

Science

Glossary

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The glossary uses letters and signs to show how words are pronounced. The mark ' is placed after a syllable with a primary or heavy accent. The mark ˈ is placed after a syllable with a secondary or lighter accent.

To hear these words pronounced, listen to the AudioText CD.

A

- abiotic factor** (ā' bī' ōt' ik fak' tər) a nonliving part of an ecosystem (page 146)
- acceleration** (ak sel' ā rā' shən) the rate at which velocity changes (page 435)
- acid precipitation** (as' id pri si' pā tā' shən) rain or snow that is more acidic than normal precipitation (page 307)
- adaptation** (a' d ap tā' shən) a characteristic that enables an organism to survive and reproduce in its environment (page 8)
- air mass** (ār mas) a very large body of air that has a similar temperature and humidity throughout (page 336)
- air pressure** (ār presh' er) the measure of force with which air particles push on matter (page 328)
- alveoli** (al vē' ō lī) tiny sacs in the lungs at the end of bronchioles (page 101)
- antibody** (an' ti bō' d ē) chemicals produced by white blood cells that kill specific pathogens (page 103)
- asexual reproduction** (ā sek' shū əl rē' prā duk' shən) production of offspring by a single parent (page 56)
- astronomical unit** (as' trā nā mi kəl yū' nit) the average distance of Earth from the Sun, about 149.6 million kilometers (page 560)
- atmosphere** (at' mē sfir) the blanket of gases that surrounds a planet (page 327)
- autonomous robot** (ō ton' ā mās rō' bot) a type of robot that acts without direct supervision (page 587)

Pronunciation Key

a in hat	ō in open	sh in she
ā in age	ó in all	th in thin
â in care	ô in order	TH in then
ä in far	oi in oil	zh in measure
e in let	ou in out	ə = a in about
ē in equal	u in cup	ə = e in taken
ēr in term	û in put	ə = i in pencil
i in it	û in rule	ə = o in lemon
ī in ice	ch in child	ə = u in circus
o in hot	ng in long	

B

- bacteria** (bak tir' ē ə) single-celled organisms that do not have a nucleus (page 12)
- biome** (bī' ōm) a large group of ecosystems with similar climates and organisms (page 148)
- biosphere** (bī' ē sfir) part of the Earth that can support living things (page 7)
- biotic factor** (bī ō' t ik fak' tər) a living organism in an ecosystem (page 146)

C

- carbon nanotube** (kär' bān nan' ō tüb) carbon atoms in six-sided rings that are arranged in the shape of a tube (page 592)
- cause** (kōz) the reason something happens (page 85)
- cellular respiration** (sel' yā lər res' pā rā' shən) the process by which cells combine glucose with oxygen for the release of energy (page 124)
- chemical change** (ke' mi kəl chānj) the changing of a substance into a completely new substance with different properties (page 376)
- chemical property** (ke' mi kəl prō' p ar tē) a characteristic that determines how a substance reacts with other substances (page 371)
- chemical weathering** (ke' mi kəl we' TH ar ing) a change in minerals as they react with substances in the environment, such as water or oxygen (page 272)
- chromosome** (krō' mā sōm) coiled structure in a cell nucleus that carries information controlling the cell's activities (page 39)

- classification** (kla' sē fā kā' shən) a grouping of things according to their similarities (page 11)
- climate** (kli' mit) a pattern of weather that occurs in an area over a long period (page 342)
- coal** (kōl) a solid fossil fuel (page 306)
- community** (kə myū' nē tē) a group of populations that interact with one another in a particular area (page 144)
- compare** (kəm pār') to show how things are alike (page 5)
- competition** (kom' pē tis' hən) the struggle among organisms to survive in a habitat with limited resources (page 176)
- compound** (kom' pound) a substance composed of two or more elements that are chemically combined to form a new substance (page 400)
- compound machine** (kom' pound mē shēn') a machine made up of one or more simple machines (page 456)
- concentration** (kon' sən trā' shən) a measure of the amount of solute dissolved in a solvent (page 405)
- conclusion** (kən klü' zhen) a decision reached after thinking about facts and details (page 213)
- condensation** (kon' den sē' shən) the change of state from a gas to a liquid (page 375)
- conduction** (kən duk' shən) heat transfer between two objects that touch (page 505)
- conductor** (kən duk' tər) a material through which electricity or heat is easily transferred (page 508)
- constellation** (kon' stē lā shən) a part of the sky containing a certain group of stars (page 568)
- continental drift** (kon' tē nēn' ti drift) the theory stating that continents are continually moving (page 220)
- contrast** (kən trast') to show how things are different (page 5)
- convection** (kən vek' shən) the transfer of thermal energy by the movement of a liquid or a gas (page 506)
- core** (kōr) the innermost layer of Earth (page 216)
- crust** (krust) the outermost solid layer of Earth (page 216)
- crystal** (kris' ti) a regular, repeating pattern in which particles of minerals are arranged (page 247)

D

- decomposer** (dē' kəm pō' zər) an organism that breaks down dead organisms and returns materials to the environment (page 171)
- density** (den' sē tē) the amount of mass in a certain volume of matter (page 368)
- deposition** (dep' ē zē' sh ən) the process of dropping sediments onto a new place after being carried away from another place (page 274)
- detail** (dī' tēl or dē' tēl) a piece of information that supports a main idea (page 141)
- diffusion** (di fyū' shən) the movement of a substance from an area of higher concentration to an area of lower concentration (page 36)
- DNA** a material in a cell's nucleus that stores coded information about how an organism will grow and develop (page 39)
- dwarf planet** (dwōrf plan' it) small, spherical object that orbits the Sun (page 560)

E

- ecosystem** (ē' kō sis' tēm or ek' ō sis' tēm) an area in which living things and nonliving parts of the environment interact (page 145)
- effect** (i fekt') what happens as the result of a cause (page 85)
- effort force** (ē' fōrt fōrs) a force applied to the end of a lever to lift a load (page 458)
- egg cell** (eg sel) sex cell of the female parent (page 62)
- electric circuit** (i lek' trik sēr' kit) a closed path along which current can flow (page 483)
- electric current** (i lek' trik kēr' rēnt) a flow of electric charge in a material (page 483)
- electric motor** (i lek' trik mō' tər) a device that changes electrical energy to kinetic energy (page 487)
- electromagnetic wave** (i lek' trō mag neti' k wāv) light and other forms of energy that travel through space (page 511)
- element** (el' ē mēnt) a substance made of only one kind of atom (page 394)
- endocrine gland** (en' dō krān or en' dō krin gland) an organ that releases hormones directly into the blood (page 96)

endoplasmic reticulum (en'dō plaz'mic ri tik'yə ləm) a network of folded membranes that serves as the cell's transportation system (page 34)

energy (e'nər jē) the ability to cause change or to do work (page 479)

energy pyramid (e'nər jē pir'ə mid) a model that shows the amount of energy available at each level of an ecosystem (page 175)

environment (en vi'ran mən) all the conditions that surround a living thing (page 144)

enzyme (en'zim) a chemical that helps break down food into nutrients during digestion (page 98)

epidermis (e'pə dēr'mis) the thin outer layer of plant cells through which water and minerals from the soil enter the root (page 119)

erosion (i rō'zhan) the process by which soil and sediments are transferred from one location to another, usually by wind, water, ice, and gravity (page 273)

F

fault (fōlt) a break in the Earth's crust at the boundaries where plates slide past each other (page 226)

fertilization (fēr'ti a zā'shan) the joining of male and female cells in sexual reproduction (page 62)

force (fōrs) a push or pull (page 423)

fossil fuels (fōs'al fyū'əlz) energy sources made from the remains of organisms (page 304)

friction (frik'shan) the force that resists the movement of one surface past another (page 426)

front (frunt) the boundary that forms between air masses (page 336)

fulcrum (ful'kram) a support on which a lever rests while moving or lifting an object (page 458)

fungi (fung'gi or fung'ji) members of a kingdom of mostly many-celled organisms, some of which break down other organisms; includes mushrooms, yeasts, and molds (page 12)

G

galaxy (gal'ak sē) a huge grouping of stars (page 559)

gene (jēn) sections of DNA that control the substances the cell makes and when it makes them (page 59)

generator (jen'a rāt'tar) a device that changes mechanical energy into electrical energy (page 488)

geothermal energy (jē'ō thēr'mal en'ar jē) energy of the heat inside the Earth (page 304)

gland (gland) an organ in the endocrine system that produces a chemical (page 96)

gravitational force (grav'a tā'shan al fōrs) the force of attraction between objects in the universe (page 428)

guard cell (gārd sel) one of a pair of cells that work together to open and close a leaf's stoma (page 121)

H

heat (hēt) thermal energy that moves from one substance to another (page 504)

heredity (hə red'a tē) the passing of traits from parents to their offspring (page 55)

hormone (hōr'mōn) a substance released by an endocrine gland that controls some of the body's functions (page 96)

host (hōst) an organism that is harmed in symbiosis (page 180)

humidity (hyū mid'a tē) the amount of water vapor in the air (page 332)

humus (hyū'mas) the organic part of soil (page 255)

I

igneous rock (ig'nē as rak') rock formed from lava that has cooled and hardened (page 250)

impulse (im'puls) a message that travels across a neuron and from one neuron to another (page 95)

industrial robot (in das'trē al rō'bot) automatically controlled robot that can handle several products or items at a time and be programmed to complete several tasks (page 586)

inertia (in ér'shə) the tendency of an object to remain at rest or in constant motion unless a force acts on it (page 437)

inference (in'far əns) a conclusion reached after thinking about a topic (page 29)

instantaneous speed (in'stan tā'nē as spēd) an object's speed at any moment (page 434)

insulator (in'sə lā'tar) a material through which heat or electricity is not easily transferred (page 508)

K

kinetic energy (ki net'ik en'ar jē) the energy of a moving object (page 479)

L

light-year (lit'yir') the distance light travels in one year: 9 trillion, 460 billion kilometers (page 564)

lithosphere (lith'a sfir) the Earth's crust and the solid part of the mantle (page 218)

load (lōd) force of an object on a lever (page 458)

lunar eclipse (lū'nar i klips') the movement of the Moon into Earth's shadow (page 542)

M

machine (mə shēn') any device that helps people do work (page 456)

magnetic domain (mag ne'tik dō mən') a large number of atoms with their magnetic fields pointing in the same direction (page 484)

magnetic field (mag net'ik fēld) the space around a magnet in which the magnet can exert a force (page 484)

magnitude (mag'nə tūd) the brightness of a star (page 565)

main idea (mān i dē'a) the most important idea of a reading selection (page 141)

mantle (man'tl) a thick layer of Earth just between the crust and the core that contains most of Earth's mass (page 216)

mass (mas) the amount of matter in an object (page 367)

mechanical weathering (mə kan'a kal weth'ar ing) breaking down of rock by wind, water, and ice (page 272)

meiosis (mī ō'sis) the process of cell division by which sex cells are formed (page 62)

metamorphic rock (mə'ta mōr'fik rok') rock formed when heat, pressure, or chemical reactions change one type of rock into another type of rock (page 250)

meteorologist (mē'tē a rō'l'a jist) a scientist who studies weather (page 336)

mineral (min' rəl or mi'nəral) a natural, nonliving solid with a definite chemical structure (page 247)

mitochondria (mī'ta kon'drē ə) parts of cells that convert chemical energy of food into a form that the cell can use (page 34)

mitosis (mī tō'sis) the process in which a cell nucleus divides (page 39)

mixture (miks'char) a combination of substances in which the atoms of the substances are not chemically combined (page 402)

momentum (mō men'tam) a measure of the force needed to stop a moving object (page 441)

moon (mūn) a natural body that orbits a planet (page 560)

N

nanotechnology (nan'ō tek nol'a jē) technology that deals with materials and processes on a very small scale (page 590)

natural gas (nach'ar əl or na'cha rəl gas) a fossil fuel that is a mixture of gases (page 306)

neuron (nūr'on) nerve cell that passes messages throughout the body (page 95)

nonrenewable resource (non'ri nū'a bəl ri sōrs' or rē'sōrs) a resource that cannot be replaced as fast as it is used (page 295)

nonvascular plant (non vas'kyə lər plant) a low-growing plant that does not have tubes to carry materials (page 14)

nuclear fusion (nū'klē ar fyū'zhan) the process in which the nuclei of two or more atoms join to form a single, larger nucleus (page 564)

O

orbit (ōr'bit) the path of an object that revolves around another object (page 540)

organelle (ôr'gə nel') a structure that performs specific functions within a cell (page 34)

organic matter (ôr ga'nik mā'tər) any substance that is made of living things or the remains of living things (page 255)

osmosis (oz mō'sis) the diffusion of water across the cell membrane (page 37)

P

parasite (par'a sit) an organism that benefits from symbiosis (page 180)

pathogen (path'a jən) an organism that causes disease (page 102)

periodic table (pir'ē o'dik tā'bəl) a chart in which all the elements are arranged according to the repeating pattern of their properties (page 396)

petroleum (pə trō'lē əm) a liquid fossil fuel (page 306)

phloem (flō'əm) part of a plant's vascular system that carries sugars throughout the plant (page 119)

photosynthesis (fō'tō sin'thə sis) the process in which plants use energy from light to make glucose and release oxygen (page 122)

physical change (fiz'a kəl chānj) the change in the appearance of a substance while its properties stay the same (page 376)

physical property (fi'zə kəl prō'pər tē) properties of matter that can be seen or measured without changing the substance into something else (page 370)

planet (plan'it) a large, spherical object that orbits the Sun and has cleared other objects from its orbit (page 560)

plate boundary (plāt boun'dər ē) an area where plates meet (page 226)

plate tectonics (plāt tek ton'iks) the theory that the Earth's lithosphere is broken into about 20 moving plates (page 224)

population (pop'ya lā'shən) a group of individuals that belong to the same species and live in the same area (page 144)

potential energy (pə ten'shəl en'ər jē) the energy an object has due to its position (page 479)

predict (pri dikt') to make a statement about what might happen next (page 165)

R

radiation (rā'dē ā'shən) the transfer of energy in the form of waves (page 506)

reflection (ri flek'shən) the bouncing of light rays off the surface of a material (page 513)

refraction (ri trak'shən) the bending of light as it passes from one material to another (page 512)

relative humidity (rel'a tiv hyū mid'ə tē) the amount of water vapor the air actually contains compared with the amount it could hold at a given temperature (page 332)

renewable resource (ri nū'ə bəl ri sōrs' or rē'sors) a resource that can be replaced through natural processes almost as fast as it can be used (page 295)

revolve (ri volv') to move on a path around an object (page 536)

ribosome (ri'bə sōm) a structure in the endoplasmic reticulum that begins the process of making proteins (page 34)

robot (rō'bot) a machine that is able to get information from its surroundings and do work (page 583)

robotics (rō bō'tiks) the technology dealing with the design, construction, and operation of robots (page 583)

rock (rok) a solid, natural material made up of one or more minerals (page 250)

rotate (rō'tāt) to spin around an axis (page 536)

S

sediment (sə'də mənt) solid particles carried from one place and dropped onto another place (page 271)

sedimentary rock (sə'də mən'tə rē rok') rock formed from layers of sediment that have been cemented together (page 250)

selective breeding (si lek'tiv brē'ding) the process of selecting a few organisms with desired traits to serve as parents of offspring (page 72)

sequence (sē'kwəns) the step-by-step ordering of events (pages 53)

sexual reproduction (sek'shū əl rē'prə duk'shən) reproduction by two parents (page 62)

simple machine (sim'pəl mə shēn) a tool made up of one or two parts (page 456)

solar eclipse (sō'lər i klips') an alignment of the Sun, Moon, and Earth in which the Moon blocks the Sun from Earth's view (page 542)

solar system (sō'lər sis'təm) the Sun and the cluster of bodies that travel around it (page 560)

solubility (sol'ya bil'a tē) the maximum amount of solute that can be dissolved in a solvent at a particular temperature, usually expressed in grams of solute per milliliter of solvent (page 405)

solute (sol'yūt or sō'lūt) a substance that has been dissolved (page 404)

solution (sə lū'shən) one substance dissolved in another (page 404)

solvent (sol'vant) a substance in which a solute is dissolved (page 404)

species (spē'shēz) a group of very similar organisms whose members can mate with one another and produce offspring that are able to produce offspring (page 8)

speed (spēd) a measure of how fast an object is moving (page 434)

sperm cell (spərm sel) sex cell of the male parent (page 62)

star (stär) a huge, hot, glowing ball of gas in the sky (page 564)

stoma (stō'ma) a small hole in the epidermis of a leaf through which water and gases pass in and out of the plant (page 121)

succession (sak səs'hən) a series of predictable changes that occur in an ecosystem over time (page 187)

symbiosis (sim'bē ō'sis) a close, long-term relationship between organisms that benefits at least one of the organisms (page 180)

T

thermal energy (thēr'məl e'nər jē) the total kinetic and potential energy of the particles in a substance (page 503)

transpiration (tran'spi rā'shən) the loss of water from a leaf (page 121)

tropism (trō'pi'zəm) plant behavior caused by growth toward or away from something in the environment (page 129)

V

vascular plant (vas'kyə lar plant) a plant that has tubes for carrying water and nutrients throughout the organism (page 14)

velocity (vē lās'a tē) the speed of an object in a particular direction (page 435)

volume (vol'yəm) the amount of space that something takes up (page 367)

W

weather (we'ðər) the condition of the atmosphere at a particular time and place (page 336)

weathering (we'ðər ing) the process of breaking down rock into smaller pieces (page 272)

weight (wät) a measure of the pull of gravity on an object (page 368)

work (wèrk) to use force in order to move an object a certain distance (page 455)

X

xylem (zi'ləm) a layer of plant cells that moves water and minerals from the roots to other parts of the plant (page 119)