

What Is Biology?

Directions Write the letter *L* on the line next to living things. Write *NL* on the line next to nonliving things.

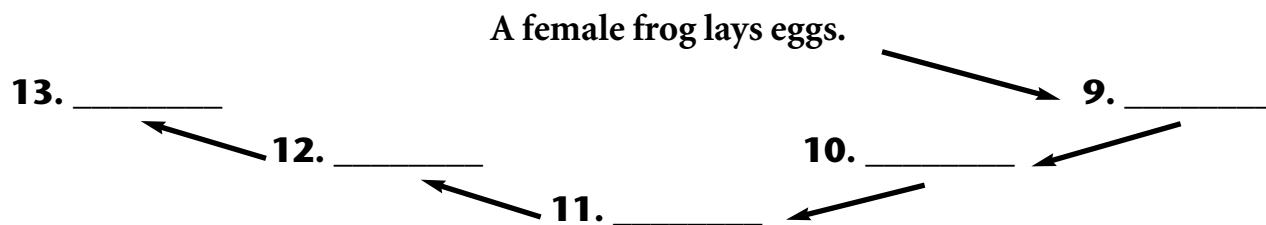
- _____ 1. oak tree
- _____ 2. electric fan
- _____ 3. catfish
- _____ 4. snow

Directions Write the letter *B* on the line if the job is something biologists do. Write *NB* by other statements.

- _____ 5. Count fish in a pond
- _____ 6. Study stars and planets
- _____ 7. Collect and name rocks and minerals
- _____ 8. Study a disease-causing germ

Directions Descriptions of the five events in the life cycle of a frog are listed below. Read the descriptions. Determine what happens next in the cycle after a female frog lays eggs. Write the correct letter on the line next to item 9. Do the same for items 10, 11, 12, and 13.

- A** an adult frog moves out of the water and onto land
- B** a legless tadpole emerges from an egg
- C** an egg begins to hatch
- D** hind legs grow longer and front legs appear on the tadpole
- E** hind legs begin to grow on a legless tadpole



Energy and Growth Cycles

Directions Write the letter of the answer that completes each sentence on the line.

1. Without energy from _____, most living things on earth would not exist.
A the sun **B** minerals **C** DNA **D** the moon
2. Energy can change forms. When it does, some energy is changed to _____, a form that cannot do work.
A DNA **B** motion **C** heat **D** fat
3. Living things need _____ to grow and reproduce.
A atoms **B** organisms **C** energy **D** photosynthesis
4. _____ carries instructions for life.
A Energy **B** An atom **C** DNA **D** ATP
5. During _____, a living thing makes new life.
A reproduction **B** growth **C** respiration **D** photosynthesis
6. The smallest units of life are _____.
A atoms **B** cells **C** molecules **D** tissues
7. During reproduction, events occur that make organisms _____.
A fragile **B** unique **C** energetic **D** sterile
8. Cells make _____, chemicals that help them work.
A proteins **B** oxygen **C** energy **D** carbohydrates



Evolutionary and Ecological Cycles

Directions Read each statement. Then unscramble the letters in parentheses. Each statement is a clue for the term. Write the term on the line. The first one is done for you.

1. Life changes in a process called evolution.
(tonevioul)
2. The dinosaurs became _____ after their environment changed. (ntectix)
3. The _____ of a crayfish is a creek. (metnonvenri)
4. The webbed feet of a duck are a(n) _____ for swimming.
(tandatoaip)
5. A dog and a cat cannot breed and have babies. They are not the same
_____. (ipcesse)
6. Water, soil, plants, animals, and wind are part of the _____
of a tree. (yesmestoc)
7. The odor of baking bread is a _____ that can make a
person's mouth water. (milsusut)
8. The appearance of a new kind of disease-causing germ is an example of
_____. (cipsitona)



The Scientific Method

Directions Choose the term from the Word Bank that completes each statement correctly. Write the answer on the line.

Word Bank

analyzed

communicated

control

data

experiment

hypothesis

observations

question

scientific method

specimen

theory

variable

1. The data from an experiment must be _____ to interpret it.
2. Information gathered in an experiment is _____.
3. In an experiment, there are two groups. The _____ group is not changed in any way.
4. A(n) _____ helps explain observations or events.
5. A(n) _____ is an educated guess.
6. The first step in problem-solving is to develop a _____.
7. A(n) _____ is a procedure designed to test possible answers to questions.
8. Results of experiments are _____ to let others know about the findings.
9. A logical method that can be used to solve a problem is the _____.
10. New ideas for experiments often come from _____.
11. A scientist may use a (n) _____ or sample in an experiment.
12. In an experiment, the _____ is the factor that is tested.



Chapter 1 Vocabulary Review

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 1. adaptation
- _____ 2. analysis
- _____ 3. cell
- _____ 4. data
- _____ 5. DNA
- _____ 6. ecology
- _____ 7. ecosystem
- _____ 8. evolution
- _____ 9. organism
- _____ 10. transform

Column B

- A** a living thing
- B** to change form
- C** the changes in a population over time
- D** a chemical that contains instructions for life
- E** an adjustment to environmental conditions
- F** making sense of experimental data
- G** the study of interactions of living and nonliving things in the environment
- H** all of the living and nonliving things in the environment
- I** information collected from experiments
- J** the basic unit of life

Directions Unscramble the word or words in parentheses to complete each sentence. Write the answer on the line.

- 11.** A(n) _____ is an educated guess of the answer to a question. (poisystheh)
- 12.** A(n) _____ is a well-tested explanation that makes sense of several scientific observations. (yohetr)
- 13.** The factor to be tested in an experiment is the _____. (ravebail)
- 14.** In an experiment, the _____ is the one in which no factor is changed. (noclort rugop)
- 15.** The _____ is the same as the control group, but one factor is changed. (aliprextenem orgpu)



Matter, Energy, and Chemical Processes of Life

Directions Write *P* on the line next to statements about physical properties. Write *C* on the line next to chemical properties. The first one is done for you.

- P 1. Water boils at 212°F.
- _____ 2. A log burns in a fireplace.
- _____ 3. Plants make their own food using the sun's energy.
- _____ 4. Water evaporates from a lake.

Directions Write *P* on the line next to a statement about a physical change. Write *C* on the line next to a chemical change. The first one is done for you.

- P 5. You chop up a cup of walnuts as you prepare to bake cookies.
- _____ 6. While you are baking, you eat a few walnuts.
- _____ 7. You bake the cookies.
- _____ 8. Some sugar drops on the stove and burns.

Directions Write *M* on the line next to each description of matter. Write *NM* next to the description that is not matter. The first one is done for you.

- M 9. metal
- _____ 10. a flower
- _____ 11. heat
- _____ 12. sound

Atoms and Molecules

Directions The table lists the names of four elements. Use the Periodic Table in the Appendix to find the following information about each element. Write your answers in the table. Some of the first one is done for you.

Table	Symbol	Atomic Number	Atomic Mass	Number of Protons	Number of Neutrons	Number of Electrons
carbon	C	6	12			
hydrogen						
oxygen						
nitrogen						

Directions Choose a word or words from the Word Bank to answer each question. Write your answers on the lines.

Word Bank

atomic mass

atoms

radioisotopes

atomic number

neutron

1. Protons, neutrons, and electrons make up _____.
2. C-13 has one more _____ than C-12.
3. Doctors can use _____ to trace the movement of elements through the body.
4. The _____ tells how many electrons, protons, and neutrons an atom contains.
5. The _____ of an element tells how many protons an atom contains.

Chemical Formulas

Directions Choose the word or words from the Word Bank that completes each sentence. Answers can be used more than once.

Word Bank

one

two

three

four

1. The formula for water tells you that it is made of _____ elements.
2. According to its formula, what is the total number of atoms in one molecule of water? _____
3. How many oxygen atoms are in one molecule of water? _____
4. How many atoms of calcium (Ca) are in CaCl_4 ? _____
5. How many atoms of chlorine (Cl) are in CaCl_4 ? _____

Directions Write the name of each compound in the right column next to its chemical formula. If you need help, use the Periodic Table in the Appendix.

Formula	Name of Compound
LiBr	
H_2S	
ZnI_2	
$\text{Ba}(\text{NO}_3)_2$	
CuSO_4	



Bonding Patterns

Directions Write the letter of the answer that completes the sentence on the line.

1. The forces of attraction that hold together atoms and molecules are _____.

A compounds **B** bonds **C** reactants **D** products

2. During a chemical reaction, matter is _____.

A rearranged **B** created **C** destroyed **D** released

3. The bonds that form by sharing electrons are called _____.

A ionic bonds **C** hydrogen bonds
B chemical bonds **D** covalent bonds

4. In _____, ions are attracted to each other.

A ionic bonds **C** hydrogen bonds
B chemical bonds **D** covalent bonds

5. The substances formed in a chemical reaction are called _____.

A reactants **B** radicals **C** products **D** equations

6. An atom is stable when its outermost orbit is _____.

A empty **B** missing **C** loose **D** filled

7. In order to be stable, an atom with only one electron in its outermost shell is likely to _____.

A lose that electron **C** orbit another atom
B gain seven electrons **D** remain unchanged

8. When an atom gives up one electron, the atom _____.

A becomes stable **C** becomes unstable
B becomes negatively charged **D** becomes positively charged



Properties of Water

Directions Use a term in the Word Bank to complete each sentence.
Write your answers on the lines.

Word Bank

hydrogen bonds

hydrophilic

hydrophobic

solvent

1. Oil is called a _____ substance because it does not mix with water.
2. Water molecules are attracted to one another by weak chemical bonds called _____.
3. Water is an excellent _____ because it dissolves many materials.
4. Materials that dissolve in water are called water-loving or _____ substances.

Directions Read each statement. Unscramble the letters in parentheses and write the term on the line.

5. When hydrogen bonds form in water, _____ is released.
(etah)
6. When _____ evaporates, it cools the skin. (stiiporrenap)
7. Hydrogen bonds make water molecules stick together and form _____.
(carfuse ninoets)
8. The weak attraction between water molecules is a _____.
(ghdonyre donb)

Acids, Bases, and pH

Directions Match each term in Column A with its meaning in Column B.
Write the answer on the line.

Column A

- _____ 1. acid
- _____ 2. base
- _____ 3. buffer
- _____ 4. neutral solution
- _____ 5. pH

Column B

- A** can receive a moderate amount of acid or base without changing pH
- B** the hydrogen potential, or measure of the hydrogen ion concentration
- C** a substance that donates protons during a chemical reaction
- D** a substance that is neither an acid nor a base
- E** a substance that can accept protons during a chemical reaction

Directions Read the following statements. Unscramble the letters in parentheses. Write the answer on the line.

- 6. An acid can accept a(n) _____ pair. (nocetler)
- 7. Water is _____ because its pH is 7. (atulenr)
- 8. The _____ tells how acid or basic a substance is. (hp acsel)



Chapter 2 Vocabulary Review

Directions Use the terms in the Word Bank to complete each sentence. Write your answers on the lines.

Word Bank

acid	chemical bond	diversity	ion
atom	chemical formula	electron shell	neutral solution
atomic mass	chemical property	hydrophilic	proton
buffer	chemistry	hydrophobic	

1. A polar, water-loving molecule is described as _____.
2. Any characteristic of an object that describes how that object changes into a different substance is a(n) _____.
3. The _____ is the average mass of an atom of an element.
4. The basic unit of matter is a(n) _____.
5. A tiny particle in the nucleus of an atom that has a positive charge is a(n) _____.
6. A(n) _____ has a pH of 7, so it is neither acidic nor basic.
7. A(n) _____ tells the number and the kinds of atoms in a compound.
8. A(n) _____ can receive small amounts of either an acid or a base without changing in pH.
9. Living things show a lot of _____ because they are not all the same.
10. A(n) _____ is a substance that can donate a proton (H^+) or accept an electron pair.
11. The study of matter and how it changes is called _____.
12. When atoms of two or more elements combine, a _____ is formed.
13. A nonpolar, water-hating molecule is described as _____.
14. A(n) _____ is an atom with either a positive or negative charge.
15. A(n) _____ is a specific energy level in which electrons travel.

What Are Organic Molecules?

Directions Choose the term from the Word Bank that completes each sentence correctly.

Word Bank

dehydration synthesis

lipid

nucleic acids

hydrocarbon

monomer

proteins

hydrolysis

1. The chemical reaction that links monomers into chains is called _____.
2. An individual unit of a polymer is called a(n) _____.
3. A(n) _____ contains hydrogen and carbon atoms.
4. Molecules in cells that store information are _____.
5. Chemicals found in all cells that are used for work and growth are _____.
6. The chemical reaction that breaks bonds between monomer chains is called _____.
7. A(n) _____ like fatty acid will not dissolve in water.

Directions Write your answer to each question on the line. Use complete sentences.

8. What is the molecule that makes up the majority of a cell?

9. What does the term *dehydration synthesis* mean?

10. Which macromolecules are made of repeating, small units?

Carbohydrates

Directions Write the answer on the line.

1. Molecules with the same chemical formula but different structures are known as _____.
A fatty acids **B** isotopes **C** isomers **D** functional groups
2. Simple sugars are _____.
A monosaccharides **C** bisaccharides
B disaccharides **D** polysaccharides
3. Animal cells store glucose as _____.
A cellulose **B** glycogen **C** fat **D** nucleic acids
4. Plants use _____ to support their stems, leaves, and roots.
A cellulose **B** honey **C** protein **D** fat
5. In humans, cellulose serves as a source of _____.
A energy **B** fat **C** protein **D** dietary fiber
6. _____ is a disaccharide made of fructose and glucose.
A Nucleic acid **B** Saccharin **C** Sucrose **D** Cellulose
7. Carbohydrates on cell membranes help cells _____.
A digest food **C** store cellular information
B keep water out of the cell **D** recognize one another
8. Plants store extra glucose in the form of _____.
A starch **B** protein **C** DNA **D** glycogen



Lipids

Directions Write the answer that completes each sentence on the line.
The first one is done for you.

1. Which of these atoms is not found in lipids:
carbon, oxygen, sulfur?

sulfur

2. Which of the following is not a job of lipids:
insulation, energy storage, information storage?

3. Which of the following is not a type of lipid:
steroid, carbohydrate, triglyceride?

4. Which of the following is not a saturated fatty acid:
butter, olive oil, lard?

5. Which of the following is not an example of a steroid:
proteins, hormones, cholesterol?

Directions Choose the term from the Word Bank that completes each sentence correctly. Write it on the line.

Word Bank

cholesterol
liquid
solid
trans fats
water

6. A steroid found in animal cell membranes is

_____.

7. Saturated fatty acids like butter and lard are usually

_____ at room temperature.

8. Phospholipids can interact with fat on one end and

_____ on the other end.

9. Unsaturated fatty acids that have changed to saturated

fatty acids are _____.

10. Vegetable oils are _____ at room temperature because they are unsaturated.

Proteins

Directions Choose a term from the Word Bank that matches each meaning. Write the term on the line.

Word Bank

amino acids

codon

gene

polypeptide

R group

1. a chemical group that makes an amino acid unique
2. information about a trait that is passed from parent to offspring
3. the building blocks of life
4. amino acids joined to form a chain
5. a sequence of three nucleotides

Directions Read each question. Choose the correct answer in parentheses and write the answer on the line.

6. Which of the following is not bonded to the carbon atom of an amino acid?
(amino group, ion, carboxyl group, hydrogen)
7. Which of the following is not made of protein?
(hair, fat, enzymes, spider webs)
8. What molecule is taken out when a dipeptide forms?
(trans fat, water, cholesterol, amino acid)
9. Which of these foods is not a good source of protein? (beans, meat, fish, vegetable oil)
10. What quality of a protein affects its ability to do its job? (color, shape, smell, bases)



Nucleic Acids

Directions Choose a term from the Word Bank that matches each meaning. Write the term on the line.

Word Bank

bases

DNA

helix

RNA

sugar-phosphate backbone

1. a molecule that stores the cell's information
2. the sides of a DNA ladder-shaped molecule
3. the shape of a DNA molecule
4. a molecule that helps change information on DNA into proteins
5. compounds that are part of nucleotides

Directions Read each question. Write your answers on the lines.

6. Which molecule—DNA or RNA—contains the base uracil
7. What three parts does a nucleotide have?

8. In the DNA ladder, what molecules make up the rungs?



Chapter 3 Vocabulary Review

Directions Match each term in Column A with its meaning in Column B. Write the correct letter on the line.

Column A

- _____ 1. amino acid
- _____ 2. enzyme
- _____ 3. fat
- _____ 4. glucose
- _____ 5. hydrocarbon
- _____ 6. monosaccharide
- _____ 7. polymer
- _____ 8. polypeptide
- _____ 9. RNA
- _____ 10. steroid

Column B

- A** a molecule, such as methane, that contains hydrogen and carbon
- B** a large molecule made from many small monomers
- C** a molecule that makes up proteins
- D** a carbohydrate made of one sugar
- E** a lipid, such as hormones or cholesterol, made of four attached carbon rings
- F** a long string of amino acids
- G** a chemical that stores a lot of energy
- H** a monosaccharide that is the primary energy source in plants and animals
- I** a protein that brings about a chemical reaction
- J** a nucleic acid that works with DNA to form proteins

Directions Label each of the following terms. Use *C* for carbohydrate, *P* for protein, *N* for nucleic acid, and *F* for fat.

- | | |
|--------------------------|------------------------|
| _____ 11. lipid | _____ 16. triglyceride |
| _____ 12. polysaccharide | _____ 17. hemoglobin |
| _____ 13. fatty acid | _____ 18. RNA |
| _____ 14. cellulose | _____ 19. phospholipid |
| _____ 15. enzyme | _____ 20. peptide |



What Is a Cell?

Directions Read each statement. Unscramble the letters in parentheses. Write the answer on the line.

1. Cells store energy in the form of _____. (spiild)
2. Living things contain different combinations of organic ______. (colemelus)
3. Cells use _____ as their primary sources of energy. (teyarardhscob)
4. A _____ is the smallest unit of life. (lelc)
5. Since cells are too small to be seen with the naked eye, they are observed under the _____. (seciomcorp)
6. The _____ talks about cell discoveries. (lecl yrthoe)
7. The human body uses chemical signals called _____. (nsoemhro)

Directions Match each term in Column A with its meaning in Column B. Write the correct letter on the line.

Column A

- _____ 8. Robert Hooke
- _____ 9. Anton von Leewenhoek
- _____ 10. Matthias Schleiden
- _____ 11. Theodor Schwann
- _____ 12. Rudolf Virchow

Column B

- A** discovered that all animals are made of cells
- B** discovered and named cells by examining thin sections of cork
- C** found that all plants are made of cells
- D** the first person to see living cells under a microscope
- E** said that cells come from other cells



Cellular Structure and Function

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 1. equilibrium
- _____ 2. homeostasis
- _____ 3. osmosis
- _____ 4. selectively permeable
- _____ 5. solute

Column B

- A** the movement of water molecules through a cell membrane
- B** the ability organisms have to maintain a stable internal condition
- C** equal concentration on either side of a cell membrane
- D** a substance that dissolves
- E** allows some materials to pass through

Directions Complete the table on the cell's environment. In the middle column, circle the correct phrase in parentheses. In the last column, write the prefix that describes the environment. The first one is done for you.

Environment	Solute Concentration in the Environment Is	Prefix Means
hypotonic solution	(<u>lower than</u>) higher than, the same as) inside the cell	lower
hypertonic solution	(lower than, higher than, the same as) inside the cell	_____
isotonic solution	(lower than, higher than, the same as) inside the cell	_____



What Kind of Cell Is It?

Directions Write the letter of the answer that completes each sentence on the line.

- Cells divide in half in a process called _____.
A re-seeding **C** sexual reproduction
B binary fission **D** bonding
- Tiny structures inside of eukaryotic cells are called _____.
A diffusion gradients **C** prokaryotes
B osmosis **D** organelles
- Different kinds of cells make different _____.
A proteins **B** catalysts **C** fuels **D** antibiotics
- The _____ is the organelle that directs a cell's activities.
A vacuole **B** nucleus **C** Golgi apparatus **D** lysosome
- All of the following except _____ are examples of eukaryotes.
A fungi **B** trees **C** bacteria **D** bees

Directions Compare and contrast prokaryotic and eukaryotic cells.

Put a check mark in the box that applies to each cell type. The first one is done for you.

Cell Features	Prokaryotic Cell	Eukaryotic Cell
has a nucleus		X
membranes surround internal structures		
includes bacteria		
includes human cells		
possesses organelles		

After the Cell

Directions Write the letter of the answer that completes each sentence on the line.

1. Tissue that relays messages throughout the body is _____.
A epithelium **B** nervous tissue **C** muscle tissue **D** collagen
2. The _____ includes organs such as the stomach and small intestines.
A respiratory system **C** digestive system
B reproductive system **D** nervous system
3. Skin tissue is made of _____.
A nervous tissue **B** epithelial cells **C** blood **D** organs
4. The _____ is an example of an organ.
A skin **B** muscle **C** heart **D** blood

Directions Read each question. Choose the correct answer in parentheses and write the answer on the line.

5. Which of these is a type of tissue:
muscle, kidney, circulatory system? _____
6. Which is an organ:
blood, heart, nervous system? _____
7. Which term describes a group of different organs
working together: tissue, organ, organ system? _____
8. Which organ system moves blood and gases
through the body: respiratory, circulatory, nervous? _____

Chapter 4 Vocabulary Review

Directions Match each term in Column A with its meaning in Column B. Write the correct letter on the line.

Column A

- _____ 1. ATP
- _____ 2. binary fission
- _____ 3. cell theory
- _____ 4. diffusion
- _____ 5. hormone
- _____ 6. hypotonic
- _____ 7. isotonic
- _____ 8. microscope
- _____ 9. organelle
- _____ 10. osmosis

Column B

- A** a chemical signal that is used to control some body functions
- B** an instrument that magnifies objects
- C** the molecule in cells that acts as the main source of fuel
- D** all living things are made of cells, cells are the basic unit of life, and cells come from other cells
- E** a solution in which the solute concentration is lower than that of another solution
- F** a solution with a solute concentration equal to the concentration of another solution
- G** reproduction in which a bacterial cell divides into two cells, both like the original
- H** a small structure within a cell
- I** the movement of water through a cell membrane
- J** the movement of molecules from an area of high concentration to an area of low concentration

Directions Label each of the following terms. Use *C* for cell, *T* for tissue, *O* for organ, or *OS* for organ system.

- _____ 11. circulatory system
- _____ 12. heart
- _____ 13. nervous tissue
- _____ 14. blood
- _____ 15. epithelial cell



What Are Cell Membranes?

Directions Match each term in Column A with its meaning in Column B.
Write the letter on the line.

Column A

- _____ 1. cytoplasm
- _____ 2. cytosol
- _____ 3. extracellular matrix
- _____ 4. fluid mosaic model
- _____ 5. tail of fatty acids
- _____ 6. lipid bilayer
- _____ 7. phosphate molecule
attached to a glycerol
- _____ 8. plasma membrane
- _____ 9. selectively permeable
membrane
- _____ 10. transport protein

Column B

- A** protein that moves molecules across the
plasma bilayer
- B** the hydrophobic part of a phospholipid
that forms the inside of a bilayer
- C** hydrophilic end of a phospholipid
- D** fluid part of the cytoplasm
- E** cytosol and organelles
- F** two layers of phospholipids
- G** can limit the kinds of molecules that
pass through
- H** sticky coating that joins animal cells
- I** proteins float freely in a phospholipid
bilayer
- J** membrane that separates a cell from its
environment

Directions Read each statement. Unscramble the letters in parentheses.
Write the answer on the line.

- 11.** Cell membranes are made of _____. (hpsohpsdipilo)
- 12.** In the extracellular matrix, _____ connect cells together. (befris)

What Do Membranes Do?

Directions Write the letter of the correct answer on the line.

1. There may be more molecules inside a cell than outside. To move more molecules into the cell, _____ is needed.
A diffusion **B** sunlight **C** ATP **D** exocytosis
2. On the outside of the cell, _____ help cells recognize one another.
A lipids **B** carbohydrates **C** proteins **D** nucleic acids
3. Animal cells swap materials through openings called _____.
A gap junctions **C** lipids
B carbohydrates **D** plasmodesmata
4. During _____, a cell can send out materials by packing them inside of membranes.
A exocytosis **B** diffusion **C** endocytosis **D** osmosis
5. Proteins help molecules move across the plasma membrane during _____.
A cell division **B** respiration **C** osmosis **D** facilitated diffusion
6. A molecule may be too big to enter the cell by diffusion or through a protein channel. The cell can bring in that molecule by _____.
A division **B** endocytosis **C** fermentation **D** secretion
7. In facilitated diffusion, a _____ may make a hole or channel in the plasma membrane.
A protein **B** lipid **C** carbohydrate **D** polysaccharide
8. During active transport, _____ provides energy to move materials across the cell membrane.
A DNA **B** protein **C** cellulose **D** ATP



Information Organelles

Directions Choose the term from the Word Bank that completes each sentence correctly. Write the term on the line. Some terms will be used twice.

Word Bank

amino acids	genes	RNA	nucleolus	pores
chromosomes	genome	nuclear envelope	nucleus	ribosomes

1. Proteins are made by _____.
2. A cell's _____ acts as a control center that directs cellular activities.
3. A cell's _____, or entire DNA, determines what that cell does.
4. New ribosomes are made in the cell's _____.
5. DNA in a cell is arranged in molecules called _____.
6. A single strand of nucleic acid that carries DNA's instructions to the ribosomes is _____.
7. A membrane called the _____ surrounds the nucleus.
8. Chromosomes contain _____. These are sections of DNA that carry the instructions for making a protein.
9. Ribosomes assemble proteins by connecting _____ into long strings.
10. The nuclear envelope contains openings called _____. They let molecules travel between the nucleus and cytoplasm.
11. The nucleus and _____ help control cell activities.
12. Ribosomes are made from a combination of _____ and other proteins.



Energy Organelles

Directions Compare and contrast mitochondria and chloroplasts. Put an X in the column that applies to each organelle. The first one is done for you.

Organelle	Held in a Membrane	Located in Cytoplasm	Found in Plant Cells	Found in Animal Cells
mitochondrion	X			
chloroplast				

Directions Chose the term that completes each statement correctly. Write the term on the line.

- _____ are organelles that trap the sun's energy in molecules of chlorophyll. (Mitochondria, Chloroplasts, Ribosomes)
- During _____, a plant uses the sun's energy to make glucose. (photosynthesis, respiration, digestion)
- The inner membrane of a chloroplast is filled with a thick fluid called _____. (grana, stroma, chlorophyll)
- Glucose is changed into ATP inside _____. (mitochondria, chloroplasts, thylakoids)
- Membrane sacs are stacked inside the chloroplast. The membrane sacs are called _____. (mitochondria, grana, thylakoids)

The Endomembrane System

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 1. *endo-*
- _____ 2. endomembrane system
- _____ 3. endoplasmic reticulum
- _____ 4. enzymes
- _____ 5. Golgi apparatus
- _____ 6. lysosome
- _____ 7. rough endoplasmic reticulum
- _____ 8. secrete
- _____ 9. smooth endoplasmic reticulum
- _____ 10. vacuole

Column B

- A** proteins that help cells break down molecules
- B** type of endoplasmic reticulum that does not contain ribosomes
- C** a membrane sac that stores materials
- D** an organelle that makes changes to molecules after they are made
- E** a membrane sac that contains enzymes
- F** a prefix that means “inside”
- G** a type of endoplasmic reticulum that contains ribosomes
- H** an organelle made up of membranes that work together to make molecules
- I** a group of organelles that helps cells make and change molecules
- J** to make and give off

Directions Write your answer on the line. Use complete sentences.

- 11.** What is the function of the organelles in the endomembrane system?

- 12.** The smooth endoplasmic reticulum makes two types of molecules. What are the two types of molecules?

The Cytoskeleton

Directions Choose the term from the Word Bank that matches each definition.

Word Bank

cilia

cytoskeleton

flagella

microfilament

protein

1. helps organelles move around inside of a cell
2. long, tail-like structures that help cells move
3. part of the cytoskeleton made of actin
4. short, hair-like structures that help cells move
5. actin and tubulin are both examples of this

Directions Write the letter of the correct answer on the line.

6. _____ is a ball-shaped protein used to make microfilaments.

A Cilia**B** Actin**C** Myosin**D** Tubulin

7. String-like fibers that give a cell its shape are called _____.

A microtubules**C** microfilaments**B** intermediate filaments**D** flagella

8. The prefix *cyto-* means _____.

A cell**B** membrane**C** cold**D** skeleton

Plant Cells

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 1. cell wall
- _____ 2. cellulose
- _____ 3. central vacuole
- _____ 4. chloroplast

Column B

- A** a large plant vacuole that stores water
- B** a complex carbohydrate in plant cell walls
- C** openings in plant cell walls
- D** maintains a plant's shape

Directions Circle the answer that correctly completes the sentence.

- 5. There are three structures that can be found in a eukaryotic cell.
They are the Golgi apparatus, nucleus, and (cell membrane, chloroplast, cell wall).
- 6. Plants wilt because the large central vacuole (gains water, loses water, explodes).
- 7. The job of plasmodesmata is to help cells (communicate, remain rigid, capture sunlight).
- 8. Leaves contain more chloroplasts than roots because (roots contain too many other organelles, leaves receive more sunlight than roots, insects damage roots).

Chapter 5 Vocabulary Review

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 1. active transport
- _____ 2. cellular respiration
- _____ 3. endocytosis
- _____ 4. endomembrane system
- _____ 5. endoplasmic reticulum
- _____ 6. exocytosis
- _____ 7. extracellular matrix
- _____ 8. facilitated diffusion
- _____ 9. fluid mosaic model
- _____ 10. gap junction
- _____ 11. genome
- _____ 12. Golgi apparatus
- _____ 13. passive transport
- _____ 14. plasma membrane
- _____ 15. transport protein

Column B

- A** membrane that separates a cell from its environment
- B** membrane model in which proteins float freely in a phospholipid layer
- C** protein that moves molecules across the plasma membrane
- D** sticky coating that holds cells together
- E** movement of molecules across a membrane without energy input
- F** passive transport by proteins in the membrane
- G** group of organelles that makes molecules
- H** cell pinches in some of its membrane to bring materials inside
- I** cell sack fuses with the membrane to release material to the outside
- J** connections between animal cells
- K** cell's entire DNA
- L** when mitochondria break down glucose to make ATP
- M** organelle that makes molecules
- N** movement of molecules across a membrane that uses energy
- O** organelle that makes changes to molecules

What Is Energy?

Directions Choose the term that completes each statement correctly.
Write the term on the line.

- _____ energy is stored energy.
A Mechanical **B** Kinetic **C** Potential **D** Solar
- _____ is a molecule that stores energy in cells.
A DNA **B** ATP **C** RNA **D** mRNA
- The process that changes food into ATP is called _____.
A photosynthesis **C** cellular respiration
B digestion **D** evolution

Directions Choose the term in the Word Bank that correctly completes each sentence. Write your answer on the line.

Word Bank		
adenine	fat	metabolism
cellular respiration	kilocalorie	ribose

- Molecules of _____ contain more energy than molecules of carbohydrates.
- An ATP molecule has three parts. They are _____, _____, and three phosphate groups.
- A(n) _____ equals 1,000 calories.
- Cells carry out _____ to change food into energy.
- The process that releases heat to keep the body warm is _____.



Making ATP

Directions Choose a term in the Word Bank to complete each sentence. Write your answer on the line.

Word Bank

ADP

ATP

energy

sun

1. A cell makes ATP out of _____, a phosphate group, and energy.
2. Cells store _____ from the sun in the bonds of macromolecules.
3. _____ is an energy-rich molecule.
4. The energy stored in food comes from the _____.

Directions The table below lists characteristics of ATP and ADP. Put an X in the columns that apply to ATP and ADP. The first one is done for you.

Type of Molecule	Contains 3 Phosphate Groups	Contains 2 Phosphate Groups	Called Adenosine-triphosphate	Called Adenosine-diphosphate
ADP				
ATP	X			



Enzymes and Energy Flow

Directions Read each statement. Unscramble the letters in parentheses and write the term on the line.

1. A _____ is a chemical that speeds up a chemical reaction. (stayclat)
2. The catalysts made by living things are called _____. (emszney)
3. In the mouth, _____ contains an enzyme that begins breaking down food. (vialas)
4. A stomach enzyme that helps speed up digestion is called _____. (sipenp)

Directions Read each statement. Then circle the correct answer in parentheses.

5. Enzymes are (proteins, lipids, carbohydrates).
6. A person who has too much sugar in his or her blood has a disease called (cystic fibrosis, diabetes, albinism).
7. Catalysts lower the (amount of light, number of molecules, amount of energy) needed to start a reaction.
8. When chemical bonds break down, energy is (released, stored, transformed).

More About Enzymes

Directions Choose the term from the Word Bank that completes each sentence correctly. Write the answer on the line.

Word Bank

activation energy

catalyst

food

active site

enzyme

substrate

1. On an enzyme, the substrate fits into a place called the _____.
2. In a chemical reaction, the reactant is called the _____.
3. In a nonliving system, a(n) _____ can speed up a chemical reaction.
4. In living things, a(n) _____ speeds up a chemical reaction.
5. The energy needed to start a chemical reaction is the _____.
6. During photosynthesis, a plant changes the sun's energy into the chemical energy of _____.

Directions Write your answers on the lines. Use complete sentences.

7. Give one example of enzymes at work in living things.

8. How do an enzyme and substrate interact to speed up a chemical reaction?

Chapter 6 Vocabulary Review

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ **1.** activation energy
- _____ **2.** active site
- _____ **3.** adenine
- _____ **4.** ADP
- _____ **5.** calorie
- _____ **6.** catalyst
- _____ **7.** diabetes
- _____ **8.** kinetic energy
- _____ **9.** metabolism
- _____ **10.** obesity
- _____ **11.** pepsin
- _____ **12.** phosphorylation
- _____ **13.** potential energy
- _____ **14.** saliva
- _____ **15.** substrate

Column B

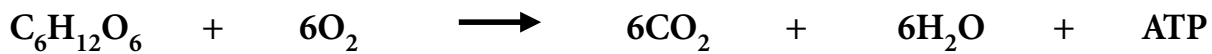
- A** unit that measures the amount of energy in food
- B** a disease in which a person has too much sugar in his or her blood
- C** energy of motion
- D** all of the chemical reactions that take place in a cell
- E** liquid in the mouth that contains a digestive enzyme
- F** a condition of being greatly overweight
- G** a chemical that speeds up a chemical reaction
- H** process of adding a phosphorous group to ADP to make ATP
- I** an area on the enzyme where the substrate fits
- J** digestive enzyme produced in the stomach
- K** nitrogen base found in ATP, DNA, and RNA
- L** a molecule on which an enzyme reacts
- M** energy needed to start a chemical reaction
- N** stored energy
- O** a molecule converted to ATP by adding a phosphate



What Is Cellular Respiration?

Directions Read the equation for respiration below. Use a term in the Word Bank to describe each part of the equation. Write your answers on the lines.

Word Bank		
ATP	glucose	water
carbon dioxide	oxygen	



Directions Write the correct answer on the line.

- A chemical reaction that transfers electrons is called a _____ reaction.
A photosynthesis **B** respiration **C** redox **D** rusting
- If an atom loses electrons in a chemical reaction, that atom is _____.
A oxidized **B** respired **C** reduced **D** conserved
- When the bonds of glucose break, the energy in those bonds is released as _____.
A oxygen **B** electrons **C** protons **D** isomers
- To get rid of carbon dioxide produced in cellular respiration, the body _____ the gas.
A exhales **B** digests **C** inhales **D** oxidizes
- _____ are reactants in cellular respiration.
A Glucose and oxygen **C** ATP and water
B Carbon dioxide and oxygen **D** Water and carbon dioxide



The Stages of Cellular Respiration

Directions Read each statement, then circle the correct answer in parentheses.

1. One stage of cellular respiration is (dehydration synthesis, glycolysis, photosynthesis).
2. Glycolysis occurs in the (mitochondria, cytoplasm, chloroplast).
3. During glycolysis, (cellulose, protein, glucose) is split in half.
4. In the Krebs cycle, (electron carriers, protons, DNA molecules) pick up electrons.
5. The electron transport chain takes place in the (mitochondria, nucleus, cytoplasm).
6. During the electron transport chain, 34 molecules of (ATP, DNA, RNA) are made for each glucose molecule.

Directions Fill in the table about cellular respiration below. Put an X in the appropriate columns. One column will have three Xs. Two have been done for you.

Stages of Cellular Respiration	Products That Result from this Stage			Location of this Stage		
	Pyruvic Acid	ATP	NADH & FADH ₂	Cytoplasm	Matrix	Membrane of Mitochondria
glycolysis	X					
Krebs cycle			X			
electron transport chain						



Fermentation

Directions Read each statement. Unscramble the letters in parentheses.
Write the term on the line.

1. Living things that use oxygen to make ATP are _____.
(boireac)
2. Living things that do not use oxygen make ATP during _____.
(nontetrimeaf)
3. An anaerobic organism is poisoned by _____.
(yensexog)
4. Fermentation is similar to _____, the first stage in cellular respiration. (sylvosiygl)
5. Active muscles may run out of oxygen. They can produce _____ by lactic acid fermentation. (ryneeg)
6. Each type of fermentation is named for its _____.
(cdtsorup)
7. A one-celled fungus that can make ethyl alcohol is _____.
(tasye)
8. As yeast breaks down sugar, it produces ethyl alcohol and _____.
(robnac xdoidie)
9. Fermentation is a(n) _____ process for making ATP. (ciboreaan)
10. A waste of fermentation used to make cheese is _____.
(cicalt caid)
11. During _____ fermentation, glucose breaks down into two products. (hytle hlolcao)
12. Species that do not require oxygen to live are _____.
(baaneroci)



Controlling Cellular Respiration

Directions Choose the term from the Word Bank that completes each sentence correctly. Some terms will be used more than once.

Word Bank

cellular respiration
energy
enzymes

fat
feedback inhibition
fermentation

lipids and proteins
metabolic pathway

1. Fermentation is one example of a(n) _____.
2. Cows get _____ for life by eating grass.
3. Living things that use oxygen make energy by _____.
4. Unused fuel molecules can be stored as _____.
5. Cellular respiration supplies a cell with _____.
6. Lipids store more _____ than carbohydrates and proteins.
7. Proteins that help regulate the rate of cellular respiration are _____.
8. If carbohydrates are not available, a cell can use _____.
9. When a cell has plenty of _____, cellular respiration slows down.
10. To lose _____ that is stored in the body, a person must exercise and reduce food intake.
11. A cell can stop the production of too many molecules through _____.
12. Fermentation and _____ are the main pathways organisms use to create energy.



Chapter 7 Vocabulary Review

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 1. aerobic
- _____ 2. anaerobic
- _____ 3. ATP synthase
- _____ 4. ethyl alcohol
- _____ 5. feedback inhibition
- _____ 6. fermentation
- _____ 7. lactic acid
- _____ 8. pyruvic acid
- _____ 9. redox reaction
- _____ 10. respiration

Column B

- A** an enzyme that helps make ADP
- B** the way living things release the energy in food
- C** a waste product that can make muscles sore
- D** uses the cycles of energy reactions to control metabolism
- E** a colorless liquid waste made in anaerobic fermentation
- F** a chemical reaction in which electrons transfer
- G** a process that does not occur in oxygen
- H** a process that occurs in oxygen
- I** anaerobic species use this process to create ATP
- J** produced during glycolysis

Directions Circle the correct answer in parentheses.

- 11.** A molecule that carries electrons is _____.
(NADH, ATP, DNA)
- 12.** In glycolysis, glucose is split into two molecules of _____.
(NADH, water, pyruvic acid)
- 13.** The second stage of cellular respiration is _____.
(glycolysis, the Krebs cycle, photosynthesis)
- 14.** Glycolysis occurs in the _____.
(mitochondria, cytoplasm, chlorophyll)
- 15.** The last stage of cellular respiration is _____.
(fermentation, glycolysis, the electron transport chain)



What Is Photosynthesis?

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 1. autotroph
- _____ 2. chlorophyll
- _____ 3. mesophyll
- _____ 4. stomata

Column B

- A** green pigment
- B** pores in leaves
- C** green tissue in a leaf
- D** makes its own food

Directions Put an X next to each item that relates to cellular respiration.

- _____ 5. glucose
- _____ 6. light
- _____ 7. carbon dioxide
- _____ 8. ATP

Directions Put an X next to each item that relates to photosynthesis.

- _____ 9. carbon dioxide
- _____ 10. glucose
- _____ 11. ATP
- _____ 12. water

Light Reactions

Directions Write the letter of the correct answer on the line.

1. The range of wavelengths of electromagnetic radiation is called the _____.
A photosystem **B** spectrum **C** infrared energy **D** light reaction
2. The smallest particles of light are _____.
A waves **B** spectra **C** photons **D** electrons
3. Electromagnetic radiation is _____.
A energy from the sun **C** kinetic energy
B mechanical energy **D** hydroelectric energy

Directions Choose the term from the Word Bank that completes each sentence correctly. Write the answer on the line.

Word Bank

absorb	photophosphorylation
Calvin-Benson cycle	spectrum
carotenoid	

4. An orange pigment in leaves is _____.
5. Chlorophyll can hold, or _____, light energy.
6. Visible light is part of the electromagnetic _____.
7. During the _____ of photosynthesis, a plant makes sugar.
8. During _____, energy from excited electrons is used to make ATP.



The Dark Reaction: The Calvin-Benson Cycle

Directions Read the following statements. Unscramble the letters in parentheses. Write the answer on the line.

1. The dark reaction happens within the _____ of the chloroplast.
(armtos)
2. The sugar _____ is made during the dark reaction. (ecslgou)
3. During the Calvin-Benson cycle, _____ is changed into a sugar.
(ranboc doiidex)
4. The ATP that runs the Calvin-Benson cycle is made during the
_____. (gtihl nocitaer)
5. When weather is hot, _____ on leaves may close
to save water. (tamoats)

Directions Choose the term from the Word Bank that completes each sentence correctly.

Word Bank

C₄ plant

CAM plants

photosynthesis

PGA

RuBP

6. The barrel cactus and other _____ close their stomata during the day to save water.
7. Crabgrass is a _____ that has an enzyme that helps it carry out photosynthesis in hot weather.
8. The process of _____ has two parts: the light reaction and the dark reaction.
9. During the first step of the Calvin-Benson cycle, _____ combines with carbon dioxide to make PGA.
10. Two molecules of _____ combine to make one molecule of glucose.



Chapter 8 Vocabulary Review

Directions Choose a term in the Word Bank to complete each sentence.
Write your answer on the line.

Word Bank

absorb

autotroph

Calvin-Benson cycle

crabgrass

mesophyll

photon

photosystem

reaction center

spectrum

vascular bundle

1. A _____ is a group of pigments and proteins that move electrons to reactions centers.
2. The green tissue of a leaf is called the _____. This tissue contains chloroplasts.
3. A living thing that can make its own food is a(n) _____.
4. A(n) _____ is the smallest unit of light. It has the properties of a particle.
5. Pigments in leaves retain or _____ light.
6. A rainbow shows the colors of the _____.
7. Plants make sugar in a stage of photosynthesis called the _____.
8. In the dark reaction, electrons are transferred to a molecule of chlorophyll *a* called the _____.
9. A(n) _____ is a vein that carries food and water through a plant.
10. A C₄ plant like _____ or corn can grow under hot conditions.

The Cell Cycle and Mitosis

Directions Read each statement. Circle the correct answer.

1. People, dogs, and trees are (eukaryotes, prokaryotes, bacteria). They make new cells in the process of mitosis.
2. The job of mitosis is to make new cells for (sexual reproduction, DNA replication, growth and repair).
3. A cell is in (metaphase, cytokinesis, interphase) until it is time for it to divide.
4. A cell makes two nuclei during (G_1 , mitosis, meiosis).
5. During (prophase, metaphase, anaphase), spindle fibers spread across the cell.
6. During (metaphase, anaphase, telophase), sister chromatids separate.
7. During (metaphase, anaphase, telophase), cytokinesis occurs.
8. During (prophase, interphase, metaphase), sister chromatids line up in the center of the cell.



What Is Cancer?

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 1. malignant tumor
- _____ 2. cancer
- _____ 3. metastasis
- _____ 4. signal molecules
- _____ 5. tumor

Column B

- A** ball of cells caused by extra divisions of cells
- B** tumor that spreads through the body
- C** control the number of times a cell divides
- D** cells grow and divide too much
- E** cancer cells spread through the body

Directions Read each statement. Circle the correct answer.

- 6. Three ways to treat cancer are chemotherapy, radiation therapy, and (rest and fluids, remaining indoors in bad weather, surgery).
- 7. A (malignant, benign, mitotic) tumor is one that does not spread throughout the body.
- 8. During (metastasis, radiation, surgery), tumor cells spread throughout the body.
- 9. (Hyperpigmentation, Cancer, Diabetes) is a condition in which cells form tumors.
- 10. A(n) (tumor, mitotic spindle, organ) is a ball of cells made by too many cell divisions.

Directions Write your answers on the lines. Use complete sentences.

- 11. What is cancer? _____

- 12. What is a tumor? _____

Meiosis: The Life Cycle of Sex Cells

Directions Write the letter of the correct answer on the line.

1. Each human _____ cell contains 23 chromosomes.
A muscle **B** nerve **C** skin **D** egg
2. Crossing over means that _____.
A eggs swap places **C** cells divide
B genes on nearby chromosomes trade pieces **D** the nucleus divides in half
3. A muscle cell is an example of a _____.
A tetrad **B** haploid cell **C** gamete **D** somatic cell
4. Egg and sperm are produced by _____.
A meiosis **B** mitosis **C** cytokinesis **D** metastasis

Directions Phases of meiosis are described below. Select a term from the Word Bank to identify the phases of meiosis II. Write the term on the line.

Word Bank

anaphase II
metaphase II
prophase II
telophase II

5. sister chromatids reach the metaphase plate _____
6. sister chromatids separate _____
7. spindle fibers attach to chromosomes _____
8. four cells form _____

The Human Reproductive System

Directions Read each statement. Unscramble the letters in parentheses. Each statement is a clue for the term. Write the term on the line.

1. Sperm are made in the _____. (esstet)
2. The male hormone is _____. (oetrsttenso)
3. The testes are held outside the body in a sac called the _____. (tmcoursr)
4. Semen and urine can travel through the _____. (rheraut)
5. The _____ is an organ that delivers sperm to the female's body. (niesp)
6. Tubes where sperm cells develop are the _____. (fsrinemieosu useblut)
7. The fluid that carries sperm outside the body is called _____. (nmese)

Directions Choose the term from the Word Bank to complete each sentence about the female reproductive system. Write the term on the line.

Word Bank

estrogen

oogenesis

ovary

ovulation

uterus

8. Egg cells are manufactured in the _____.
9. The organ where an embryo develops is the _____.
10. Female gametes are formed in a process called _____.
11. During _____, an egg is released from the ovary.
12. The female hormone is _____.

Human Development

Directions Read each statement. Circle the correct answer.

1. (Adolescence, Adulthood, Old age) is a period of rapid growth.
2. The time when a baby grows inside a female's body is called (oogenesis, pregnancy, spermatogenesis).
3. An embryo is called a (zygote, baby, fetus) after eight weeks of development.
4. Sperm enter the female's body through the (vagina, uterus, ovary).
5. A zygote grows into a(n) (fetus, oocyte, embryo).
6. An embryo gets food through the (uterus, placenta, follicle).
7. The uterus and vagina are connected by the (cervix, fallopian tubes, urethra).
8. Human (oogenesis, adolescence, gestation time) is about nine months.
9. During birth, the baby leaves the female's body through the (fallopian tube, uterus, vagina).
10. The (vas deferens, umbilical cord, follicle) connects the embryo to the placenta.

Directions Write the answers to the questions on the lines. Use complete sentences.

11. Why do people take care of their children through adolescence?

12. List one difference between a three-week-old embryo and a four-week-old embryo.

Chapter 9 Vocabulary Review

Directions Write the letter of the correct answer on the line.

1. A fertilized egg is a(n) _____.
A oocyte **B** spermatogonia **C** zygote **D** gonad
2. Sperm enter the female's body through the _____.
A uterus **B** fallopian tube **C** vagina **D** ureter
3. The _____ in a female holds a developing embryo.
A uterus **B** ovary **C** vagina **D** follicle
4. The _____ carries urine from the bladder.
A vas deferens **B** seminiferous tubule **C** kidney **D** urethra
5. Balls of cells made from the extra division of cancer cells are _____.
A blood clots **B** oocytes **C** tumors **D** spindles
6. _____ is made up of sperm cells and fluids.
A Urine **B** Testosterone **C** Semen **D** Placenta
7. A _____ is a pair of joined, homologous chromosomes.
A sister chromatid **B** follicle **C** tetrad **D** haploid pair
8. During _____, one nucleus divides into two nuclei.
A meiosis **B** mitosis **C** prophase **D** telophase II
9. A cell grows in size and copies its organelles during _____.
A interphase **B** prophase **C** metaphase **D** anaphase
10. Testes are also called _____.
A gonads **B** zygotes **C** fallopian tubes **D** metaphase plates
11. The _____ is the organ that makes egg cells.
A ovary **B** uterus **C** vagina **D** cervix
12. _____ are cells that will develop into sperm.
A Spermatogonia **B** Zygotes **C** Tetrads **D** Follicles

What Did Mendel Discover?

Directions Read each statement. Unscramble the letters in parentheses. Write the term on the line.

1. A characteristic like hair color is a(n) _____. (tirta)
2. The passing of traits from parents to offspring is _____. (dyreethi)
3. In plants, _____ contains sperm. (nleolp)
4. Gregor Mendel studied the traits of _____. (aep satnlp)
5. The offspring of two different true-breeding organisms is a(n) _____. (ibdyrh)
6. A pea plant could inherit two different _____ for seed color. (lseelal)
7. Genes that come together and have the same alleles are _____. (yoszumoohg)
8. A(n) _____ gene is hidden by a dominant gene. (veseciser)

Directions Write the correct answer on the lines in the Punnett squares.

	T	T
t	Tt	9. _____
t	Tt	Tt

	T	t
T	10. _____	Tt
t	Tt	tt



Different Ways Alleles Cooperate

Directions Write the letter of the correct answer on the line.

1. The study of heredity is _____.
A chemistry **B** biology **C** ecology **D** genetics
2. Genes and _____ affect traits.
A linkage maps **B** testcrosses **C** the environment **D** blood types
3. The way an animal looks is its _____.
A phenotype **B** autosome **C** sex chromosome **D** testcross
4. The genes of an animal make up its _____.
A dominance **B** genotype **C** testcross **D** blood test

Directions Choose a term in the Word Bank to complete each sentence. Write the answer on the line.

Word Bank

linkage map

linked

polygenic

testcross

5. A _____ shows the genotype of a living thing.
6. Genes that are close together are _____.
7. A _____ shows the positions of linked genes.
8. A _____ trait is controlled by two or more genes.

The Importance of Sex Chromosomes

Directions Select a term from the Word Bank to complete the sentence. Write the term on the line.

Word Bank

autosome

hemophilia

sex-linked trait

carrier

sex-linked inheritance

1. A(n) _____ is a chromosome that is not a sex chromosome.
2. An organism that has an allele but does not show the effects of the allele is a _____.
3. Blood does not clot in people with _____.
4. The passing on of genes located on the X chromosome is called _____.
5. A(n) _____ is determined by an organism's sex chromosomes.

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 6. X chromosome
- _____ 7. XX chromosomes
- _____ 8. XY chromosomes
- _____ 9. ZW chromosomes

Column B

- A** sex chromosomes in some insects
- B** a female human's sex chromosomes
- C** the sex chromosome that carries the most traits
- D** a male human's sex chromosomes

Directions Read each statement. Circle the correct answer.

10. Most fruit flies have (white, red, pink) eyes.
11. White eye color is carried on the (X, Y, Z) chromosome.
12. (Males, Females, Any fruit fly) can have white eyes.



Chapter 10 Vocabulary Review

Directions Read each statement then circle the correct answer.

1. A dominant gene hides a (recessive, codominant, sex-linked) gene.
2. A (Punnett square, testcross, hybrid) shows the results of a cross.
3. A dog has two matching genes for brown fur. The dog is (dihybrid, homozygous, heterozygous) for brown fur.
4. The (phenotype, autosome, linkage map) of an organism describes how it looks.
5. The (genotype, testcross, F_2 generation) of an organism shows its genes for a trait.
6. In (true-breeding, codominance, sex-linked inheritance), a trait is caused by two different alleles..
7. A, B, AB, and O are (autosomes, hybrids, multiple alleles) for blood type.

Directions Choose a term in the Word Bank to complete each sentence. Write your answers on the lines.

Word Bank

hemophilia

heredity

hybrid

testcross

8. The passing of traits from parent to offspring is known as _____.
9. The offspring of two different true-breeding parents is a _____.
10. A _____ can help find out an unknown genotype.
11. A genetic disease in which blood does not clot is _____.

How Are Molecules of Life Involved in Heredity?

Directions Choose the term from the Word Bank that completes each sentence. Write the term on the line.

Word Bank

complementary base pairing
guanine

nitrogenous base
sugar-phosphate backbone

uracil

1. In DNA, adenine pairs with thymine. This is an example of _____.
2. Each nucleotide of DNA contains a(n) _____.
3. A strand of DNA contains bases and a(n) _____.
4. In DNA and RNA, cytosine pairs with _____.
5. In RNA, adenine pairs with _____.

Directions The table below lists the characteristics of DNA and RNA. Put an X in the columns that describe each molecule. Two have been done for you.

Molecule	Contains a Phosphate Group	Contains Sugar		Contains Bases	
		Deoxyribose	Ribose	Uracil	Thymine
DNA	X				
RNA	X				



DNA Replication

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 1. bacteriophage
- _____ 2. DNA polymerase
- _____ 3. marker
- _____ 4. origin of replication
- _____ 5. replication fork
- _____ 6. semi-conservative replication
- _____ 7. template

Column B

- A** an enzyme that adds new bases to DNA
- B** a virus that infects bacteria
- C** a new molecule of DNA is made of one old strand and one new one
- D** a pattern used to make a new copy
- E** the place where bases are added to a new strand
- F** an atom or some other material used to identify an item
- G** a place where DNA replication begins

Directions Write the letter of the correct answer on the line.

- 8. A _____ is a nonliving type of germ.
A bacteria **B** fungus **C** virus **D** bug
- 9. The enzyme that connects new strands of DNA is _____.
A pepsin **B** DNA ligase **C** DNA polymerase **D** lactase
- 10. _____ showed how DNA is copied.
A Watson and Crick **C** Wilkins and Franklin
B Hershey and Chase **D** Meselson and Stahl
- 11. DNA unwinds in a region called a _____. Both strands are copied.
A replication bubble **B** sequence **C** bacteriophage **D** strand of RNA
- 12. _____ showed that DNA carries traits from parent to offspring.
A Darwin **C** Meselson and Stahl
B Chargraff **D** Hershey and Chase

The Path of Genetic Information

Directions Put an X next to each item that is related to the process of transcription.

- _____ **1.** nucleus
- _____ **2.** intron
- _____ **3.** messenger RNA
- _____ **4.** ribosome

Directions Put an X next to each item that is related to the process of translation.

- _____ **5.** nucleus
- _____ **6.** anticodon
- _____ **7.** transfer RNA
- _____ **8.** ribosomal RNA

Directions Read each statement then circle the correct answer.

- 9.** A strand of (DNA, mRNA, tRNA) is made in the nucleus. It carries DNA's instruction to a ribosome.
- 10.** Three bases on a strand of mRNA make a (deletion, mutation, codon).
- 11.** (RNA polymerase, Ligase, Pepsin) adds nucleotides to a new strand of RNA.
- 12.** A(n) (substitution, intron, promoter) is a DNA sequence at the beginning of a gene.

What Are Viruses?

Directions Read each statement. Unscramble the letters in parentheses. Write the term on the line.

1. The capsid of a virus contains RNA or _____. (NAD)
2. A _____ is a nonliving parasite. (usirv)
3. In the _____, a virus hides in a host cell.
(escgiynol leycc)
4. Viruses _____ when their DNA changes. (levevo)
5. The _____ defends the body against disease.
(emnmui myests)
6. A virus infects a(n) _____ and uses its DNA.
(otsh lelcl)
7. A(n) _____ absorbs food from an organism and harms it. (tasepair)
8. A virus can _____ a cell and cause disease. (fcntei)
9. Stress can cause a virus to switch from the lysogenic cycle to the _____.
(ytcli ycelc)
10. The _____ for influenza is made from dead viruses.
(caenciv)
11. A host cell makes new DNA and _____ for a virus.
(dacsisp)
12. A(n) _____ causes the body to make antibodies. (ccnaive)



Using the Path of Genetic Information

Directions Use the clues provided to figure out the term. Write the missing letters on the line.

1. Science that changes genes in organisms

____ _ h ____ o ____ gy

2. A person who works in the field of biotechnology

____ io ____ ec ____ _

3. Simple organisms used in biotechnology

____ c ____ e ____ a

4. An enzyme that cuts plasmids

r ____ t ____ t ____ e ____ n ____ _

5. Process of adding new DNA to a plasmid

____ r ____ s ____ mat ____ _

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 6. Downs syndrome
 _____ 7. genetic test
 _____ 8. genetically modified food
 _____ 9. growth factor
 _____ 10. nondisjunction
 _____ 11. sickle-cell disease
 _____ 12. tumor

Column B

- A** red blood cells are curved and jagged
B cells have three copies of chromosome 21
C controls number of cell divisions
D chromosomes do not separate in meiosis
E a product that is improved through biotechnology
F can result from too much growth factor
G a test used to determine if a person is at risk for cancer



Natural Defenses Against Disease

Directions Read each statement. Circle the answer to complete it.

1. A germ is also called a(n) (antibody, pathogen, compliment protein).
2. (Cytotoxic T cells, B cells, red blood cells) scan the body for antigens.
3. A(n) (immunity, antigen, complement) protein breaks up cells of germs.
4. The ability to fight off a pathogen is (translation, transcription, immunity).
5. A(n) (infectious disease, memory cell, phagocyte) can pass from one person to another.
6. The (nervous, muscle, lymph) system carries lymph and immune cells.
7. The immune system first uses a (memory cell, nonspecific defense, T cell) against a pathogen.
8. Lymphocytes are examples of (red blood cells, white blood cells, cancer cells).



Chapter 11 Vocabulary Review

Directions Read each statement. Circle the answer to complete it.

1. (Thymine, Guanine, Polymerase) pairs with cytosine.
2. A (marker, template, fork) is a pattern for making something new.
3. A strand of (tRNA, rRNA, mRNA) carries instructions for making a protein.
4. (Introns, Exons, Leading strands) are pieces of RNA that help make proteins.
5. During translation, (tRNA, DNA, mRNA) brings amino acids to the ribosomes.
6. A virus makes copies of its parts inside a (capsid, vector, host cell).
7. The body's (DNA polymerase, mRNA, immune system) protects it from disease.

Directions Choose a term in the Word Bank to complete each sentence. Write your answers on the lines.

Word Bank

antigen
B lymphocytes
DNA polymerase

infectious disease
lymph system

pathogens
virus

8. The enzyme that helps form a strand of DNA is _____.
9. A(n) _____ is a nonliving germ.
10. Organisms that cause disease are called _____.
11. The _____ carries immune system cells through the body.
12. A foreign molecule in the body is a(n) _____.
13. _____ make antibodies to fight disease.
14. A(n) _____ can pass from one person to another.

The Digestive System

Directions Read each statement. Unscramble the letters in parentheses. Write the term on the line.

1. In the mouth, _____ moistens food. (vaiasl)
2. Liquid food in the stomach and intestine is called _____. (yehmc)
3. Food is pushed along the esophagus by _____. (rsiaiestlp)
4. Undigested material is eliminated through the rectum and _____. (nsau)
5. Tiny projections in the intestine are _____. They absorb nutrients in food. (livil)
6. The gallbladder releases _____ into the stomach. It breaks down fat. (iebl)
7. The liver stores _____ in the form of glycogen. (osucleg)
8. The large intestine removes _____ from wastes. (eartw)
9. Undigested wastes are called _____. (cesef)
10. A(n) _____, like the release of saliva, is an automatic response. (efxelr)
11. The first stage of digestion is _____. (sinteonig)
12. During the _____ stage of digestion, enzymes in the small intestine break down food. (nitorsopba)



The Respiratory System

Directions Write the letter of the correct answer on the line.

1. Oxygen enters the blood in the _____.
A alveoli **B** trachea **C** bronchi **D** nose
2. The respiratory system gets rid of _____, a waste product.
A oxygen **B** carbon dioxide **C** urine **D** sweat
3. Blood vessels that surround alveoli are _____.
A bronchi **B** trachea **C** cilia **D** capillaries
4. _____ causes airways to narrow and makes breathing difficult.
A Albinism **B** Asthma **C** Sleep apnea **D** Diabetes
5. _____ traps dust that gets in the bronchi.
A Villi **B** Bile **C** Peristalsis **D** Mucus

Directions Match each term in Column A with its meaning in Column B.
Write the letter on the line.

Column A

- _____ **6.** bronchus
_____ **7.** inhalation
_____ **8.** larynx

Column B

- A** a branch of the trachea
B lungs increase in volume and air rushes in
C the voice box

The Circulatory System

Directions Read each statement. Circle the correct answer.

1. A (bronchus, thrombus, glottis) can block the flow of blood.
2. Blood is a (cardiac, connective, digestive) tissue. It supports the body's organs.
3. (Lymph, Interstitial fluid, Hemoglobin) surrounds cells.
4. (Atherosclerosis, Sleep apnea, Osteoporosis) causes blood vessels to narrow.
5. Blood needs (plasma, platelets, bronchi) to clot.
6. Threads of (hemoglobin, interstitial fluid, fibrinogen) form clots.
7. The liquid part of blood is (plasma, fibrinogen, lymph).
8. The heart is made of (cardiac, alveolar, epidermal) muscle.
9. (Veins, Capillaries, Arteries) carry blood away from the heart.
10. In (asthma, hypertension, diabetes), the force of blood against the artery walls causes damage.
11. Blood in the heart flows from an atrium to a (vein, ventricle, artery).
12. (Veins, Arteries, Ventricles) carry blood away from the heart.

The Excretory System

Directions Read each statement. Unscramble the letters in parentheses. Write the term on the line.

1. Urine flows out of the kidney through a(n) _____.
(reertu)
2. The smallest unit of the kidney is a(n) _____. (nrhpeon)
3. A group of capillaries in a nephron is a(n) _____.
(uelmorslug)
4. When the body needs water, _____ hormone is released.
(triuclitniea)
5. Skin produces a salty solution called _____.
(rtnoeirisppa)
6. The excretory system controls _____ in the body.
(trwae)
7. Blood flows into the _____ through the renal artery. (diekyn)
8. Kidneys produce _____, a liquid waste. (nireu)
9. The _____ is a layer of skin under the epidermis. (riesmd)
10. The _____ of skin protects the body from heat loss.
(taytf yreal)

Directions Write your answer on the line. Use complete sentences.

11. Name the three layers of skin.

12. Name the parts of the body that make up the excretory system.

The Nervous System

Directions Choose terms from the Word Bank to complete the table.
Write the answer on the line.

Word Bank

breathing and other automatic functions
diencephalon

directs incoming sensory information
limbic system

Area of the Brain	Subdivision of That Area	Function(s)
brain stem		controls these functions: _____ _____
cerebellum		controls balance and helps muscles work together
_____		affects feelings like anger and pleasure
_____	thalamus	_____
_____	hypothalamus	regulates the pituitary and other glands
cerebral cortex	frontal lobe parietal lobe temporal lobe occipital lobe	involved in body functions like vision, hearing, thinking and memory

Directions Read each question. Circle the correct answer.

1. A(n) (synapse, axon, villus) separates two nerve cells.
2. On a nerve cell, (axons, dendrites, synapses) receive information.
3. The brain and (neuron, frontal lobe, spinal cord) form the central nervous system.
4. The (brain stem, frontal lobe, alveolus) is between the brain and spinal cord. It controls breathing during sleep.
5. Nerve cells are (neurons, synapses, villi).

The Sensory System

Directions Match each term in Column A with its meaning in Column B.
Write the letter on the line.

Column A

- _____ 1. auditory nerve
- _____ 2. cochlea
- _____ 3. cornea
- _____ 4. eardrum
- _____ 5. effector cells
- _____ 6. iris
- _____ 7. optic nerve
- _____ 8. pupil
- _____ 9. retina
- _____ 10. sensory receptor

Column B

- A** carries electrical impulses from the eye to the brain
- B** controls the amount of light entering the eye
- C** vibrates when struck by sound waves
- D** cells of muscles or glands that respond to stimuli
- E** carries electrical impulses from the ear to the brain
- F** fluid-filled tube in the ear
- G** made of photoreceptor cells
- H** clear tissue over the eye
- I** neuron that detects a stimulus
- J** dark opening in the iris

Directions Write the answer on the line. Use complete sentences.

- 11.** Name one type of sensory receptor.

- 12.** Explain what pain receptors do.



The Endocrine System

Directions Each statement is a clue. Unscramble the letters in parentheses. Write the term on the line.

1. The _____ tells glands to start or stop making hormones.
(akbcedfe polo)
2. The hormone released during stress is _____.
(nierenadal)
3. The _____ balances salt and water in the body.
(aytirtuip aldgn)
4. The _____ helps defend the body against disease.
(myshtu nlagd)
5. Adrenaline increases the amount of _____ in the muscles. (slcegu)
6. The thyroid gland controls the amount of _____ in the blood. (culiamc)
7. The pituitary gland is under the control of the _____.
(ahaymlsthuop)
8. The _____ make adrenaline. (larndea nladsg)
9. Egg and sperm are made in the _____. (doasgn)
10. The endocrine system makes _____. They help regulate the body. (enrooshm)

Directions Write the correct answer on the line. Use complete sentences.

11. Name one gland found in the human body.

12. Explain what the gland you listed in question 11 does.



The Skeletal and Muscular System

Directions Choose a description from the Word Bank to complete the following chart. Write your answers on the lines.

Word Bank

allows arms and legs to rotate
allows movement in one direction
allows rotation

Type of Joint	What the Joint Does
ball and socket	_____
hinge	_____
pivot	_____

Directions Choose a term in the Word Bank to complete each sentence. Write your answers on the lines.

Word Bank

calcium

ligaments

red marrow

skeletal system

tendons

1. Bones are connected to one another by _____.
2. Muscles are connected to bones by _____.
3. During its life, a bone loses and gains _____.
4. Material inside of bones that makes blood cells is _____.
5. The _____ protects organs and supports the body's shape.



Chapter 12 Vocabulary Review

Directions Write the letter of the correct answer on the line.

1. _____ muscles are found in the arms and legs.
A Epithelial **B** Cardiac **C** Voluntary **D** Involuntary
2. Bones that support the body make up the _____.
A joints **C** superior vena cava
B skeletal system **D** muscular system
3. Blood and other supportive tissue in the body is _____.
A cardiac muscle **B** skeletal tissue **C** connective tissue **D** collagen
4. A(n) _____ carries blood away from the heart.
A artery **B** capillary **C** vein **D** thrombus
5. Blood in the upper body enters the heart through the _____.
A aorta **B** renal artery **C** superior vena cava **D** pulmonary vein
6. The airways narrow during an attack of _____.
A osteoporosis **C** thrombosis
B cardiovascular disease **D** asthma

Directions Match each term in Column A with its meaning in Column B.
Write the letter on the line.

Column A

- _____ **7.** auditory nerve
_____ **8.** cornea
_____ **9.** ingestion
_____ **10.** ligament
_____ **11.** neuron
_____ **12.** platelets

Column B

- A** taking food in the mouth
B clear layer of the eye that light passes through
C carries impulses from the ear to the brain
D tissue that connects bone to bone
E tiny pieces of cells that help form clots
F a nerve cell

What Is Biological Evolution?

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 1. acquired trait
- _____ 2. adapt
- _____ 3. biological evolution
- _____ 4. evolution
- _____ 5. fossil
- _____ 6. gene pool
- _____ 7. natural selection
- _____ 8. population

Column B

- A** those best suited for the environment survive and have babies
- B** remains of an organism that lived in the past
- C** a trait that results from something an animal does
- D** changes in the gene pool of a population over time
- E** the genes in a population
- F** group of the same species that live in an area
- G** changes in populations of organisms over time
- H** to change genetically to become more suited to an environment

Directions Read each description in the left column of the table. Decide if it was Darwin's idea or Lamarck's idea. Put an X in the correct column. The first one is done for you.

Description	Darwin's Idea	Lamarck's Idea
Giraffes stretch their necks. Their offspring have long necks.		X
Horses and zebras are similar. They have a common ancestor.		
Wolves eat most of the rabbits in a field. A few smart rabbits find hiding places. They survive and reproduce.		
A mouse loses its tail in a fight. Its offspring will not have tails.		



Evidence of Evolution

Directions Read each statement. Circle the correct answer.

1. The DNA of a gorilla is similar to the DNA of a lemur. It is very different from the DNA of a fern or daisy. The gorilla and (fern, lemur, daisy) are closely related.
2. Fossils are often found in (lava, sedimentary rock, concrete).
3. The (fossil record, anatomy, inheritance of traits) shows events from the past.
4. Wings, arms, and front legs are (fossils, acquired traits, homologous structures).
5. (Homologous structures, Fossils, Geographic differences) show that organisms are different from their ancestors.
6. Two groups of lizards may be different. Differences occur through (anatomy, natural selection, common descent).
7. The study of anatomy of different species is (comparative anatomy, natural selection, evolution).

Directions Read each statement. Unscramble the letters in parentheses. Each statement is a clue for the term. Write the term on the line.

8. The study of DNA helps explain _____. (iltvnuoeo)
9. Homologous structures in animals suggest a common _____. (csonreat)
10. A cell can make mistakes when it copies the _____ of DNA. (cdusionetel)
11. The study of _____ is about organs and tissues in organisms. (tnmoaya)
12. The distribution of fossils and living things is the focus of _____. (igpyorhbgeao)



Rates of Evolutionary Change

Directions Write the letter of the correct answer on the line.

1. The absolute age of a fossil can be found by analyzing its _____.
A biogeographic position **C** DNA
B position in rock **D** radioactive elements
2. Hot, liquid rock inside the earth is _____.
A granite **B** magma **C** the crust **D** sedimentary rock
3. Layers of rock can show the _____ of fossils.
A absolute age **B** size **C** relative age **D** radioactive age
4. The earth's outer layer is made of large, moveable _____.
A magma **B** lava **C** plates **D** fossils
5. The theory of _____ says that land masses move slowly.
A modern synthesis **C** independent assortment
B biological evolution **D** continental drift
6. The span of time since the earth formed is _____.
A prehistory **B** geologic time **C** an era **D** biogeography
7. Squid and clams do not have backbones. They are _____.
A fossils **B** vertebrates **C** invertebrates **D** amphibians
8. You have a backbone, so you are a(n) _____.
A vertebrate **B** amphibian **C** invertebrates **D** reptile
9. A _____ studies the fossils of organisms that lived in the past.
A biologist **B** geneticist **C** paleontologist **D** geologist
10. A lizard is classified as a(n) _____. It lays eggs and breathes with lungs.
A amphibian **B** mammal **C** invertebrate **D** reptile



Processes in Evolution

Directions Read each statement. Circle the correct answer.

1. When two populations combine, (gene flow, extinction, habitat loss) can occur.
2. Half of the seals in a small population die. This population may change due to (mutation, recombination, genetic drift).
3. There are no living dodo birds. Dodo birds are (endangered, extinct, rare).
4. (Extinction, Recombination, Plate tectonics) creates new groupings of genes.
5. A female lion joins a new group. She adds her genes to the group's gene pool. This is an example of (mutation, natural selection, gene flow).
6. A change in DNA is called (mutation, gene flow, genetic drift). It may be harmful or helpful.
7. The forest is the (habitat, genome, fossil record) of a deer.
8. A population may lose genes through genetic drift or through (recombination, mutation, natural selection).
9. After meiosis, chromosomes contain (adaptations, anatomies, alleles) from both parents.
10. A(n) (endangered, extinct, evolved) species is one that has just a few organisms left.

Natural Selection

Directions Choose the term from the Word Bank that completes each sentence. One term is used twice.

Word Bank

artificial selection

malaria

natural selection

sickle-cell disease

1. A disease that causes bouts of chills and fever is _____.
2. The process of _____ removes unfit individuals.
3. Breeding animals to produce certain traits is _____.
4. The red blood cells of people with _____ have an abnormal shape.
5. Because of _____, not all animals in the wild survive.

Directions Read the information in the left column of the table. Decide whether it is an example of natural selection or artificial selection. Put an X in the correct column.

Description	Natural Selection	Artificial Selection
A flood drowns most of the lizards in an area. Only lizards that can swim live to reproduce.		
A farmer crosses two kinds of corn. He produces a new, better tasting type of corn.		
Two male wild turkeys fight. The weaker one is killed. The winner mates with all the females.		



Microevolution and Macroevolution

Directions Read each statement. Unscramble the letters in parentheses. Write the term on the line.

1. The study of genetic changes in a population is called _____.
(oatrynvouiel oylgboi)
2. No two individuals in a population are just alike. Individuals _____.
(ayvr)
3. In a population, individuals _____ to survive. (uegtslgr)
4. Individuals with traits best suited to the environment _____.
(eredcurop)

Directions Read the information in the left column of the table. Decide whether the information is an example of microevolution or macroevolution. Put an X in the correct column. One is done for you.

	Microevolution	Macroevolution
In the 1800s moth populations were mostly light colored. In a few years, they changed to mostly dark colored.	X	
A population can change over thousands of years.		
Small changes in a population can happen over a few generations.		
At one time dinosaurs lived on the earth. Today they are extinct.		



Chapter 13 Vocabulary Review

Directions Write the letter of the correct answer on the line.

1. _____ may lead to the appearance of new species.
A Paleontology **B** Macroevolution **C** Anatomy **D** Acquired traits
2. In _____, people change a species by selecting its breeding traits.
A evolution **C** natural selection
B survival of the fittest **D** artificial selection
3. The theory of _____ says that the landmasses move.
A natural selection **C** continental drift
B microevolution **D** independent assortment
4. A lone wolf takes up with a pack of wolves. It brings new genes to the pack. This is an example of _____.
A acquired traits **B** gene flow **C** natural selection **D** macroevolution
5. The study of body structures is _____.
A molecular biology **B** anatomy **C** genetics **D** biogeography
6. Small changes in a population are examples of _____.
A microevolution **B** acquired traits **C** artificial selection **D** macroevolution
7. In _____, changes in the environment determine which individuals can survive.
A natural selection **C** genetic drift
B common decent **D** artificial selection
8. According to the theory of _____, the earth's crust is made up of plates.
A continental drift **B** genetics **C** natural selection **D** plate tectonics
9. The gene pool of a population might change if the environment changes. This is an example of _____.
A genetic drift **B** fossil evidence **C** mutation **D** extinction
10. The study of DNA is an example of _____.
A anatomy **C** paleontology
B biogeography **D** molecular biology



What Is Speciation?

Directions Read each statement. Unscramble the letters in parentheses. Write the term on the line.

1. The study of differences in body forms is _____.
(opoyomlhgr)
2. Organisms of the same species _____, or
breed together. (nebdereirt)
3. A(n) _____ is a division of a population.
(upnaiusotlpbo)
4. Scientists _____ living things by putting them
in groups. (sfaylisc)
5. The _____ of a squirrel is its way of life. (hicen)
6. Cat that are _____ can produce offspring. (etelfri)
7. A division of a species is a(n) _____. (eepsicbsus)

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 8. allopatric speciation
- _____ 9. asexual reproduction
- _____ 10. biological species concept
- _____ 11. mammary gland
- _____ 12. sympatric speciation

Column B

- A** organisms cannot interbreed because of differences in behavior
- B** a structure in mammals that produces milk to feed offspring
- C** organisms cannot interbreed because of physical barriers
- D** reproduction that involves one parent and no egg or sperm
- E** a species is populations that can interbreed and produce fertile offspring

Classifying Species

Directions Write the letter of the correct answer on the line.

1. _____ developed a system to classify living things.
A Mendel **B** Linnaeus **C** Darwin **D** Lamarck
2. The broadest level of classification is _____.
A order **B** class **C** kingdom **D** scientific name
3. The scientific name of a living thing is made up of its genus and _____ names.
A kingdom **B** order **C** family **D** species
4. Humans are in the _____ kingdom.
A animal **B** plant **C** fungus **D** bacteria
5. In the three-domain system, humans are in the _____ domain.
A Mammal **B** Eukarya **C** Archaea **D** Bacteria

Directions Choose the term from the Word Bank that completes each sentence.

Word Bank

Archaea

phylum

plant

6. Two organisms in the same class must also be in the same _____.
7. Sweet bay trees are in the _____ kingdom.
8. The domain _____ contains prokaryotes that are not bacteria.



Conditions for Speciation to Occur

Directions Choose a term in the Word Bank to complete each sentence. Write your answers on the lines.

Word Bank

evolutionary

geography

speciation

stasis

1. Darwin said that speciation is a slow, _____ change.
2. The change of one species to two or more is called _____.
3. If a population is separated by _____, speciation can occur.
4. Species are in _____. They show little change over time.

Directions Read each statement. Unscramble the letters in parentheses. Write the term on the line.

5. Speciation is linked to changes in the _____. (oevtrnmnien)
6. Organisms that cannot adapt to changes may become _____. (cntixte)
7. When the environment is _____, little speciation occurs. (labets)
8. Scientists study _____ to find out how living things change over time. (sosflis)



Conditions That Affect Species Survival

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 1. co-adaptation
- _____ 2. community
- _____ 3. endangered
- _____ 4. instantaneous speciation

Column B

- A** could become extinct
- B** a new species formed in a few generations
- C** a group of different populations that live in the same area
- D** one species evolves to become dependent on another species

Directions Write the letter of the correct answer on the line.

- 5. A comet may have hit the earth 250 million years ago. Sunlight was blocked. Plants and animals died. This is an example of _____.
A co-adaptation **B** rapid evolution **C** adaptation **D** mass extinction
- 6. The original species in Hawaii evolved into new species. This is an example of _____.
A rapid evolution **B** mass extinction **C** co-adaptation **D** artificial selection
- 7. Harmful genes show up often in a small population. The organisms may have poor _____.
A co-adaptations **B** natural selection **C** genetic health **D** co-adaptations
- 8. Today, people are changing many habitats. As a result, species are _____.
A evolving quickly **B** evolving slowly **C** stable **D** disappearing fast

Chapter 14 Vocabulary Review

Directions Choose a term in the Word Bank to complete each sentence. Write your answer on the line.

Word Bank

community

coordinated stasis

domain

fertile

mammary glands

morphology

punctuated equilibrium

stasis

1. The _____ of mammals produce milk.
2. A group of different populations can form a _____.
3. A pattern where most species appear about the same time is _____.
4. According to _____, species stay the same a long time. New species evolve after big changes in the environment.
5. The study of differences in body forms of organisms is _____.
6. Organisms are _____ if they can produce offspring.
7. A _____ is one of three groups of classification.
8. Organisms in _____ do not change much over time.

Directions Read each statement. Unscramble the letters in parentheses. Write the term on the line.

9. A scientific name is made of the _____ and species names. (nesgu)
10. A division of species is _____. (ssuiescebp)
11. The creation of a new species from an existing one is _____. (teaoinpisc)
12. Groups that can _____ are able to breed together. (rebetrdeni)

How Do Scientists Classify Living Things?

Directions Write the letter of the correct answer on the line.

1. _____ is a subdivision of domain.
A Kingdom **B** Class **C** Genus **D** Species
2. A _____ is not a living thing.
A virus **B** bacteria **C** domain **D** eukaryote
3. A _____ is a scientist that classifies organisms.
A paleontologist **B** geneticist **C** taxonomist **D** geologist
4. Prokaryotes that are not bacteria are _____.
A viruses **B** taxonomist **C** fungi **D** archaea
5. Trees, rabbits, and mushrooms are in the domain _____.
A bacteria **B** archaea **C** eukarya **D** vertebrate
6. The highest level of classification is _____.
A phylum **B** domain **C** species **D** genus
7. The science that deals with classifying organisms is _____.
A genetics **B** biochemistry **C** taxonomy **D** anatomy

Directions The statements describe organisms in the three domains.

Write *A* on the line if the statement describes archaea. Write *B* by bacteria and *E* by eukarya.

- _____ **8.** Prokaryotes that live in soil
- _____ **9.** Cells that have nuclei and organelles
- _____ **10.** Prokaryotes that live in polar ice
- _____ **11.** Humans
- _____ **12.** Prokaryotes that live in the human digestive tract



The Kingdom Protista

Directions Match each term in Column A with its meaning in Column B.

Write the letter on the line.

Column A

- _____ 1. diatom
- _____ 2. dysentery
- _____ 3. euglena
- _____ 4. pseudopod
- _____ 5. slime mold
- _____ 6. spore

Column B

- A** a disease of the intestines caused by amoeba
- B** can be a single cell or a community of cells
- C** part of an amoeba that pushes out to move the cell
- D** protist that acts like a plant and an animal
- E** a reproductive cell in slime molds
- F** an algae with a shell made of silica

Directions Read each statement. Circle the correct answer.

- 7. Eukarya includes animals, plants, protists, and (viruses, fungi, prokaryotes).
- 8. (Ciliates, Flagellates, Amoebae) are protists. Hair-like structures help them move.
- 9. (Algae, Slime molds, Fungi) are protists. They make their own food.
- 10. Slime molds produce (roots, eggs, spores). These are reproductive cells.
- 11. Protists that have whip-like tails are (amoebae, ciliates, flagellates). The tails help them move.
- 12. (Amoebae, Slime molds, Ciliates) move by extending pseudopods.

The Kingdom Fungi

Directions Read each statement. Circle the correct answer.

1. A(n) (mycelium, enzyme, spore) is made of a mat of hyphae.
2. (Mushrooms, Mold, Lichens) contains fungi, green algae, and cyanobacteria.
3. Blue-green algae are (protists, cyanobacteria, penicillin).
4. A fungus that grows on a surface is (cyanobacteria, mold, yeast).

Directions Choose terms in the Word Bank to complete the paragraph. Write the terms on the lines.

Word Bank		
enzymes	fungi	potato
cheese	hyphae	spores
dead organisms	penicillin	

Molds are members of the **5.** _____ kingdom. Some fungi reproduce by forming **6.** _____.

Fungi get their food by breaking down **7.** _____. They send out thin filaments called **8.** _____ over their food. The filaments release **9.** _____ that break down big molecules.

Fungi may be helpful or harmful. One type makes **10.** _____, an antibiotic. Another fungus is added to milk to make **11.** _____.

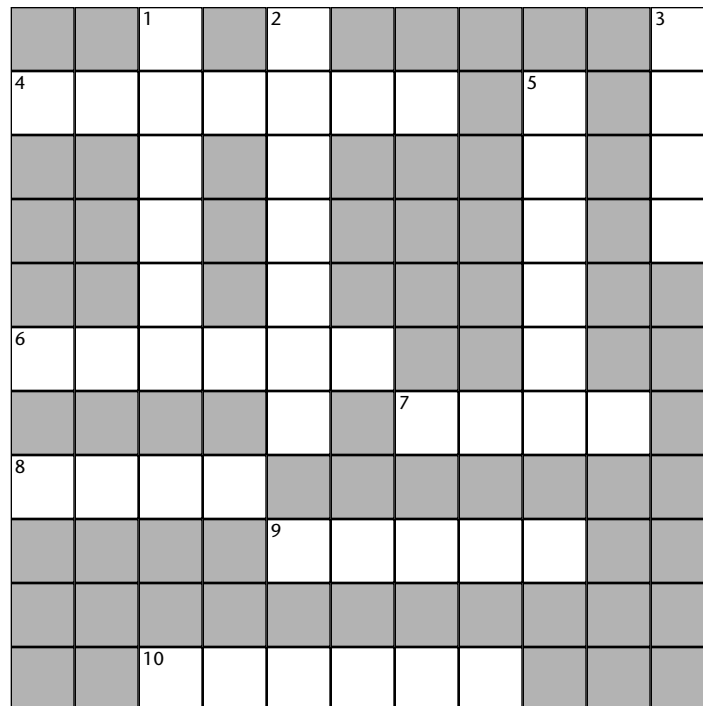
A fungus caused the **12.** _____ famine in Ireland.

The Kingdom Plantae

Directions Use words from the Word Bank to complete the crossword puzzle.

Word Bank

conifer
fern
moss
nectar
phloem
pistil
rhizoid
sori
stamen
xylem



Down

1. the female part of a flower
2. a gymnosperm that produces cones
3. clusters of reproductive cells on fronds
5. a sweet liquid produced in some flowers

Across

4. rootlike threads of moss plants
6. tubes that carry food from leaves to other plant parts
7. a seedless vascular plant
8. a nonvascular plant that has simple parts
9. tubes that carry water and minerals from roots to other plant parts
10. the male part of a flower



The Kingdom Animalia

Directions The chart below lists features of animals in the left column. It describes each feature in the right column. Fill in the blanks. Use terms from the Word Bank.

Word Bank	
heterotrophs	multicellular
muscle	sexually
tissues	

Features of Animals	Description
Animals are _____.	Animals cannot make their own food. They must consume food.
Animals have coordinated movements.	Animals can move because they have _____ cells. These cells are controlled by nerve cells.
Animals are _____.	Animals are made of more than one cell.
Animals reproduce _____.	Female reproductive cells are eggs. Male reproductive cells are sperm.
Animal cells are organized into _____.	These are groups of cells that work together, such as muscle.

Directions Read each statement. Unscramble the letters in parentheses. Each statement is a clue for the term. Write the term on the line.

- An animal without a backbone, like a sponge or jellyfish, is a(n) _____ . (aebtvrreneit)
- A(n) _____ is a living thing that cannot make its own food. (rrheptoeht)
- Of the two types of sex cells, _____ are the largest. (gseg)
- An animal with a backbone, like a dog or human, is called a(n) _____ . (eerttraebv)
- A fertilized animal cell develops into a(n) _____. It is a hollow ball of cells. (tlaslaub)



Invertebrates

Directions Read each statement. Unscramble the letters in parentheses. Each statement is a clue for the term. Write the term on the line.

1. An internal skeleton is called a(n) _____. (osenentloked)
2. Spiders are arthropods in the class _____. (nrdhacia)
3. The body of a(n) _____ is divided into three parts. (uoklsml)
4. Jellyfish, hydra, and corals are _____. (nrandisca)
5. Snails cut up food with a tongue-like _____. (auarld)
6. Jellyfish use arm-like _____ to capture food. (aeeltscn)
7. Many insects go through _____. It is a major change in body form. (msmeotraspoih)
8. The evolutionary history of a species is its _____. (elgyhnopy)

Directions Read each statement. Circle the answer that correctly completes each sentence.

9. Shrimp, lobsters, and pillbugs are (cnidarians, crustaceans, insects).
10. The bodies of young grasshoppers look like small adults. Grasshoppers go through (incomplete metamorphosis, phylogeny, bilateral symmetry).
11. Arthropods have (endoskeletons, radial symmetry, exoskeletons).
12. A jellyfish shows (radial symmetry, bilateral symmetry, lack of symmetry). Its body parts are arranged like the spokes of a wheel.

Vertebrates

Directions Read each description in the left column of the chart. Decide whether it relates to fish, amphibians, reptiles, birds, or mammals. Put an X in the appropriate column.

Description	Fish	Amphibians	Reptiles	Birds and Mammals
Breathe with gills				
Breathe with lungs				
Cold-blooded				
Warm-blooded				

Directions Write the letter of the correct answer on the line.

- Bass and catfish are _____. They are bony fish that have jaws.
A cephalaspidomorphi **C** chondrichthyes
B osteichthyes **D** myxini
- A(n) _____ has a dorsal nerve and a notochord.
A chordate **B** vertebrate **C** fish **D** amphibian
- The egg of an amphibian develops into a(n) _____. Then it matures into the adult form.
A amniotic egg **B** operculus **C** larva **D** ectotherm



Humans

Directions Read each statement. Unscramble the letters in parentheses. Each statement is a clue for the term. Write the term on the line.

1. Humans are in the _____ kingdom. (lnamai)
2. Language, religion, and customs are part of human _____.
(urtceul)
3. Humans have _____. They can walk upright.
(ielbadp noooolictm)
4. The human _____ to body mass is higher than other animals.
(rnbia)
5. Humans change the _____ through practices like farming.
(nmneitnoerv)

Directions Write the letter of the correct answer on the line.

6. There are _____ people on the earth.
A 5.0 million **B** 6.5 billion **C** 10 billion **D** 5.6 trillion
7. In wealthy nations, the _____ is 80 years.
A economic index **B** population **C** life span **D** culture
8. _____ refers to the number of years an individual lives.
A Population **B** Culture **C** Life span **D** Technology
9. Homo sapiens are _____.
A amphibians **B** reptiles **C** invertebrates **D** mammals
10. The densest populations of humans are in _____.
A the United States **B** Europe **C** Asia **D** Africa
11. The human _____ is affected by diet, genetics, and the environment.
A body size **B** technology **C** culture **D** locomotion
12. Human life span will increase with new technology and _____.
A medicine **B** genes **C** climates **D** customs



Chapter 15 Vocabulary Review

Directions Choose the term from the Word Bank that completes each sentence. Write the term on the line.

Word Bank

frond

molting

pseudopod

tentacles

heterotroph

mycelium

stamen

1. The part of amoebae that sticks out and moves the cell is the _____.
2. The _____ of a mold is a thick network of hyphae.
3. A fern's large, feathery leaf is called a(n) _____.
4. The male reproductive organ of a flower is the _____. It is made up of the anther and filament.
5. An organism that cannot make its own food is a(n) _____.
6. Cnidarians have _____, arm-like body parts that capture food.
7. During _____, an arthropod sheds its skeleton.

Directions Read each statement. Unscramble the letters in parentheses. Write the term on the line.

8. A(n) _____ is a thin, simple worm. (lfrfomaw)
9. The female part of a flower is the _____. (ipltsi)
10. A(n) _____ is a rod in the back of developing chordates. (oohnrco dt)
11. A kangaroo has a pouch. It is a _____. (asmiulrap)
12. Prokaryotes that are not bacteria are in the domain _____. (rhaeaca)
13. A(n) _____ is a reproductive cell in fungi. (eprso)
14. A zygote forms a hollow ball of cells called a(n) _____. (latlbaus)
15. Protists that live in water and make their own food are _____. (eagla)

What Is Behavioral Biology?

Directions Write the letter of the correct answer on the line.

- A monkey's food is covered in sand. The monkey washes the food in water. Other monkeys watch. They do the same thing. This is an example of _____.
A aggression **C** territorial behavior
B competition **D** learned behavior
- A(n) _____ studies the behaviors of animals.
A ecologist **B** geneticist **C** ethologist **D** immunologist
- A mother bird brings food to her babies. This is an example of _____.
A innate behavior **B** competition **C** predation **D** learned behavior
- Lunch is served during third period. This is a(n) _____ to eat.
A internal stimulus **C** agnostic interaction
B external stimulus **D** pheromone

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ **5.** behavior
- _____ **6.** behavioral biology
- _____ **7.** external stimulus
- _____ **8.** ethologist
- _____ **9.** fixed action pattern behavior
- _____ **10.** innate behavior
- _____ **11.** internal stimulus
- _____ **12.** learned behavior

Column B

- A** behavior that results from experience
- B** the study of the behavior of living things
- C** a stimulus that occurs inside an organism
- D** behavior that is present at birth
- E** the way an organism acts
- F** a scientist who studies animal behavior
- G** a behavior that is always done the same way
- H** a stimulus that occurs outside an organism

Types of Behavior

Directions Write the letter of the correct answer on the line.

1. Animal A is eaten by animal B. Animal A is a _____.
A releaser **B** prey **C** predator **D** consumer
2. Young birds hear other birds sing songs. They learn by _____.
A observational learning **C** defensive behavior
B imprinting **D** mimicry
3. A dog growls as a warning. This is an example of _____.
A imprinting **C** courtship behavior
B mimicry **D** aggressive behavior
4. _____ includes acts to avoid predators.
A Defensive behavior **C** Simulation
B Spatial learning **D** Courtship behavior
5. In _____, animals learn to recognize landmarks.
A imprinting **C** observational learning
B innate learning **D** spatial learning
6. A _____ brings out a behavior in an animal.
A predator **B** releaser **C** mimic **D** landmark
7. A dangerous worm is yellow. A harmless worm is also yellow. This is an example of _____.
A parental care **B** imprinting **C** mimicry **D** spatial learning
8. A _____ marks a location or position.
A releaser **B** landmark **C** behavior **D** stimulus
9. A scientist may _____ conditions by copying the original conditions.
A imprints **B** releases **C** simulate **D** learns
10. A male bird has bright feathers. The feathers help attract a mate. This is an example of _____.
A territorial behavior **B** simulation **C** learned behavior **D** courtship behavior



Forms of Communication

Directions Read each statement. Unscramble the letters in parentheses. Write the term on the line.

1. Insects and mammals produce _____. These are chemical signals. (hsoerpneom)
2. Scientists study animal knowledge or _____. (ointcnigo)
3. Animals that work together show _____. (oprncotaoie)
4. A(n) _____ animal is one that has influence or control. (antonidm)
5. A signal that changes the meaning of other signals is _____. (tmcnmicnuotiaameo)
6. An odor or _____ can be used for communication. (cnste)
7. Animal A tries to get animal B's food. Animal A is a _____. (ocpmtetiro)
8. Sending out information is _____. (ncuiotmaonimc)

Directions Choose the term from the Word Bank that completes each sentence. Write the term on the line.

Word Bank

matched submission

signal

social biology

sociobiologist

9. The study of animal interactions is _____.
10. A _____ causes changes in behavior of other animals.
11. A threatened animal yields to a dominant one in _____.
12. A _____ studies how animals communicate.



Chapter 16 Vocabulary Review

Directions Read each statement. Circle the answer that correctly completes each sentence.

1. In (metacommunication, matched submission, territorial behavior) a signal changes the meaning of other signals.
2. A(n) (submissive, dominant, imprinted) animal has control over others.
3. Some young animals (dominate, imprint on, defend) the first thing they see.
4. Ethologists study (genetics, psychology, behavioral biology).
5. Some behaviors always happen the same way. This is an example of (communication, fixed action pattern behavior, mimicry).

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 6. cognition
- _____ 7. communication
- _____ 8. competition
- _____ 9. matched submission
- _____ 10. observational learning
- _____ 11. parental care behavior
- _____ 12. predator
- _____ 13. scent
- _____ 14. signal
- _____ 15. warning coloration

Column B

- A** learning by watching or listening to another
- B** sending information
- C** an animal tries to get the same resources as another animal
- D** knowledge
- E** a threatened animal yields to a dominant one
- F** it causes a change in behavior of another animal
- G** a parent feeds its offspring
- H** an organism that eats another organism
- I** bright colors that scare off predators
- J** having a smell or odor

Understanding Populations and Communities

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 1. biomes
 _____ 2. biosphere
 _____ 3. ecology
 _____ 4. interact
 _____ 5. niche
 _____ 6. population
 _____ 7. population density
 _____ 8. stability

Column B

- A** all members of one species in an area
B the role of a species in an ecosystem
C the ability of a community to resist change
D to act upon or influence something
E areas of land or water that share the similar weather and ecosystems
F the part of the earth that contains and supports living things
G the number of individuals in a population in an area
H the study of how living things interact with each other and the nonliving environment

Directions Levels of organization are listed in the left column. Details are given in the right column. Fill in the blanks using terms from the Word Bank.

Word Bank

community

biomes

habitat

population

Levels of Organization	Descriptions
biosphere	Made of large areas called _____
ecosystem	Made up of living and nonliving things
_____	All the living things in an ecosystem
_____	All the members of one species that live in an ecosystem
organism	Each organism is adapted to live in its _____.



Populations and Their Activities

Directions Read each statement. Circle the answer that correctly completes each sentence.

1. (Carrying capacity, Density-dependent factor, Density-independent factor) is the largest density of a population an ecosystem can support.
2. To (immigrate, emigrate, interact) means to move out of a population.
3. (Boom-bust cycles, Density-independent factors, Successions) affect the size of a population. These events do not depend on the population's density.
4. A (competitive, clumped, random) population is spread out in small groups throughout the ecosystem.
5. (Growth rate, Sample size, Diversity) is the change in population size in a given time.
6. A(n) (random, clumped, uniform) population is spread out without order.
7. Members of a population are spread out equally. This pattern is (smooth, uniform, clumped).
8. Two organisms try to use the same resources in (stability, boom-bust cycle, competition).
9. Living things may (emigrate, immigrate, compete) or move into a population.

Directions Label the following sentences. Write *DD* for density-dependent factors. Write *DI* for density-independent factors.

- _____ **10.** A wildfire destroys 100 acres of forest.
- _____ **11.** There is not enough food for all the animals.
- _____ **12.** A mudslide destroys a hillside forest.

Relationships in Communities

Directions Write the letter of the correct answer on the line.

1. Dogs are _____ for parasites like fleas and ticks.
A hosts **B** predators **C** competitors **D** mimics
2. The stripes of zebras act as _____. They help the zebras hide in tall grass.
A warning coloration **C** camouflage
B density-dependent factors **D** mimicry
3. The treetops make up the _____.
A vegetation **B** competition **C** density-dependent factors **D** canopy
4. A tapeworm lives on the food digested by its hosts. Tapeworms are _____.
A parasites **B** prey **C** competitors **D** predators
5. The main type of _____ on a prairie is grass.
A symbiosis **B** camouflage **C** vegetation **D** host
6. In _____, two different species live in close association.
A parasitism **B** symbiosis **C** primary succession **D** the boom-bust cycle
7. The feeding relationships of organisms make up the _____.
A biosphere **B** trophic structure **C** growth rate **D** carrying capacity
8. Organisms that rely on each other are _____.
A immigrants **B** mimics **C** interdependent **D** stable
9. Bears hunt and kill fish for food. This is an example of _____.
A predation **B** competition **C** interdependence **D** parasitism

Directions Label the following as parasitism (P), mutualism (M), or commensalism (C).

- _____ **10.** Lice live close to the skin for warmth. Their food is human blood.
- _____ **11.** An orchid lives on the trunk of a tree. The tree helps the orchid get enough sunlight. The orchid has no effect on the tree.
- _____ **12.** A lichen is made of a fungus and alga living together. The fungus provides water and minerals. The alga makes food.



How Do Communities Start and Survive?

Directions Label the following as primary succession (PS) or secondary succession (SS).

- _____ **1.** A fire destroys a meadow. Later, grass grows there.
- _____ **2.** A volcano erupts and covers the land with lava. Lichens grow on the lava rock.
- _____ **3.** A stream bed is dug out. Water plants start growing there.
- _____ **4.** Trees in a forest are cut down for firewood. Grasses grow in the clearings.
- _____ **5.** A pond slowly fills in with soil. Eventually, the pond is replaced by a field.
- _____ **6.** A glacier melts. Soil beneath the glacier is exposed. Mosses make their homes on the soil.

Directions Read each statement. Unscramble the letters in parentheses. Each statement is a clue for the term. Write the term on the line.

- 7.** In _____, a lifeless environment is changed. It becomes a community. (rmrpyia ocsuiscncse)
- 8.** The process of ecological change in a community is _____. (nscuosices)
- 9.** In primary succession, some of the first inhabitants are mosses and _____. (ihlscne)
- 10.** A big change in a community is a(n) _____. (itradsnebu)
- 11.** The ability of a community to resist change is _____. (ltaisybit)
- 12.** Something that is _____ is poisonous. (ixotc)

Chapter 17 Vocabulary Review

Directions Match each term in Column A with its meaning in Column B. Write the letter on the line.

Column A

- _____ 1. camouflage
- _____ 2. population density
- _____ 3. primary succession
- _____ 4. secondary succession
- _____ 5. trophic structure
- _____ 6. vegetation

Column B

- A** the plant life in an area
- B** takes place when a disturbance destroys some populations in a community
- C** the number of individuals living in an area
- D** the feeding relationships in a community
- E** colors or patterns in animals that help them hide
- F** occurs when organisms move into a new, lifeless environment

Directions Read each statement. Unscramble the letters in parentheses. Each statement is a clue for the term. Write the term on the line.

- 7. A tapeworm is a(n) _____. The tapeworm feeds on its host. (seaptari)
- 8. A(n) _____ substance is poisonous. (coitx)
- 9. The tops of trees in a forest make up the _____. (aoycpn)

Directions Write the letter of the correct answer on the line.

- 10. During _____, populations increase and decrease dramatically.
A succession **B** a boom-bust cycle **C** predation **D** symbiosis
- 11. Organisms that rely on each other for survival are _____.
A immigrants **B** interdependent **C** parasites **D** hosts
- 12. _____ include food and water. They are affected by the size of a population.
A Boom-bust cycles **C** Density-dependent factors
B Disturbances **D** Toxins

How Does Energy Flow Through Ecosystems?

Directions Use words from the Word Bank to complete the crossword puzzle.

Word Bank

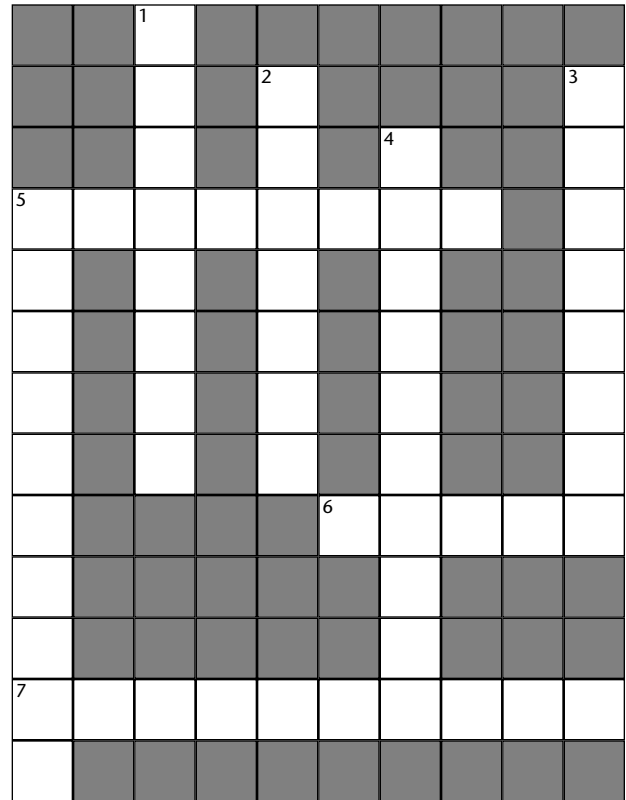
aquatic	decomposer	producer
chemotroph	phototroph	solar
consumer	plankton	

Down

1. small aquatic organisms
2. growing or living in water
3. organism that makes its own food
4. organism that feeds by breaking down dead organisms
5. organism that gets its energy from chemicals in food

Across

5. organism that feeds on other organisms
6. of or from the sun
7. organism that gets its energy from the sun



Directions Read each statement. Circle the correct answer.

8. A(n) (energy pyramid, food chain, ecosystem) shows the order in which organisms feed on each other.
9. (Rocks, Organic compounds, Inorganic compounds) contain carbon. Sugar is an example.
10. A(n) (energy pyramid, food web, producer) shows how much energy is available at each level of the food chain.
11. (Primary productivity, Photosynthesis, Trophic level) is the speed at which green organisms make food.



The Cycling of Chemicals in an Ecosystem

Directions Read each statement. Circle the answer that correctly completes each sentence.

1. (Phosphorous, lithium, ammonium) cycles through ecosystems.
Living things use it to make ATP.
2. During (condensation, evaporation, precipitation), liquid water changes to a gas.
3. The nitrogen-containing compound (phosphate, ammonium, carbon) is part of the nitrogen cycle.
4. Plants use nitrogen in the form of (nitrates, phosphates, ammonium).
5. Bacteria that change nitrogen in the air to ammonium are (nitrogen-fixers, autotrophs, phototrophs).
6. During (evaporation, freezing, precipitation), water changes from a gas to a liquid, then falls to the earth.
7. (Nitrifying bacteria, Autotrophs, Phototrophs) change ammonium into nitrates that plants can use.
8. (Biological, Geological, Evolutionary) processes involve the solid, nonliving parts of the earth.
9. The air that surrounds the earth makes up the (biosphere, ecosystem, atmosphere).

Directions Read each statement. Unscramble the letters in parentheses. Each statement is a clue for the term. Write the term on the line.

10. Chemicals and _____ travel through ecosystems. (yngere)
11. Photosynthesis uses _____ to make organic matter. (abncor)
12. Plants cannot use _____ gas in the atmosphere. (irngntoe)



Biomes

Directions Read each statement. Unscramble the letters in parentheses. Each statement is a clue for the term. Write the term on the line.

1. The average weather of a region is its _____. (ltmceai)
2. The ocean is a _____ environment. Its water contains salt. (naiemr)
3. The _____ zone of an aquatic biome receives light. (hctpio)
4. Permanently frozen soil is _____. (eomtpsfrar)
5. Biomes that are _____ have to do with the land. (raesiltretr)
6. Freshwater and saltwater mix in a(n) _____. (aysruet)

Directions Match each biome in Column A with its description in Column B. Write the letter on the line.

Column A

- _____ 7. chaparral
- _____ 8. desert
- _____ 9. savanna
- _____ 10. temperate grassland
- _____ 11. tropical forest
- _____ 12. tundra

Column B

- A** region of very low rainfall
- B** grassy region with scattered trees
- C** the northernmost biome where it is cold and dry
- D** rainy region of trees and many organisms near the equator
- E** area where grasses are the main kinds of plants
- F** shrubby region with hot summers and mild winters

Chapter 18 Vocabulary Review

Directions Choose a term in the Word Bank to complete each sentence.
Write your answer on the line.

Word Bank

coniferous forest
estuary

permafrost
photic zone

plankton
temperate forest

1. In the ocean, plants live in the _____.
2. Frozen soil in the tundra is _____.
3. A(n) _____ can form where freshwater flows into the ocean.
4. The _____ is a cold, dry biome with cone-bearing trees.
5. Trees lose their leaves during cold weather in the _____ biome.
6. In the ocean, small organisms floating at the surface make up _____.

Directions Write the letter of the correct answer on the line.

7. _____ food chains are found in water.
A Terrestrial **B** Atmospheric **C** Aquatic **D** Photic
8. Liquid water _____ and returns to the atmosphere.
A precipitates **B** condenses **C** filters **D** evaporates
9. The _____ is a biome common at the equator. It supports trees and many living things.
A tropical forest **C** temperate deciduous forest
B coniferous forest **D** savanna
10. The area where the land meets the sea is the _____ zone.
A benthic **B** intertidal **C** photic **D** aphotic
11. A lake is a _____ ecosystem. It does not contain salt.
A freshwater **B** marine **C** terrestrial **D** benthic
12. Several food chains makes a(n) _____.
A energy pyramid **B** commensal relationship **C** disturbance **D** food web

What Impact Do Humans Have on Ecosystems?

Directions Choose terms in the Word Bank to answer the questions.
Write the terms on the lines.

Word Bank

acid rain

deforestation

eutrophication

greenhouse effect

introduced species

land development

ozone

pollution

runoff

1. Anything added to the environment that can harm living things is _____.
2. A liquid chemical waste in waterways is _____.
3. Nutrients in water can cause fast growth of algae. This process is called _____.
4. Sulfur dioxide can combine with water vapor to form _____.
5. The _____ warms the earth. Carbon dioxide gas traps heat near the surface.
6. A gas that blocks dangerous radiation is _____.
7. In _____, humans change natural land. They create more living space.
8. Forests are removed from ecosystems in _____.
9. Organisms that move into a new ecosystem are _____. They can change food chains.

Directions Write a sentence using the following words.

10. pollution, ecosystem, living things _____

11. ozone, Antarctica, hole _____

12. introduced species, kudzu, trees _____



Conservation Biology

Directions Match each term in Column A with its meaning in Column B.
Write the letter on the line.

Column A

- _____ 1. biodiversity
- _____ 2. conservation biology
- _____ 3. emission
- _____ 4. landfill
- _____ 5. landscape ecology
- _____ 6. recovery plan
- _____ 7. recycling
- _____ 8. reserve

Column B

- A** place where human activity is not allowed
- B** a chemical waste in the form of a gas
- C** the different types of life on the earth
- D** information to help balance human and environmental needs
- E** creating new products from waste products
- F** an area where waste is collected and stored
- G** the science that helps restore damaged ecosystems
- H** a plan to bring back species from danger of extinction

Directions Write your answer on the line. Use complete sentences.

9. How can people protect threatened habitats?

10. How can people reduce air pollution? _____

11. What kinds of trash can be recycled? _____

12. How does pollution reduce biodiversity?



Science and Technology

Directions Read each statement. Unscramble the letters in parentheses. Each statement is a clue for the term. Write the term on the line.

1. A(n) _____ shows ownership of a piece of technology.
(aetpnt)
2. The study of nonliving parts of the earth is _____. (yelgogo)
3. New technology is created through _____. (gienrnenieg)
4. A(n) _____ uses science and math to solve problems.
(genrenei)
5. Interactions between living and nonliving parts of the environment is
_____. (eyligobogo)
6. Products that solve problem are called _____.
(eyohotclgn)

Directions Read each statement. Circle the correct answer.

7. Technology helps _____ carry out new experiments.
A scientific journals **C** biodiversity
B introduced species **D** scientists
8. The area of _____ uses science and math. It creates products that make life better.
A landscape ecology **C** conservation biology
B land development **D** engineering
9. Scientists share their findings with the public. Many publish their work in _____.
A patents **C** biogeography
B scientific journals **D** recovery plans
10. _____ helps solve medical problems.
A Medical technology **C** Conservation biology
B Engineering **D** Geology



Chapter 19 Vocabulary Review

Directions Read each statement. Unscramble the letters in parentheses.
Write the term on the line.

1. Trash is one form of _____. It damages the environment and living things. (ltnopouli)
2. Nitrogen in a waterway can cause _____. This is an overgrowth of algae. (urihnctoepaito)
3. Cutting down trees for land development can lead to _____. (resnaidoetft)
4. Liquid pollution, or _____, can enter waterways. (ufrofn)
5. A(n) _____ is a waste gas. (nsomsiei)

Directions Match each term in Column A with its meaning in Column B.
Write the letter on the line.

Column A

- _____ 6. biodiversity
- _____ 7. biogeology
- _____ 8. engineering
- _____ 9. geology
- _____ 10. landfill
- _____ 11. medical technology
- _____ 12. patent
- _____ 13. recovery plan
- _____ 14. recycling
- _____ 15. reserve

Column B

- A** an ecosystem protected from human use
- B** technology designed to improve human health
- C** nonliving parts of the earth
- D** making new products from wastes
- E** all of the different living things on the earth
- F** a scientific idea to save species in danger of extinction
- G** a place where trash is stored
- H** a notice of ownership of technology
- I** the study of living and nonliving parts of the environment
- J** uses science and math to solve problems