

Life Science

GLOSSARY

A

abiotic factor (AY-by-AHT-i hk)

A nonliving physical or chemical part of an ecosystem. (p. 474)

active transport

The process of using energy to move materials through a membrane. (p. 60)

adaptation

A characteristic, a behavior, or any inherited trait that makes a species able to survive and reproduce in a particular environment. (p. xxxvii)

addiction

A physical or psychological need for a habit-forming substance, such as alcohol or drugs. (p. 722)

adolescence (Ao- u hi-EHS-uhns)

The stage of life from the time a human body begins to mature sexually to adulthood. (p. 711)

dulthood

he stage of life that begins once a human body completes its growth and reaches sexual maturity. (p. 712)

algae

Protists that live mostly in water and use sunlight as a source of energy. Algae is a plural word; the singular is alga. (p. 303)

allele (uh-LEEL)

An alternate form of a gene for a specific trait or gene product. (p. 103)

amphibian

A cold-blooded vertebrate animal that lives in water and breathes with gills when it is young; as an adult, it moves onto land and breathes air with lungs. (p. 439)

ancestor

A distant or early form of an organism from which later forms descend. (p. 189)

angiosperm (AN-jee-uh-sPURM)

A plant that has flowers and produces seeds enclosed in fruit. (p. 379)

Animalia (AN-U h-MAL-yu h)

Part of a classification system that divides all living things into six kingdoms. Kingdom Animalia includes multicellular organisms, from humans and lions to insects and microbes, that rely on food for energy. (p. 223)

antibiotic

A medicine that can block the growth and reproduction of bacteria. (p. 657)

antibody

A protein produced by some white blood cells to attack specific foreign materials. (p. 651)

antigen

A particular substance that the body recognizes as foreign and that stimulates a response. (p. 654)

appendicular skeleton (AP-u hn-DIH K-yu h-lu hr)

The bones of the skeleton that function to allow movement, such as arm and leg bones. (p. 592)

archaea (AH R-kee- u h)

Single-celled organisms without nuclei that can survive in extreme environments. Archaea is a plural word; the singular is archaean. (p. 290)

Archaea (AH R-kee- u h)

Part of a classification system that divides all living things into six kingdoms. Kingdom Archaea includes microscopic single-celled organisms with a distinctive cell structure that allows them to live in extreme environments. (p. 223)

artery

A blood vessel with strong walls that carries blood away from the heart. (p. 645)

arthropod

An invertebrate animal with an exoskeleton, a segmented body, and jointed legs. (p. 414)

asexual reproduction

The process by which a single organism produces offspring that have the same genetic material. (p. 88)

atom

The smallest particle of an element that has the chemical properties of that element.

autonomic nervous system

The part of the nervous system that controls involuntary action and responses. (p. 683)

autotroph (AW-t u h-TRAHF)

An organism that captures energy from sunlight and uses it to produce energy-rich carbon compounds, usually through the process of photosynthesis. (p. 324)

axial skeleton

The central part of the skeleton, which includes the cranium, the spinal column, and the ribs. (p. 592)

B

bacteria (ba k-TEE R-ee-uh)

A large group of one-celled organisms that sometimes cause disease. Bacteria is a plural word; the singular is bacterium. (pp. 14, 725)

Bacteria (bak-TEER-ee-uh)

Part of a classification system that divides all living things into six kingdoms. Kingdom Bacteria includes microscopic single-celled organisms found in many environments. Bacteria can be associated with disease in other organisms. (p. 223)

behavior

An organism's action in response to a stimulus. (p. 334)

binary fission

A form of asexual reproduction by which some single-celled organisms reproduce. The genetic material is copied, and one cell divides into two independent cells that are each a copy of the original cell. Prokaryotes such as bacteria reproduce by binary fission. (pp. 89, 284)

binomial nomenclature

(by-NOH-mee-uhl NOH-mu hn-KLAY-c h u h r)
The two-part naming system used to identify species. The first part of the name is the genus, and the second part of the name is the species. (p. 212)

biodiversity

The number and variety of living things found on Earth or within an ecosystem. (p. 555)

biology

The scientific study of life and all living things; ecology, biology, and botany are examples of biological sciences.

biome (BY-OHM)

A region of Earth that has a particular climate and certain types of plants. Examples are tundra, taiga, desert, grassland, temperate and tropical forests. (p. 494)

biotic factor (by-AHT-i h k)

A living thing in an ecosystem. (p. 494)

blood

A fluid in the body that delivers oxygen and other materials to cells and removes carbon dioxide and other wastes. (p. 641)

blubber

A layer of fat in some sea mammals that lies beneath the skin. It insulates the animal from cold and stores reserve energy. (p. 456)

budding

A process of asexual reproduction in which an organism develops as an outgrowth of the parent. Each bud can grow into a new organism, breaking free and becoming separate and independent. (p. 89)

C

capillary

A narrow blood vessel that connects arteries with veins. (p. 645)

carbohydrate (KAHR- boh-HY-drayt)

A type of molecule made up of subunits of sugars and used for energy and structure. (p. 42)

carbon cycle

The continuous movement of carbon through Earth, its atmosphere, and the living things on Earth. (p. 482)

carrying capacity

The maximum size that a population can reach in an ecosystem. (pp. 242, 529)

cell

The smallest unit that is able to perform the basic functions of life. (p. xxxi)

cell cycle

The normal sequence of growth, maintenance, and division in a cell. (p. 80)

cell membrane

The outer boundary of the cytoplasm, a layer that controls what enters or leaves the cell; a protective covering enclosing an entire cell. (p. 20)

cellular respiration

A process in which cells use oxygen to release energy stored in sugars. (pp. 50, 325, 615)

cell wall

A protective outer covering that lies just outside the cell membrane of plant cells. (p. 21)

central nervous system

The brain and spinal cord. The central nervous system communicates with the rest of the nervous system through electrical signals sent to and from neurons. (p. 680)

chemical energy

Energy that is stored in the chemical composition of matter. The amount of chemical energy in a substance depends on the types and arrangement of its atoms. When wood or gasoline burns, chemical energy produces heat. The energy used by the cells in your body comes from chemical energy in the foods you eat. (p. 47)

chemical reaction

The process by which chemical changes occur. In a chemical reaction, atoms are rearranged, and chemical bonds are broken and formed. (p. 42)

childhood

The stage of life after infancy and before the beginning of sexual maturity. (p. 7-10)

chlorophyll (KLAWR-uh-f i h l)

A light-absorbing chemical, a pigment, that traps the energy in sunlight and converts it to chemical energy. Found in chloroplasts of plant cells and the cells of other photosynthetic organisms. (p. 48)

chloroplast (KLAW R-u h-PLAST)

An organelle in a plant cell that contains chlorophyll, a chemical that uses the energy from sunlight to make sugar. (p. 23)

chromosome

The physical structure in a cell that contains the cell's genetic material. (p. 75)

circulatory system

The group of organs, consisting of the heart and blood vessels, that circulates blood through the body. (p. 641)

classification

The systematic grouping of different types of organisms by their shared characteristics. (p. 204)

cloning

The process of using DNA technology to produce an offspring that is genetically identical to its one parent. (p. 154)

cnidarian (ny-DAI R-ee -uhn)

An invertebrate animal such as a jellyfish that has a body with radial symmetry, tentacles with stinging cells, and a central internal cavity. (p. 400)

commensalism (ku h-MEHN-su h-uHz-uhm)

An interaction between two species in which one species benefits without harming the other; a type of symbiosis. (p. 523)

community

All the populations that live and interact with each other in a particular place. The community can live in a place as small as a pond or a park, or it can live in a place as large as a rain forest or the ocean. (p. 512)

compact bone

The tough, hard outer layer of a bone. (p. 591)

competition

The struggle between two or more living things that depend on the same limited resource. (p. 519)

competitor

A species characterized by a relatively longer life span, with relatively few offspring, when compared with an opportunist species. (p. 256)

compound

A substance made up of two or more different types of atoms.

coniferous (koh-NIHF-uhr-uhs)

A term used to describe cone-bearing trees and shrubs that usually keep their leaves or needles during all the seasons of the year; examples are pine, fir, and spruce trees. (p. 496)

conservation

The process of saving or protecting a natural resource. (p. 563)

consumer

A living thing that gets its energy by eating other living things in a food chain; consumers are also called heterotrophs. (pp. 330, 488)

cooperation

A term used to describe an interaction between two or more living things in which they are said to work together. (p. 521)

cycle

n. A series of events or actions that repeat themselves regularly; a physical and/or chemical process in which one material continually changes locations and/or forms. Examples include the water cycle, the carbon cycle, and the rock cycle.

v. To move through a repeating series of events or actions.

cytokinesis (sY-to h-kuh-NEE-si hs)

The division of a parent cell's cytoplasm following mitosis. (p. 81)

cytoplasm (SY-t u h-PLAZ-u hm)

A thick, gelatin-like material contained within the cell membrane. Most of the work of the cell is carried out in the cytoplasm. (p. 20)

D**data**

Information gathered by observation or experimentation that can be used in calculating or reasoning. Data is a plural word; the singular is datum.

deciduous (dih-SIHJ-oo-u hs)

A term used to describe trees and shrubs that drop their leaves when winter comes; examples are maple, oak, and birch trees. (p. 497)

decomposer

An organism that feeds on and breaks down dead plant or animal matter. (pp. 291, 489)

density

A property of matter representing the mass per unit volume.

dermis

The inner layer of the skin. (p. 660)

dichotomous key (dy-KAHT-uh-m u hs)

A series of questions, each with only two answers, that can be used to help identify an organism's genus and species. (p. 216)

diffusion (di h-FY OO-z h u hn)

The tendency of a substance to move from an area of higher concentration to an area of lower concentration. (p. 56)

digestion

The process of breaking down food into usable materials. (p. 622)

digestive system

The structures in the body that work together to transform the energy and materials in food into forms the body can use. (p. 622)

diversity

A term used to describe the quality of having many differences. Biodiversity describes the great variety and many differences found among living things.

DNA

The genetic material found in all living cells that contains the information needed for an organism to grow, maintain itself, and reproduce.

Deoxyribonucleic acid

(dee-AHK-see-RY-boh-noo-KL E E- i hk). (p. 74)

domain

One of three divisions in a classification system based on different types of cells. The six kingdoms of living things are grouped into three domains: Archaea, Bacteria, and Eukarya. (p. 221)

dominant

A term that describes the allele that determines the phenotype of an individual organism when two different copies are present in the genotype. (p. 107)

E

echinoderm

An invertebrate sea animal with a spiny skeleton, a water vascular system, and tube feet. (p. 411)

ecology

The scientific study of how living things interact with each other and their environment. (p. 473)

ecosystem

All the living and nonliving things that interact in a particular environment. An ecosystem can be as small as a meadow or a swamp or as large as a forest or a desert. (p. 473)

ectotherm

An animal whose body temperature changes with environmental conditions. (p. 442)

egg

A female reproductive cell (gamete) that forms in the reproductive organs of a female and has just a single copy of the genetic material of the parent. (p. 118)

element

A substance that cannot be broken down into a simpler substance by ordinary chemical changes. An element consists of atoms of only one type.

embryo (EHM-bree-oH)

A multicellular organism, plant or animal, in its earliest stages of development. (pp. 370, 697)

emigration

In population studies, the movement of individuals out of an ecosystem. (p. 251)

endocrine system

A group of organs called glands and the hormones they produce that help regulate conditions inside the body. (p.686)

endoskeleton

An internal support system; such a skeleton made of bone tissue is a distinguishing characteristic of vertebrate animals. (p. 429)

endotherm

An animal that maintains a constant body temperature. (p. 446)

energy

The ability to do work or to cause a change. For example, the energy of a moving bowling ball knocks over pins; energy from food allows animals to move and to grow; and energy from the Sun heats Earth's surface and atmosphere, which causes air to move.

energy pyramid

A model used to show the amount of energy available to living things in an ecosystem. (p. 492)

environment

Everything that surrounds a living thing. An environment is made up of both living and nonliving factors. (p. xxxv)

epidermis

The outer layer of the skin. (p. 660)

estuary

The lower end of a river where it meets the ocean and fresh and salt waters mix. (p. 500)

eukaryotic cell (yoo-KAR-ee-AHT- i h k)

A cell in which the genetic material is enclosed within a nucleus, surrounded by its own membrane. (p. 20)

evolution

The process through which species change over time; can refer to the changes in a particular population or to the formation and extinction of species over the course of Earth's history. (p. 177)

exoskeleton

The strong, flexible outer covering of some invertebrate animals, such as arthropods. (p. 415)

experiment

An organized procedure to study something under controlled conditions. (p. xl)

extinction

The permanent disappearance of a species. (p. xxxvii)

F**fermentation**

A chemical process by which cells release energy from sugar when no oxygen is present. (p. 52)

fertilization

Part of the process of sexual reproduction in which a male reproductive cell and a female reproductive cell combine to make a new cell that can develop into a new organism. (pp. 118, 320, 697)

fetus

The developing human embryo from eight weeks to birth. (p. 698)

flower

The reproductive structure of an angiosperm, containing male and female parts. (p. 380)

food chain

A model used to show the feeding relationship between a single producer and a chain of consumers in an ecosystem. In a typical food chain, a plant is the producer that is eaten by a consumer, such as an insect; then the insect is eaten by a second consumer, such as a bird. (p. 490)

food web

A model used to show a feeding relationship in which many food chains overlap in an ecosystem. (p. 490)

fossil

The imprint or hardened remains of a plant or animal that lived long ago. (p. 169)

fruit

The ripened ovary of a flowering plant that contains the seeds. (p. 380)

Fungi (FUHN-jy)

Part of a classification system that divides all living things into six kingdoms. Kingdom Fungi includes multicellular mushrooms and molds and single-celled yeasts. (p. 223)

G**gamete**

A sperm or egg cell, containing half the usual number of chromosomes of an organism (one chromosome from each pair), which is found only in the reproductive organs of a plant or animal. (p. 118)

gene

The basic unit of heredity that consists of a segment of DNA on a chromosome. (pp. 102, 193)

genetic engineering

The scientific process in which DNA is separated from an organism, changed, and then reinserted into the same or a different organism. (p. 151)

genetic material

The nucleic acid DNA that is present in all living cells and contains the information needed for a cell's growth, maintenance, and reproduction.

genome (JEE-no hm)

All the DNA of an organism, including its genes; the genetic material of an organism. (p. 154)

genotype (JEHN-uh-TYP)

The genetic makeup of an organism; all the genes that an organism has. (p. 106)

genus

The first part of a binomial name that groups together closely related species. The genus *Felis* includes all species of small cats. (p. 212)

germination (JUR-muh-NAY-shuhn)

The beginning of growth of a new plant from a spore or a seed. (p. 371)

gestation

In mammals, the period of time spent by a developing offspring inside the mother's body. (p. 458)

gill

A respiratory organ that filters oxygen dissolved in water. (p. 409)

gland

An organ in the body that produces a specific substance, such as a hormone. (p. 687)

glucose

A sugar molecule that is a major energy source for most cells, produced by the process of photosynthesis. (p. 47)

gymnosperm (JIHM-nuh-sPURM)

A plant that produces seeds that are not enclosed in flowers or fruit. (p. 374)

H

habitat

The natural environment in which a living thing gets all that it needs to live; examples include a desert, a coral reef, and a freshwater lake. (p. 510)

heredity

The passing of genes from parents to offspring; the genes are expressed in the traits of the offspring. (p. 102)

heterotroph (HEHT-uh-uh-TRAWF)

An organism that consumes other organisms to get energy. (p. 330)

hibernation

A sleeplike state in which certain animals spend the winter. Hibernation reduces an animal's need for food and helps protect it from cold. (p. 336)

homeostasis (HOH-mee-oh-STAY-sihs)

A condition needed for health and functioning in which an organism or cell maintains a relatively stable internal environment. (p. 588)

hormone

A chemical that is made in one organ and travels through the blood to another organ. (p. 687)

host cell

A cell that a virus infects and uses to make copies of itself. (p. 298)

hyphae

Threadlike tubes that form the structural parts of the body of a fungus. Hyphae is a plural word; the singular is hypha. (p. 339)

hypothesis

A tentative explanation for an observation or phenomenon. A hypothesis is used to make tentative predictions. (p. xl)

I, J, K

immigration

In population studies, the movement of an organism into a range inhabited by individuals of the same species. (p. 251)

immune system

A group of organs that provides protection against disease-causing agents. (p. 651)

immunity

Resistance to a disease. Immunity can result from antibodies formed in the body during a previous attack of the same illness. (p. 656)

incubation

The process of keeping eggs warm by bodily heat until they hatch. (p. 451)

infancy

The stage of life that begins at birth and ends when a baby begins to walk. (p. 710)

insect

An arthropod with three body segments, six legs, two antennae, and compound eyes. (p. 417)

integumentary system (ihn-TEHG-yu-MEHN-t uh-ree)

The body system that includes the skin and its associated structures. (p. 659)

interaction

The condition of acting or having an influence upon something. Living things in an ecosystem interact with both the living and nonliving parts of their environment. (p. xxxv)

interphase

The period in the cell cycle in which a cell grows, maintains itself, and prepares for division. (p. 81)

invertebrate

An animal that has no backbone. (p. 395)

involuntary muscle

A muscle that moves without conscious control. (p. 600)

L

larva

A free-living early form of a developing organism that is very different from its adult form. (p. 398)

law

In science, a rule or principle describing a physical relationship that always works in the same way under the same conditions. The law of conservation of energy is an example.

lichen (LY-kuhn)

An organism that results from a close association between single-celled algae and fungi. (p. 342)

limiting factor

A factor or condition that prevents the continuing growth of a population in an ecosystem. (pp. 252, 528)

lipid

A type of molecule made up of subunits of fatty acids. Lipids are found in the fats, oils, and waxes used for structure and to store energy. (p. 43)

lung

A respiratory organ that absorbs oxygen from the air. (p. 409)

M

mammal

A warm-blooded vertebrate animal whose young feed on milk produced by the mother's mammary glands. (p.455)

mass

A measure of how much matter an object is made of.

mass extinction

One of several periods in Earth's history when large numbers of species became extinct at nearly the same time. (p. 174)

matter

Anything that has mass and volume. Matter exists ordinarily as a solid, a liquid, or a gas.

meiosis (my-OH-sihs)

A part of sexual reproduction in which cells divide to form sperm cells in a male and egg cells in a female. Meiosis occurs only in reproductive cells. (pp. 119, 320)

menstruation

A period of about five days during which blood and tissue exit the body through the vagina. (p. 695)

metamorphosis

The transformation of an animal from its larval form into its adult form. (p. 418)

microorganism

A very small organism that can be seen only with a microscope. Bacteria are examples of microorganisms. (pp. 282, 724)

microscope

An instrument that uses glass lenses to magnify an object. (p. 12)

migration

The movement of animals from one region to another in response to changes in the seasons or the environment. (p. 336)

mitochondria (MY-t uh-KAWN-dree-uh)

Organelles that release energy by using oxygen to break down sugars. (p. 23)

mitosis

The phase in the cell cycle during which the nucleus divides. (p. 81)

mobile

Able to move from place to place. (p. 402)

molecule

A group of atoms that are held together by covalent bonds so that they move as a single unit.

mollusk

An invertebrate animal with a soft body, a muscular foot, and a mantle. Many mollusks have a hard outer shell. (p. 408)

molting

The process of an arthropod shedding its exoskeleton to allow for growth. (p. 415)

multicellular

A term used to describe an organism that is made up of many cells. (p. 11)

multicellular organism

An organism that is made up of many cells. (p. 173)

muscular system

The muscles of the body that, together with the skeletal system, function to produce movement. (p. 599)

mutation

Any change made to DNA. (p.145)

mutualism (MY OO-choo-u h-uHz- u hm)

interaction between two species in which both benefit; a type of symbiosis. (p. 522)

N

natural resource

Any type of matter or energy from Earth's environment that humans use to meet their needs. (p. 548)

natural selection

The process through which members of a species that are best suited to their environment survive and reproduce at a higher rate than other members of the species. (p. 181)

neuron

A nerve cell. (p. 681)

niche (nihch)

The role a living thing plays in its habitat. A plant is a food producer, whereas an insect both consumes food as well as provides food for other consumers. (p. 511)

nitrogen cycle

The continuous movement of nitrogen through Earth, its atmosphere, and the living things on Earth. (p. 483)

nucleic acid (noo-KLEE- i h k)

A type of molecule, made up of subunits of nucleotides, that is part of the genetic material of a cell and is needed to make proteins. DNA and RNA are nucleic acids. (p.43)

nucleus (NOO-klee-uhs)

The structure in a eukaryotic cell that contains the genetic material a cell needs to reproduce and function. (p. 20)

nutrient (NOO-tree-uhnt)

A substance that an organism needs to live. Examples include water, minerals, and materials that come from the breakdown of food particles. (p. 621)

nutrition

The study of the materials that nourish the body. (p. 716)

O

offspring

The new organisms produced by one or two parent organisms.

opportunistic

A species characterized by a relatively short life span, with relatively large quantities of offspring, as compared with a competitor species. (p. 255)

organ

A structure in a plant or an animal that is made up of different tissues working together to perform a particular function. (pp. 30, 316, 587)

organelle (AWR-g uh-NEHL)

A structure in a cell that is enclosed by a membrane and that performs a particular function. (p. 20)

organism

An individual living thing, made up of one or many cells, that is capable of growing and reproducing. (p. xxxi)

organ system

A group of organs that together perform a function that helps the body meet its needs for energy and materials. (p. 588)

osmosis (ahz-MO H-sihs)

The movement of water through a membrane from an area of higher concentration to an area of lower concentration. (p. 59)

P, Q

parasite

An organism that absorbs nutrients from the body of another organism, often harming it in the process. (p. 291)

parasitism (PAR-uh-suh-TIH-z-u hm)

A relationship between two species in which one species is harmed while the other benefits; a type of symbiosis. (p.523)

parent

An organism that produces a new organism or organisms similar to or related to itself. (p. 93)

passive transport

The movement of materials through a membrane without any input of energy. (p. 58)

pathogen

An agent that causes disease. (p. 650)

pedigree

A chart that shows family relationships, including two or more generations. (p. 147)

percentage

A ratio that states the number of times an outcome is likely to occur out of a possible 100 times. (p.112)

peripheral nervous system

The part of the nervous system that lies outside the brain and spinal cord. (p. 682)

peristalsis (P EHR- i h-STAWL-sihs)

Wavelike contractions of smooth muscles in the organs of the digestive tract. The contractions move food through the digestive system. (p. 622)

phenotype

The observable characteristics or traits of an organism. (p. 106)

photosynthesis (FOH-toh-SIHN-t h i h-sihs)

The process by which green plants and other producers use simple compounds and energy from light to make sugar, an energy-rich compound. (pp. 48, 324, 487)

pioneer species

The first species to move into a lifeless environment.

plants

like mosses are typical pioneer species on land. (p. 530)

placenta

An organ that transports materials between a pregnant female mammal and the offspring developing inside her body. (p. 458)

plankton

Mostly microscopic organisms that drift in great numbers through bodies of water. (p. 305)

Plantae (PLAN-tee)

Part of a classification system that divides all living things into six kingdoms. Kingdom Plantae includes multicellular organisms, such as trees, grass, and moss, that are capable of photosynthesis, capturing energy from the Sun. (p. 223)

pollen

Tiny multicellular grains that contain the undeveloped sperm cells of a plant. (p. 372)

pollution

The release of harmful substances into the air, water, or land. (pp. 264, 555)

population

A group of organisms of the same species that live in the same area. For example, a desert will have populations of different species of lizards and cactus plants. (p. 510)

population density

A measure of the number of organisms that live in a given area. The population density of a city may be given as the number of people living in a square kilometer. (pp. 245, 550)

population dynamics

The study of the changes in the number of individuals in a population and the factors that affect those changes. (p. 241)

population size

The number of individuals of the same species that live in a given area. (p. 244)

predator

An animal that hunts other animals and eats them. (pp. 335, 519)

prey

An animal that other animals hunt and eat. (pp. 335, 519)

probability

The likelihood or chance that a specific outcome will occur out of a total number of outcomes. (p. 112)

producer

An organism that captures energy from sunlight and transforms it into chemical energy that is stored in energy-rich carbon compounds. Producers are a source of food for other organisms. (pp. 291, 487)

prokaryotic cell (pro h-KAR-ee-AWT- i h k)

A cell that lacks a nucleus and other organelles, with DNA that is not organized into chromosomes. (p. 20)

protein

One of many types-of molecules made up of chains of amino acid subunits. Proteins control the chemical activity of a cell and support growth and repair. (p. 43)

Protista (pro h-TIH S-tuh)

Part of a classification system that divides all living things into six kingdoms. Kingdom Protista includes mostly single-celled organisms with cells similar to those of the Plantae, Animalia, and Fungi kingdoms. (p. 223)

protozoa

Animal-like protists that eat other organisms or decaying parts of other organisms. Protozoa is a plural word; the singular is protozoan. (p. 306)

Punnett square

A chart used to show all the ways genes from two parents can combine and be passed to offspring; used to predict all genotypes that are possible. (p. 110)

R
ratio

A comparison between two quantities, often written with a colon, as 3 : 4. (p. 112)

recessive

A term that describes an allele that is not expressed when combined with a dominant form of the gene. (p. 107)

red blood cell

A type of blood cell that picks up oxygen in the lungs and delivers it to cells throughout the body. (p. 643)

regeneration

In some organisms, the process by which certain cells produce new tissue growth at the site of a wound or lost limb; also a form of asexual reproduction. (p. 90)

replication

The process by which DNA is copied before it condenses into chromosomes. Replication takes place before a cell divides. (p. 137)

reptile

A cold-blooded vertebrate that has skin covered with scales or horny plates and has lungs. (p. 440)

resistance

The ability of an organism to protect itself from a disease or the effects of a substance. (p. 729)

respiration

The physical and chemical processes by which a living thing exchanges gases with the environment. In cellular respiration, cells take in oxygen and release the energy stored in carbon compounds.

respiratory system

A system that interacts with the environment and with other body systems to bring oxygen to the body and remove carbon dioxide. (p. 613)

RNA

A molecule that carries genetic information from DNA to a ribosome, where the genetic information is used to bring together amino acids to form a protein. Ribonucleic acid (RY-boh-noo-KL EE-ihk). (p. 138)

S
scale

One of the thin, small, overlapping plates that cover most fish and reptiles and some other animals. (p. 433)

seed

A plant embryo that is enclosed in a protective coating and has its own source of nutrients. (p. 370)

selective breeding

The process of breeding plants and animals with specific traits to produce offspring that have these traits. (p. 151)

sessile (SEH S-m)

The quality of being attached to one spot; not freemoving. (p. 397)

sexual reproduction

A type of reproduction in which male and female reproductive cells combine to form offspring with genetic material from both cells. (pp. 102, 320)

skeletal muscle

A muscle that attaches to the skeleton. (p. 600)

skeletal system

The framework of bones that supports the body, protects internal organs, and anchors all the body's movement. (p. 590)

smooth muscle

Muscle that performs involuntary movement and is found inside certain organs, such as the stomach. (p. 600)

specialization

The specific organization of a cell and its structure that allows it to perform a specific function. (p. 28)

speciation

The evolution of a new species from an existing species. (p. 184)

species

A group of living things that are so closely related that they can breed with one another and produce offspring that can breed as well. (p. xxxvii)

sperm

A male reproductive cell (gamete) that forms in the reproductive organs of a male and has just a single copy of the genetic material of the parent. (p. 118)

sponge

A simple multicellular invertebrate animal that lives attached to one place and filters food from water. (p. 397)

spongy bone

Strong, lightweight tissue inside a bone. (p. 591)

spore

A single reproductive cell that can grow into a multicellular organism. (p. 339)

stimulus

Something that causes a response in an organism or a part of the body. (pp. 327, 678)

succession (suh k- S E H S H- u hn)

A natural process that involves a gradual change in the plant and animal communities that live in an area. (p. 530)

sustainable

A term that describes the managing of certain natural resources so that they are not harmed or used up. Examples include maintaining clean groundwater and protecting top soil from erosion. (p. 566)

symbiosis (SIHM-bee-OH-sihs)

The interaction between individuals from two different species that live closely together. (p. 522)

system

A group of objects or phenomena that interact. A system can be as simple as a rope, a pulley, and a mass. It also can be as complex as the interaction of energy and matter in the four parts of the Earth system.

T**taxonomy**

The science of classifying and naming organisms. (p. 204)

technology

The use of scientific knowledge to solve problems or engineer new products, tools, or processes.

tentacle

A long, slender, flexible extension of the body of certain animals, such as jellyfish. Tentacles are used to touch, move, or hold. (p. 400)

theory

In science, a set of widely accepted explanations of observations and phenomena. A theory is a well-tested explanation that is consistent with all available evidence.

tissue

A group of similar cells that are organized to do a specific job. (pp. 29, 316, 586)

trait

Any type of feature that can be used to tell two species apart, such as size or bone structure.

transpiration (TRAN-spuh-RAY-s h u hn)

The movement of water vapor out of a plant and into the air. (p. 360)

U

unicellular

A term used to describe an organism that is made up of a single cell. (p.11)

unicellular organism

An organism that is made up of a single cell. (p. 172)

urban

A term that describes a city environment.

urinary system

A group of organs that filter waste from an organism's blood and excrete it in a liquid called urine. (p. 629)

urine

Liquid waste that is secreted by the kidneys. (p. 629)

V

vaccine

A small amount of a weakened pathogen that is introduced into the body to stimulate the production of antibodies. (p. 656)

variable

Any factor that can change in a controlled experiment, observation, or model. (p. R30)

vascular system (VAS-kyuh-l u r)

Long tubelike tissues in plants through which water and nutrients move from one part of the plant to another. (p. 359)

vein

A blood vessel that carries blood back to the heart. (p.645)

vertebrate

An animal with an internal backbone. (p. 429)

vestigial organ (veh-STI HJ-ee-u h l)

A physical structure that was fully developed and functional in an earlier group of organisms but is reduced and unused in later species. (p. 190)

virus

A nonliving disease-causing particle that uses the materials inside cells to make copies of itself. A virus consists of genetic material enclosed in a protein coat. (pp. 286, 725)

volume

An amount of three-dimensional space, often used to describe the space that an object takes up.

voluntary muscle

A muscle that can be moved at will. (p. 600)
musculo voluntario Un musculo que puede moverse a voluntad. voluntary nervous system
The nerves that govern consciously controlled function and movement. (p. 683)

W, X, Y, Z

water cycle

The continuous movement of water through Earth, its atmosphere, and the living things on Earth. (p. 481)