(n) _____.

TWO KINDS OF CELLS

Use the terms from the following list to complete the sentences below.

eukaroytic prokaryotic

19. Cells that have a nucleus are _____.

20. Cells that do not have a nucleus are _____.

Prokaryotes

Write the letter of the correct answer in the space provided.

_____ **21.** What is a living thing with one cell and no nucleus called?

a. a prokaryote
b. a ribosome
c. a eukaryote
d. a protist

_____ **22.** What kind of molecule is the DNA of a prokaryote?
- **a.** long and circular
- **b.** short and straight
- **c.** long and spiral
- **d.** short and boxlike

_____ **23.** What are tiny, round organelles made mostly of protein called?
- **a.** cell membranes
- **b.** ribosomes
- **c.** cell walls
- **d.** nuclei

_____ **24.** What kind of cells have strong, weblike cell walls?
- **a.** prokaryotic
- **b.** eukaryotic
- **c.** archaic
- **d.** amoebas

Eukaryotes

_____ **25.** What living things have cells with a nucleus inside a membrane?
- **a.** prokaryotes
- **b.** ribosomes
- **c.** eukaryotes
- **d.** bacteria

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Eukaryotic Cells (pp. 120–127)

CELL WALL

Write the letter of the correct answer in the space provided.

_____ **1.** What are cell walls of plants and algae made of?
- **a.** cytoskeleton
- **b.** cellulose
- **c.** cytoplasm
- **d.** celluloid

_____ **2.** What is one part that plant cells have that animal cells don't have?
- **a.** cell wall
- **b.** nucleus
- **c.** ribosome
- **d.** organelle

CELL MEMBRANE

_____ **3.** What separates the things inside a cell from the things outside the cell?
- **a.** cell ribosomes
- **b.** cell organelles
- **c.** cell membrane
- **d.** cell wall

_____ **4.** How many phospholipid layers does a cell membrane have?
- **a.** one
- **b.** two
- **c.** three
- **d.** four

_____ **5.** How does food go in and waste go out of a cell membrane?
- **a.** through carbohydrate passageways
- **b.** through cellulose passageways
- **c.** through carbon passageways
- **d.** through protein passageways

CYTOSKELETON

_____ **6.** What is a web of proteins in the cytoplasm of some cells called?
- **a.** cytoskeleton
- **b.** exoskeleton
- **c.** cell wall
- **d.** cell membrane

_____ **7.** How do animal cells get their shape?
- **a.** from the cell wall
- **b.** from the cell membrane
- **c.** from the exoskeleton
- **d.** from the cytoskeleton

NUCLEUS

_____ **8.** What is inside the nucleus of a eukaryotic cell?
- **a.** DNA
- **b.** proteins
- **c.** cellulose
- **d.** cytoskeleton

_____ **9.** What controls the chemical reactions in a cell?
- **a.** proteins
- **b.** cytoplasm
- **c.** phospholipids
- **d.** cell membrane

_____ **10.** Where in the nucleus does a cell begin to make its ribosomes?
- **a.** membrane
- **b.** pore
- **c.** cytoskeleton
- **d.** nucleolus

RIBOSOMES

_____ **11.** What cell organelles make proteins?
- **a.** nucleus
- **b.** cell membrane
- **c.** nucleolus
- **d.** ribosomes

_____ **12.** What do ribosomes use to make proteins?
- **a.** amino acids
- **b.** nuclear energy
- **c.** chloroplasts
- **d.** cell membrane

_____ **13.** What kind of cells have ribosomes?
- **a.** only blood cells
- **b.** only plant cells
- **c.** only animal cells
- **d.** all cells

ENDOPLASMIC RETICULUM

_____ **14.** What is the system of folded membranes in cytoplasm where proteins are made?
- **a.** cytoskeleton
- **b.** endoplasmic reticulum
- **c.** amino acids
- **d.** chloroplasts

_____ **15.** What kind of endoplasmic reticulum (ER) is covered with ribosomes?
- **a.** rough ER
- **b.** smooth ER
- **c.** spiral ER
- **d.** nuclear ER

_____ **16.** What kind of endoplasmic reticulum (ER) makes lipids and breaks down harmful materials?
- **a.** rough ER
- **b.** smooth ER
- **c.** spiral ER
- **d.** nuclear ER

MITOCHONDRIA

_____ **17.** What organelles break down sugar to release energy?
- **a.** Golgi complex
- **b.** lysosomes
- **c.** ribosomes
- **d.** mitochondria

_____ **18.** Where does a cell store the energy it needs to do work?
- **a.** in the Golgi complex
- **b.** in DNA
- **c.** in the membrane
- **d.** in ATP

CHLOROPLASTS

_____ **19.** What is one way plant cells are different from animal cells?
- **a.** Only plant cells have mitochondria.
- **b.** Only plant cells have a nucleus.
- **c.** Plant cells cannot make food.
- **d.** Some plant cells make food.

_____ **20.** What is used inside a chloroplast to trap sunlight to make sugar?
- **a.** mitochondria
- **b.** ribosomes
- **c.** chlorophyll
- **d.** vesicles

_____ **21.** What makes ATP from sugar made by photosynthesis?
- **a.** mitochondria
- **b.** ribosomes
- **c.** chlorophyll
- **d.** vesicles

GOLGI COMPLEX

_____ **22.** What organelle processes and transports materials into and out of the cell?
- **a.** Golgi complex
- **b.** chloroplast
- **c.** mitochondria
- **d.** endoplasmic reticulum

CELL COMPARTMENTS

_____ **23.** What surrounds material to be moved into or out of a cell?
- **a.** chloroplasts
- **b.** mitochondria
- **c.** ribosomes
- **d.** vesicles

LYSOSOMES

_____ **24.** What vesicles do the job of digestion inside a cell?
- **a.** chloroplasts
- **b.** ribosomes
- **c.** mitochondria
- **d.** lysosomes

_____ **25.** Which of the following jobs is NOT done by lysosomes?
- **a.** They digest damaged organelles.
- **b.** They digest waste materials.
- **c.** They digest foreign invaders.
- **d.** They make ATP.

_____ **26.** Where are lysosomes mostly found?
- **a.** in plant cells
- **b.** in algae cells
- **c.** in animal cells
- **d.** in prokaryotic cells

VACUOLES

_____ **27.** In plant cells, what vesicles sometimes help a cell digest things?
- **a.** lysosomes
- **b.** vacuoles
- **c.** mitochondria
- **d.** chloroplasts

_____ **28.** What plant cell organelle stores water and helps support the cell?
- **a.** large central lysosome
- **b.** large central vacuole
- **c.** large central mitochondrion
- **d.** large central chloroplast

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: The Organization of Living Things (pp. 128–133)

Write the letter of the correct answer in the space provided.

_____ **1.** What is anything that can perform life processes by itself called?
- **a.** a cell
- **b.** a tissue
- **c.** an organ
- **d.** an organism

_____ **2.** What are the two types of organisms called?
- **a.** old organisms and new organisms
- **b.** large organisms and small organisms
- **c.** living organisms and nonliving organisms
- **d.** unicellular organisms and multicellular organisms

UNICELLULAR ORGANISMS

_____ **3.** What are organisms that are made of one cell called?
- **a.** unicellular organisms
- **b.** multicellular organisms
- **c.** inorganic organisms
- **d.** nonreproducing organisms

_____ **4.** What kind of organism does NOT need many resources to stay alive?
- **a.** unicellular organisms
- **b.** multicellular organisms
- **c.** inorganic organisms
- **d.** nonreproducing organisms

MULTICELLULAR ORGANISMS

_____ **5.** What are organisms that are made of many cells called?
- **a.** unicellular organisms
- **b.** multicellular organisms
- **c.** inorganic organisms
- **d.** nonreproducing organisms

_____ **6.** How does a multicellular organism start out?
- **a.** as a single cell
- **b.** as a clump of cells
- **c.** as a collection of yeasts
- **d.** as a piece of another organism

_____ **7.** In multicellular organisms, what happens as a single cell becomes many cells?
- **a.** Cells become disorganized.
- **b.** Cells become larger.
- **c.** Cells become smaller.
- **d.** Cells become differentiated.

_____ **8.** What does it mean when cells become differentiated?
- **a.** Cells can do everything.
- **b.** Cells cannot do anything.
- **c.** Cells do only one thing.
- **d.** Cells grow and divide.

The Characteristics of Being Multicellular

_____ **9.** How do multicellular organisms become larger?
- **a.** by making their cells larger
- **b.** by making more small cells
- **c.** by connecting to other organisms
- **d.** by living in a larger group

_____ **10.** What happens to a unicellular organism if its cell dies?
- **a.** The organism dies.
- **b.** The organism lives.
- **c.** The organism grows.
- **d.** The organism shrinks.

_____ **11.** What happens to a multicellular organism if one cell dies?
- **a.** The organism dies.
- **b.** The organism lives.
- **c.** The organism grows.
- **d.** The organism shrinks.

_____ **12.** Why is a multicellular organism more efficient than a unicellular organism?
- **a.** Each cell is specialized.
- **b.** Each cell does everything.
- **c.** Each cell does two things.
- **d.** Each cell lives forever.

_____ **13.** How is having specialized cells like having an assembly line in a factory?
- **a.** Each job takes a long time.
- **b.** No job takes very long.
- **c.** More things are done in less time.
- **d.** Nothing is done on time.

FROM CELLS TO ORGANISMS

_____ **14.** What are the four levels of organization for a multicellular organism?
- **a.** cells, tissues, organs, bodies
- **b.** cells, organs, organ systems, bodies
- **c.** cells, tissues, organ systems, bodies
- **d.** cells, tissues, organs, organ systems

Cells: The First Level of Organization

_____ **15.** What is the job that a cell does called?
- **a.** function
- **b.** structure
- **c.** specialty
- **d.** normality

_____ **16.** What is the way a cell is put together called?
- **a.** function
- **b.** structure
- **c.** specialty
- **d.** normality

_____ **17.** What sausage-shaped plant cells control openings for carbon dioxide and oxygen?
- **a.** guard cells
- **b.** oxygen cells
- **c.** bacterial cells
- **d.** mitochondrial cells

Tissues: The Second Level of Organization

_____ **18.** What is a group of cells that work together called?
- **a.** cell group
- **b.** tissue
- **c.** organ
- **d.** body system

_____ **19.** What are the four kinds of tissues that animals have?
- **a.** transport, protective, ground, nerve
- **b.** nerve, muscle, connective, protective
- **c.** cardiac, digestive, brain, respiratory
- **d.** cell, tissue, organ, organ system

Match the correct description with the correct term. Write the letter in the space provided.

_____ **20.** tissue that moves water and food through a plant

_____ **21.** tissue that covers and protects a plant

_____ **22.** tissue where photosynthesis takes place in a plant

a. protective
b. transport
c. ground

Organs: The Third Level of Organization

Write the letter of the correct answer in the space provided.

_____ **23.** What is made up of two or more tissues working together?
- **a.** cell
- **b.** connective tissue
- **c.** organ
- **d.** tissue system

_____ **24.** What organ is made of cardiac, nerve, and blood vessel tissues?
- **a.** heart
- **b.** stomach
- **c.** brain
- **d.** skin

_____ **25.** What plant organ has tissue that traps sunlight energy to make food?
- **a.** root
- **b.** leaf
- **c.** stem
- **d.** flower

Organ Systems: The Fourth Level of Organization

_____ **26.** What is a group of organs that work together called?
- **a.** connective organs
- **b.** organism
- **c.** organ system
- **d.** tissue

_____ **27.** What organ system works together to move blood through the body?
- **a.** digestive system
- **b.** respiratory system
- **c.** stem system
- **d.** cardiovascular system

_____ **28.** What are three organ systems in plants?

a. leaf, root, stem
b. respiratory, cardiovascular, digestive
c. transport, protective, ground
d. membrane, chloroplast, lysosome

ORGANISMS

Use the terms from the following list to complete the sentences below.

tissue	organ	organism
cell	organ system	

29. The first level of organization in a multicellular organism is

a(n) _____.

30. A group of cells that do a special job is called a(n) _____.

31. A group of tissues forms a(n) _____.

32. A group of organs forms a(n) _____.

33. Organ systems form a(n) _____.

UNICELLULAR ORGANIZATION

Write the letter of the correct answer in the space provided.

_____ **34.** How does a unicellular organism live?

a. Many cells do many things.
b. Many cells do one thing.
c. One cell does everything.
d. One cell does one thing.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

The Characteristics of Cells

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. cell

2. cell membrane

3. organelle

4. nucleus

5. prokaryote

6. eukaryote

SECTION SUMMARY

Read the following section summary.

- The cell theory states that all organisms are made of cells, the cell is the basic unit of all living things, and all cells come from other cells.
- All cells have a cell membrane, cytoplasm, and DNA.
- Most cells are too small to be seen with the naked eye. The surface area–to-volume ratio of a cell limits the size of the cell.
- The two basic kinds of cells are prokaryotic cells and eukaryotic cells. Eukaryotic cells have a nucleus and membrane-bound organelles. Prokaryotic cells do not.
- Prokaryotes are single-celled.
- Eukaryotes can be single-celled or multicellular.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Eukaryotic Cells

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. cell wall

2. cytoskeleton

3. ribosome

4. endoplasmic reticulum

5. mitochondrion

6. chloroplast

7. Golgi complex

8. vesicle

9. lysosome

SECTION SUMMARY

Read the following section summary.

- Eukaryotic cells have organelles that perform functions that help cells remain alive.
- All cells have a cell membrane. Some cells have a cell wall. Some cells have a cytoskeleton.
- The nucleus of a eukaryotic cell contains the cell's genetic material, DNA.
- Ribosomes are the organelles that make proteins. Ribosomes are not covered by a membrane.
- The endoplasmic reticulum (ER) and the Golgi complex make and process proteins before the proteins are transported to other parts of the cell or out of the cell.
- Mitochondria and chloroplasts are organelles that provide chemical energy for the cell.
- Lysosomes are organelles responsible for digestion within a cell. In plant cells, the large central vacuole stores cell materials and sometimes acts like a large lysosome.
- Plant cells have cell parts that are not found in animal cells. Plant cells have cell walls, chloroplasts, and a large central vacuole.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

The Organization of Living Things

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. organism

2. function

3. structure

4. tissue

5. organ

6. organ system

SECTION SUMMARY

Read the following section summary.

- Unicellular organisms have only one cell.
- As a multicellular organism develops, its cells differentiate into specialized cells.
- Multicellular organisms are made up of one or many cells and can have a larger size and a longer life than unicellular organisms.
- The four levels of organization in multicellular organisms are cells, tissues, organs, and organ systems.
- A tissue is a group of cells working together. An organ is made up of two or more tissues working together. An organ system is made up of two or more organs working together.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Cell Energy (pp. 148–151)

Use the terms from the following list to complete the sentences below.

sun food reproduce

1. All cells need energy to live, grow, and _____.

2. Plant cells get their energy from the _____.

3. Many animal cells get the energy they need from _____.

FROM SUN TO CELL

Use the terms from the following list to complete the sentences below.

sun photosynthesis
energy food

4. Almost all the energy used by living things comes from the _____.

5. Plants change energy from the sun into _____.

6. The process that plants use to make food is called _____.

7. Plants use the food they make for _____.

Photosynthesis

Write the letter of the correct answer in the space provided.

_____ **8.** What are the plant cell molecules that absorb light energy called?
- **a.** chlorophyll
- **b.** chloroplasts
- **c.** pigments
- **d.** photosynthesis

_____ **9.** What gives plants their green color?
- **a.** carbon dioxide
- **b.** glucose
- **c.** water
- **d.** chlorophyll

_____ **10.** In photosynthesis, which of the following two things do plants use with sunlight to make food?
- **a.** water and oxygen
- **b.** water and sugar
- **c.** water and carbon dioxide
- **d.** water and salt

_____ **11.** Which of the following is food that plants make for themselves?
- **a.** salt
- **b.** glucose
- **c.** chlorophyll
- **d.** heat

GETTING ENERGY FROM FOOD

_____ **12.** How do most complex organisms get their energy?
- **a.** through breathing
- **b.** through eating
- **c.** through sleeping
- **d.** through cellular respiration

Use the terms from the following list to complete the sentences below.

fermentation cellular respiration

13. Breaking down food for energy using oxygen is called

_____.

14. Breaking down food for energy without using oxygen is called

_____.

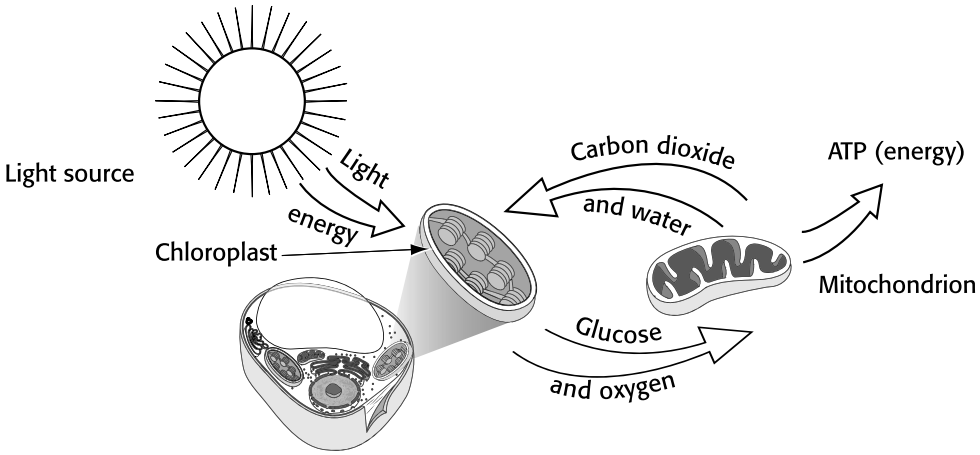
Cellular Respiration

Write the letter of the correct answer in the space provided.

_____ **15.** Which of the following is broken down into CO_2 and H_2O during cellular respiration?
- **a.** energy
- **b.** oxygen
- **c.** food
- **d.** adenosine triphosphate (ATP)

_____ **16.** For what do animals use most of the energy freed during cellular respiration?
- **a.** to keep body temperature constant
- **b.** to help body temperature fluctuate
- **c.** to form adenosine triphosphate (ATP)
- **d.** to fuel cell activities, such as growth

Use the figure below to answer questions 17, 18, and 19. Write the letter of the correct answer in the space provided.



_____ **17.** Look at the figure. Which two processes does it show?
- **a.** photosynthesis and breathing
- **b.** breathing and growing
- **c.** growing and cellular respiration
- **d.** photosynthesis and cellular respiration

_____ **18.** Look at the figure. Where does the process of cellular respiration take place in the figure?
- **a.** in the mitochondrion
- **b.** in the cell membrane
- **c.** in the fluids
- **d.** in the chloroplast

_____ **19.** Look at the figure. Besides energy, what else is released during cellular respiration?
- **a.** carbon dioxide and oxygen
- **b.** carbon dioxide and glucose
- **c.** carbon dioxide and food
- **d.** carbon dioxide and water

Connection Between Photosynthesis and Respiration

Match the correct description with the correct term. Write the letter in the space provided.

_____ **20.** Cells take in carbon dioxide to make glucose and release oxygen.

_____ **21.** Cells use oxygen to break down glucose and release carbon dioxide.

a. cellular respiration
b. photosynthesis

Fermentation

Write the letter of the correct answer in the space provided.

_____ **22.** Muscle cells use fermentation to get energy when they cannot get which of the following for cellular respiration?
a. oxygen
b. carbon dioxide
c. water
d. glucose

_____ **23.** Which of the following is produced by fermentation in the muscles?
a. carbon dioxide
b. oxygen
c. cellular respiration
d. lactic acid

_____ **24.** Which of the following causes muscle fatigue and a burning feeling in the muscles?
a. buildup of lactic acid
b. buildup of carbon dioxide
c. buildup of oxygen
d. buildup of bacteria

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: The Cell Cycle (pp. 152–157)

Write the letter of the correct answer in the space provided.

_____ **1.** Your body makes new cells to replace what?
- **a.** cells that are growing bigger
- **b.** cells that are multiplying
- **c.** cells that have died
- **d.** cells that are healthy

_____ **2.** What does making new cells allow you to do?
- **a.** grow
- **b.** sleep
- **c.** eat
- **d.** make food

THE LIFE OF A CELL

_____ **3.** When does the cell cycle begin?
- **a.** when the cell is formed
- **b.** when the cell uses energy
- **c.** when the cell divides
- **d.** when the cell uses oxygen

_____ **4.** When does the cell cycle end?
- **a.** when the cell is formed
- **b.** when the cell uses energy
- **c.** when the cell divides and makes new cells
- **d.** when the cell uses oxygen

_____ **5.** What is the hereditary material inside a cell called?
- **a.** nuclei
- **b.** water
- **c.** DNA
- **d.** ATP

_____ **6.** In what structures can the DNA of a cell be found?
- **a.** bacteria
- **b.** water
- **c.** fluids
- **d.** chromosomes

Making More Prokaryotic Cells

Use the terms from the following list to complete the sentences below.

DNA circular binary fission

7. Prokaryotic cells, which do not have a nucleus, have one _____ chromosome.

8. Prokaryotic cells, such as bacteria, divide by _____.

9. When binary fission is complete, each new cell has an identical copy of _____.

Eukaryotic Cells and Their DNA

Write the letter of the correct answer in the space provided.

_____ **10.** How many chromosomes do humans have?
- **a.** 8
- **b.** 48
- **c.** 32
- **d.** 46

_____ **11.** What are pairs of similar chromosomes called?
- **a.** prokaryotic pairs
- **b.** homologous chromosomes
- **c.** DNA
- **d.** eukaryotic pairs

Making More Eukaryotic Cells

_____ **12.** How many stages does a eukaryotic cell cycle have?
- **a.** two
- **b.** three
- **c.** four
- **d.** five

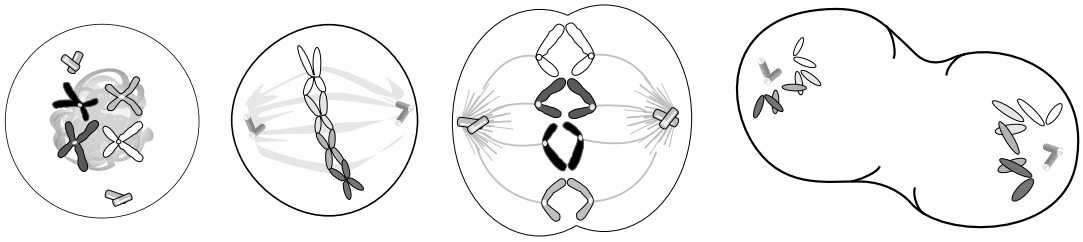
_____ **13.** When chromosomes are copied, what are the two copies called?
- **a.** DNA
- **b.** centromeres
- **c.** chromatids
- **d.** organelles

_____ **14.** What is the process of separating chromosomes called?
- **a.** mitosis
- **b.** copying
- **c.** parting
- **d.** duplicating

_____ **15.** What does a cell do in the third stage of the cell cycle?
- **a.** dies
- **b.** splits into two identical cells
- **c.** makes food
- **d.** takes in oxygen

Mitosis and the Cell Cycle

Use the figure below to answer questions 16 through 19. Write the letter of the correct answer in the space provided.



Mitosis Phase 1 **Mitosis Phase 2** **Mitosis Phase 3** **Mitosis Phase 4**

_____ **16.** Look at the figure. When does mitosis begin and the chromosomes condense into rodlike structures?
- **a.** Mitosis Phase 1
- **b.** Mitosis Phase 2
- **c.** Mitosis Phase 3
- **d.** Mitosis Phase 4

_____ **17.** Look at the figure. When do the chromatids separate and move to opposite sides of the cell?
- **a.** Mitosis Phase 1
- **b.** Mitosis Phase 2
- **c.** Mitosis Phase 3
- **d.** Mitosis Phase 4

_____ **18.** Look at the figure. When does a nuclear membrane form around each set of chromosomes, completing mitosis?
- **a.** Mitosis Phase 1
- **b.** Mitosis Phase 2
- **c.** Mitosis Phase 3
- **d.** Mitosis Phase 4

_____ **19.** Look at the figure. When does the nuclear membrane dissolve and the paired chromosomes align?
- **a.** Mitosis Phase 1
- **b.** Mitosis Phase 2
- **c.** Mitosis Phase 3
- **d.** Mitosis Phase 4

Cytokinesis

_____ **20.** Which of the following does the cell membrane do during cytokinesis in an animal cell?
- **a.** pinches in two
- **b.** forms a cell plate
- **c.** makes copies of its DNA
- **d.** shrivels up

_____ **21.** What is it called when the cytoplasm of a cell divides?
- **a.** mitosis
- **b.** interphase
- **c.** cytokinesis
- **d.** centromere

_____ **22.** What forms between the two new cells during plant cell cytokinesis?
- **a.** cell plate
- **b.** mitochondrion
- **c.** chromatid
- **d.** water

CONTROL OF THE CELL CYCLE

_____ **23.** Which of the following do parent cells replicate during interphase?
- **a.** chromotids and centromeres
- **b.** chromosomes and organelles
- **c.** chloroplasts and chlorophyll
- **d.** eukaryotes and prokaryotes

Feedback Switches

Use the terms from the following list to complete the sentences below.

cell cycle	start
feedback	stop

24. The messages in which cells report conditions are called _____.

25. If feedback indicates that there is too much of a molecule, assembling proteins that molecule get a signal to _____ producing the molecule.

26. At the same time, proteins that break down the molecule may get a signal to _____ the breakdown of the molecule.

27. The _____ is controlled by feedback switches.

Cancer

Match the correct description with the correct term. Write the letter in the space provided.

_____ **28.** tumor caused by uncontrolled growth of cells

_____ **29.** feedback switches in cells

_____ **30.** deadly kind of skin cancer

_____ **31.** clumps formed when cells reproduce too rapidly

_____ **32.** actions, such as wearing sunscreen and checking skin for abnormal moles

a. skin cancer prevention

b. melanoma

c. tumors

d. cancer

e. protein

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Cell Energy

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. photosynthesis

2. cellular respiration

3. fermentation

SECTION SUMMARY

Read the following section summary.

- Most of the energy that fuels life comes from the sun.
- The sun's energy is changed into food by the process of photosynthesis, which occurs in the chloroplasts of plant cells.
- Cellular respiration breaks down glucose into water, carbon dioxide, and energy.
- Cellular respiration takes place in the mitochondria of plant and animal cells.
- Fermentation is a way that cells get energy from their food without using oxygen.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

The Cell Cycle

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. cell cycle

_____

_____

2. chromosome

_____

_____

3. mitosis

_____

_____

4. cytokinesis

_____

_____

5. cancer

_____

_____

SECTION SUMMARY

Read the following section summary.

- The life cycle of a cell is the cell cycle.
- A cell copies its chromosomes during interphase.
- Mitosis produces two nuclei that have the same number of chromosomes.
- Mitosis has four phases: prophase, metaphase, anaphase, and telophase.
- After mitosis, the cytoplasm is divided by cytokinesis into two daughter cells.
- In plant cells, a cell plate forms between the two new cells during cytokinesis.
- Cancer is a disorder of cell division.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Mendel and His Peas (pp. 174–179)

Write the letter of the correct answer in the space provided.

_____ **1.** What is it called when traits pass from parents to offspring?
- **a.** genetics
- **b.** heredity
- **c.** dominance
- **d.** pollination

BEFORE MENDEL

_____ **2.** What idea is it that traits of both parents mix together?
- **a.** dominant inheritance
- **b.** recessive inheritance
- **c.** blended heredity
- **d.** blending inheritance

_____ **3.** What did Mendel's experiments show about blending inheritance?
- **a.** Blending inheritance is always correct.
- **b.** Blending inheritance is NOT always correct.
- **c.** Blending inheritance is NEVER correct.
- **d.** Rabbit color is caused by blending inheritance.

GREGOR MENDEL'S WORK

_____ **4.** In what country was Gregor Mendel born?
- **a.** United States
- **b.** Austria
- **c.** Germany
- **d.** Italy

_____ **5.** What organism did Mendel study?
- **a.** rabbits
- **b.** humans
- **c.** apple trees
- **d.** peas

Self-Pollinating Peas

_____ **6.** Why did Mendel study pea plants?
- **a.** Pea plants can self-pollinate.
- **b.** Pea plants can cross-pollinate.
- **c.** Pea plants don't have pollen.
- **d.** Pea plants don't have seeds.

Match the correct description with the correct term. Write the letter in the space provided.

a. self-pollinating
b. true breeding
c. cross-pollinating

_____ **7.** Sperm (pollen) from one plant fertilizes the eggs of another plant.

_____ **8.** Sperm (pollen) from one plant fertilizes the eggs of the same plant.

_____ **9.** Self-pollinating plant offspring have the same traits as the parent.

Characteristics

Write the letter of the correct answer in the space provided.

_____ **10.** What is a feature that has different forms in a population called?
- **a.** a variety
- **b.** a blend
- **c.** a trait
- **d.** a characteristic

_____ **11.** What are the different forms of characteristics called?
- **a.** varieties
- **b.** blends
- **c.** traits
- **d.** genes

Mix and Match

_____ **12.** What kind of pea plants did Mendel use for each trait he studied?
- **a.** true-breeding plants
- **b.** hybrid plants
- **c.** wild plants
- **d.** purple-flowered plants

_____ **13.** Why did Mendel remove the anthers from one plant when he cross-pollinated two pea plants?
- **a.** so the plant would not self-pollinate
- **b.** so the plant would not form seeds
- **c.** so both plants formed seeds
- **d.** so the plants would not cross-pollinate

MENDEL'S FIRST EXPERIMENTS

Use the terms from the following list to complete the sentences below.

recessive first-generation dominant

14. The offspring of a cross of true-breeding plants are called _____ plants.

15. A trait seen in the first generation, when parents with different traits are bred, is a(n) _____ trait.

16. A trait that fades away in the first generation is a(n) _____ trait.

MENDEL'S SECOND EXPERIMENTS

Write the letter of the correct answer in the space provided.

_____ **17.** What traits appeared in the second generation, when Mendel allowed the first-generation plants to self-pollinate?
- **a.** only dominant traits
- **b.** only recessive traits
- **c.** new dominant traits
- **d.** some recessive traits

Ratios in Mendel's Experiments

_____ **18.** In Mendel's second-generation plants, what traits showed up most often?
- **a.** dominant traits
- **b.** recessive traits
- **c.** new traits
- **d.** invisible traits

_____ **19.** What is the relationship between two numbers that is often expressed as a fraction?
- **a.** a sum
- **b.** a multiplier
- **c.** a ratio
- **d.** a difference

_____ **20.** What ratio of dominant traits to recessive traits did Mendel figure out?
- **a.** 4:1
- **b.** 1:4
- **c.** 3:1
- **d.** 1:3

Gregor Mendel—Gone but Not Forgotten

_____ **21.** How many sets of instructions do plants get for each characteristic?
- **a.** two—one set from each parent
- **b.** four—two sets from each parent
- **c.** one—one set from one parent
- **d.** two—two sets from one parent

_____ **22.** About how long after he published his findings was Mendel's work recognized?
- **a.** 3 years
- **b.** 10 years
- **c.** 30 years
- **d.** 100 years

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Traits and Inheritance (pp. 180–187)

A GREAT IDEA

Write the letter of the correct answer in the space provided.

_____ **1.** What is one set of instructions for an inherited trait called?
- **a.** an allele
- **b.** a phenotype
- **c.** a characteristic
- **d.** a gene

_____ **2.** How many versions of genes for each characteristic do offspring get?
- **a.** one version from each parent
- **b.** two versions from one parent
- **c.** one version from one parent
- **d.** two versions from each parent

_____ **3.** What are the different versions of a gene called?
- **a.** alleles
- **b.** phenotypes
- **c.** characteristics
- **d.** traits

_____ **4.** What type of allele is shown as capital letters?
- **a.** small alleles
- **b.** dominant alleles
- **c.** recessive alleles
- **d.** large alleles

_____ **5.** What type of allele is shown as lowercase letters?
- **a.** small alleles
- **b.** dominant alleles
- **c.** recessive alleles
- **d.** large alleles

Phenotype

_____ **6.** What is an organism's appearance called?
- **a.** its allele
- **b.** its characteristic
- **c.** its genotype
- **d.** its phenotype

Genotype

Match the correct description with the correct term. Write the letter in the space provided.

a. homozygous
b. heterozygous
c. genotype

_____ **7.** formed by both inherited alleles together

_____ **8.** a plant with two dominant or two recessive alleles

_____ **9.** a plant with one dominant and one recessive allele

Punnett Squares

Write the letter of the correct answer in the space provided.

_____ **10.** What is used to predict the possible genotypes of offspring for a particular cross?
a. a P-grid
b. a dominance chart
c. a heredity map
d. a Punnett square

Use the Punnett square below to answer questions 11 and 12. Write the letter of the correct answer in the space provided.

	p	***p***
P	*Pp*	*Pp*
P	*Pp*	*Pp*

_____ **11.** Look at the Punnett square above. What color will the offspring of the purple *(PP)* and white *(pp)* flowers be?
a. purple
b. white
c. same number of purple and white
d. a blend of white and purple

_____ **12.** Look at the Punnett square above. How many of the offspring from this cross will have the same genotype?
a. all the offspring
b. half of the offspring
c. one-fourth of the offspring
d. none of the offspring

More Evidence for Inheritance

Use the Punnett square below to answer questions 13 and 14. Write the letter of the correct answer in the space provided.

	P	***p***
P	*PP*	*Pp*
p	*pP*	*pp*

_____ **13.** Look at the Punnett square above. What are the possible genotypes of the offspring of this cross?
- **a.** *PP*, *Pp*, *PP*, *pp*
- **b.** *Pp*, *pp*, *PP*, *pp*
- **c.** *pp*, *Pp*, *pP*, *pp*
- **d.** *PP*, *Pp*, *pP*, *pp*

_____ **14.** Look at the Punnett square above. Which two genotypes are exactly the same?
- **a.** *PP* and *Pp*
- **b.** *Pp* and *pP*
- **c.** *pp* and *Pp*
- **d.** *PP* and *pp*

WHAT ARE THE CHANCES?

Probability

Write the letter of the correct answer in the space provided.

_____ **15.** What is the mathematical chance that something will happen called?
- **a.** percentage
- **b.** fraction
- **c.** probability
- **d.** likelihood

_____ **16.** When you toss a coin, what is the probability of tossing tails?
- **a.** 1/1
- **b.** 1/4
- **c.** 1/2
- **d.** 2/1

Calculating Probabilities

_____ **17.** How would you calculate the probability of tossing a coin and having the coin land heads up twice in a row?
- **a.** 2 × 2 = 4
- **b.** 1 × 2 = 2
- **c.** 1/2 × 2 = 1
- **d.** 1/2 × 1/2 = 1/4

Genotype Probability

_____ **18.** In a pea plant, what chance does offspring of a *Pp* × *Pp* cross have to receive two *p* alleles?
- **a.** 1/2 × 1/4 =1/8
- **b.** 1/2 × 1/2 = 1/4
- **c.** 1 × 2 = 2
- **d.** 1/2 × 1 = 1/2

_____ **19.** How many choices were there for each pea plant trait Mendel examined?
- **a.** 1
- **b.** 2
- **c.** 3
- **d.** 4

MORE ABOUT TRAITS

One Gene, Many Traits

_____ **20.** How many genes control eye color and fur color in a white tiger?
- **a.** one
- **b.** two
- **c.** four
- **d.** eight

Many Genes, One Trait

_____ **21.** What causes the many shades of a single human eye color?
- **a.** one gene acting alone
- **b.** one gene from each parent
- **c.** two genes from each parent
- **d.** several genes acting together

The Importance of Environment

_____ **22.** What is one example of an internal environmental condition that influences height?
- **a.** heavy clothing
- **b.** nutrition
- **c.** geography
- **d.** exposure to sunlight

GENETIC VARIATION

_____ **23.** How many genes do scientists estimate humans have?
- **a.** approximately 300
- **b.** approximately 3,000
- **c.** approximately 30,000
- **d.** approximately 300,000

_____ **24.** What are the differences in sets of alleles between individuals in a population called?
- **a.** genetic diversity
- **b.** genetic variation
- **c.** population variation
- **d.** population diversity

_____ **25.** What kind of traits do genes affect?
- **a.** traits caused by the environment
- **b.** only traits you can't see
- **c.** traits you can see and traits you can't see
- **d.** only traits you can see

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Meiosis (pp. 188–193)

Write the letter of the correct answer in the space provided.

_____ **1.** In sexual reproduction, how much genetic information do offspring get from each parent?
- **a.** all the genetic information
- **b.** twice the genetic information
- **c.** half of the genetic information
- **d.** none of the genetic information

Use the terms from the following list to complete the sentences below.

chromosomes asexual reproduction sexual reproduction

2. Genetic information comes from one parent in _____.

3. Genetic information comes from two parents in _____.

4. Genetic information is located on structures called _____.

CHROMOSOME NUMBERS

Write the letter of the correct answer in the space provided.

_____ **5.** How many chromosomes are usually in human body cells?
- **a.** 20
- **b.** 46
- **c.** 51
- **d.** 78

Homologous Chromosomes

_____ **6.** What pairs of chromosomes in body cells carry the same sets of genes?
- **a.** homologous genes
- **b.** homozygous genes
- **c.** homozygous chromosomes
- **d.** homologous chromosomes

_____ **7.** What kind of alleles for a gene are carried on homologous chromosomes?
- **a.** always the same alleles
- **b.** always different alleles
- **c.** sometimes different alleles
- **d.** never the same alleles

CHROMOSOMES IN REPRODUCTION

Match the correct description with the correct term. Write the letter in the space provided.

_____ **8.** cells that have homologous pairs of chromosomes

_____ **9.** cells without homologous pairs of chromosomes

_____ **10.** process in which two haploid cells form a diploid cell

_____ **11.** process in which diploid cells divide and create more diploid cells

a. haploid
b. mitosis
c. diploid
d. fertilization

MEIOSIS

Write the letter of the correct answer in the space provided.

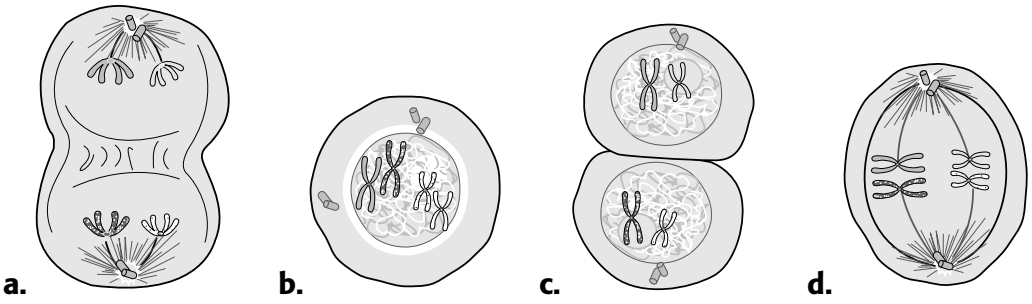
_____ **12.** When are sex cells made?
- **a.** during mitosis
- **b.** during meiosis
- **c.** during fertilization
- **d.** during pollination

_____ **13.** What process results in cells with half the usual number of chromosomes?
- **a.** mitosis
- **b.** meiosis
- **c.** chromatosis
- **d.** fertilization

_____ **14.** How many chromosomes does a human egg cell have?
- **a.** 46
- **b.** 23
- **c.** 10
- **d.** 1

The Steps of Meiosis

Match the label to the steps of meiosis. Write the letter in the space provided.



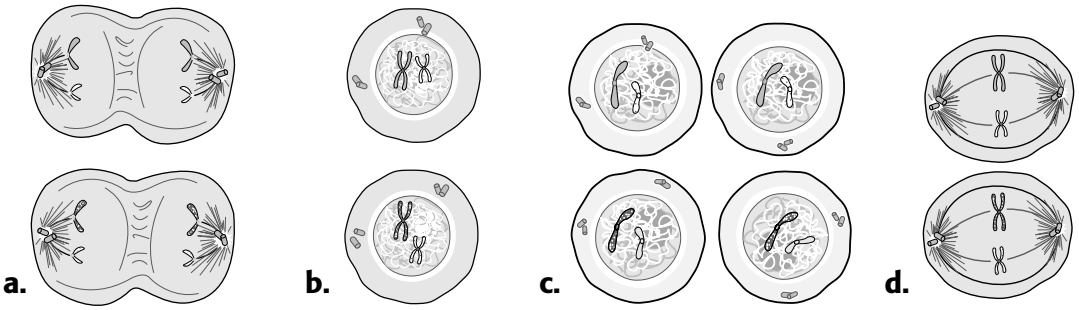
_____ **15.** Identical copies of chromosomes, called chromatids, are joined together.

_____ **16.** Pairs of homologous chromosomes line up along the middle of the cell.

_____ **17.** Chromosomes pull away from their partners and move to opposite ends of the cell.

_____ **18.** The cell divides the first time, and paired chromatids are still joined.

Match the label to the steps of meiosis. Write the letter in the space provided.



_____ **19.** Each cell has one of the homologous chromosomes.

_____ **20.** The nuclear membrane disappears, and chromosomes move to the middle of each cell.

_____ **21.** The nuclear membranes re-form, and the cells divide.

_____ **22.** Four new haploid cells form from the first diploid cell.

MEIOSIS AND MENDEL

Write the letter of the correct answer in the space provided.

_____ **23.** The steps in what process explain Mendel's results?
- **a.** meiosis
- **b.** mitosis
- **c.** chromatosis
- **d.** photosynthesis

Meiosis and Inheritance

_____ **24.** How much of an offspring's genetic material comes from its biological mother?
- **a.** almost all
- **b.** about half
- **c.** about one-fourth
- **d.** almost none

_____ **25.** In an animal cell, where is most of the genetic material?
- **a.** in the cell membrane
- **b.** in the cell wall
- **c.** in the cytoskeleton
- **d.** in the nucleus

_____ **26.** Where does the DNA in an offspring's mitochondria come from?
- **a.** the mother
- **b.** the father
- **c.** the environment
- **d.** food

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Mendel and His Peas

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. heredity

_____

_____

2. dominant trait

_____

_____

3. recessive trait

_____

_____

SECTION SUMMARY

Read the following section summary

- Heredity is the passing of traits from parents to offspring.
- Before Mendel's ideas were accepted, people explained inheritance as the blending of traits from each parent.
- Gregor Mendel's experiments using pea plants eventually changed the way people thought about heredity.
- When parents with different traits are bred, dominant traits are always present in the first generation. Recessive traits are not visible in the first generation but reappear in the second generation.
- Mendel found a 3:1 ratio of dominant-to-recessive traits in the second generation.
- Mendel's ideas are the foundation of modern genetics.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Traits and Inheritance

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. gene

2. allele

3. phenotype

4. genotype

5. probability

SECTION SUMMARY

Read the following section summary

- Instructions for an inherited trait are called *genes*. For each gene, there are two alleles, one inherited from each parent. Both alleles make up an organism's genotype.
- An organism's phenotype is the organism's observable characteristics.
- Punnett squares show all possible offspring genotypes.
- Probability can be used to describe possible outcomes in offspring and the likelihood of each outcome.
- Some genes influence more than one trait.
- Some traits are influenced by many genes.
- The environment can influence how genes are expressed.
- Scientists estimate that humans have approximately 30,000 genes.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Meiosis

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. homologous chromosomes

2. diploid

3. haploid

4. meiosis

SECTION SUMMARY

Read the following section summary

- Homologous pairs of chromosomes contain the same genes. The alleles for each gene may be the same or they may be different.
- Diploid cells have homologous pairs of chromosomes. Haploid cells do not.
- The process of meiosis produces haploid sex cells.
- During sexual reproduction, haploid sex cells combine to form a new diploid organism.
- Meiosis explains how organisms inherit one-half of their genetic information from each parent.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: What Does DNA Look Like? (pp. 208–211)

Write the letter of the correct answer in the space provided.

_____ **1.** How are inherited characteristics determined?
- **a.** by molecules
- **b.** by genes
- **c.** by offspring
- **d.** by geography

_____ **2.** What is the shorter way to say deoxyribonucleic acid?
- **a.** DNA
- **b.** RAN
- **c.** DEO
- **d.** DAR

_____ **3.** Where are genes found?
- **a.** on molecules
- **b.** in amino acids
- **c.** on chromosomes
- **d.** in water

_____ **4.** What decides what living things inherit and need to live?
- **a.** DNA
- **b.** RAN
- **c.** DEO
- **d.** DAR

THE PIECES OF THE PUZZLE

_____ **5.** What give the instructions for building and maintaining cells?
- **a.** proteins
- **b.** carbohydrates
- **c.** genes
- **d.** traits

_____ **6.** What happens to genes when cells divide?
- **a.** Genes are copied.
- **b.** Genes change.
- **c.** Genes grow.
- **d.** Genes disappear.

_____ **7.** What allows genes to give instructions and be copied?
- **a.** DNA
- **b.** RAN
- **c.** DEO
- **d.** DAR

Nucleotides: The Subunits of DNA

_____ **8.** What piece of DNA is made of a sugar, a phosphate, and a base?
- **a.** a nucleus
- **b.** a nucleotide
- **c.** a gene
- **d.** a molecule

_____ **9.** What are the four bases that make up the nucleotides in DNA?
- **a.** adenine, thymine, guanine, cytosine
- **b.** oxygen, nitrogen, helium, hydrogen
- **c.** adenine, cytosine, helium, hydrogen
- **d.** sugar, phosphate, chromosome, gene

Chargaff's Rules

_____ **10.** Which scientist discovered that adenine equals thymine and guanine equals cytosine in DNA?
- **a.** Watson and Crick
- **b.** Erwin Chargaff
- **c.** Rosalind Franklin
- **d.** Marie Curie

Franklin's Discovery

_____ **11.** What scientist used X-ray diffraction to find that DNA has a spiral shape?
- **a.** Watson and Crick
- **b.** Erwin Chargaff
- **c.** Rosalind Franklin
- **d.** Marie Curie

Watson and Crick's Model

_____ **12.** Which scientists built a DNA model that looked like a long, twisted ladder?
- **a.** Watson and Crick
- **b.** Chargaff and Franklin
- **c.** Crick and Franklin
- **d.** Watson and Holmes

DNA'S DOUBLE STRUCTURE

Use the terms from the following list to complete the sentences below.

cytosine	phosphate	double helix
base	thymine	

13. The twisted ladder shape of DNA is called a(n) _____.

14. The sides of the double helix alternate with sugar parts and _____ parts.

15. Each rung of the double helix ladder is a(n) _____.

16. When adenine is on one side of a double helix rung, the other side is always _____.

17. When guanine is on one side of a double helix rung, the other side is always _____.

DNA REPLICATION

Write the letter of the correct answer in the space provided.

_____ **18.** When cells replicate DNA, what do they do?
- **a.** grow larger DNA
- **b.** make new DNA bases
- **c.** make copies of DNA
- **d.** bond with other DNA

_____ **19.** In DNA, why does a base bond with only one other base?
- **a.** Bases are replicated.
- **b.** Bases are fragmentary.
- **c.** Bases are duplicated.
- **d.** Bases are complementary.

How Copies Are Made

_____ **20.** How is a DNA molecule split as it is copied?
- **a.** down the middle
- **b.** into thirds
- **c.** side to side
- **d.** at each base pair

_____ **21.** As DNA splits, what forms along each of the original strands?
- **a.** a new sugar
- **b.** a new phosphate
- **c.** a new cell
- **d.** a new strand

When Copies Are Made

_____ **22.** When happens every time that a cell divides?
- **a.** The nucleus gets larger.
- **b.** The nucleus is destroyed.
- **c.** DNA is destroyed.
- **d.** DNA is copied.

_____ **23.** What unwinds, copies, and rewinds the DNA inside a cell?
- **a.** proteins
- **b.** phosphates
- **c.** cells
- **d.** strands

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: How DNA Works (pp. 212–217)

Write the letter of the correct answer in the space provided.

_____ **1.** How much DNA does a human cell contain?
- **a.** less than 1 m
- **b.** about 2 m
- **c.** more than 10 m
- **d.** about 30,000 m

UNRAVELING DNA

_____ **2.** What packs DNA so tightly that large amounts fit inside a cell?
- **a.** proteins
- **b.** chromosomes
- **c.** bases
- **d.** sugars

_____ **3.** What is made from the DNA molecule and the proteins it winds around?
- **a.** a base
- **b.** a cell
- **c.** a chromosome
- **d.** a phosphate

_____ **4.** What are long strands of DNA and proteins called?
- **a.** chromatid
- **b.** chromosome
- **c.** gene
- **d.** chromatin

_____ **5.** What is a string of nucleotides that tell the cell how to make a trait?
- **a.** chromatin
- **b.** mutagen
- **c.** phosphate
- **d.** gene

GENES AND PROTEINS

_____ **6.** The code for an amino acid is made from three of which things?
- **a.** phosphates
- **b.** genes
- **c.** chromatins
- **d.** bases

_____ **7.** What is formed by a long string of amino acids?
- **a.** a protein
- **b.** a cell
- **c.** a nucleotide
- **d.** a chromatid

_____ **8.** What is a set of instructions for making a protein called?
- **a.** a cell
- **b.** a gene
- **c.** a nucleotide
- **d.** a chromatid

Proteins and Traits

_____ **9.** Which of the following act as chemical triggers and messengers for processes inside cells?
- **a.** carbohydrates
- **b.** mutagens
- **c.** phosphates
- **d.** proteins

Help from RNA

_____ **10.** Besides DNA, what type of molecule helps make proteins?
- **a.** RAD
- **b.** RNA
- **c.** DNR
- **d.** DTR

_____ **11.** What base does RNA contain that DNA does not contain?
- **a.** adenine
- **b.** guanine
- **c.** uracil
- **d.** thymine

The Making of a Protein

Use the terms from the following list to complete the sentences below.

ribosome	protein
messenger RNA	transfer RNA

12. A mirrorlike copy of one side of a DNA segment is called

_____.

13. The RNA copy goes through a protein assembly line called

a(n) _____.

14. Amino acids are delivered from the cytoplasm to the ribosome

by _____.

15. Bases on transfer RNA and messenger RNA match up, making instructions

for a(n) _____.

CHANGES IN GENES

Write the letter of the correct answer in the space provided.

_____ **16.** What is a change in the base sequence of DNA called?
- **a.** uracil
- **b.** ribosome
- **c.** mutagen
- **d.** mutation

How Do Mutations Happen?

_____ **17.** Which of the following are caused by random errors when DNA is copied?
- **a.** mutagens
- **b.** clones
- **c.** chromatins
- **d.** mutations

_____ **18.** What are things in the environment that can cause mutations called?
- **a.** mutagens
- **b.** antigens
- **c.** nucleotides
- **d.** chromatids

Do Mutations Matter?

_____ **19.** What kind of traits are made by most mutations?
- **a.** helpful traits
- **b.** harmful traits
- **c.** improved traits
- **d.** unchanged traits

Match the correct description with the correct term. Write the letter in the space provided.

_____ **20.** kind of mutation that makes it easier to survive a drought

_____ **21.** kind of mutation that does not change the protein a gene codes for

_____ **22.** kind of mutation that makes it easier to be found by a predator

- **a.** harmful trait
- **b.** improved trait
- **c.** no change

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

What Does DNA Look Like?

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. DNA

_____

_____

2. nucleotide

_____

_____

SECTION SUMMARY

Read the following section summary.

- DNA is the material that makes up genes.
- Investigations by Chargaff, Franklin, Watson, and Crick led to the discovery of DNA's structure and function.
- The DNA molecule looks like a twisted ladder, or double helix. The two halves are long strings of nucleotides.
- In DNA, adenine always pairs with thymine, and guanine always pairs with cytosine.
- The structure of DNA allows it to be replicated accurately.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

How DNA Works

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. RNA

_____

_____

2. ribosome

_____

_____

3. mutation

_____

_____

SECTION SUMMARY

Read the following section summary.

- A gene is a set of instructions for making a protein. DNA stores these genetic instructions.
- Every organism has DNA in its cells. Humans have about 2 m of DNA in each cell.
- Traits of organisms are typically determined by proteins, which are coded for by segments of DNA called genes.
- Within a gene, each group of three bases codes for one amino acid. A sequence of amino acids is linked to make a protein.
- Proteins are built within the cytoplasm of cells.
- A mutation is a change in the DNA that can affect the traits of an organism.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: The Study of Earth's History (pp. 234–237)

THE EARLY STUDY OF GEOLOGY

Write the letter of the correct answer in the space provided.

_____ **1.** Who outlined the principle now called uniformitarianism?
- **a.** Albert Einstein
- **b.** James Hurst
- **c.** James Hutton
- **d.** Charles Lyell

_____ **2.** What does the principle of uniformitarianism state?
- **a.** The geologic processes once at work are now changing.
- **b.** Earth changes only at certain times and only after certain events.
- **c.** Earth has always been as it is now.
- **d.** The same geologic processes have been at work throughout Earth's history.

Uniformitarianism Versus Catastrophism

_____ **3.** What does the principle of catastrophism state?
- **a.** Geologic changes occur suddenly.
- **b.** Geologic changes are predictable.
- **c.** Geologic catastrophes are uniform.
- **d.** Geologic changes occur slowly.

_____ **4.** Which of the following ideas did Hutton's theories suggest?
- **a.** The Earth was not very old.
- **b.** The Earth had experienced many catastrophes.
- **c.** The Earth was much older than people thought.
- **d.** The Earth never changed.

A Victory for Uniformitarianism

_____ **5.** Who wrote *Principles of Geology?*
- **a.** Albert Einstein
- **b.** James Hutton
- **c.** Charles Lyell
- **d.** Charles Houston

_____ **6.** Which principle did *Principles of Geology* support?
- **a.** deposition
- **b.** erosion
- **c.** catastrophism
- **d.** uniformitarianism

MODERN GEOLOGY—A HAPPY MEDIUM

_____ **7.** What do modern-day scientists believe about geologic change?
- **a.** It all happens very slowly.
- **b.** It all happens suddenly.
- **c.** Some happens gradually, and some happens suddenly.
- **d.** Geologic change does not happen.

_____ **8.** What do some scientists believe contributed to the disappearance of the dinosaurs?
- **a.** an earthquake
- **b.** an asteroid strike
- **c.** a hurricane
- **d.** a drought

PALEONTOLOGY—THE STUDY OF PAST LIFE

_____ **9.** What can the study of fossils provide evidence of?
- **a.** the age of the earth
- **b.** how the environment has changed and how life has changed
- **c.** the age of the universe
- **d.** how mountains and rivers form

Match the correct description with the correct term. Write the letter in the space provided.

_____ **10.** scientists who study past life

_____ **11.** the remains of organisms preserved by geologic processes

- **a.** fossils
- **b.** paleontologists

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Relative Dating (pp. 238–245)

Write the letter of the correct answer in the space provided.

_____ **1.** Which of the following is a method for determining the age of objects or events in relation to other objects or events?
- **a.** relative sequencing
- **b.** relative dating
- **c.** relative history
- **d.** relative geology

THE ROCK CYCLE

_____ **2.** What is geologic history sometimes called?
- **a.** relative dating
- **b.** unconformity
- **c.** geologic record
- **d.** relative history

_____ **3.** What is rock that forms when magma cools?
- **a.** igneous
- **b.** metamorphic
- **c.** sedimentary
- **d.** cement

Weathering, Erosion, and Deposition

_____ **4.** Weathering can break down which type or types of rock?
- **a.** only sedimentary
- **b.** igneous, metamorphic, and sedimentary
- **c.** only igneous and metamorphic
- **d.** only igneous

_____ **5.** What is the process that moves sediment from one place to another called?
- **a.** erosion
- **b.** weathering
- **c.** deposition
- **d.** metamorphosis

Formation of Sedimentary Rock

_____ **6.** What happens when sediment is lithified?
- **a.** The sediment is melted into magma.
- **b.** The sediment is loosened.
- **c.** The sediment is eroded.
- **d.** The sediment is hardened.

_____ **7.** What forms if biological debris remains in lithified rock?
- **a.** an intrusion
- **b.** a fossil
- **c.** a fault
- **d.** a fold

THE PRINCIPLE OF SUPERPOSITION

_____ **8.** What do scientists know about an undisturbed sequence of rock layers?
- **a.** Older rocks lie above younger rocks.
- **b.** Younger rocks lie under older rocks.
- **c.** Younger rocks lie above older rocks.
- **d.** Older rocks have eroded away.

Superposition in Rock Layers

_____ **9.** What principle states that younger rocks lie above older rocks in an undisturbed sequence?
- **a.** relative dating
- **b.** superposition
- **c.** catastrophism
- **d.** uniformitarianism

DISTURBED ROCK LAYERS

_____ **10.** Which of the following statements about rock sequences is NOT true?
- **a.** Some rock sequences are disturbed by forces within Earth.
- **b.** All rock sequences have the oldest layers on top.
- **c.** Earth's forces can push rocks into a sequence.
- **d.** Some rock sequences can be upside down.

Processes That Disturb Rock Layers

_____ **11.** What is the bending of rock layers that results from stress?
- **a.** intrusion
- **b.** folding
- **c.** tilting
- **d.** fault

Features That Cut Across Rock Layers

_____ **12.** What is a crack in Earth's crust along which rocks shift position?
- **a.** intrusion
- **b.** folding
- **c.** tilting
- **d.** fault

Gaps in the Record

_____ **13.** What results when layers of rock are missing?
- **a.** intrusion
- **b.** a gap in the geologic record
- **c.** superposition
- **d.** folding

Unconformities

_____ **14.** Which of the following does NOT form an unconformity?
- **a.** Deposition stops after a supply of sediment is cut off.
- **b.** Erosion removes layers.
- **c.** A break in the geologic record happens.
- **d.** Gravity causes sediment to form in layers.

ROCK-LAYER PUZZLES

_____ **15.** Which of the following is NOT true of rock-layer sequences?
- **a.** Rock-layer sequences often are affected by more than one event.
- **b.** Rock-layer sequences often are affected by a single event.
- **c.** Intrusions may squeeze into rock layers that contain an unconformity.
- **d.** Rock-layer sequences help geologists understand the history of Earth.

The Law of Crosscutting Relationships

_____ **16.** A fault is which of the following in relation to the body it cuts through?
- **a.** younger
- **b.** older
- **c.** the same age
- **d.** can be younger or older

Relative Ages of Rock Layers and Features

_____ **17.** Which of the following statements is true about Figure 6 in your textbook?

a. The fault formed before the igneous intrusion.
b. The igneous intrusion formed first.
c. The igneous intrusion formed last
d. The fault formed last.

ORDER OF EVENTS

_____ **18.** What does relative dating tell geologists?

a. the order of events
b. when events took place
c. both the order and when events took place
d. what events will happen in the future

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Absolute Dating (pp. 246–249)

Write the letter of the correct answer in the space provided.

_____ **1.** What does absolute dating measure?
- **a.** the age of an event or object in seconds
- **b.** the age of an event or object in hours
- **c.** the age of an event or object in years
- **d.** the age of an event or object in minutes

RADIOACTIVE DECAY

_____ **2.** When atoms of the same element have the same number of protons but a different number of neutrons, what are they called?
- **a.** isotopes
- **b.** radiometric
- **c.** stable
- **d.** absolute

_____ **3.** Which of the following is NOT true of unstable isotopes?
- **a.** Each kind decays at a different rate.
- **b.** All isotopes decay at the same rate.
- **c.** The rate of decay can be determined experimentally.
- **d.** The rate of decay is constant for each kind.

Dating Rocks—Parent and Daughter Isotopes

_____ **4.** In the process of radioactive decay, what is the unstable radioactive isotope called?
- **a.** sister isotope
- **b.** brother isotope
- **c.** daughter isotope
- **d.** parent isotope

_____ **5.** What happens during radioactive decay?
- **a.** Stable daughter isotopes break down into unstable parent isotopes.
- **b.** Stable parent isotopes break down into unstable daughter isotopes.
- **c.** Unstable parent isotopes break down into stable daughter isotopes.
- **d.** Unstable daughter isotopes break down into stable parent isotopes.

_____ **6.** Which of the following statements about dating rocks is true?
- **a.** The less daughter material in an object, the older the object.
- **b.** The more parent material in an object, the older the object.
- **c.** The more daughter material in an object, the younger the object.
- **d.** The more daughter material in an object, the older the object.

Radiometric Dating

Match the correct description with the correct term. Write the letter in the space provided.

_____ **7.** determines the absolute age of a sample, based on the ratio of parent material to daughter material

_____ **8.** time needed for one-half of radioactive material to decay

a. half-life

b. radiometric dating

The Most Useful Rock Samples

Write the letter of the correct answer in the space provided.

_____ **9.** What are the best types of rocks to use for radiometric dating?

a. sedimentary
b. metamorphic
c. igneous
d. All are equally useful.

USING RADIOMETRIC DATING

_____ **10.** Which of the following is true about isotopes with long half-lives?

a. They are useful in dating older rocks.
b. They are useful in dating younger rocks.
c. They are useful in dating younger and older rocks.
d. They are not useful in dating rocks.

Methods of Radiometric Dating

_____ **11.** How old are rocks dated by the potassium-argon method?

a. younger than 50,000 years
b. younger than 100,000 years
c. older than 100,000 years
d. no younger than 10 million years

_____ **12.** Which method of radiometric dating would be used to date objects older than 10 million years?

a. uranium-lead
b. carbon-14
c. rubidium-strontium
d. potassium-argon

The Age of Our Solar System

_____ **13.** Which of the following might be used to find the age of our solar system?

a. igneous rocks
b. meteorites
c. metamorphic rocks
d. sedimentary rocks

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

The Study of Earth's History

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. uniformitarianism

2. catastrophism

3. paleontology

SECTION SUMMARY

Read the following section summary.

- Uniformitarianism assumes that geologic change is gradual. Catastrophism is based on the idea that geologic change is sudden.
- Modern geology is based on the idea that gradual geologic change is interrupted by catastrophes.
- Using fossils to study past life is called paleontology.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Relative Dating

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. relative dating

2. sedimentary rock

3. superposition

4. unconformity

5. law of crosscutting relationships

SECTION SUMMARY

Read the following section summary.

- Geologists use relative dating to determine the order in which events happen.
- The rock cycle describes processes that form and recycle rock on Earth.
- Sedimentary rock forms when layers of sediment are lithified. Fossils may be preserved in sedimentary rock.
- The principle of superposition states that in undisturbed rock sequences, younger sedimentary rock layers lie above older layers.
- Folding and tilting are two events that disturb rock layers. Faults and intrusions are two features that cut across rock layers.
- Unconformities occur when rock layers are eroded or when sediment is not deposited for a long time.
- The law of crosscutting relationships states that structures and features that cut across rock layers are younger than the rock layers.
- Superposition and crosscutting relationships allow geologists to determine the order in which rock layers and features form but not the age in years of rock layers and features.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Absolute Dating

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. absolute dating

2. radioactive decay

3. radiometric dating

4. half-life

SECTION SUMMARY

Read the following section summary.

- During radioactive decay, an unstable isotope decays and becomes a stable isotope of the same element or a different element.
- Radiometric dating, based on the ratio of parent to daughter material, is used to determine the absolute age of a sample.
- The method of radiometric dating is chosen based on the estimated age of the sample.
- Earth and the solar system are about 4.6 billion years old.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Looking at Fossils (pp. 264–269)

FOSSILIZED ORGANISMS

Write the letter of the correct answer in the space provided.

_____ **1.** What is the trace or remains of an organism that lived long ago called?
- **a.** sediment
- **b.** fossil
- **c.** trace element
- **d.** rock

Fossils in Rocks

_____ **2.** Which parts of an organism are often preserved in sedimentary rock?
- **a.** digested parts
- **b.** sticky parts
- **c.** soft parts
- **d.** hard parts

_____ **3.** Where are most fossils preserved?
- **a.** in asphalt
- **b.** in ice
- **c.** in sedimentary rock
- **d.** in metamorphic rock

Fossils in Amber

_____ **4.** What is amber?
- **a.** hardened tree sap
- **b.** soft, sticky tree sap
- **c.** ice in glaciers
- **d.** wood replaced by minerals

_____ **5.** What kind of fossils are often found in amber?
- **a.** insects
- **b.** fish
- **c.** dinosaurs
- **d.** clams

Frozen Fossils

_____ **6.** In 1999, where did scientists find remains of a woolly mammoth?
- **a.** in petrified wood
- **b.** in frozen tundra
- **c.** in asphalt
- **d.** in amber

_____ **7.** Why are many fossil remains left from the last ice age?
- **a.** Freezing slowed down their decay.
- **b.** Tar slowed down their decay.
- **c.** Tree sap slowed down their decay.
- **d.** Hard minerals slowed down their decay.

Fossils in Asphalt

_____ **8.** How long have organisms been trapped and preserved in the La Brea Tar Pits in Los Angeles, California?
- **a.** no more than 500 years
- **b.** no more than 1,000 years
- **c.** for at least 38,000 years
- **d.** for at least one million years

_____ **9.** What trapped and preserved many kinds of organisms at La Brea?
- **a.** petrified wood
- **b.** sticky tree sap
- **c.** sticky tar
- **d.** quicksand

Petrification

_____ **10.** In what process do minerals replace an organism's tissues?
- **a.** freezing
- **b.** burning
- **c.** sedimentation
- **d.** petrification

_____ **11.** In what process do minerals replace holes and open spaces in bones?
- **a.** freezing
- **b.** burning
- **c.** sedimentation
- **d.** petrification

_____ **12.** In what process do minerals replace ALL of an organism's tissues?
- **a.** freezing
- **b.** burning
- **c.** sedimentation
- **d.** petrification

OTHER TYPES OF FOSSILS

Trace Fossils

Use the terms from the following list to complete the sentences below.

burrow	coprolite
trace fossil	footprint

13. Any fossilized evidence of an animal's activity is a(n) _____.

14. A trace fossil that can show how big an animal was and how fast it moved is a(n) _____.

15. A trace fossil of a shelter made by an is a(n) _____.

16. A trace fossil made of preserved animal dung is called a(n) _____.

MOLDS AND CASTS

Match the correct description with the correct term. Write the letter in the space provided.

_____ **17.** an impression left in rock where a plant or animal was buried

_____ **18.** an object formed when sediment fills a mold and becomes rock

a. cast
b. mold

USING FOSSILS TO INTERPRET THE PAST

The Information in the Fossil Record

Write the letter of the correct answer in the space provided.

_____ **19.** What kind of ancient organisms do scientists know the most about?
- **a.** organisms with soft bodies
- **b.** organisms with hard bodies
- **c.** organisms that were eaten
- **d.** organisms that burned up

_____ **20.** Why does the fossil record give only part of the history of life on Earth?
- **a.** The fossil record is incomplete.
- **b.** All fossils have been discovered.
- **c.** All environments are good for fossils.
- **d.** No more fossils will ever be made.

A History of Environmental Changes

_____ **21.** Where were the marine fossils found on mountains formed?
- **a.** in a forest
- **b.** in a desert
- **c.** at an ocean bottom
- **d.** in asphalt

_____ **22.** What can be learned about the climate of Antarctica from fossils of freshwater organisms?
- **a.** Antarctica used to be warmer.
- **b.** Antarctica used to be colder.
- **c.** Antarctica used to be a desert.
- **d.** Antarctica used to be mountains.

A History of Changing Organisms

_____ **23.** What can scientists learn by comparing similarities between fossils and living organisms?
- **a.** Life has never changed.
- **b.** All life forms are alike.
- **c.** Life has changed over time.
- **d.** Life changes have been continuously recorded.

DATING THE FOSSIL RECORD

_____ **24.** What rock layers have fossils of the oldest life forms?
- **a.** relative layers
- **b.** radioactive layers
- **c.** young layers
- **d.** old layers

Using Fossils to Date Rocks

_____ **25.** What kind of fossil appears all around the world in certain rock layers?
- **a.** content fossils
- **b.** index fossils
- **c.** dinosaur fossils
- **d.** unidentified fossils

Trilobites as Index Fossils

_____ **26.** How old are rock layers where *Phacops* fossils are found?
- **a.** about 100 million years old
- **b.** less than 200 million years old
- **c.** almost 300 million years old
- **d.** about 400 million years old

Ammonites as Index Fossils

_____ **27.** When were the rock layers where *Tropites* fossils are found formed?
- **a.** between 10,000 and 5,000 years ago
- **b.** between 1 million and 500,000 years ago
- **c.** between 230 and and 208 million years ago
- **d.** 1 billion years ago

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Earth's Changing Continents (pp. 270–275)

PLATE TECTONICS

Write the letter of the correct answer in the space provided.

_____ **1.** What theory explains how Earth's tectonic plates move and change shape?
- **a.** plate boundary
- **b.** geologic time scale
- **c.** continental drift
- **d.** plate tectonics

_____ **2.** What happens as Earth's mantle drags on the bottom of tectonic plates?
- **a.** The plates move.
- **b.** The plates spin.
- **c.** The plates sink.
- **d.** The plates rise.

_____ **3.** How fast do Earth's tectonic plates move?
- **a.** between 2 and 5 km per year
- **b.** between 2 and 5 m per year
- **c.** between 2 and 5 cm per year
- **d.** between 1 and 5 mm per year

Match the correct description with the correct term. Write the letter in the space provided.

_____ **4.** the thin, cool "skin" of Earth

_____ **5.** smaller blocks of lithosphere

_____ **6.** thick layer of solid rock where tectonic plates sit

- **a.** tectonic plates
- **b.** lithosphere
- **c.** mantle

Where Tectonic Plates Meet

Write the letter of the correct answer in the space provided.

_____ **7.** What are the places where two or more tectonic plates meet?
- **a.** plate barriers
- **b.** plate collisions
- **c.** plate boundaries
- **d.** plate locks

Convergent Boundaries

_____ **8.** At what kind of boundary do tectonic plates move together?
- **a.** convergent boundary
- **b.** divergent boundary
- **c.** transform boundary
- **d.** mantle boundary

_____ **9.** What forms if plates of continental lithosphere are forced together?
- **a.** mountain belts
- **b.** a line of volcanoes
- **c.** a new sea
- **d.** earthquakes

_____ **10.** What may form if oceanic lithosphere sinks at a convergent boundary?
- **a.** mountain belts
- **b.** a line of volcanoes
- **c.** a new sea
- **d.** earthquakes

Divergent Boundaries

_____ **11.** At what kind of boundary do tectonic plates move apart?
- **a.** convergent boundary
- **b.** divergent boundary
- **c.** transform boundary
- **d.** mantle boundary

_____ **12.** What is a giant crack in the lithosphere called?
- **a.** a volcano
- **b.** a fissure
- **c.** a fault
- **d.** a rift

_____ **13.** What forms if a rift tears apart a continent, then widens for millions of years?
- **a.** mountain belts
- **b.** a line of volcanoes
- **c.** a new sea
- **d.** earthquakes

Transform Boundaries

_____ **14.** At what kind of boundary do tectonic plates slide past each other?
- **a.** convergent boundary
- **b.** divergent boundary
- **c.** transform boundary
- **d.** mantle boundary

_____ **15.** What can be caused by the movement of tectonic plates at a transform boundary?
- **a.** mountain belts
- **b.** a line of volcanoes
- **c.** a new sea
- **d.** earthquakes

_____ **16.** What is a well-known transform boundary in California?
- **a.** the Ring of Fire
- **b.** the Panama Land Bridge
- **c.** the New Madrid fault
- **d.** the San Andreas fault

CONTINENTAL DRIFT

_____ **17.** What term describes how continents have moved throughout Earth's history?
- **a.** lithospheric movement
- **b.** mantle shift
- **c.** continental drift
- **d.** oceanic drift

_____ **18.** What does a continent do as it moves across Earth's surface?
- **a.** It creates a channel.
- **b.** It pushes waves ahead.
- **c.** It gains speed.
- **d.** It carries rocks and fossils.

Geologic Evidence of Continental Drift

_____ **19.** What evidence has been found showing that India was once covered with glaciers?
- **a.** ice-scratched rocks
- **b.** ancient forests
- **c.** polar bear remains
- **d.** fossilized dog sleds

_____ **20.** What did India, South America, and Africa form about 280 million years ago?
- **a.** a single landmass
- **b.** a pair of landmasses
- **c.** a single ocean
- **d.** an asteroid

Fossil Evidence of Continental Drift

_____ **21.** About how long ago did *Mesosaurus* live?
- **a.** 2,700 years
- **b.** 27,000 years
- **c.** 270,000 years
- **d.** 270 million years

_____ **22.** What do *Mesosaurus* fossils tell us about South America and southwestern Africa?
- **a.** They have always been separate.
- **b.** They were once joined.
- **c.** They are moving together.
- **d.** They have the same climate.

HISTORY OF CONTINENTAL DRIFT

_____ **23.** When were all the continents part of one giant continent scientists call Pangaea?
- **a.** about 65 million years ago
- **b.** about 135 million years ago
- **c.** about 245 million years ago
- **d.** about 1 billion years ago

_____ **24.** What happened to show that tectonic plates split apart and moved?
- **a.** Rocks and fossils moved.
- **b.** All living things died.
- **c.** All of Earth's ice melted.
- **d.** Living things stopped evolving.

Changes in Climate

_____ **25.** What happened to the climates of continents as they moved toward the equator?
- **a.** They became warmer.
- **b.** They became colder.
- **c.** They became drier.
- **d.** They did not change.

_____ **26.** What happened to Antarctica as the other continents moved away?
- **a.** The icecap melted.
- **b.** An icecap formed.
- **c.** Volcanoes erupted.
- **d.** Mountain belts formed.

Changes in Life

_____ **27.** What happened to living things when Pangaea split into separate continents?
- **a.** They lived on just one continent.
- **b.** They disappeared from all continents.
- **c.** They moved to separate continents.
- **d.** They froze on each continent.

_____ **28.** What happened to living things when the environments on continents changed?
- **a.** They all disappeared.
- **b.** They all moved to the sea.
- **c.** They stayed the same.
- **d.** They changed.

CASE STUDY: THE PANAMA LAND BRIDGE

_____ **29.** About 3 million years ago, what joined North and South America?
- **a.** the Panama Land Bridge
- **b.** the Panama Canal
- **c.** the Gulf of Mexico
- **d.** the Pangaea Land Bridge

Changes in Life

_____ **30.** What are some animals that walked to North America across the Panama Land Bridge?
- **a.** camels and cats
- **b.** elephants and tigers
- **c.** clams and corals
- **d.** opossums and armadillos

Changes in Climate

_____ **31.** After the Panama Land Bridge formed, what did the Gulf Stream do to the climate of Western Europe?
- **a.** made it very hot
- **b.** made it very cold
- **c.** made it mild
- **d.** made it extreme

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Time Marches On (pp. 276–283)

THE GEOLOGIC TIME SCALE

Write the letter of the correct answer in the space provided.

_____ **1.** What is used to divide Earth's history into smaller pieces of time?
- **a.** the geologic time scale
- **b.** the geographic time scale
- **c.** the prehistoric time scale
- **d.** the archaeological time scale

Divisions of Time

_____ **2.** What is the largest division of Earth's geologic time scale?
- **a.** eon
- **b.** era
- **c.** period
- **d.** epoch

_____ **3.** What is the second-largest division on the geologic time scale?
- **a.** eon
- **b.** era
- **c.** period
- **d.** epoch

_____ **4.** On the geologic time scale, how are periods divided?
- **a.** by eons
- **b.** by eras
- **c.** by epochs
- **d.** by millennia

_____ **5.** What can the appearance or disappearance of many species help define?
- **a.** climatic changes
- **b.** species extinction rates
- **c.** geologic time boundaries
- **d.** species appearance rates

The Appearance and Disappearance of Organisms

_____ **6.** What is the death of every member of a species?
- **a.** endangerment
- **b.** merging
- **c.** extinction
- **d.** flourishing

_____ **7.** What is one gradual change that can cause a mass extinction?
- **a.** an asteroid strike
- **b.** a climate change
- **c.** a volcano eruption
- **d.** a tsunami

_____ **8.** What is one catastrophic event that can cause a mass extinction?
- **a.** an asteroid strike
- **b.** a tornado
- **c.** a hurricane
- **d.** a forest fire

PRECAMBRIAN TIME—LIFE DEVELOPS

_____ **9.** About when did life first appear?
- **a.** 1.8 billion years ago
- **b.** 2.7 billion years ago
- **c.** 3.6 billion years ago
- **d.** 4.5 billion years ago

Life and Oxygen

_____ **10.** What did cyanobacteria add to the atmosphere?
- **a.** oxygen gas
- **b.** radiation
- **c.** magnetic fields
- **d.** ultraviolet rays

_____ **11.** What did ozone do that helped life survive on land?
- **a.** increased radiation
- **b.** reduced radiation
- **c.** increased oxygen
- **d.** reduced oxygen

Organisms That Are More Complex

_____ **12.** In what way are cells of eukaryotes different from cells of prokaryotes?
- **a.** They are larger.
- **b.** They are smaller.
- **c.** They have a nucleus.
- **d.** They don't have a nucleus.

THE PALEOZOIC ERA

_____ **13.** About how long ago was the Paleozoic Era?
- **a.** 4.6 billion to 542 million years
- **b.** 542 to 251 million years
- **c.** 251 to 65 million years
- **d.** 65 million years to today

The Cambrian Explosion

_____ **14.** What kind of life flourished at the beginning of the Paleozoic Era?
- **a.** mammals
- **b.** reptiles
- **c.** marine life
- **d.** birds

_____ **15.** When did life forms with shells and exoskeletons first appear?
- **a.** during the Cambrian explosion
- **b.** during the Cambrian extinction
- **c.** during the Permian extinction
- **d.** during the Permian explosion

Life on Land

_____ **16.** What do fossils show were the first land animals?
- **a.** dinosaurs
- **b.** arthropods
- **c.** fish
- **d.** humans

_____ **17.** In what era did all major plant groups, except for flowering plants, appear?
- **a.** Archaean
- **b.** Cenozoic
- **c.** Mesozoic
- **d.** Paleozoic

The Permian Extinction

_____ **18.** What was Earth's largest mass extinction that we know about?
- **a.** the Tertiary extinction
- **b.** the Cretaceous extinction
- **c.** the Permian extinction
- **d.** the Cambrian extinction

_____ **19.** What percentage of marine species became extinct during the Permian Extinction?
a. 90%
b. 78%
c. 50%
d. 30%

_____ **20.** What percentage of land species became extinct during the Permian Extinction?
a. 90%
b. 78%
c. 50%
d. 30%

THE MESOZOIC ERA

_____ **21.** What animals survived from the Permian Period into the Mesozoic Era?
a. bacteria
b. fungi
c. reptiles
d. mammals

Life in the Mesozoic Era

_____ **22.** What are the best-known reptiles from the Mesozoic Era?
a. salamanders
b. worms
c. birds
d. dinosaurs

_____ **23.** What plants formed large forests in the Mesozoic Era?
a. conifers
b. ferns
c. grass
d. flowers

The Cretaceous-Tertiary Extinction

_____ **24.** What organisms disappeared during the Cretaceous-Tertiary extinction?
a. all dinosaurs
b. all animals
c. all plants
d. all fish

_____ **25.** What do scientists believe may have caused the Cretaceous-Tertiary extinction?
- **a.** ultraviolet radiation from the sun
- **b.** impact of an object from the solar system
- **c.** competition from new predators
- **d.** destruction of habitat by a major flood

_____ **26.** What is the fossil evidence that there was a Cretaceous-Tertiary extinction?
- **a.** Fossils disappeared from the record.
- **b.** Fossils appeared in the record.
- **c.** Cretaceous and Tertiary fossils are the same.
- **d.** One fossil was left in the record.

THE CENOZOIC ERA

_____ **27.** When did the Cenozoic Era begin?
- **a.** 50,000 years ago
- **b.** 1 million years ago
- **c.** 40 million years ago
- **d.** 65 million years ago

_____ **28.** When did the Cenozoic Era end?
- **a.** 50,000 years ago
- **b.** 1 million years ago
- **c.** 40 million years ago
- **d.** The Cenozoic Era has not ended.

_____ **29.** Why do scientists know more about the Cenozoic Era than about earlier eras?
- **a.** Cenozoic fossils are easy to find.
- **b.** Cenozoic fossils are hard to find.
- **c.** Cenozoic fossils have not formed.
- **d.** Early humans left pictures.

The Age of Mammals

_____ **30.** What is the Cenozoic Era sometimes called?
- **a.** the Age of Discovery
- **b.** the Age of Reptiles
- **c.** the Age of Mammals
- **d.** the Age of Amphibians

_____ **31.** When did humans first appear?
- **a.** early in the Cenozoic Era
- **b.** late in the Cenozoic Era
- **c.** early in the Mesozoic Era
- **d.** late in the Mesozoic Era

The Cenozoic Era Today

_____ **32.** In the Cenozoic Era, when did ice sheets move out from Earth's poles?
- **a.** in the polar ages
- **b.** in the glacial ages
- **c.** in the ice ages
- **d.** in the Age of Reptiles

_____ **33.** How did many animals survive during the ice ages?
- **a.** They migrated toward the equator.
- **b.** They migrated toward the poles.
- **c.** They hibernated through the ice ages.
- **d.** They learned to live underwater.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Looking at Fossils

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. fossil

_____

_____

2. trace fossil

_____

_____

3. index fossil

_____

_____

SECTION SUMMARY

Read the following section summary.

- Fossils are the traces or remains of an organism that lived long ago.
- Fossils can be preserved in sedimentary rock, amber, asphalt, or ice and by petrification.
- Trace fossils are any naturally preserved evidence of animal activity. Tracks, burrows, and coprolites are examples of trace fossils.
- Scientists study fossils to determine how environments and organisms have changed over time.
- An index fossil is a fossil that can be used to establish the age of rock layers.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Earth's Changing Continents

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. plate tectonics

_____

_____

2. continental drift

_____

_____

SECTION SUMMARY

Read the following section summary.

- Earth's tectonic plates drift over time, moving continents and changing oceans.
- Evidence from rocks and fossils shows how Earth's continents have drifted and how climate and life have changed as a result.
- The breakup of Pangaea about 245 million years ago divided Earth's land into separate continents.
- The movement of continents alters climates by changing the patterns of air currents and ocean currents.
- The formation of the Panama Land Bridge is an example of how the movement of tectonic plates affects the distribution of organisms on Earth.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Time Marches On

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. geologic time scale

_____

_____

2. extinction

_____

_____

SECTION SUMMARY

Read the following section summary.

- The geologic time scale divides Earth's 4.6 billion-year history into time intervals. These intervals include eons, eras, periods, and epochs.
- At certain times in Earth's history, the number of different kinds of organisms has increased or decreased dramatically.
- Life on Earth developed more than 3.6 billion years ago, during Precambrian time. After cyanobacteria added oxygen to the atmosphere, more-complex forms of life evolved.
- A variety of marine organisms appeared at the beginning of the Paleozoic Era in what is called the Cambrian explosion. Near the end of the Paleozoic Era, the Permian extinction resulted in the disappearance of many organisms from the fossil record.
- Dinosaurs dominated Earth during the Mesozoic Era. They all became extinct during the Cretaceous-Tertiary extinction.
- Mammals have dominated the Cenozoic Era. Modern humans appeared during this era.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Change over Time (pp. 298–305)

DIFFERENCES BETWEEN ORGANISMS

Match the correct description with the correct term. Write the letter in the space provided.

_____ **1.** a characteristic that helps an organism survive

_____ **2.** a group of organisms that can mate with one another to produce fertile offspring

_____ **3.** members of the same species that live in the same place

a. species
b. adaptation
c. population

Do Species Change over Time?

Write the letter of the correct answer in the space provided.

_____ **4.** How many different species are there?
- **a.** dozens
- **b.** hundreds
- **c.** thousands
- **d.** millions

_____ **5.** Why are many species no longer on Earth?
- **a.** They turned into fossils.
- **b.** They died out.
- **c.** They adapted.
- **d.** They turned into populations.

_____ **6.** What do scientists think happens as populations change over time?
- **a.** Species stay the same.
- **b.** New species form.
- **c.** Fossils die out.
- **d.** Evolution stops.

_____ **7.** What is it called when populations slowly change over time?
- **a.** evolution
- **b.** overpopulation
- **c.** reproduction
- **d.** organization

EVIDENCE OF CHANGES OVER TIME

_____ **8.** Evidence that organisms have changed over time is buried where?
- **a.** in the atmosphere of Earth
- **b.** in the sands carried by desert winds
- **c.** in sedimentary rock within Earth's crust
- **d.** in the falling rain

Fossils

_____ **9.** What are fossils?
- **a.** the traces or remains of organisms that lived long ago
- **b.** adaptations of once-living organisms
- **c.** layers of Earth
- **d.** old rocks

The Fossil Record

_____ **10.** What helps make fossils?
- **a.** dirt
- **b.** air
- **c.** water
- **d.** sediment

_____ **11.** What is the fossil record?
- **a.** the rocks that cover fossils
- **b.** a book about fossils
- **c.** a timeline of life
- **d.** the minerals that form fossils

_____ **12.** How do scientists organize fossils?
- **a.** by size and weight
- **b.** by age and physical similarity
- **c.** by type of rock and color
- **d.** by height and length

_____ **13.** What do we know about fossils found in newer layers of Earth?
- **a.** They are the oldest fossils.
- **b.** They are close relatives of organisms alive now.
- **c.** They are imprints.
- **d.** They are not really fossils yet.

EVIDENCE OF ANCESTRY

_____ **14.** What do scientists think that all living species descended from?
- **a.** flowering trees
- **b.** shared traits
- **c.** common ancestors
- **d.** recent fossils

_____ **15.** What do all living things get from ancestors?
- **a.** traits
- **b.** evolution
- **c.** fossils
- **d.** offspring

Drawing Connections

_____ **16.** How do scientists show their ideas about how species are related?
- **a.** with a diagram with branches
- **b.** with a diagram with circles
- **c.** with a horizontal timeline
- **d.** with a bar graph

_____ **17.** What does each branch represent on the drawing?
- **a.** a group descended from a newer species
- **b.** a group of rocks in Earth's crust
- **c.** a group descended from an older species
- **d.** a group of fossils

Match the correct description with the correct term. Write the letter in the space provided.

_____ **18.** something that tells the order in which species lived

_____ **19.** a model showing all known plant and animal species

- **a.** the fossil record
- **b.** tree of life

EXAMINING ORGANISMS

Case Study: Evolution of the Whale

Use the terms from the following list to complete the sentences below.

water	land	mammals
ancestors	limbs	

20. Examining an organism carefully can give clues about its

_____.

21. Whales are _____, not fish.

22. Whales had an ancient ancestor that lived on _____.

23. Whales had another ancestor that lived both on land and in

_____.

24. Whales do not have hind _____ anymore, but they still have tiny hip bones.

COMPARING ORGANISMS

Write the letter of the correct answer in the space provided.

_____ **25.** What is the study of physical similarities and differences between living things?
- **a.** physical education
- **b.** comparative anatomy
- **c.** molecular biology
- **d.** organic chemistry

_____ **26.** What is the study of molecules found in living things?
- **a.** atomic science
- **b.** comparative anatomy
- **c.** molecular biology
- **d.** fossil chemistry

Comparing Anatomy

_____ **27.** What do scientists find when they study the structures of different organisms?
- **a.** Related organisms share many traits.
- **b.** Related organisms share no traits.
- **c.** Related organisms share all their traits.
- **d.** Unrelated organisms have no traits.

_____ **28.** How is your arm like a bat's wing?
- **a.** Your arm has similar bones.
- **b.** Your arm is used in the same way.
- **c.** Your arm has similar muscles.
- **d.** Your arm looks the same.

_____ **29.** Why does your arm have almost the same bones as a dolphin's flipper?
- **a.** Dolphins evolved from people.
- **b.** Dolphins and people have a common ancestor.
- **c.** People evolved from dolphins.
- **d.** Flippers are the same as hands.

Comparing DNA Molecules

_____ **30.** What determines an organism's traits?
- **a.** its fossil remains
- **b.** similar structures
- **c.** similar molecules
- **d.** genetic information stored in its DNA

_____ **31.** Many similarities in the DNA of two species means what?
- **a.** The two species recently shared a common ancestor.
- **b.** The two species are not closely related.
- **c.** The two species look exactly alike.
- **d.** The two species both have limbs.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: How Does Evolution Happen? (pp. 306–311)

Write the letter of the correct answer in the space provided.

_____ **1.** What did scientists begin to realize in the 1800s?
- **a.** Earth was much larger than people had thought.
- **b.** Earth was much warmer than people had thought.
- **c.** Earth was much younger than people had thought.
- **d.** Earth was much older than people had thought.

CHARLES DARWIN

_____ **2.** What did Darwin do to learn about plants and animals?
- **a.** He took a trip around the world.
- **b.** He checked the Internet.
- **c.** He made up theories.
- **d.** He bought animals.

Darwin's Journey

_____ **3.** What did Darwin do during his travels?
- **a.** He wrote a book about his theory.
- **b.** He observed plants and animals.
- **c.** He took photos of plants and animals.
- **d.** He visited all the continents.

Darwin's Finches

_____ **4.** The plants and animals in the Galápagos Islands were like those in which place?
- **a.** England
- **b.** Ecuador
- **c.** Australia
- **d.** South Africa

_____ **5.** What did Darwin find out about the finches?
- **a.** The finches were hungry.
- **b.** The finches were on the wrong islands.
- **c.** The finches had different beaks.
- **d.** Some finches could not fly.

_____ **6.** What did the different kinds of beaks allow the finches to do?
- **a.** find different mates
- **b.** eat different kinds of food
- **c.** fly farther
- **d.** build bigger nests

DARWIN'S THINKING

_____ **7.** What did Darwin decide about the finches?
- **a.** The finches had the wrong beaks for the islands.
- **b.** The finches would not survive on the islands.
- **c.** The finches had evolved adaptations for various island environments.
- **d.** The finches had not adapted to different ways of life.

Ideas About Breeding

_____ **8.** Why might selective breeding be used for horses?
- **a.** to show natural selection
- **b.** to slow evolution
- **c.** to make horses faster or bigger
- **d.** to make horses slower

_____ **9.** Why might selective breeding be used for fruit trees?
- **a.** to show natural selection
- **b.** to slow evolution
- **c.** to make fruit taste bad
- **d.** to make bigger fruit

Match the correct definition with the correct term. Write the letter in the space provided.

_____ **10.** a form of an inherited characteristic

_____ **11.** process of breeding plants and animals that have desired traits

- **a.** selective breeding
- **b.** trait

Ideas About Population

Use the terms from the following list to complete the sentences below.

limited	inherit
populations	reproduce

12. Thomas Malthus warned that _____ can grow faster than the food supply.

13. Darwin realized that populations of all species are _____ by starvation, disease, and other things.

14. Only a limited number of individuals in a population live long enough to _____.

15. Darwin thought that survivors in a species _____ traits that help them survive.

Ideas About Earth's History

Use the terms from the following list to complete the sentences below.

time	Earth

16. Darwin read a book that showed that _____ had formed over a very long period.

17. After reading the book, Darwin reasoned that there would be enough _____ for organisms to slowly change.

DARWIN'S THEORY OF NATURAL SELECTION

Write the letter of the correct answer in the space provided.

_____ **18.** What is natural selection the mechanism for?
- **a.** selective breeding
- **b.** inheritance
- **c.** limitation
- **d.** evolution

_____ **19.** By what process do better adapted organisms survive and reproduce?
- **a.** limitation
- **b.** population
- **c.** natural selection
- **d.** evolution

Match the correct description to the correct step in natural selection. Write the letter in the space provided.

_____ **20.** when animals have too many offspring

_____ **21.** when no two offspring are exactly the same

_____ **22.** when many offspring die before they can reproduce

_____ **23.** when the best adapted offspring survive and reproduce

a. successful reproduction
b. inherited variation
c. struggle to survive
d. overproduction

Genetics and Evolution

Write the letter of the correct answer in the space provided.

_____ **24.** Which of the following results when genetic information is passed from parent to offspring?
a. selective breeding
b. adaptation
c. limitation of survivors
d. variation among organisms

_____ **25.** When organisms with genes that help them survive reproduce more than organisms that lack those genes, which of the following happens?
a. limitation
b. population
c. selection
d. genetic information

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Natural Selection in Action (pp. 312–317)

Write the letter of the correct answer in the space provided.

_____ **1.** Which of the following explains how a population can change in response to its environment?
- **a.** the fossil record
- **b.** the theory of relativity
- **c.** evolution by natural selection
- **d.** selective breeding

CHANGES IN POPULATIONS

_____ **2.** Which of the following determine favorable and unfavorable traits in a population?
- **a.** environmental factors
- **b.** separation factors
- **c.** scientific experiments
- **d.** fossil records

Genetic Variation

Use the terms from the following list to complete the sentences below.

alleles	genetic variation
environment	traits

3. A measure how much individuals in a population differ genetically is _____.

4. In a population with high genetic variation, members have different _____, or forms of their genes.

5. If their alleles are different, the population will have more variety in their _____.

6. Populations with a low genetic variation are less likely to adapt to changes in their _____.

Environmental Factors

Write the letter of the correct answer in the space provided.

_____ **7.** Which of the following are the conditions in a place that affect the organisms that live there?
a. social factors
b. genetic factors
c. environmental factors
d. reproductive factors

_____ **8.** Which of the following is NOT a kind of environmental factor?
a. water
b. food sources
c. predators
d. genes

_____ **9.** Which of the following environmental factors would be most likely to help a green snake survive?
a. flat, grey rocks
b. tall, green grass
c. dead leaves on a forest floor
d. cloudy skies

FORMING A NEW SPECIES

Use the terms from the following list to complete the sentences below.

speciation species adaptations

10. After a group becomes separated from a population, a new _____ may form.

11. Over time, separated populations may evolve different _____.

12. The forming of a new species by evolution is called _____.

Separation

Match the correct example with the correct part of speciation. Write the letter in the space provided.

_____ **13.** A species of squirrels divides into two groups because of changes from an earthquake.

_____ **14.** Over time, separated bird groups change so they eat different kinds of seeds.

_____ **15.** Frog groups separated for a long time reunite but cannot interbreed.

a. reproductive isolation
b. separation
c. adaptation

EXTINCTION

Write the letter of the correct answer in the space provided.

_____ **16.** Which of the following may happen if a species cannot adapt to changes in its environment?
- **a.** The species may become extinct.
- **b.** The species will survive.
- **c.** The species will separate.
- **d.** The species may increase in size.

_____ **17.** When is a species extinct?
- **a.** when a few individuals are left
- **b.** when it is reproducing well
- **c.** when it becomes separated
- **d.** when it has died out completely

_____ **18.** Which of the following is NOT a condition that can lead to extinction of organisms?
- **a.** loss of habitat
- **b.** successful reproduction
- **c.** increased competition
- **d.** new predators

Increased Competition

Match the correct description with the correct term. Write the letter in the space provided.

_____ **19.** A species of mouse loses the struggle for water to other animals when the river in its environment shrinks.

_____ **20.** Foxes new to an area feed on a species of rabbit that cannot escape them.

_____ **21.** Humans cut down trees that gave a species of birds food and shelter.

- **a.** loss of habitat
- **b.** new predators
- **c.** increased competition

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Change over Time

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. adaptation

2. species

3. evolution

4. fossil

5. fossil record

SECTION SUMMARY

Read the following section summary.

- Evolution is the process in which the inherited characteristics within a population change over generations, sometimes giving rise to new species.
- Fossils provide clues about the animals that have lived on Earth. Comparing fossils and living organisms supports the idea that organisms have changed over time.
- Scientists think that modern whales evolved from an ancient, land-dwelling mammal ancestor. Fossil organisms that support this hypothesis have been found.
- Comparing the anatomy and molecules of different organisms provides evidence of common ancestry among living organisms. The traits and DNA of species that have a common ancestor are more similar to each other than they are to the traits and DNA of distantly related species.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

How Does Evolution Happen?

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. trait

2. selective breeding

3. natural selection

SECTION SUMMARY

Read the following section summary.

- Finch species of the Galápagos Islands evolved adaptations in response to their environment.
- Natural selection is the process by which organisms that are better adapted to their environment are more likely to survive and reproduce than less well adapted organisms do.
- The four steps of Darwin's theory of evolution by natural selection include overproduction, inherited variation, struggle to survive, and successful reproduction.
- Variation in each species is due to the exchange of genetic information as it is passed from parent to offspring.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Natural Selection in Action

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. speciation

_____

_____

_____

2. extinct

_____

_____

_____

SECTION SUMMARY

Read the following section summary.

- A population that has high genetic variation will have many individuals with different sets of traits.
- Environmental factors determine which traits are favorable and which traits are unfavorable.
- Natural selection explains how one species evolves into another.
- Separation, adaptation, and reproductive isolation can lead to speciation.
- If environmental conditions change, a species may not be able to survive and may go extinct.
- Environmental conditions that can lead to extinction of species include increased competition, new predators, and loss of habitat.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Sorting It All Out (pp. 332–337)

Write the letter of the correct answer in the space provided.

_____ **1.** What is the name for placing things into groups based on similar characteristics?
- **a.** grouping
- **b.** classification
- **c.** studying
- **d.** listing

WHY CLASSIFY?

_____ **2.** What do scientists learn by classifying living things?
- **a.** which living thing is strongest
- **b.** the characteristics of different species
- **c.** which species has the most members
- **d.** how species get along

HOW DO SCIENTISTS CLASSIFY ORGANISMS?

_____ **3.** Who founded modern taxonomy?
- **a.** Albert Einstein
- **b.** Charles Darwin
- **c.** Isaac Newton
- **d.** Carolus Linnaeus

_____ **4.** What do taxonomists do?
- **a.** only take photographs of animals
- **b.** only name and photograph living things
- **c.** describe, classify, and name living things
- **d.** only take photographs of plants

Classification Today

_____ **5.** How many levels of classification do most scientists use today?
- **a.** eight
- **b.** six
- **c.** five
- **d.** four

_____ **6.** What do closely related living things share?
- **a.** size only
- **b.** shape only
- **c.** many characteristics
- **d.** color and size only

_____ **7.** What characteristics do platypuses, brown bears, lions, and house cats all share?
- **a.** giving birth to live young
- **b.** retractable claws
- **c.** ability to purr
- **d.** hair and mammary glands

Branching Diagrams

_____ **8.** What do house cats have that lions don't have?
- **a.** ability to purr
- **b.** retractable claws
- **c.** hair and mammary glands
- **d.** giving birth to live young

_____ **9.** Which of the following pairs of animals are the most closely related?
- **a.** lions and house cats
- **b.** lions and platypuses
- **c.** house cats and platypuses
- **d.** house cats and brown bears

_____ **10.** What characteristic is shared by bears, lions, and cats?
- **a.** hooves
- **b.** giving birth to live young
- **c.** cold blooded
- **d.** mane and tail

LEVELS OF CLASSIFICATION

Match the correct description with the correct term. Write the letter in the space provided.

_____ **11.** The largest groups for classifying organisms are these.

_____ **12.** Phyla are sorted into these.

_____ **13.** Families are broken down into these.

_____ **14.** Genera are sorted into these.

- **a.** domains
- **b.** species
- **c.** classes
- **d.** genera

SCIENTIFIC NAMES

Write the letter of the correct answer in the space provided.

_____ **15.** What kind of name is specific to each living thing?
- **a.** common name
- **b.** nickname
- **c.** scientific name
- **d.** last name

Two-Part Names

_____ **16.** What is the first part of a scientific name?
- **a.** the order name
- **b.** the genus name
- **c.** the kingdom name
- **d.** the species name

_____ **17.** What is the second part of a scientific name?
- **a.** the order name
- **b.** the genus name
- **c.** the kingdom name
- **d.** the specific name

_____ **18.** What is the scientific name for the Asian elephant?
- **a.** *Felis domesticus*
- **b.** *Elephas maximus*
- **c.** *Tyrannosaurus rex*
- **d.** *Canis lupus*

_____ **19.** What do all genus names begin with?
- **a.** a lowercase letter
- **b.** a capital letter
- **c.** a number
- **d.** a Roman numeral

_____ **20.** Scientific names are usually in what languages?
- **a.** Latin and French
- **b.** Greek and German
- **c.** Latin and Greek
- **d.** English and Latin

EXTINCT ORGANISMS AND LIVING ORGANISMS

_____ **21.** How are the characteristics of extinct animals identified?

a. from written histories
b. from cave drawings
c. these characteristics can't be identified
d. from fossils of that organism

FOSSILS AND BRANCHING DIAGRAMS

_____ **22.** When did Neohipparion appear?

a. in the Pliocene
b. in the Pleistocene
c. in the Miocene
d. in the Oligocene

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Domains and Kingdoms (pp. 338–343)

Write the letter of the correct answer in the space provided.

_____ **1.** What categories did people think all organisms fit into before organisms, such as euglena, were discovered?
- **a.** plants or animals
- **b.** fish or birds
- **c.** plants or mammals
- **d.** animals or trees

THREE DOMAINS

_____ **2.** On what basis do scientists classify organisms?
- **a.** geographically
- **b.** alphabetically
- **c.** unique characteristics
- **d.** shared derived characteristics

_____ **3.** What kingdom did scientists add for organisms that may have both plant and animal characteristics?
- **a.** Euglena
- **b.** Protista
- **c.** Fungi
- **d.** Animalia

_____ **4.** Today, how many domains are in the classification system?
- **a.** five
- **b.** three
- **c.** seven
- **d.** eight

DOMAIN ARCHAEA

_____ **5.** What is the name given to small, single-celled organisms with no nuclei?
- **a.** seeds
- **b.** prokaryotes
- **c.** euglena
- **d.** spores

_____ **6.** What kind of prokaryote can live where other organisms cannot survive?
- **a.** archaea
- **b.** bacteria
- **c.** protista
- **d.** fungi

DOMAIN BACTERIA

_____ **7.** Which vitamin is produced in the human intestines by bacteria?
- **a.** vitamin C
- **b.** vitamin A
- **c.** vitamin K
- **d.** vitamin E

_____ **8.** What kind of food do bacteria help us make from milk?
- **a.** ice cream
- **b.** milkshakes
- **c.** whipped cream
- **d.** yogurt

_____ **9.** What kind of diseases can some kinds of bacteria cause in people?
- **a.** colds
- **b.** flu
- **c.** pneumonia
- **d.** warts

DOMAIN EUKARYA

Kingdom Protista

Match the correct description with the correct term. Write the letter in the space provided.

_____ **10.** organisms that have nuclei and cell membranes

_____ **11.** single- or multicellular organisms that are not fungi, plants, or animals

_____ **12.** plantlike organisms in the kingdom Protista

_____ **13.** animal-like organisms in the kingdom Protista

_____ **14.** domain made up of all eukaryotes

- **a.** protists
- **b.** algae
- **c.** eukaryotes
- **d.** Eukarya
- **e.** protozoans

Kingdom Fungi

Write the letter of the correct answer in the space provided.

_____ **15.** What can plants do that fungi cannot?
- **a.** cellular respiration
- **b.** fermentation
- **c.** photosynthesis
- **d.** digestion

_____ **16.** Where do fungi get their nutrients?
- **a.** from the air
- **b.** from the sun
- **c.** from their surroundings
- **d.** from energy

_____ **17.** How do fungi obtain nutrients?
- **a.** They digest and absorb them.
- **b.** They chew and swallow them.
- **c.** They produce them.
- **d.** They capture and eat them.

Kingdom Plantae

_____ **18.** What kind of eukaryotic organisms have cell walls and make their own food?
- **a.** animals
- **b.** plants
- **c.** Archaea
- **d.** fungi

_____ **19.** What must most plants be exposed to for photosynthesis to occur?
- **a.** rainwater
- **b.** food
- **c.** sunlight
- **d.** animals

_____ **20.** What do plants provide for many other organisms?
- **a.** fungi
- **b.** protozoa
- **c.** sunlight
- **d.** food and a place to live

Kingdom Animalia

_____ **21.** What characteristics do most members of kingdom Animalia have?
- **a.** They are unicellular and green.
- **b.** They have cell walls.
- **c.** They are multicellular and can move.
- **d.** They perform photosynthesis.

_____ **22.** What do sense organs allow animals to do?
- **a.** to digest their food
- **b.** to respond to their environment
- **c.** to grow
- **d.** to rest

_____ **23.** What do animals depend on bacteria and fungi for?
- **a.** to recycle nutrients in the environment
- **b.** to supply chlorophyll
- **c.** to eat
- **d.** to use sunlight

_____ **24.** Which of these is an example of a very simple animal that cannot move and has no sense organs?
- **a.** tortoise
- **b.** beetle
- **c.** sponge
- **d.** bird

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Sorting It All Out

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. classification

_____

_____

2. taxonomy

_____

_____

SECTION SUMMARY

Read the following section summary.

- Classification groups organisms based on their shared derived characteristics.
- Classification is a tool that helps us understand the relationships between organisms.
- There are eight levels of classification.
- The scientific name of an organism has two parts.
- Branching diagrams show evolutionary relationships between extinct and living organisms.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Domains and Kingdoms

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. Archaea

2. Bacteria

3. Eukarya

4. Protista

5. Fungi

6. Plantae

7. Animalia

SECTION SUMMARY

Read the following section summary.

- Most biologists recognize three domains: Archaea, Bacteria, and Eukarya.
- As scientists discover new organisms, classification systems are changed to include the characteristics of those new organisms.
- Archaea can live in extreme environments. Bacteria live almost everywhere else. All prokaryotes are members of the domain Archaea or the domain Bacteria.
- Domain Eukarya is made up of four kingdoms: Protista, Fungi, Plantae, and Animalia. All members of Eukarya are eukaryotes.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: What Is a Plant? (pp. 360–363)

PLANT CHARACTERISTICS

Cuticles

Write the letter of the correct answer in the space provided.

_____ **1.** What is the name of the waxy layer that keeps plants from drying out?
- **a.** cell wall
- **b.** cell membrane
- **c.** photosynthesis
- **d.** cuticle

Photosynthesis

_____ **2.** What makes plants green and captures energy from the sun?
- **a.** organelles
- **b.** chlorophyll
- **c.** carbon dioxide
- **d.** vacuoles

_____ **3.** What process do plants use to make food?
- **a.** chloroplast
- **b.** organelle
- **c.** photosynthesis
- **d.** producer

Cell Walls

_____ **4.** What helps make cell walls hard?
- **a.** cell membranes and chloroplasts
- **b.** cuticles and photosynthesis
- **c.** carbohydrates and proteins
- **d.** gymnosperms and chlorophyll

_____ **5.** What lies beneath the cell wall?
- **a.** angiosperm
- **b.** protein
- **c.** cell membrane
- **d.** green algae

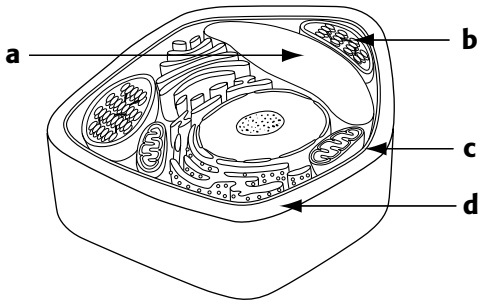
Match the labels to the picture. Write the letters in the spaces provided.

_____ **6.** cell wall

_____ **7.** vacuole

_____ **8.** cell membrane

_____ **9.** chloroplast



Reproduction

Write the letter of the correct answer in the space provided.

_____ **10.** Which of the following is produced during the sporophyte stage?
- **a.** sperm
- **b.** eggs
- **c.** spores
- **d.** sex cells

_____ **11.** What does a spore grow into?
- **a.** sporophyte
- **b.** gametophyte
- **c.** sex cells
- **d.** spores

_____ **12.** What do gametophytes produce?
- **a.** vacuoles
- **b.** animals
- **c.** eggs and sperm
- **d.** spores

_____ **13.** What does a fertilized egg grow into?
- **a.** sporophyte
- **b.** sex cells
- **c.** gametophyte
- **d.** spores

PLANT CLASSIFICATION

Nonvascular Plants

Match the correct description with the correct term. Write the letter in the space provided.

_____ **14.** is a flowering seed plant

_____ **15.** does not have tissues for moving water and nutrients

_____ **16.** is a vascular plant that has no flowers

_____ **17.** has specialized tissues for moving water and nutrients

a. gymnosperm
b. vascular plant
c. angiosperm
d. nonvascular plant

Match the correct description with the correct term. Write the letter in the space provided.

_____ **18.** has seeds but no flowers

_____ **19.** has vascular tissue but no seeds

_____ **20.** has both flowers and seeds

a. seedless vascular plant
b. angiosperm
c. gymnosperm

THE ORIGIN OF PLANTS

Use the terms from the following list to complete the sentences below.

ancestor
cell walls
photosynthesis
plants

21. Green algae are not _____.

22. Green algae and plants have _____ that are a lot alike.

23. Green algae and plants might share a common _____.

24. Green algae and plants both make food through _____.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Seedless Plants (pp. 364–367)

Write the letter of the correct answer in the space provided.

_____ **1.** What are the two groups of seedless plants?
- **a.** gymnosperms and angiosperms
- **b.** rhizoids and rhizomes
- **c.** seedless vascular plants and nonvascular plants
- **d.** gametophytes and sporophytes

NONVASCULAR PLANTS

_____ **2.** Which is true of nonvascular plants?
- **a.** They have no tissues to transport water.
- **b.** They have tissues to transport water.
- **c.** They are often large.
- **d.** They have no structures.

_____ **3.** Where do nonvascular plants usually live?
- **a.** dry places
- **b.** damp places
- **c.** secret places
- **d.** cold places

Mosses

_____ **4.** What rootlike structure helps mosses get water and nutrients?
- **a.** gametophytes
- **b.** rhizoids
- **c.** spores
- **d.** sunlight

_____ **5.** During the moss life cycle, what releases spores?
- **a.** fertilized egg
- **b.** gametophytes
- **c.** sporophytes
- **d.** sperm

_____ **6.** During the moss life cycle, what do spores grow into?
- **a.** fertilizer
- **b.** gametophytes
- **c.** sporophytes
- **d.** spores

_____ **7.** What are the two stages of the moss life cycle called?
- **a.** egg and sperm
- **b.** gametophyte and sporophyte
- **c.** swimming and fertilizing
- **d.** air and water

Liverworts and Hornworts

_____ **8.** What do the gametophytes of hornworts look like?
- **a.** leafy and mosslike
- **b.** rhizoids
- **c.** broad and flattened
- **d.** mosses

The Importance of Nonvascular Plants

_____ **9.** How do nonvascular plants help the soil?
- **a.** They reduce soil erosion.
- **b.** They keep the soil warm.
- **c.** They keep the soil wet.
- **d.** They make the soil thin.

_____ **10.** How do animals use nonvascular plants?
- **a.** for food and fuel
- **b.** for food and nesting material
- **c.** in potting soil
- **d.** for nesting material and water

_____ **11.** What can dried peat moss be used for?
- **a.** fuel
- **b.** erosion
- **c.** food
- **d.** seeds

SEEDLESS VASCULAR PLANTS

_____ **12.** What is vascular tissue specialized to do?
- **a.** It helps the plant reproduce.
- **b.** It transports water to all of a plant's cells.
- **c.** It makes food for the plant.
- **d.** It protects the plant from insects.

Ferns

_____ **13.** How do ferns and other seedless vascular plants reproduce?
- **a.** once every hundred years
- **b.** by photosynthesis
- **c.** with rhizoids and rhizomes
- **d.** sexually and asexually

Match the correct description with the correct term. Write the letter in the space provided.

_____ **14.** an underground stem that leaves and roots grow from

_____ **15.** fern leaf

_____ **16.** young frond that is coiled

_____ **17.** a plant smaller than a fingernail

- **a.** frond
- **b.** fern gametophyte
- **c.** fiddlehead
- **d.** rhizome

Horsetails and Club Mosses

Use the terms from the following list to complete the sentences below.

silica
stem
life cycles
vascular tissue

18. Horsetails feel gritty because of _____.

19. Silica is found in the _____ of a horsetail.

20. Unlike mosses, club mosses have _____.

21. Horsetails, club mosses, and ferns have similar _____.

The Importance of Seedless Vascular Plants

Write the letter of the correct answer in the space provided.

_____ **22.** How do ferns, horsetails, and club mosses help the environment?
- **a.** They form soil.
- **b.** They make silica.
- **c.** They decrease soil depth.
- **d.** They create forests.

_____ **23.** How do ferns in rocky places help other plants grow?
- **a.** They make the area beautiful.
- **b.** They add to soil depth.
- **c.** They decrease soil depth.
- **d.** They create erosion.

_____ **24.** What can horsetails be used for?
- **a.** shampoo
- **b.** iron smelting
- **c.** clothing
- **d.** transportation

_____ **25.** Which fuels were formed by seedless plants that died 300 million years ago?
- **a.** nuclear fuel and coal
- **b.** coal and oil
- **c.** hydrogen and oxygen
- **d.** oil and water

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Seed Plants (pp. 368–373)

Write the letter of the correct answer in the space provided.

_____ **1.** What types of plants produce seeds?
- **a.** gymnosperms and angiosperms
- **b.** ferns and horsetails
- **c.** nonvascular plants
- **d.** mosses and liverworts

CHARACTERISTICS OF SEED PLANTS

_____ **2.** How many stages are in the life cycle of a seed plant?
- **a.** one
- **b.** two
- **c.** three
- **d.** four

_____ **3.** What do seeds nourish and protect?
- **a.** eggs
- **b.** young sporophytes
- **c.** gametophytes
- **d.** young leaves

_____ **4.** Which of the following do not live independently in seed plants?
- **a.** stems
- **b.** sporophytes
- **c.** gametophytes
- **d.** young leaves

_____ **5.** What do the sperm of seedless plants need to reach the eggs?
- **a.** water
- **b.** wind
- **c.** pollen
- **d.** birds

_____ **6.** Inside what structure do the sperm of seed plants form?
- **a.** water
- **b.** pollen
- **c.** stems
- **d.** seeds

THE STRUCTURE OF SEEDS

_____ **7.** When do seeds form?
- **a.** after fertilization
- **b.** when the sperm swims to the egg
- **c.** before fertilization
- **d.** before pollen forms

_____ **8.** What is an advantage of seeds over spores?
- **a.** Food is stored in the seed.
- **b.** Animals leave seeds alone.
- **c.** Seeds grow in damp places.
- **d.** Seeds stay in one place.

_____ **9.** What do animals do that helps seeds?
- **a.** keep them from growing
- **b.** leave them alone
- **c.** spread them efficiently
- **d.** destroy them

Match the correct description with the correct term. Write the letter in the space provided.

_____ **10.** seed part where food is stored

_____ **11.** joining of a sperm and an egg

_____ **12.** protection for a plant in a seed

_____ **13.** a young plant in a seed

- **a.** seed coat
- **b.** cotyledon
- **c.** sporophyte
- **d.** fertilization

GYMNOSPERMS

Write the letter of the correct answer in the space provided.

_____ **14.** What are seed plants that do NOT have flowers or fruit called?
- **a.** ferns
- **b.** sporophytes
- **c.** spores
- **d.** gymnosperms

The Importance of Gymnosperms

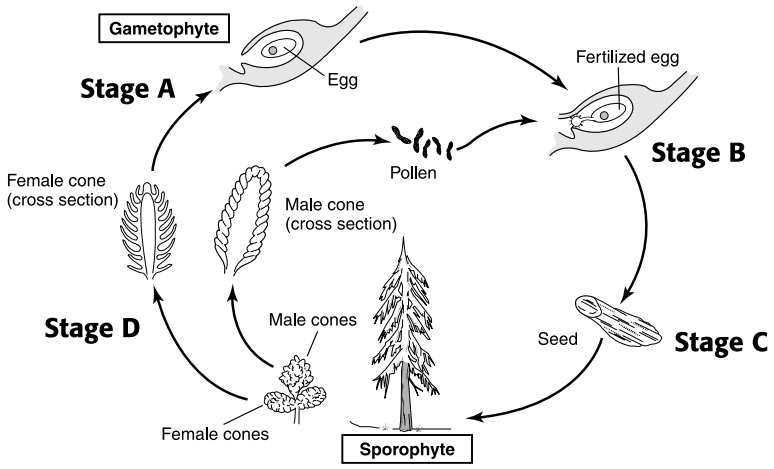
_____ **15.** Which of the following is NOT a human use for gymnosperms?
- **a.** building materials and paper products
- **b.** a source of resin for paint and soap
- **c.** anticancer and antiallergy drugs
- **d.** food

Life Cycle of Gymnosperms

_____ **16.** Where are sperm found?
- **a.** in pollen
- **b.** in eggs
- **c.** in young sporophytes
- **d.** in rhizoids

_____ **17.** What is the transfer of pollen from male cones to female cones called?
- **a.** fertilization
- **b.** asexual reproduction
- **c.** pollination
- **d.** conifer

Use the figure below to answer questions 18 through 21. For each question, write the letter of the correct answer in the space provided.



_____ **18.** At which stage does fertilization occur?
- **a.** Stage A
- **b.** Stage B
- **c.** Stage C
- **d.** Stage D

_____ **19.** At which stage are sex cells produced?
- **a.** Stage A
- **b.** Stage B
- **c.** Stage C
- **d.** Stage D

_____ **20.** At which stage does the fertilized egg develop into a young sporophyte?
- **a.** Stage A
- **b.** Stage B
- **c.** Stage C
- **d.** Stage D

_____ **21.** At which stage are spores produced?
- **a.** Stage A
- **b.** Stage B
- **c.** Stage C
- **d.** Stage D

ANGIOSPERMS

Write the letter of the correct answer in the space provided.

_____ **22.** What kind of plants have flowers and fruit?

a. gymnosperms **c.** ferns
b. angiosperms **d.** mosses

Reproduction in Angiosperms

Use the terms from the following list to complete the sentences below.

flowers fruit pollen

23. The reproductive structures of angiosperms are _____.

24. Animals may be attracted to flowers and carry _____ from flower to flower.

25. Angiosperm seeds are surrounded by _____.

Use the terms from the following list to complete the sentences below.

wind fur seeds

26. Some fruits and seeds are blown away by the _____.

27. Some animals eat fruit and get rid of the _____.

28. Some fruits, such as burrs, stick to the _____ of animals.

Two Kinds of Angiosperms

Match the correct description with the correct term. Write the letter in the space provided.

_____ **29.** a kind of seed with one cotyledon

_____ **30.** a kind of seed with two cotyledons

a. eudicot
b. monocot

The Importance of Angiosperms

Match the correct description with the correct term. Write the letter in the space provided.

_____ **31.** flowering plant used for building material

_____ **32.** flowering plant used to make clothing

_____ **33.** flowering plant grown for food

a. corn
b. oak tree
c. cotton

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Structures of Seed Plants (pp. 374–381)

Write the letter of the correct answer in the space provided.

_____ **1.** What supplies a seed plant with the things it needs to survive?
- **a.** seeds and spores
- **b.** root system and shoot system
- **c.** reproductive system and digestive system
- **d.** rhizomes and rhizoids

_____ **2.** What moves water and minerals through a seed plant?
- **a.** xylem
- **b.** phloem
- **c.** seeds
- **d.** rhizomes

_____ **3.** What moves food to all seed plant parts?
- **a.** xylem
- **b.** phloem
- **c.** seeds
- **d.** rhizomes

ROOTS

_____ **4.** Where are most roots found?
- **a.** above ground
- **b.** in water
- **c.** underground
- **d.** in seeds

Root Functions

_____ **5.** What do roots supply a plant?
- **a.** protection
- **b.** sunlight
- **c.** water and minerals
- **d.** xylem and phloem

_____ **6.** What holds plants tightly in the soil?
- **a.** stems
- **b.** roots
- **c.** xylem
- **d.** phloem

_____ **7.** Which of the following is a function of roots?
- **a.** They store food.
- **b.** They get rid of extra water.
- **c.** They capture energy from the sun.
- **d.** They release minerals.

Root Structure

_____ **8.** What are the cells covering a root called?
- **a.** root cap
- **b.** stem
- **c.** epidermis
- **d.** root hairs

_____ **9.** What helps roots get more water?
- **a.** root tip
- **b.** stem
- **c.** root hairs
- **d.** root cap

_____ **10.** What does the root cap protect?
- **a.** stem
- **b.** food supply
- **c.** root hairs
- **d.** root tip

Root Systems

_____ **11.** What is a root system with one main root called?
- **a.** root stem
- **b.** root cap
- **c.** taproot
- **d.** fibrous root

_____ **12.** What is the name of a root system with several roots that are usually the same size?
- **a.** root stem
- **b.** root cap
- **c.** taproot
- **d.** fibrous root

STEMS

_____ **13.** Where are most stems found?
- **a.** in roots
- **b.** underground
- **c.** in water
- **d.** above ground

Stem Functions

Use the terms from the following list to complete the sentences below.

water	xylem	support
roots	phloem	

14. Stems _____ the plant body.

15. Stems connect a plant's _____ to its leaves and flowers.

16. In stems, _____ carries water and dissolved minerals from the roots to the leaves.

17. The food made during photosynthesis is carried by _____ to roots and other parts of the plant.

18. Some stems store _____.

Herbaceous Stems

Write the letter of the correct answer in the space provided.

_____ **19.** What are stems that are soft, thin, and flexible called?
- **a.** xylem
- **b.** phloem
- **c.** herbaceous stems
- **d.** woody stems

_____ **20.** Which of the following has a herbaceous stem?
- **a.** bean plant
- **b.** shrub
- **c.** oak tree
- **d.** pine tree

Woody Stems

_____ **21.** What are rigid stems made of wood and bark called?
- **a.** xylem
- **b.** phloem
- **c.** herbaceous stems
- **d.** woody stems

_____ **22.** What is the name of a ring of dark cells surrounding a ring of light cells in a woody stem?
- **a.** wood ring
- **b.** cross section
- **c.** growth ring
- **d.** stem

LEAVES

Leaf Functions

_____ **23.** What is the main function of leaves?
- **a.** to make food for the plant
- **b.** to help the plant reproduce
- **c.** to support the plant
- **d.** to make the plant green

Match the correct description with the correct term. Write the letter in the space provided.

_____ **24.** This captures energy from sunlight.

_____ **25.** Leaves get this from air.

_____ **26.** This is made from carbon dioxide and water.

- **a.** food
- **b.** carbon dioxide
- **c.** chloroplast

Leaf Structure

Match the correct description with the correct term. Write the letter in the space provided.

_____ **27.** under the cuticle

_____ **28.** tiny opening that lets carbon dioxide enter the leaf

_____ **29.** stops water loss from a leaf

_____ **30.** open and close the stomata

- **a.** guard cells
- **b.** cuticle
- **c.** stomata
- **d.** epidermis

Leaf Adaptations

Match the correct description with the correct term. Write the letter in the space provided.

_____ **31.** modified leaves of a cactus

_____ **32.** has leaves modified to catch insects

a. sundew

b. spines

FLOWERS

Write the letter of the correct answer in the space provided.

_____ **33.** Why do some plants have flowers?

a. for sexual reproduction
b. to capture energy from the sun
c. to make food
d. for protection

_____ **34.** What often happens when animals and insects are attracted to flowers?

a. They pollinate the flowers.
b. They destroy the flowers.
c. They plant the flowers.
d. They give food to the flowers.

Sepals and Petals

_____ **35.** What protects flower buds?

a. roots
b. petals
c. sepals
d. seeds

_____ **36.** What parts of the flower are broad, leaflike, and attract animals?

a. sepals
b. petals
c. roots
d. seeds

Stamens and Pistils

_____ **37.** What is the male part of a flower called?

a. pistil
b. ovule
c. style
d. stamen

_____ **38.** What is the female part of a flower called?
- **a.** pistil
- **b.** filament
- **c.** anther
- **d.** stamen

_____ **39.** What part of a flower contains the ovules?
- **a.** pistil
- **b.** stamen
- **c.** ovary
- **d.** filament

Use the terms from the following list to complete the sentences below.

stamen ovary pistil

40. The filament and anther are parts of the _____.

41. The stigma, style, and ovary are parts of the _____.

42. A fruit develops from the _____.

The Importance of Flowers

Use the terms from the following list to complete the sentences below.

cloves broccoli chamomile

43. One flower that can be eaten is _____.

44. One flower that can be used to make tea is _____.

45. One flower that can be used as a spice is _____.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

What Is a Plant?

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. nonvascular plant

2. vascular plant

3. gymnosperm

4. angiosperm

SECTION SUMMARY

Read the following section summary.

- All plants make their own food and have cuticles, cells walls, and a two-stage life cycle.
- Plants are first classified into two groups: nonvascular plants and vascular plants. Vascular plants are further divided into seedless plants, gymnosperms, and angiosperms.
- Similarities between green algae and plants suggest that they have a common ancestor.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Seedless Plants

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. rhizoid

2. rhizome

SECTION SUMMARY

Read the following section summary.

- Nonvascular plants include mosses, liverworts, and hornworts.
- Seedless vascular plants include ferns, horsetails, and club mosses.
- Most plants have a two-stage life cycle and reproduce both sexually and asexually.
- The rhizoids and rhizomes of seedless plants prevent erosion by holding soil in place. The remains of seedless vascular plants that lived and died about 300 million years ago formed coal.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Seed Plants

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. pollen

_____

_____

_____

2. pollination

_____

_____

_____

SECTION SUMMARY

Read the following section summary.

- Seeds nourish the young sporophyte of seed plants. Seed plant gametophytes rely on the sporophyte. Also, they do not need water for fertilization.
- Sexual reproduction occurs in gymnosperms when sperm from the male cone fertilizes the eggs of the female cone. The embryo develops within the female cone, which then releases seeds.
- Flowers are the reproductive structures of angiosperms. Wind and animals help angiosperms reproduce.
- Many organisms rely on seed plants for food. Humans have many uses for seed plants.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Structures of Seed Plants

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. xylem

2. phloem

3. sepal

4. petal

5. stamen

6. pistil

7. ovary

8. ovule

SECTION SUMMARY

Read the following section summary.

- Roots supply plants with water and dissolved minerals. Roots support and anchor plants. Roots also store surplus food made during photosynthesis.
- Stems support the body of a plant. They allow transport of materials between the roots and shoots. Some stems store materials, such as water.
- A leaf has a thin epidermis on its upper and lower surfaces. The epidermis allows sunlight to pass through to the center of the leaf.
- Most photosynthesis takes place in the palisade layer of a leaf. The spongy layer of a leaf allows the movement of carbon dioxide and contains the xylem and phloem.
- Flowers are the reproductive structures of angiosperms. They may have four parts: sepals, petals, stamens, and one or more pistils.
- The pistil is usually located in the center of the flower. The ovary of a pistil contains ovules, which contain eggs. When the eggs are fertilized, ovules develop into seeds and the ovary becomes a fruit.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Photosynthesis (pp. 396–399)

Write the letter of the correct answer in the space provided.

_____ **1.** Which of the following gases is needed by plants?
- **a.** ozone
- **b.** methane
- **c.** carbon dioxide
- **d.** helium

_____ **2.** What is the process used by plants to make their own food called?
- **a.** pollination
- **b.** reproduction
- **c.** adaptation
- **d.** photosynthesis

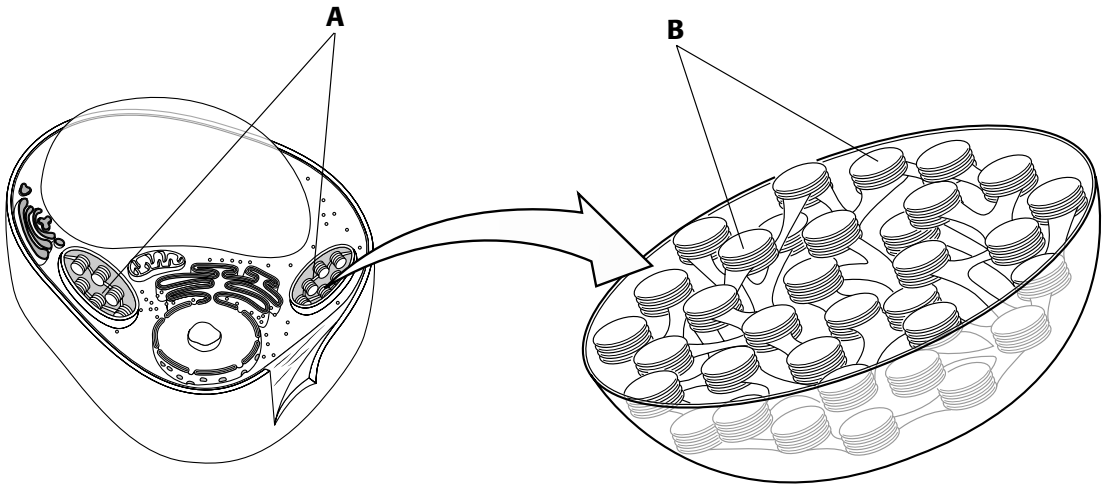
CAPTURING LIGHT ENERGY

_____ **3.** Which of the following capture sunlight energy for photosynthesis?
- **a.** grana
- **b.** chloroplasts
- **c.** petals
- **d.** roots

_____ **4.** What is the green pigment in plants called?
- **a.** glucose
- **b.** chloroplast
- **c.** chlorophyll
- **d.** sugar

_____ **5.** Which of the following statements about chlorophyll is true?
- **a.** Chlorophyll reflects chemical energy.
- **b.** Chlorophyll absorbs chemical energy.
- **c.** Chlorophyll absorbs green wavelengths of sunlight.
- **d.** Chlorophyll reflects green wavelengths of sunlight.

Match the labels to the parts of the drawing. Write the letter in the space provided.



_____ **6.** grana

_____ **7.** chloroplasts

MAKING SUGAR

Use the terms from the following list to complete the sentences below.

glucose oxygen

8. Light energy captured by chlorophyll is used during photosynthesis to produce _____ molecules.

9. Plant cells give off _____ gas during photosynthesis.

GETTING ENERGY FROM SUGAR

Use the terms from the following list to complete the sentences below.

cellular respiration sucrose mitochondria

10. Plant cells use energy that is stored in glucose and released by _____.

11. The process by which cells use oxygen to produce energy for food is called _____.

12. Plants convert extra glucose to another sugar called _____ or store the glucose as starch.

GAS EXCHANGE

Match the correct description with the correct term. Write the letter in the space provided.

_____ **13.** waxy coating that protects a plant from water loss

_____ **14.** opening in a leaf's epidermis and cuticle

_____ **15.** "double doors" that open and close the stoma

_____ **16.** process by which plants release water vapor into the air

a. stoma
b. transpiration
c. cuticle
d. guard cells

THE IMPORTANCE OF PHOTOSYNTHESIS

Write the letter of the correct answer in the space provided.

_____ **17.** Which of the following do NOT form the base of most food chains on Earth?
a. plants
b. bacteria
c. fish
d. protists

_____ **18.** What happens during photosynthesis?
a. Plants store light energy as chemical energy.
b. Plants lose their leaves.
c. Plants store chemical energy as light energy.
d. Plants often die.

_____ **19.** Which of the following do most organisms rely on to get energy?
a. pollination
b. transpiration
c. fertilization
d. cellular respiration

_____ **20.** Which of the following is a byproduct of photosynthesis?
a. methane
b. oxygen
c. helium
d. hydrogen

_____ **21.** Which of the following processes provides oxygen needed for cellular respiration?
a. fertilization
b. pollination
c. photosynthesis
d. reproduction

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Reproduction of Flowering Plants (pp. 400–403)

FERTILIZATION

Use the terms from the following list to complete the sentences below.

pollination fertilization

1. The movement of pollen from anthers to stigmas is called _____.

2. The fusing of a sperm with the egg inside an ovule is called _____.

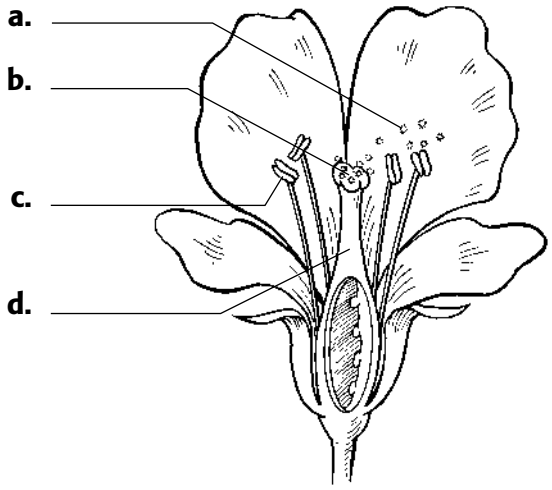
Use the figure below to answer questions 3 through 6. Match the labels to the parts of the drawing. Write the letters in the spaces provided.

_____ **3.** stigma

_____ **4.** anther

_____ **5.** pollen

_____ **6.** style



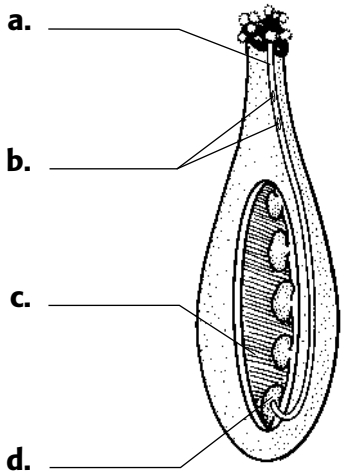
Use the figure below to answer questions 7 through 10. Match the labels to the parts of the drawing. Write the letters in the spaces provided.

_____ **7.** ovary

_____ **8.** sperm

_____ **9.** ovule containing egg

_____ **10.** pollen tube



FROM FLOWER TO FRUIT

Use the terms from the following list to complete the sentences below.

ovule ovary

11. After fertilization, the _____ develops into a seed.

12. After fertilization, the _____ becomes a fruit.

FROM SEED TO PLANT

Use the terms from the following list to complete the sentences below.

temperature dormant germination

13. A seed that is inactive is _____.

14. Each plant species has an ideal _____ at which most of its seeds will grow.

15. Most seeds need water, air, and warm temperatures for _____ to occur.

OTHER METHODS OF REPRODUCTION

Match the correct description with the correct term. Write the letter in the space provided.

_____ **16.** above-ground stems from which new plants can grow

_____ **17.** tiny plants that grow along the edges of a plant's leaves

_____ **18.** underground stems that can produce new plants after a dormant season

a. tubers

b. runners

c. plantlets

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Plant Development and Responses (pp. 404–409)

Match the correct description with the correct term. Write the letter in the space provided.

_____ **1.** process that an organism goes through as it increases in ability or skill

_____ **2.** process of increasing in size

_____ **3.** term that describes a cell that performs a specific function

a. differentiated
b. growth
c. development

PLANT DEVELOPMENT

Write the letter of the correct answer in the space provided.

_____ **4.** Which of the following statements about differentiation is true?
- **a.** Most animal cells differentiate many times.
- **b.** Most animal cells cannot differentiate.
- **c.** Some plant cells differentiate many times.
- **d.** Most plant cells differentiate only once.

_____ **5.** Which of the following cause plants to differentiate in response to stimuli?
- **a.** hormones
- **b.** runners
- **c.** seeds
- **d.** stomata

Use the terms from the following list to complete the sentences below.

hormone stimulus

6. Anything that causes a change in an organism is called

a(n) _____.

7. A chemical that causes cells to react in certain ways is called

a(n) _____.

PLANT HORMONES

Role of Hormones in Plants

Write the letter of the correct answer in the space provided.

_____ **8.** Which of the following does NOT affect the amount of certain hormones made in plant cells?
- **a.** light
- **b.** temperature
- **c.** photosynthesis
- **d.** water

_____ **9.** Which of the following are hormones that cause plants to grow toward light?
- **a.** stigmas
- **b.** auxins
- **c.** seeds
- **d.** anthers

Use of Hormones in Agriculture

_____ **10.** Which of the following is a hormone used to ripen fruit?
- **a.** ethylene
- **b.** gibberellin
- **c.** auxin
- **d.** kinetin

PLANT TROPISMS

Use the terms from the following list to complete the sentences below.

tropism positive tropism negative tropism

11. Any plant growth in response to a stimulus is called a(n) _____.

12. Plant growth toward a stimulus is called a(n) _____.

13. Plant growth away from a stimulus is called a(n) _____.

Light

Match the correct description with the correct term. Write the letter in the space provided.

_____ **14.** change in direction of plant growth caused by light

_____ **15.** change in plant growth in response to the direction of gravity

_____ **16.** upward direction of growth away from the center of Earth

_____ **17.** downward direction of growth toward the center of Earth

_____ **18.** another name for gravitropism

a. gravitropism
b. phototropism
c. negative gravitropism
d. geotropism
e. positive gravitropism

SEASONAL RESPONSES

Length of Day

Use the terms from the following list to complete the sentences below.

short-day plants long-day plants

19. Plants that flower when night length is long are called

_____.

20. Plants that flower when night length is short are called

_____.

Seasons and Leaf Color

Use the terms from the following list to complete the sentences below.

deciduous trees chlorophyll

21. As fall approaches, _____ breaks down and reveals a leaf's orange or yellow pigments.

22. Seasonal changes in leaf color commonly occur in

_____.

Seasons and Leaf Loss

Match the correct description with the correct term. Write the letter in the space provided.

_____ **23.** tree that loses all of its leaves around the same time each year

_____ **24.** tree that sheds some of its leaves year-round

a. evergreen tree

b. deciduous tree

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Photosynthesis

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. photosynthesis

2. chlorophyll

3. cellular respiration

4. stoma

5. transpiration

SECTION SUMMARY

Read the following section summary.

- Chloroplasts and mitochondria are important organelles in plant cells.
- During photosynthesis, plants use energy from sunlight, carbon dioxide, and water to make glucose and oxygen.
- Plants get energy from food by cellular respiration, which uses oxygen and releases carbon dioxide and water.
- Transpiration, or the loss of water through the leaves of plants, occurs when stomata are open.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Reproduction of Flowering Plants

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. dormant

_____

_____

_____

SECTION SUMMARY

Read the following section summary.

- In the sexual reproduction of flowering plants, a sperm fertilizes an egg.
- After fertilization, seeds and fruit form. The seeds may sprout into new plants.
- A dormant seed can survive drought and freezing temperatures. Some seeds need extreme conditions to break their dormancy.
- Some plants use plantlets, tubers, or runners to reproduce asexually.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Plant Development and Responses

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. stimulus

_____

_____

_____

2. tropism

_____

_____

_____

SECTION SUMMARY

Read the following section summary.

- Some plant cells are able to differentiate many times in the lifetime of the plant.
- There are many groups of plant hormones. Plant hormones can affect a plant's growth and development.
- A growth in response to a stimulus is called a tropism. Tropisms are positive or negative.
- Plants react to light, gravity, and the change of seasons.
- Short-day plants flower when nights are long. Long-day plants flower when nights are short.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: What Is an Animal? (pp. 424–429)

ANIMAL CHARACTERISTICS

Write the letter of the correct answer in the space provided.

_____ **1.** Which of the following is an animal?
- **a.** a tree
- **b.** a flower
- **c.** a sponge
- **d.** a mushroom

Multicellular Makeup

_____ **2.** Why are all animals called "multicellular" organisms?
- **a.** Their cells have cell walls.
- **b.** They have larger cells than plants.
- **c.** They are made up of many cells.
- **d.** Their cells don't have cell walls.

Organization in Animals

_____ **3.** Which of the following is a group of the same type of cells that work together?
- **a.** organ system
- **b.** organism
- **c.** organ
- **d.** tissue

_____ **4.** What are the heart, lungs, and kidneys?
- **a.** organs
- **b.** cells
- **c.** tissues
- **d.** organ systems

_____ **5.** Which of the following is a group of organs that work together?
- **a.** tissue
- **b.** organ system
- **c.** heart
- **d.** cell

Body Plans

Match the correct description with the correct term. Write the letter in the space provided.

_____ **6.** a body plan that is organized around the center

_____ **7.** a body plan with two sides mirroring each other

_____ **8.** a body plan with no symmetry

_____ **9.** a body cavity that protects several organs

a. coelom
b. bilateral symmetry
c. asymmetrical
d. radial symmetry

Getting Energy

Write the letter of the correct answer in the space provided.

_____ **10.** Which of the following is an organism that eats other organisms?
a. an organ
b. a plant
c. a consumer
d. a coelom

Reproduction

_____ **11.** What type of reproduction produces offspring genetically identical to the parent?
a. sexual reproduction
b. differentiation
c. asexual reproduction
d. fertilization

_____ **12.** What are two types of asexual reproduction?
a. budding and fragmentation
b. differentiation and fertilization
c. fragmentation and differentiation
d. sperm and embryo

_____ **13.** What is the process by which an egg nucleus joins with a sperm nucleus?
a. fragmentation
b. differentiation
c. fertilization
d. budding

Development

_____ **14.** What is a fertilized egg that has divided into many cells called?
- **a.** a bud
- **b.** a fragment
- **c.** a sperm
- **d.** an embryo

_____ **15.** What is the process by which cells develop structures according to their function?
- **a.** reproduction
- **b.** differentiation
- **c.** fragmentation
- **d.** fertilization

Movement

_____ **16.** How does a young sea anenome move to find its food?
- **a.** It drifts in ocean currents.
- **b.** It flys on wings.
- **c.** It walks on tentacles.
- **d.** It rolls on the ocean floor.

_____ **17.** What makes most movement in animals possible?
- **a.** red blood cells
- **b.** white blood cells
- **c.** muscle cells
- **d.** cell walls

Maintaining Body Temperature

_____ **18.** What is an animal that maintains its own body temperature internally called?
- **a.** cold blooded
- **b.** endotherm
- **c.** ectotherm
- **d.** exoskeleton

_____ **19.** What is an animal whose body temperature changes with the environment called?
- **a.** human
- **b.** warm blooded
- **c.** ectotherm
- **d.** endotherm

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: The Animal Kingdom (pp. 430–437)

ANIMAL DIVERSITY

Write the letter of the correct answer in the space provided.

_____ **1.** How many species of animals have scientists identified?
- **a.** 1 million
- **b.** 3 million
- **c.** 5 million
- **d.** 1 billion

_____ **2.** Which animal group is the largest?
- **a.** mammals
- **b.** mollusks
- **c.** annelids
- **d.** arthropods

CLASSIFICATION

_____ **3.** Which of the following is NOT information scientists use to organize animals in groups?
- **a.** structure
- **b.** evolutionary relationships
- **c.** personal preference
- **d.** DNA

_____ **4.** All animals, except for most chordates, fall into what classification?
- **a.** protists
- **b.** invertebrates
- **c.** rotlfers
- **d.** annelids

INVERTEBRATE CHARACTERISTICS

_____ **5.** Which of these body parts is NOT found in invertebrates?
- **a.** muscles
- **b.** heart
- **c.** brain
- **d.** bones

Sponges

_____ **6.** What type of body plan does a sponge have?
- **a.** symmetrical
- **b.** bilateral symmetry
- **c.** asymmetrical
- **d.** radial symmetry

_____ **7.** How do sponges reproduce?
- **a.** by budding
- **b.** only asexually
- **c.** only sexually
- **d.** by fragmentation and sexually

Cnidarians

Match the correct description with the correct term. Write the letter in the space provided.

_____ **8.** a class of cnidarians

_____ **9.** a cup or bell-shaped body form with tentacles

_____ **10.** a body form that attaches to hard surfaces at the base of the cup

_____ **11.** a specialized stinging cell

- **a.** polyp
- **b.** medusa
- **c.** hydrozoan
- **d.** cnidosyte

Flatworms

Write the letter of the correct answer in the space provided.

_____ **12.** Which of the following are the simplest worms?
- **a.** roundworms
- **b.** flatworms
- **c.** annelids
- **d.** cnidarians

_____ **13.** What type of body plan does a flatworm have?
- **a.** symmetrical
- **b.** bilateral symmetry
- **c.** asymmetrical
- **d.** radial symmetry

Roundworms

_____ **14.** Roundworms are different from flatworms in that they have which of the following?
- **a.** radial symmetry
- **b.** cell walls
- **c.** cnidosytes
- **d.** a coelom

Mollusks

_____ **15.** Which of the following is NOT true about a mantle?
- **a.** It secretes poison.
- **b.** It is in mollusks.
- **c.** It is a specialized tissue.
- **d.** It secretes shells.

_____ **16.** What has the muscular foot evolved into in octopuses?
- **a.** mandibles
- **b.** tentacles
- **c.** eyes
- **d.** ears

Annelids

_____ **17.** Each annelid has which of the following?
- **a.** male sex organs
- **b.** both male and female sex organs
- **c.** female sex organs
- **d.** no sex organs

Arthropods

_____ **18.** What is the most diverse group in the animal kingdom?
- **a.** mollusks
- **b.** arthropods
- **c.** annelids
- **d.** echinoderms

_____ **19.** What is the strong, external armor of an arthropod called?
- **a.** exoskeleton
- **b.** endoskeleton
- **c.** mantle
- **d.** segment

Echinoderms

_____ **20.** Echinoderms have which of the following body plans?
- **a.** radial symmetry as larvae; bilateral symmetry as adults
- **b.** radial symmetry as larvae and adults
- **c.** bilateral symmetry as larvae and adults
- **d.** bilateral symmetry as larvae; radial symmetry as adults

_____ **21.** A sea star that regenerates a whole individual from a severed arm uses what type of reproduction?
- **a.** sexual
- **b.** budding
- **c.** asexual
- **d.** fertilization

VERTEBRATE CHARACTERISTICS

_____ **22.** What is a stiff but flexible rod that supports the body of a chordate?
- **a.** spine
- **b.** notochord
- **c.** backbone
- **d.** vertebrae

_____ **23.** What is an animal with a backbone called?
- **a.** echinoderm
- **b.** invertebrate
- **c.** vertebrate
- **d.** arthropod

_____ **24.** What is a strong but flexible column of individual bony units, or vertebrae?
- **a.** backbone
- **b.** mantle
- **c.** spinal cord
- **d.** notochord

_____ **25.** What is an internal skeleton made of bone and cartilage?
- **a.** mantle
- **b.** endoskeleton
- **c.** exoskeleton
- **d.** shell

_____ **26.** What are the five main groups of vertebrates?
- **a.** insects, worms, birds, fish, mammals
- **b.** mollusks, annelids, sea urchins, snakes, humans
- **c.** fish, amphibians, reptiles, birds, mammals
- **d.** insects, reptiles, birds, mammals, humans

Fish

Match the correct description with the correct term. Write the letter in the space provided.

_____ **27.** have a skeleton made of flexible tissue

_____ **28.** have a bony skeleton

a. bony fish

b. cartilaginous fish

Amphibians

Write the letter of the correct answer in the space provided.

_____ **29.** Why do most amphibians live near fresh water?

a. Their eggs and larvae need water to survive.
b. They breathe through gills.
c. They are dry skinned and need water.
d. It is the only place to find food.

_____ **30.** What are tropical amphibians that live under logs and in burrows?

a. frogs
b. tadpoles
c. caecilians
d. salamanders

Reptiles

_____ **31.** Which of the following is a reason why most reptiles live on land?

a. They cannot swim.
b. Their skin must be kept dry.
c. They do not need water to lay their eggs.
d. They all eat other vertebrates.

Birds

_____ **32.** Which of the following characteristics is only found in birds?

a. They have the ability to fly.
b. They have feathers.
c. They are endothermic.
d. They reproduce by sexual reproduction.

_____ **33.** Which bird uses its wings to swim?

a. the penguin
b. the emu
c. the duck
d. the ostrich

Mammals

Match the correct description with the correct term. Write the letter in the space provided.

_____ **34.** a mammal that lays shelled eggs

_____ **35.** a mammal with offspring that finish developing in the mother's pouch

_____ **36.** a mammal with an organ that exchanges wastes and nutrients with developing offspring

a. placental

b. marsupial

c. monotreme

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Invertebrates (pp. 438–443)

INVERTEBRATE CHARACTERISTICS

Write the letter of the correct answer in the space provided.

_____ **1.** What makes all invertebrates similar?
- **a.** They eat food through their mouths.
- **b.** They live in water.
- **c.** They do not have backbones.
- **d.** They are similar in shape.

Body Symmetry

Match the correct description with the correct term. Write the letter in the space provided.

_____ **2.** Many lines can be drawn through the center of the body.

_____ **3.** Two sides of the body mirror each other.

_____ **4.** This describes an irregular shape.

- **a.** radial symmetry
- **b.** bilateral symmetry
- **c.** asymmetrical

Segmentation

Write the letter of the correct answer in the space provided.

_____ **5.** Which of the following is part of a larger structure set off by boundaries?
- **a.** head
- **b.** thorax
- **c.** body
- **d.** segment

Support of the Body

_____ **6.** What kind of body support does a lobster have?
- **a.** thick skin
- **b.** glassy structures
- **c.** an exoskeleton
- **d.** an endoskeleton

Respiratory and Circulatory Systems

Match the correct description with the correct term. Write the letter in the space provided.

_____ **7.** a system that takes in oxygen and releases carbon dioxide

_____ **8.** a network of tubes inside insect bodies that performs respiration

_____ **9.** a system that moves oxygen, carbon dioxide, and nutrients through the body

a. circulatory system
b. respiratory system
c. tracheae

Match the correct description with the correct term. Write the letter in the space provided.

_____ **10.** a fluid that carries substances through the body

_____ **11.** a system in which blood moves through open spaces

_____ **12.** a system in which blood moves through closed loops

a. open circulatory system
b. closed circulatory system
c. blood

Digestive and Excretory Systems

Match the correct description with the correct term. Write the letter in the space provided.

_____ **13.** This system provides energy for animals by digesting their food.

_____ **14.** The mouth and anus form two ends of this tube.

_____ **15.** This system eliminates waste and extra water from cells.

a. digestive tract
b. digestive system
c. excretory system

Nervous Systems

Match the correct description with the correct term. Write the letter in the space provided.

_____ **16.** receives and sends electrical signals that control all body functions

_____ **17.** acts as the body's control center

_____ **18.** collects information from outside the body

a. sense organ
b. brain
c. nervous system

Reproduction and Development

Match the correct description with the correct term. Write the letter in the space provided.

_____ **19.** A part of the parent organism develops into a new organism, pinches off, and lives independently.

_____ **20.** A part of the parent organism breaks off and develops into an identical organism.

a. budding
b. fragmentation

Complete Metamorphosis

Match the correct description with the correct term. Write the letter in the space provided.

_____ **21.** a life cycle process in which a rapid change from immature to adult organism takes place

_____ **22.** a complex life cycle change that includes egg, larva, pupa, and adult stages

a. metamorphosis
b. complete metamorphosis

Incomplete Metamorphosis

Write the letter of the correct answer in the space provided.

_____ **23.** What are the stages of incomplete metamorphosis?
a. egg, larva, pupa, adult
b. larva, pupa, adult
c. egg, nymph, adult
d. pupa, nymph, adult

_____ **24.** What is the process in which some insects shed their exoskeletons as they grow?
a. molting
b. shedding
c. peeling
d. warping

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Vertebrates (pp. 444–449)

VERTEBRATE CHARACTERISTICS

Write the letter of the correct answer in the space provided.

_____ **1.** Which of the following features is found only in vertebrates?
- **a.** head
- **b.** protein
- **c.** tissue
- **d.** backbone

_____ **2.** Which of the following is a flexible and strong connective tissue?
- **a.** cartilage
- **b.** bone
- **c.** skull
- **d.** vertebrae

Body Symmetry

Match the correct description with the correct term. Write the letter in the space provided.

_____ **3.** the back

_____ **4.** the belly

_____ **5.** the head

_____ **6.** the tail

- **a.** dorsal
- **b.** anterior
- **c.** posterior
- **d.** ventral

Body Coverings

Match the correct description with the correct term. Write the letter in the space provided.

_____ **7.** body covering of fish and reptiles

_____ **8.** slippery fluid that covers amphibians and fish

_____ **9.** body covering that keeps body temperature stable in birds

_____ **10.** body covering that keeps body temperature stable in mammals

- **a.** feathers
- **b.** fur and hair
- **c.** scales
- **d.** mucous

Support of the Body

Match the correct description with the correct term. Write the letter in the space provided.

_____ **11.** surrounds and protects the brain

_____ **12.** surrounds and protects the spinal cord

_____ **13.** provides a place for muscle tissue to attach

a. backbone
b. limb bone
c. skull

Respiratory Systems

Write the letter of the correct answer in the space provided.

_____ **14.** What is the main respiratory organ in fish?
- **a.** lungs
- **b.** bloodstream
- **c.** gills
- **d.** scales

_____ **15.** Why are the main respiratory organs of land vertebrates inside the body?
- **a.** to keep them clean
- **b.** to keep them from drying out
- **c.** to protect them from infection
- **d.** to provide body support

_____ **16.** What is the main respiratory organ of a frog?
- **a.** mucous
- **b.** circulatory system
- **c.** gills
- **d.** lungs

Circulatory Systems

_____ **17.** What pushes blood through the closed circulatory system of a vertebrate?
- **a.** lungs
- **b.** heart
- **c.** blood vessels
- **d.** arteries

_____ **18.** Which of the following are the blood vessels that carry blood to and from the heart?
- **a.** arteries; veins
- **b.** veins; capillaries
- **c.** capillaries; veins
- **d.** veins; arteries

_____ **19.** Where does oxygen move into the blood of land vertebrates?
- **a.** in the heart
- **b.** in the veins
- **c.** in the brain
- **d.** in the gills or lungs

Digestive and Excretory Systems

Match the correct description with the correct term. Write the letter in the space provided.

_____ **20.** the long tube of the digestive system

_____ **21.** the organ that breaks down food and absorbs nutrients

_____ **22.** the organ that turns waste into feces

_____ **23.** the organ that filters urea from the blood

- **a.** small intestine
- **b.** digestive tract
- **c.** large intestine
- **d.** kidneys

Nervous Systems

Write the letter of the correct answer in the space provided.

_____ **24.** What happens when sound reaches the ear?
- **a.** The ear interprets the sound waves.
- **b.** The ear sends impulses through sensory nerves to the brain.
- **c.** The ear sends sound waves through the circulatory system.
- **d.** The ear blocks the sound waves to protect the brain.

_____ **25.** Which of the following carry command impulses from the brain?
- **a.** arteries
- **b.** sensory nerves
- **c.** veins
- **d.** motor nerves

Reproduction and Development

_____ **26.** How do most vertebrates reproduce?
- **a.** sexual reproduction
- **b.** asexual reproduction
- **c.** budding
- **d.** fragmentation

_____ **27.** What process takes place in an embryo's cells as it develops?
- **a.** fusion
- **b.** fertilization
- **c.** differentiation
- **d.** metamorphosis

_____ **28.** Which of the following is NOT true of fish and amphibian larvae?
- **a.** They hatch in water.
- **b.** They can reproduce.
- **c.** They can't reproduce.
- **d.** They live on their own.

_____ **29.** Which of the following animals have a larval stage in their life cycle?
- **a.** reptiles
- **b.** amphibians
- **c.** birds
- **d.** mammals

Parental Care

_____ **30.** How do parenting skills of birds and mammals differ from those of fish and reptiles?
- **a.** Birds and mammals have more offspring, so they parent longer.
- **b.** Birds and mammals have fewer offspring, so they parent longer.
- **c.** Only fish and reptiles parent until their offspring are adults.
- **d.** Only birds and mammals abandon their offspring at birth.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

What Is an Animal?

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. coelom

2. consumer

3. differentiation

SECTION SUMMARY

Read the following section summary.

- All animals are multicellular organisms. Specialized cells in animals are organized into tissues, organs, and organ systems.
- Most animals have bilateral symmetry or radial symmetry. Some are asymmetrical.
- Animals consume other organisms to get energy.
- Animals reproduce asexually or sexually.
- As an embryo develops, its cells differentiate.
- Animals move in many ways.
- Animals that maintain their own body temperature are endotherms. Animals that rely on their environment to maintain their body temperature are ectotherms.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

The Animal Kingdom

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. invertebrate

2. exoskeleton

3. vertebrate

4. endoskeleton

SECTION SUMMARY

Read the following section summary.

- The animal kingdom can be divided into two main groups: invertebrates and vertebrates. Invertebrates do not have backbones. Vertebrates have backbones.
- Sponges, cnidarians, flatworms, roundworms, mollusks, annelids, arthropods, and echinoderms are groups of invertebrates.
- Fish, amphibians, reptiles, birds, and mammals are groups of vertebrates.
- Invertebrate bodies can be asymmetrical, radially symmetrical, or bilaterally symmetrical. Some invertebrates have different body symmetries at different stages in their life cycle.
- Most vertebrate bodies have bilateral symmetry.
- Many invertebrates reproduce by asexual reproduction and sexual reproduction. Most vertebrates reproduce only by sexual reproduction.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Invertebrates

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. segment

2. open circulatory system

3. closed circulatory system

4. metamorphosis

SECTION SUMMARY

Read the following section summary.

- Invertebrate bodies are asymmetrical, have radial symmetry, or bilateral symmetry.
- The bodies of many invertebrates are divided into segments.
- Invertebrates have protective outer coverings that provide support and serve as a place for muscles to attach.
- Invertebrates may have many basic organ systems, such as a respiratory system, a circulatory system, a digestive system, an excretory system, a nervous system, and a reproductive system.
- Invertebrates reproduce asexually and sexually. Invertebrates develop from embryos into larvae and from larvae into adults.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Vertebrates

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. cartilage

2. small intestine

3. large intestine

SECTION SUMMARY

Read the following section summary.

- Skin protects the body from the environment. Skin of vertebrates may be covered in scales, feathers, or fur.
- Most vertebrates have an endoskeleton made of bone. The endoskeleton provides support, protection, and a place for muscles to attach.
- Major organ systems of vertebrates are the respiratory system, circulatory system, digestive system, excretory system, nervous system, and reproductive system.
- Cells of embryos differentiate and specialize as the embryo develops.
- The amount of parental care given to offspring varies among species of vertebrates.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Body Organization (pp. 466–471)

A STABLE INTERNAL ENVIRONMENT

Write the letter of the correct answer in the space provided.

_____ **1.** What is homeostasis?
- **a.** maintenance of a stable body environment
- **b.** an unstable body environment
- **c.** matching body temperature to the outside environment
- **d.** a process that kills cells

_____ **2.** What can happen if homeostasis is disrupted?
- **a.** Cells rest.
- **b.** Cells work together.
- **c.** Cells may be hurt or die.
- **d.** Cells remove waste.

CELLS, TISSUES, AND ORGANS

_____ **3.** Which of the following is true of maintaining homeostasis?
- **a.** Cells have no role.
- **b.** Cells have a minor role.
- **c.** Only certain cells are involved.
- **d.** All cells play a part.

Cells Form Tissues

_____ **4.** Which of the following is NOT true of differentiated cells?
- **a.** Cell functions are the same as other types of cells.
- **b.** Cell functions are specialized.
- **c.** Cells have unique structures.
- **d.** Muscle and epithelial cells are examples.

_____ **5.** What is a group of cells that are alike and work together?
- **a.** a cell team
- **b.** a tissue
- **c.** a cell family
- **d.** a system

Match the correct description with the correct term. Write the letter in the space provided.

_____ **6.** insulates organs

_____ **7.** covers and protects tissue

_____ **8.** sends messages to parts of the body

_____ **9.** helps you move

a. nervous tissue
b. muscle tissue
c. epithelial tissue
d. connective tissue

Tissues Form Organs

Match the correct description with the correct term. Write the letter in the space provided.

_____ **10.** This is a group of tissues that work together.

_____ **11.** This is used by the stomach to break up food.

_____ **12.** This helps coordinate the movements of the stomach.

_____ **13.** This covers the inside of your stomach.

a. muscle tissue
b. organ
c. epithelial tissue
d. nervous tissue

Organs Form Organ Systems

Write the letter of the correct answer in the space provided.

_____ **14.** Organs that work together are part of what?
a. a cell
b. a tissue
c. an organ system
d. a muscle

Match the correct description with the correct term. Write the letter in the space provided.

_____ **15.** includes the heart, blood, and blood vessels

_____ **16.** takes wastes out of blood

_____ **17.** sends chemical messages

_____ **18.** includes skin, hair, and nails

a. cardiovascular system
b. endocrine system
c. integumentary system
d. urinary system

Match the correct description with the correct term. Write the letter in the space provided.

_____ **19.** makes sperm

_____ **20.** holds up and protects parts of the body

_____ **21.** gets rid of bacteria and viruses

_____ **22.** takes oxygen from the air and releases carbon dioxide

a. skeletal system
b. lymphatic system
c. male reproductive system
d. respiratory system

Match the correct description with the correct term. Write the letter in the space provided.

_____ **23.** breaks down food into substances the body can use

_____ **24.** helps the body move

_____ **25.** protects the fetus

_____ **26.** sends and receives electrical messages

a. female reproductive system
b. digestive system
c. nervous system
d. muscular system

ORGAN SYSTEMS WORKING TOGETHER

Write the letter of the correct answer in the space provided.

_____ **27.** How do the cardiovascular and respiratory systems help maintain homeostasis?
a. They digest food.
b. They carry oxygen to cells and get rid of carbon dioxide.
c. They store wastes.
d. They include the stomach.

Interdependence of Organ Systems

_____ **28.** In which pair of organ systems does the pancreas perform functions?
a. respiratory and cardiovascular
b. digestive and endocrine
c. nervous and skeletal
d. nervous and integumentary

When Systems Fail

_____ **29.** What is likely to occur if one organ system fails?
a. Other organ systems will function normally.
b. Other organ systems will fix the failed system.
c. The entire organism is affected.
d. The entire organism is largely unaffected.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: The Skeletal System (pp. 472–475)

BONES

Match the correct description with the correct term. Write the letter in the space provided.

_____ **1.** makes up skeletal system along with bones and connective tissue

_____ **2.** protects your heart and lungs

_____ **3.** stored in bones

_____ **4.** makes blood cells

a. minerals
b. cartilage
c. ribs
d. marrow

Bone Structure

Write the letter of the correct answer in the space provided.

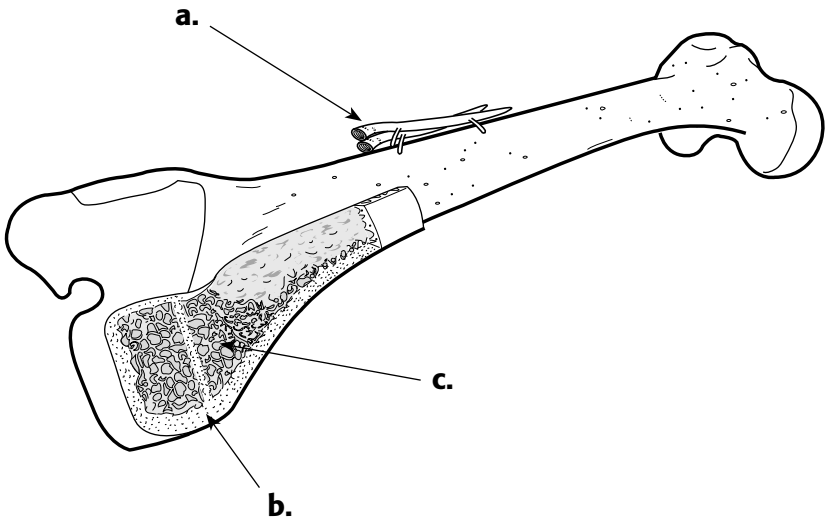
_____ **5.** What words describe compact bone?
a. soft and moist
b. hard and dense
c. dry and brittle
d. round and hollow

_____ **6.** What can you find inside compact bone?
a. small blood vessels
b. open spaces
c. marrow
d. soft tissue

_____ **7.** What does spongy bone have a lot of?
a. blood vessels
b. dead cells
c. water
d. open spaces

_____ **8.** What kind of bone tissue gives bones most of their strength and support?
a. compact bone
b. spongy bone
c. red marrow
d. yellow marrow

Use the figure below to answer questions 9 through 11. Write the letter of the correct answer in the space provided.



_____ **9.** spongy bone

_____ **10.** compact bone

_____ **11.** blood vessels

Bone Growth

Write the letter of the correct answer in the space provided.

_____ **12.** What is most of your skeleton made of when you are born?
- **a.** marrow
- **b.** compact bone
- **c.** cartilage
- **d.** spongy bone

JOINTS

Match the correct description with the correct term. Write the letter in the space provided.

_____ **13.** lets you straighten and bend your leg

_____ **14.** lets you move your arm all around

_____ **15.** lets you move your wrist

- **a.** gliding joint
- **b.** hinge joint
- **c.** ball-and-socket joint

Match the correct description with the correct term. Write the letter in the space provided.

_____ **16.** the place where two or more bones meet

_____ **17.** pads the place where two or more bones meet

_____ **18.** band of stretchy tissue that connects bones

_____ **19.** type of joint in which bones move very little

a. ligament
b. fixed joint
c. joint
d. cartilage

SKELETAL SYSTEM INJURIES AND DISEASES

Match the correct description with the correct term. Write the letter in the space provided.

_____ **20.** an injury in which one or more bones have been moved out of place

_____ **21.** an injury in which a ligament is stretched too far or torn

_____ **22.** a disease in which bones become weak and soft

_____ **23.** a disease in which joints hurt and become stiff

a. sprain
b. arthritis
c. osteoporosis
d. dislocated joint

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: The Muscular System (pp. 476–481)

KINDS OF MUSCLE

Write the letter of the correct answer in the space provided.

_____ **1.** What part of your body has smooth muscle?
- **a.** digestive tract
- **b.** spinal cord
- **c.** heart
- **d.** skin

_____ **2.** What part of your body has cardiac muscle?
- **a.** stomach
- **b.** brain
- **c.** heart
- **d.** nose

_____ **3.** Skeletal muscle is connected to what parts of the body?
- **a.** lungs
- **b.** bones
- **c.** ears
- **d.** eyes

_____ **4.** What do you call muscle action that you can control?
- **a.** voluntary
- **b.** involuntary
- **c.** light
- **d.** heavy

_____ **5.** What do you call muscle action that you cannot control?
- **a.** voluntary
- **b.** involuntary
- **c.** light
- **d.** heavy

MOVEMENT

_____ **6.** What travels from your brain to your skeletal muscle cells when you move?
- **a.** tendons
- **b.** contractions
- **c.** connective tissue
- **d.** signals

Muscles Attach to Bones

Write the letter of the correct answer in the space provided.

_____ **7.** What structure attaches a skeletal muscle to a bone?
- **a.** cartilage
- **b.** marrow
- **c.** tendon
- **d.** ligament

Muscles Work in Pairs

Match the correct description with the correct term. Write the letter in the space provided.

_____ **8.** a muscle that bends part of the body

_____ **9.** a muscle that straightens part of the body

- **a.** flexor
- **b.** extensor

LEVERS IN THE HUMAN BODY

Write the letter of the correct answer in the space provided.

_____ **10.** What is the increase in work done by a lever called?
- **a.** effort force
- **b.** mechanical advantage
- **c.** fulcrum
- **d.** load

Match the correct description with the correct term. Write the letter in the space provided.

_____ **11.** the force applied to a lever

_____ **12.** the fixed point on a lever

_____ **13.** a rigid bar that pivots at a fixed point

_____ **14.** the force that resists the motion of a lever

- **a.** lever
- **b.** effort force
- **c.** load
- **d.** fulcrum

Three Classes of Levers

Match the correct description with the correct term. Write the letter in the space provided.

_____ **15.** The load is between the fulcrum and effort force.

_____ **16.** The effort force is between the fulcrum and load.

_____ **17.** The fulcrum is between the effort force and the load.

a. first-class lever
b. second-class lever
c. third-class lever

USE IT OR LOSE IT

Match the correct description with the correct term. Write the letter in the space provided.

_____ **18.** makes muscles stronger and larger

_____ **19.** lets muscles work longer without getting tired

a. endurance
b. exercise

Match the correct description with the correct term. Write the letter in the space provided.

_____ **20.** working against the weight of an object

_____ **21.** steady, moderately intense activity

a. resistance exercise
b. aerobic exercise

MUSCLE INJURY

Write the letter of the correct answer in the space provided.

_____ **22.** What happens when a muscle or tendon is overstretched or torn?
- **a.** a sprain
- **b.** a strain
- **c.** tendinitis
- **d.** arthritis

_____ **23.** What word describes an injured tendon if you have tendinitis?
- **a.** soft
- **b.** torn
- **c.** rested
- **d.** inflamed

Write the letter of the correct answer in the space provided.

_____ **24.** What drugs do some people take to make muscles stronger?
- **a.** aspirin
- **b.** anabolic steroids
- **c.** antibiotics
- **d.** allergy medicine

_____ **25.** What is a health problem that can result from taking anabolic steroids?
- **a.** bad vision
- **b.** headaches
- **c.** heart damage
- **d.** knee pain

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Body Organization

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. tissue

_____

_____

2. organ

_____

_____

SECTION SUMMARY

Read the following section summary.

- A human has many levels of organization.
- Most human cells are differentiated in structure for specific functions, or jobs, within the body.
- A group of cells that work together is a tissue. Tissues form organs. Organs that work together form organ systems.
- There are four kinds of tissue in the human body.
- There are 11 organ systems in the human body.
- Organ systems work together to help the body maintain homeostasis.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

The Skeletal System

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. skeletal system

_____

_____

2. joint

_____

_____

SECTION SUMMARY

Read the following section summary.

- The skeletal system includes bones, cartilage, and the connective tissue that connects bones.
- Bones protect the body, store minerals, allow movement, and make blood cells.
- A joint is a place where two or more bones meet.
- Skeletal system injuries include fractures, dislocations, and sprains. Skeletal system diseases include osteoporosis and arthritis.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

The Muscular System

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. muscular system

_____

_____

2. lever

_____

_____

3. mechanical advantage

_____

_____

SECTION SUMMARY

Read the following section summary.

- The three kinds of muscle tissue are smooth muscle, cardiac muscle, and skeletal muscle.
- Skeletal muscles work in pairs. Skeletal muscles contract to move bones.
- Muscles and bones work together to form levers.
- There are three classes of levers in the human body. Levers work to provide some advantage to body movements.
- First- and second-class levers increase the amount of force applied to a load. Third-class levers increase the speed of the motion.
- Strains are injuries that affect muscles and tendons. Tendinitis affects tendons.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: The Cardiovascular System (pp. 496–501)

YOUR CARDIOVASCULAR SYSTEM

Match the correct description with the correct term. Write the letter in the space provided.

_____ **1.** The heart and blood vessels are part of this system.

_____ **2.** Blood vessels carry this throughout the body.

_____ **3.** Blood is pumped through the body by this.

_____ **4.** The cardiovascular system helps maintain this.

a. blood
b. cardiovascular
c. homeostasis
d. heart

THE HEART

Write the letter of the correct answer in the space provided.

_____ **5.** The heart is about the size of which of the following?
a. your head
b. your nose
c. your thumb
d. your fist

_____ **6.** What are the heart's upper chambers called?
a. atria
b. ventricles
c. valves
d. cardios

_____ **7.** What are the heart's lower chambers called?
a. atria
b. ventricles
c. valves
d. cardios

_____ **8.** What kind of blood gets sent to the lungs?
a. type A
b. type B
c. oxygen-rich
d. oxygen-poor

_____ **9.** What kind of blood gets sent to the body?
- **a.** type A
- **b.** oxygen-rich
- **c.** type B
- **d.** oxygen-poor

_____ **10.** What causes the sound of a heartbeat?
- **a.** atria contracting
- **b.** valves closing
- **c.** ventricles contracting
- **d.** atria relaxing

BLOOD VESSELS

Match the correct description with the correct term. Write the letter in the space provided.

_____ **11.** carry blood away from the heart

_____ **12.** allow exchanges between blood and cells

_____ **13.** carry blood to the heart

_____ **14.** caused by rhythmic contractions of the heart

_____ **15.** includes arteries, capillaries, and veins

- **a.** capillaries
- **b.** arteries
- **c.** blood vessels
- **d.** veins
- **e.** pulse

TWO TYPES OF CIRCULATION

Match the correct description with the correct term. Write the letter in the space provided.

_____ **16.** flow of blood between heart and lungs

_____ **17.** flow of blood between heart and the rest of the body

- **a.** systemic circulation
- **b.** pulmonary circulation

CARDIOVASCULAR PROBLEMS

Write the letter of the correct answer in the space provided.

_____ **18.** What can lower the risk of cardiovascular problems?
- **a.** smoking
- **b.** eating a healthy diet and exercising
- **c.** having high levels of cholesterol
- **d.** avoiding exercise

Atherosclerosis

_____ **19.** What is cholesterol buildup in an artery called?
- **a.** hypertension
- **b.** heart attack
- **c.** heart failure
- **d.** atherosclerosis

_____ **20.** What can cause a narrowing of the arteries?
- **a.** stroke
- **b.** heart attack
- **c.** heart failure
- **d.** atherosclerosis

High Blood Pressure

_____ **21.** What is another name for high blood pressure?
- **a.** hypertension
- **b.** heart attack
- **c.** heart failure
- **d.** atherosclerosis

_____ **22.** What can happen when a brain artery clogs?
- **a.** heart failure
- **b.** heart attack
- **c.** stroke
- **d.** atherosclerosis

Heart Attacks and Heart Failure

_____ **23.** What can happen when the heart muscle does not get enough blood?
- **a.** hypertension
- **b.** heart attack
- **c.** heart failure
- **d.** atherosclerosis

_____ **24.** What happens when the heart cannot pump enough blood?
- **a.** hypertension
- **b.** heart attack
- **c.** heart failure
- **d.** atherosclerosis

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Blood (pp. 502–507)

Write the letter of the correct answer in the space provided.

_____ **1.** How much blood does an adult have?
- **a.** 5 liters
- **b.** 10 liters
- **c.** 50 liters
- **d.** 100 liters

COMPONENTS OF BLOOD

_____ **2.** What system is made of the heart, blood vessels, and blood?
- **a.** skeletal system
- **b.** muscular system
- **c.** digestive system
- **d.** cardiovascular system

_____ **3.** What is blood made of?
- **a.** oxygen and plasma
- **b.** red blood cells and white blood cells
- **c.** plasma, red blood cells, platelets, and white blood cells
- **d.** plasma and platelets

Plasma

_____ **4.** What is plasma?
- **a.** only white blood cells
- **b.** only red blood cells
- **c.** fluid part of blood
- **d.** hemoglobin

Red Blood Cells

_____ **5.** What are the most common blood cells?
- **a.** red blood cells
- **b.** white blood cells
- **c.** platelets
- **d.** plasma

_____ **6.** Which cells receive oxygen from red blood cells?
- **a.** all cells
- **b.** only skin cells
- **c.** only muscle cells
- **d.** only bone cells

_____ **7.** What attaches to the oxygen you breathe and carries oxygen on red blood cells?
- **a.** plasma
- **b.** hemoglobin
- **c.** platelets
- **d.** bone marrow

Platelets

_____ **8.** Where are platelets made?
- **a.** plasma
- **b.** bone marrow
- **c.** white blood cells
- **d.** red blood cells

_____ **9.** Why do platelets clump together?
- **a.** to produce oxygen
- **b.** to reduce oxygen
- **c.** to produce blood loss
- **d.** to reduce blood loss

White Blood Cells

_____ **10.** What are pathogens?
- **a.** disease-causing bacteria, viruses, and other microorganisms
- **b.** large platelets
- **c.** antibodies
- **d.** tiny fibers

_____ **11.** What destroys pathogens?
- **a.** red blood cells
- **b.** white blood cells
- **c.** platelets
- **d.** plasma

_____ **12.** What part of the blood destroys dead and damaged cells?
- **a.** white blood cells
- **b.** red blood cells
- **c.** platelets
- **d.** pathogens

BODY TEMPERATURE REGULATION

Match the correct description with the correct term. Write the letter in the space provided.

_____ **13.** helps regulate your body temperature

_____ **14.** enlarge when your body temperature rises

_____ **15.** lowers when heat is transferred from blood to skin

a. blood
b. temperature
c. blood vessels

BLOOD PRESSURE

Match the correct description with the correct term. Write the letter in the space provided.

_____ **16.** force of blood pushing on walls of arteries

_____ **17.** pressure inside large arteries when ventricles contract

_____ **18.** pressure inside arteries when ventricles relax

a. diastolic
b. systolic
c. blood pressure

BLOOD TYPES

Match the correct description with the correct term. Write the letter in the space provided.

_____ **19.** chemicals on red blood cells that determine blood type

_____ **20.** antigens in type A blood

_____ **21.** antigens in type B blood

a. antigens
b. A antigens
c. B antigens

TRANSFUSIONS AND BLOOD TYPES

Write the letter of the correct answer in the space provided.

_____ **22.** What does a transfusion replace?
- **a.** lost body temperature
- **b.** lost pathogens
- **c.** lost blood
- **d.** lost antibodies

_____ **23.** What could happen if you receive the wrong blood type?
- **a.** Your blood type could change.
- **b.** You might need more white blood cells.
- **c.** You might get too much oxygen.
- **d.** You could die.

BLOOD DISORDERS

Match the correct description with the correct term. Write the letter in the space provided.

_____ **24.** condition in which blood does not clot normally

_____ **25.** cancer that affects blood cells

a. leukemia

b. hemophelia

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: The Respiratory System (pp. 508–511)

Write the letter of the correct answer in the space provided.

_____ **1.** Why does the body need oxygen?
- **a.** to get energy from food
- **b.** to make its own food
- **c.** to fight infection
- **d.** to make more blood

RESPIRATION AND THE RESPIRATORY SYSTEM

Match the correct description with the correct term. Write the letter in the space provided.

_____ **2.** the process of using oxygen and releasing carbon dioxide and water

_____ **3.** the process of inhaling and exhaling

_____ **4.** the organs that take in oxygen and get rid of carbon dioxide

a. respiration
b. respiratory system
c. breathing

Nose, Pharynx, and Larynx

_____ **5.** the main passage into and out of the respiratory system

_____ **6.** the part of the throat that produces sounds

_____ **7.** the throat

a. pharynx
b. nose
c. larynx

Trachea

Write the letter of the correct answer in the space provided.

_____ **8.** What is the trachea also called?
- **a.** nose
- **b.** throat
- **c.** tonsils
- **d.** windpipe

_____ **9.** What goes through the trachea?
- **a.** blood to the heart
- **b.** air to the lungs
- **c.** food to the stomach
- **d.** lymph to the lymph nodes

Bronchi and Alveoli

_____ **10.** What is a tube connecting the lungs with the trachea?
- **a.** pharynx
- **b.** nose
- **c.** larynx
- **d.** bronchus

_____ **11.** What are bronchioles?
- **a.** smaller branches of bronchi
- **b.** tiny sacs in the lungs
- **c.** tubes next to the larynx
- **d.** pharynx

_____ **12.** What are alveoli?
- **a.** smaller branches of bronchi
- **b.** tiny air sacs in the lungs
- **c.** tubes next to the larynx
- **d.** pharynx

BREATHING

Match the correct description with the correct term. Write the letter in the space provided.

_____ **13.** contracts and moves down when you inhale

_____ **14.** contract and lift the rib cage

- **a.** diaphragm
- **b.** rib muscles

Breathing and Cellular Respiration

Match the correct description with the correct term. Write the letter in the space provided.

_____ **15.** When you inhale, you take in this.

_____ **16.** Cells use oxygen to release this.

- **a.** energy
- **b.** oxygen

Respiratory Disorders

Write the letter of the correct answer in the space provided.

_____ **17.** What may trigger asthma?
- **a.** blood cells
- **b.** dust or pollen
- **c.** antigens
- **d.** SARS

_____ **18.** What causes SARS?
- **a.** blood cells
- **b.** dust or pollen
- **c.** virus
- **d.** bacteria

_____ **19.** Which of the following might people with respiratory disorders have trouble with?
- **a.** getting rid of oxygen
- **b.** gaining carbon dioxide
- **c.** getting rid of carbon dioxide
- **d.** gaining too much energy

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

The Cardiovascular System

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. cardiovascular system

2. artery

3. capillary

4. vein

5. pulmonary circulation

6. systemic circulation

SECTION SUMMARY

Read the following section summary.

- Parts of the cardiovascular system include the heart, three types of blood vessels, and blood.
- Contractions of the heart pump blood throughout the body. Valves ensure that blood flows in only one direction.
- The three types of blood vessels are arteries, veins, and capillaries.
- Oxygen-poor blood flows from the heart through the lungs, where it picks up oxygen. Oxygen-rich blood flows from the heart to the rest of the body.
- Cardiovascular problems include atherosclerosis, hypertension, strokes, heart attacks, and heart failure.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Blood

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. blood

_____

_____

_____

2. blood pressure

_____

_____

_____

SECTION SUMMARY

Read the following section summary.

- The four main components of blood are plasma, red blood cells, platelets, and white blood cells.
- Blood carries oxygen and nutrients to cells, helps protect against disease, and helps regulate body temperature.
- Blood pressure is the force that blood exerts on the inside walls of arteries. It is often expressed in the unit of millimeters of mercury.
- Every person has one of four ABO blood types.
- Losing blood, mixing blood types, and blood disorders can be fatal.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

The Respiratory System

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. respiration

2. respiratory system

3. pharynx

4. larynx

5. trachea

6. bronchus

7. alveolus

SECTION SUMMARY

Read the following section summary.

- Air enters through the nose or mouth, then travels to the pharynx, larynx, trachea, and bronchi. The bronchi branch into bronchioles, which branch into alveoli.
- Breathing involves lungs, muscles in the rib cage, and the diaphragm.
- Oxygen enters the blood through the alveoli in the lungs. Carbon dioxide leaves the blood and is exhaled.
- Respiratory disorders include asthma, emphysema, and SARS.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: The Nervous System (pp. 526–533)

TWO SYSTEMS WITHIN A SYSTEM

Write the letter of the correct answer in the space provided.

_____ **1.** What does the nervous system do?
- **a.** pumps blood
- **b.** gathers and interprets information
- **c.** digests food
- **d.** eliminates waste

_____ **2.** The brain and spinal cord make up what part of the nervous system?
- **a.** peripheral nervous system
- **b.** central nervous system
- **c.** somatic nervous system
- **d.** autonomic nervous system

_____ **3.** What part of the nervous system includes all parts except for the brain and spinal cord?
- **a.** peripheral nervous system
- **b.** central nervous system
- **c.** somatic nervous system
- **d.** autonomic nervous system

THE PERIPHERAL NERVOUS SYSTEM

_____ **4.** What are special cells in your body that transfer messages called?
- **a.** impulses
- **b.** homeostasis
- **c.** neurons
- **d.** cell bodies

_____ **5.** What are fast-moving electrical messages that travel along nerve cells called?
- **a.** impulses
- **b.** dendrites
- **c.** axons
- **d.** cell bodies

Neuron Structure

Match the correct description with the correct term. Write the letter in the space provided.

_____ **6.** allows the neuron to receive information

_____ **7.** carries impulses from the cell body

_____ **8.** has a nucleus and cell organelles

a. cell body
b. dendrite
c. axon

Sensory Neurons: Collecting Information

Write the letter of the correct answer in the space provided.

_____ **9.** Which neurons gather information about what is happening in your body?
a. motor
b. sensory
c. receptor
d. light

_____ **10.** What are the specialized nerve endings at the end of the sensory neurons?
a. axons
b. muscles
c. receptors
d. nuclei

Motor Neurons: Delivering Orders

_____ **11.** What neurons send impulses from the brain and spinal cord?
a. motor neurons
b. sensory neurons
c. receptors
d. light

NERVES

_____ **12.** What connects the central nervous system to the rest of the body?
a. axons
b. nerves
c. blood vessels
d. connective tissue

_____ **13.** Which of the following are a part of nerves?
a. skeletal muscles
b. skin cells
c. axons
d. bones

SOMATIC AND AUTONOMIC NERVOUS SYSTEMS

_____ **14.** What are the two types of motor neurons in the PNS that relay CNS responses?
- **a.** sympathetic and parasympathetic
- **b.** central and peripheral
- **c.** somatic and autonomic
- **d.** voluntary and involuntary

Somatic Nervous System

_____ **15.** Which of the following is NOT controlled by the somatic nervous system?
- **a.** heart rate
- **b.** jumping
- **c.** talking
- **d.** writing

Autonomic Nervous System

_____ **16.** Which of the following is controlled by the autonomic nervous system?
- **a.** heart rate
- **b.** jumping
- **c.** talking
- **d.** writing

_____ **17.** What are the two divisions of the autonomic nervous system?
- **a.** sympathetic and parasympathetic
- **b.** central and peripheral
- **c.** somatic and autonomic
- **d.** voluntary and involuntary

THE CENTRAL NERVOUS SYSTEM

_____ **18.** The central nervous system receives information from which of the following?
- **a.** somatic neurons
- **b.** autonomic neurons
- **c.** motor neurons
- **d.** sensory neurons

The Brain

_____ **19.** What is the main control center of the nervous system?
- **a.** the spinal cord
- **b.** the brain
- **c.** neurons
- **d.** nerves

_____ **20.** What are the three main parts of the brain?
- **a.** cerebrum, cerebellum, and medulla
- **b.** spinal cord, cerebrum, and cerebellum
- **c.** medulla, spinal cord, and cerebrum
- **d.** medulla, spinal cord, and cerebellum

The Cerebrum

_____ **21.** What is the largest part of your brain?
- **a.** right hemisphere
- **b.** left hemisphere
- **c.** cerebrum
- **d.** medulla

_____ **22.** Which part of the cerebrum directs the right side of the body?
- **a.** right hemisphere
- **b.** left hemisphere
- **c.** upper hemisphere
- **d.** lower hemisphere

The Cerebellum

_____ **23.** What part of your brain helps you keep your balance?
- **a.** cerebrum
- **b.** hemisphere
- **c.** cerebellum
- **d.** medulla

The Medulla

_____ **24.** What is one involuntary process the medulla controls?
- **a.** balance
- **b.** talking
- **c.** memory
- **d.** heart rate

THE SPINAL CORD

_____ **25.** What are the bones that protect your spinal cord called?
- **a.** neurons
- **b.** homeostasis
- **c.** vertices
- **d.** vertebrae

Spinal Cord Injury

_____ **26.** Which of the following could be affected by a spinal cord injury?
- **a.** sense of smell
- **b.** sight
- **c.** sense of touch
- **d.** hearing

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Sensing the Environment (pp. 534–541)

Write the letter of the correct answer in the space provided.

_____ **1.** What do you call awareness caused when sensory messages reach the brain?
- **a.** receptors
- **b.** recognition
- **c.** sensation
- **d.** heartbeat

SENSE OF TOUCH

_____ **2.** What system forms a protective covering on the outside of the body?
- **a.** nervous system
- **b.** receptor system
- **c.** sensory system
- **d.** integumentary system

_____ **3.** What type of receptor responds to temperature?
- **a.** thermoreceptor
- **b.** vibration receptor
- **c.** sound receptor
- **d.** pressure receptor

_____ **4.** Which of the following is NOT sensed by skin receptors?
- **a.** vibration
- **b.** pressure
- **c.** pain
- **d.** light

RESPONDING TO SENSORY MESSAGES

_____ **5.** What is a very fast, involuntary action called?
- **a.** pain
- **b.** sensation
- **c.** reflex
- **d.** stimulus

Feedback Mechanisms

_____ **6.** The body's cooling process can be described as which of the following?
- **a.** a reflex
- **b.** a somatic response
- **c.** a feedback mechanism
- **d.** a sensation

SENSE OF SIGHT

Match the correct description with the correct term. Write the letter in the space provided.

_____ **7.** the opening in the center of the iris

_____ **8.** a layer of light-sensitive cells

_____ **9.** a special neuron that responds to light energy

_____ **10.** a clear membrane that protects the eye

a. retina
b. pupil
c. cornea
d. photoreceptor

Reacting to Light

Write the letter of the correct answer in the space provided.

_____ **11.** What opening lets light into the eye?
- **a.** pupil
- **b.** retina
- **c.** iris
- **d.** rods

_____ **12.** What controls the amount of light going into the eye?
- **a.** pupil
- **b.** iris
- **c.** retina
- **d.** rods

Focusing the Light

_____ **13.** What is the clear, curved material behind the iris?
- **a.** optic nerve
- **b.** lens
- **c.** retina
- **d.** rod

_____ **14.** What happens when the lens focuses light in front of the retina?
- **a.** nearsightedness
- **b.** farsightedness
- **c.** blindness
- **d.** normal vision

_____ **15.** What happens when the lens focuses light behind the retina?
- **a.** nearsightedness
- **b.** farsightedness
- **c.** blindness
- **d.** normal vision

SENSE OF HEARING

Match the correct description with the correct term. Write the letter in the space provided.

_____ **16.** tube in the inner ear you must have to hear

_____ **17.** part of the ear that funnels sound to the middle ear

_____ **18.** thin membrane between the middle and the outer ear

a. eardrum
b. outer ear
c. cochlea

The External Ear and Sound

Write the letter of the correct answer in the space provided.

_____ **19.** What part of the ear gathers sound waves?
- **a.** cochlea
- **b.** eardrum
- **c.** inner ear
- **d.** external ear

Keeping Your Balance

_____ **20.** Besides hearing, what do your ears enable you to do?
- **a.** breath
- **b.** maintain balance
- **c.** regulate temperature
- **d.** see

SENSE OF TASTE

Match the correct description with the correct term. Write the letter in the space provided.

_____ **21.** are tiny bumps that cover the tongue

_____ **22.** are contained in papillae

_____ **23.** are contained in taste buds

a. taste buds
b. papillae
c. taste cells

SENSE OF SMELL

Write the letter of the correct answer in the space provided.

_____ **24.** Receptors for smell are located on which of the following?
- **a.** olfactory cells
- **b.** hair cells
- **c.** taste cells
- **d.** retinal cells

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

The Nervous System

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. central nervous system

2. peripheral nervous system

3. neuron

4. nerve

5. brain

SECTION SUMMARY

Read the following section summary.

- The central nervous system (CNS) is the brain and the spinal cord.
- The peripheral nervous system (PNS) is all of the parts of the nervous system except for the brain and spinal cord.
- Nerves in the peripheral nervous system are bundles of axons, blood vessels, and connective tissue.
- Sensory neurons have receptors that detect information about the body and its environment. Motor neurons carry messages from the brain and spinal cord to other parts of the body.
- The PNS has two types of motor neurons: somatic neurons and autonomic neurons.
- The cerebrum is the largest part of the brain and controls thinking, sensing, and voluntary movement.
- The cerebellum is the part of the brain that keeps track of the body's position and that helps maintain balance.
- The medulla controls involuntary processes, such as breathing and the regulation of heart rate, blood pressure, and body temperature.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Sensing the Environment

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. integumentary system

2. reflex

3. feedback mechanism

4. pupil

5. retina

6. iris

7. cochlea

SECTION SUMMARY

Read the following section summary.

- Touch allows you to respond to temperature, pressure, pain, and vibration on the skin.
- Reflexes and feedback mechanisms help you respond to your environment.
- Sight allows you to respond to light energy. The eye has specialized structures to respond to light.
- Hearing allows you to respond to sound energy. The ear has specialized structures to respond to the information in sound waves.
- Taste allows you to distinguish flavors.
- Smell allows you to perceive various odors.

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Human Reproduction (pp. 556–561)

THE MALE REPRODUCTIVE SYSTEM

Match the correct description with the correct term. Write the letter in the space provided.

_____ **1.** This produces fluid that mixes with sperm.

_____ **2.** This makes sperm and testosterone.

_____ **3.** Semen travels through this tube.

_____ **4.** This outside organ puts semen into a female.

a. urethra
b. testis
c. penis
d. prostate gland

Match the correct description with the correct term. Write the letter in the space provided.

_____ **5.** male sex hormone

_____ **6.** place where sperm are stored

_____ **7.** tube that leads to the prostate gland

_____ **8.** mixture of sperm and fluid

a. vas deferens
b. semen
c. testosterone
d. epididymis

Delivery of Sperm

Write the letter of the correct answer in the space provided.

_____ **9.** Which of the following statements is NOT true?
- **a.** Fertilization occurs when sperm enter an egg.
- **b.** Fertilization can only occur after the male ejaculates.
- **c.** Few sperm are necessary for fertilization to occur.
- **d.** Fertilization can occur without the male ejaculating.

THE FEMALE REPRODUCTIVE SYSTEM

_____ **10.** What are the female organs that make eggs?
- **a.** the fallopian tubes
- **b.** the uterus
- **c.** the ovaries
- **d.** the vagina

_____ **11.** Which of the following are female sex hormones?
- **a.** testosterone and estrogen
- **b.** chromosome and testosterone
- **c.** estrogen and progesterone
- **d.** ovulation and estrogen

The Egg's Journey

Match the correct description with the correct term. Write the letter in the space provided.

_____ **12.** place where eggs are usually fertilized

_____ **13.** when an egg is released from the ovary

_____ **14.** place where a fertilized egg develops

_____ **15**. passage through which babies come out during birth

- **a.** uterus
- **b.** fallopian tube
- **c.** vagina
- **d.** ovulation

Menstrual Cycle

Match the correct description with the correct term. Write the letter in the space provided.

_____ **16.** when the uterus sheds blood and tissue

_____ **17.** a complete menstrual cycle

_____ **18.** when ovulation happens

- **a.** 14th day of menstrual cycle
- **b.** day 1 of menstrual cycle
- **c.** about 28 days

FERTILIZATION

Write the letter of the correct answer in the space provided.

_____ **19.** How many copies of each chromosome are in a fertilized egg?
- **a.** one
- **b.** two
- **c.** three
- **d.** four

MULTIPLE BIRTHS

Match the correct description with the correct term. Write the letter in the space provided.

_____ **20.** having more than one baby at a time

_____ **21.** twins that have the exact same genes

_____ **22.** twins that don't have the exact same genes

a. identical twins
b. multiple birth
c. fraternal twins

REPRODUCTIVE SYSTEM PROBLEMS

Sexually Transmitted Diseases (STDs)

Write the letter of the correct answer in the space provided.

_____ **23.** How does a person get a sexually transmitted disease?
- **a.** from coughing
- **b.** from sexual contact
- **c.** from dirty bathrooms
- **d.** from shaking hands

_____ **24.** Which one of the following is an STD, or sexually transmitted disease?
- **a.** AIDS
- **b.** the flu
- **c.** a cold
- **d.** cancer

_____ **25.** How many new hepatitis B cases occur in the United States each year?
- **a.** none
- **b.** 100,000
- **c.** 120,000
- **d.** 140,000

Cancer

_____ **26.** Cancer is caused by the uncontrolled growth of what?
- **a.** eggs
- **b.** zygotes
- **c.** cells
- **d.** the uterus

_____ **27.** What is a common reproductive cancer of men?
- **a.** prostate cancer
- **b.** penis cancer
- **c.** liver cancer
- **d.** cancer of the cervix

_____ **28.** What is a common reproductive cancer of women?
- **a.** prostate cancer
- **b.** penis cancer
- **c.** liver cancer
- **d.** cancer of the cervix

Infertility

_____ **29.** Infertile couples cannot do what?
- **a.** produce sperm
- **b.** get STDs
- **c.** have children
- **d.** get cancer

_____ **30.** What is one cause of infertility in men?
- **a.** liver disease
- **b.** too few offspring
- **c.** abnormal ovulation
- **d.** few healthy sperm

Name _____ Class _____ Date _____

Skills Worksheet

Directed Reading A

Section: Growth and Development (pp. 562–567)

FROM FERTILIZATION TO EMBRYO

Write the letter of the correct answer in the space provided.

_____ **1.** Where does the sperm usually fertilize the egg?
- **a.** in the uterus
- **b.** in a fallopian tube
- **c.** in a membrane
- **d.** in a nucleus

_____ **2.** What is an embryo?
- **a.** a newborn baby through two years of life
- **b.** an unfertilized egg
- **c.** a fertilized egg through week 10 of pregnancy
- **d.** a million sperm

_____ **3.** What is it called when the embryo attaches itself to the uterus?
- **a.** fertilization
- **b.** implantation
- **c.** multiple birth
- **d.** menstrual cycle

FROM EMBRYO TO FETUS

_____ **4.** Through what organ does the mother nourish the developing embryo?
- **a.** the uterus
- **b.** the placenta
- **c.** the fallopian tube
- **d.** the cervix

Weeks 1 and 2

_____ **5.** When do doctors start counting the time of a woman's pregnancy?
- **a.** from the first day of fertilization
- **b.** from the first day of her last menstrual period
- **c.** from the first day the embryo is implanted
- **d.** from the time sperm come into the uterus

Weeks 3 and 4

_____ **6.** When does fertilization take place?
- **a.** the end of day 1
- **b.** the end of week 1
- **c.** the end of week 2
- **d.** when the embryo is implanted

_____ **7.** Which of the following begins during the first 4 weeks of pregnancy?
- **a.** The embryo grows fingernails.
- **b.** The embryo can kick its feet.
- **c.** The embryo can see light.
- **d.** The embryo's blood cells begin to form.

Weeks 5 to 8

_____ **8.** What connects the embryo to the placenta?
- **a.** the amnion
- **b.** the umbilical cord
- **c.** the fallopian tube
- **d.** the spinal cord

_____ **9.** During weeks 5 to 8, what part of the embryo grows quickly?
- **a.** its arms
- **b.** its muscles
- **c.** its brain
- **d.** its taste buds

Weeks 9 to 16

_____ **10.** What is the unborn child called after week 10?
- **a.** a fetus
- **b.** an embryo
- **c.** an infant
- **d.** a zygote

_____ **11.** What happens to the fetus during weeks 9 to 16?
- **a.** It responds to light.
- **b.** The umbilical cord forms.
- **c.** It can hear sounds.
- **d.** It begins to move.

Weeks 17 to 24

_____ **12.** By week 18, what can the fetus respond to?
- **a.** light
- **b.** language
- **c.** sound
- **d.** colors

Weeks 25 to 36

_____ **13.** By week 32, brain activity shows that the fetus may respond to what?
- **a.** odors
- **b.** light
- **c.** touch
- **d.** temperature

BIRTH

_____ **14.** What are the contractions a mother feels when giving birth?
- **a.** full-term
- **b.** placenta
- **c.** labor
- **d.** uterus

_____ **15.** A baby comes out of what part of a mother's body?
- **a.** her vagina
- **b.** her placenta
- **c.** her umbilicus
- **d.** her cervix

FROM BIRTH TO DEATH

Infancy and Childhood

_____ **16.** A child is called an infant until it reaches what age?
- **a.** 1 year old
- **b.** 2 years old
- **c.** 3 years old
- **d.** 5 years old

_____ **17.** What is one change you experience during childhood?
- **a.** You get baby teeth.
- **b.** You grow hair.
- **c.** You learn how to walk.
- **d.** You get permanent teeth.

Adolescence

_____ **18.** What happens to you during puberty?
- **a.** You get permanent teeth.
- **b.** Your nervous system develops.
- **c.** Your reproductive system matures.
- **d.** Your muscles become coordinated.

Adulthood

_____ **19.** What reaches its peak when you are a young adult?
- **a.** your aging process
- **b.** your physical development
- **c.** your body fat
- **d.** your wealth

_____ **20.** What is a common sign of aging in older adults?
- **a.** greater flexibility
- **b.** blindness
- **c.** graying of hair
- **d.** inability to walk

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Human Reproduction

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. testes

2. penis

3. ovary

4. uterus

5. vagina

SECTION SUMMARY

Read the following section summary.

- The male reproductive system produces sperm and can deliver sperm to the female reproductive system.
- The female reproductive system produces eggs, nurtures zygotes, and gives birth.
- If sperm are present in the female reproductive system within a few days of ovulation, fertilization may occur.
- A fertilized egg has one chromosome from each chromosome pair of the parents.
- Humans usually have one child per birth, but some people have multiple births.
- Human reproduction can be affected by infertility and by diseases such as cancer.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary A

Growth and Development

VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. embryo

_____

_____

2. placenta

_____

_____

3. pregnancy

_____

_____

4. umbilical cord

_____

_____

5. fetus

_____

_____

SECTION SUMMARY

Read the following section summary.

- Fertilization occurs when a sperm from the male joins with an egg from the female.
- First as an embryo and then as a fetus, a developing human undergoes many changes between implantation and birth.
- During the development of a human, cells differentiate.
- The umbilical cord and placenta support the developing human during pregnancy by providing oxygen and nutrients and by removing waste materials.
- The first stage of human development lasts from fertilization to birth.
- After birth, a human goes through four more stages of growth and development.