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adaptation	a characteristic of an organism that increases its chance of survival in its environment
atmosphere	the layers of gas that surround Earth, other planets, or stars
atom	the smallest unit of a chemical element that can still retain the properties of that element
axis	the imaginary line on which an object rotates (e.g., Earth's axis runs through Earth between the North Pole and the South Pole); an imaginary straight line that runs through a body; a reference to the line in a coordinate system or graph
carnivore	an animal or plant that consumes or obtains nutrients from animals
change of state	a physical change that occurs when matter changes to another state (i.e., liquid, gas, or solid)
chemical change	a reaction or a change in a substance produced by chemical means that results in producing a different chemical
community	all the populations of organisms belonging to different species and sharing the same geographical area
compound	a substance made up of a combination of two or more elements held together by chemical bonds that cannot be separated by physical means; has properties unlike those of the elements that make up the compound
condensation	the process of changing from a gas (i.e., water vapor) to a liquid (i.e., dew); the act of making more dense or compact
conservation	controlled use and/or maintenance of natural resources; various efforts to preserve or protect natural resources
constellation	a star pattern identified and named as a definite group; usually thought of as forming certain shapes or figures in a specific region of the sky
consumer	an organism that feeds on other organisms for food
decomposer	any organism that feeds or obtains nutrients by breaking down organic matter from dead organisms

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density	concentration of matter of an object; number of individuals in the same species that live in a given area; the mass per unit volume of a substance in a given area
deposition	layering matter in a natural process
earthquake	the shaking of the ground caused by a sudden release of energy in Earth's crust
ecosystem	an integrated unit of a biological community, its physical environment, and interactions
element	a substance that cannot be reduced to a simpler substance by chemical means
energy	a quantity that describes the capacity to do work; a source of usable power
energy pyramid	a pyramidal diagram that compares the amount of energy available at each position, or level, in the feeding order
energy transfer	a change of energy from one form to another (e.g., mechanical to electrical, solar to electrical)
environment	the sum of conditions affecting an organism, including all living and nonliving things in an area, such as plants, animals, water, soil, weather, landforms, and air
equator	an imaginary circle around Earth's surface located between the poles and a plane perpendicular to its axis of rotation that divides it into the Northern and Southern Hemispheres
erosion	the wearing away of Earth's surface by the breakdown and transportation of rock and soil
evaporation	the process by which a liquid is converted to its vapor phase by heating the liquid
experiment	a procedure that is carried out and repeated under controlled conditions in order to discover, demonstrate, or test a hypothesis; includes all components of the scientific method
food chain	transfer of energy through various stages as a result of feeding patterns of a series of organisms

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food web (food cycle)	the interconnected feeding relationships in a food chain found in a particular place and time
force	a quality that tends to produce movement or acceleration of a body in the direction of its application; a push or pull
fossil	a whole or part of a plant or animal that has been preserved in sedimentary rock
friction	a force that opposes the relative motion of two material surfaces in contact with one another
fulcrum	the pivot point of a lever
galaxy	a large collection of stars, gases, and dust that are part of the universe (e.g., the Milky Way galaxy) bound together by gravitational forces
gas	one of the fundamental states of matter in which the molecules do not have a fixed volume or shape
gravitation	a force of attraction between two masses
gravity	the observed effect of the force of gravitation
habitat	a place in an ecosystem where an organism normally lives
heat	a form of energy resulting from the temperature difference between a system and its surroundings
herbivore	an animal that feeds on plants
igneous rock	a type of rock that forms from molten or partly molten material that cools and hardens
inclined plane	a type of simple machine; a slanted surface that makes it easier to move a mass from a lower point to a higher point
inertia	the property of a body, due to its mass, that causes it to resist any change in its motion unless overcome by a force
investigation	a procedure that is carried out in order to observe a response caused by a stimulus; not a complete experiment
kinetic energy	the energy possessed by a body because of its motion

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lever	a type of simple machine; consists of a rigid bar that pivots about a fulcrum, used to transmit and enhance power or motion
life cycle	the entire sequence of events in an organism's growth and development
light	electromagnetic radiation that lies within the visible range
liquid	one of the fundamental states of matter with a definite volume but no definite shape
magnetic	having the property of attracting iron and certain other materials by virtue of a surrounding field of force
mass	the amount of matter an object contains
matter	a solid, liquid, or gas that possesses inertia and is capable of occupying space
metamorphic rock	a type of rock that forms from existing rock because of extreme changes caused by heat, pressure, or chemical environments
microscopic	relating to an object too small to be visible without the use of a microscope
mixture	the product of a thorough blending of two or more substances, not chemically combined
moon	a natural satellite that revolves around a planet
moon phase	a phrase that indicates the fraction of the Moon's disc that is illuminated (as seen from Earth); the eight moon phases (in order): new moon, waxing crescent, first quarter, waxing gibbous, full moon, waning gibbous, last quarter, waning crescent
nonrenewable resource	a resource that can only be replenished over millions of years
organ	a structure containing different tissues that are organized to carry out a specific function of the body (e.g., heart, lungs, brain, etc.)
organism	any living plant, animal, or fungus that maintains various vital processes necessary for life
photosynthesis	a chemical process by which plants trap light energy to convert carbon dioxide and water into carbohydrates (sugars)

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physical change	a reaction; a change in matter from one form to another, without forming new substances
planet	a large body in space that orbits a star and does not produce light of its own
pollution	any alteration of the natural environment producing a condition harmful to living organisms; may occur naturally or as a result of human activities
population	a group of organisms of the same species living in a specific geographical area
potential energy	the energy an object has because of its position or structure; stored energy
predator	an organism that preys on and consumes animals; usually an animal
prey	an organism caught or hunted for food by another organism
producer	an organism that makes its own food from the environment; usually a green plant
protist	unicellular organisms belonging to the kingdom Protista
pulley	a type of simple machine; a circular lever, usually a wheel with a groove where a rope can be placed and used to change the direction of a force
reflection	the bouncing off or turning back of light, sound, or heat from a surface
refraction	a change in the direction of a wave that occurs as it passes from one medium to another of different density
renewable resource	a resource that is replaced or restored, as it is used, by natural processes in a reasonable amount of time
resource	any material that can be used to satisfy a need
scientific method	a plan of inquiry that uses science process skills as tools to gather, organize, analyze, and communicate information
sedimentary rock	rock formed from layers of sediment that overlay and squeeze together or are chemically combined

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solar system	a star and all the planets and other bodies that orbit it; the region in space where these bodies move
solid	having a definite shape and a definite volume; one of the fundamental states of matter
solution	a mixture of two or more substances uniformly dispersed throughout a single phase
star	a large, gaseous, self-luminous body held together by gravity and powered by thermonuclear reactions
Sun	the closest star to Earth and the center of our solar system
system	a set of objects, organisms, or different parts acting to form a whole
tissue	similar cells acting to perform a specific function; four basic types of tissue are muscle, connective, nerve, and epidermal
topography	the surface, shape, and composition of a land area
universe	the total sum of all matter and energy that exists
volcano	a vent or fissure in Earth's surface through which magma and its associated materials are expelled; generally a mountain-like structure
volume	a measure of the amount of space an object takes up; also the loudness of a sound or signal
water cycle	the path water takes as it is being cycled through the environment, including condensation, evaporation, and precipitation
weathering	the natural processes that break down and change rock into soil, sand, and other materials; differs from erosion in that no transportation of those materials takes place
wheel and axle	a type of simple machine; a circular frame or disk revolving around a central axis

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(A knowledge of the terms in the Grade 5 glossary is assumed.)

abiotic	an environmental factor not associated with the activities of living organisms
acceleration	rate of change in velocity, usually expressed in meters per second; involves an increase or decrease in speed and/or a change in direction
air resistance	force of air on moving objects
allele	any of two or more alternate forms of a gene that an organism may have for a particular trait
amplitude	in any periodic function (e.g., a wave) the maximum absolute variation of the function
asexual reproduction	a form of reproduction in which new individuals are formed without the involvement of gametes
biodiversity	the existence of a wide range of different species in a given area or specific period of time
biotic	factors in an environment relating to, caused by, or produced by living organisms
calorie	unit of energy; the amount of heat needed to raise one gram of water one degree Celsius at standard atmospheric pressure
chemical weathering	the breakdown and alteration of rocks at or near Earth's surface as a result of chemical processes
circuit	an interconnection of electrical elements forming a complete path for the flow of current
conduction	the transmission of heat through a medium and without the motion of the medium
conservation of energy	a fundamental principle stating energy cannot be created nor destroyed but only changed from one form to another
convection	heat transfer in a gas or liquid by the circulation of currents from one region to another
crest	the peak or highest point on a wave

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(A knowledge of the terms in the Grade 5 glossary is assumed.)

crust	outermost layer of Earth covering the mantle
dependent variable	factor being measured or observed in an experiment
deposition	the process by which sediment is carried by forces (e.g., wind, rain, or water currents) and left in a certain area
diffraction	the change in direction of a wave caused by passing by an obstacle or traveling through an opening
dominance	tendency of certain (dominant) alleles to mask the expression of their corresponding (recessive) alleles
ecosystem	an ecological community, together with its environment, functioning as a unit
efficiency	the relative effectiveness of a system or device determined by comparing input and output
electromagnetic radiation	the emission and propagation of the entire range of electromagnetic spectrum including: gamma rays, x-rays, ultraviolet radiation, visible light, microwaves, and radio waves
electron	a stable elementary particle that is negatively charged and orbits the nucleus of an atom
entropy	a measure of randomness or disorder of a closed system
erosion	a combination of natural processes in which materials from Earth's surface are loosened, dissolved, or worn away and transported from one place to another
fossil fuels	the remains of animal or plant life from past geologic ages that are now in a form suitable for use as a fuel (e.g., oil, coal, or natural gas)
frequency	the number of cycles or waves per unit time
gene	a specific part of a chromosome or sequence of DNA that determines a particular feature or characteristic in an organism
heterozygous	cell or organism that has two different alleles for a particular trait

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homozygous	cell or organism that has identical rather than different alleles for a particular trait
independent variable	the factor that is changed in an experiment in order to study changes in the dependent variable
inertia	the property of an object, due to its mass, by which it resists any change in its position unless overcome by force
magnetic field	the region where magnetic force exists around magnets or electric currents
mass	the amount of matter an object contains
meiosis	the process of nuclear division in cells during which the number of chromosomes is reduced by half
mitosis	a process of nuclear division in eukaryotic cells during which the nucleus of a cell divides into two nuclei, each with the same number of chromosomes
neap tide	a twice-monthly tide of minimal range that occurs when the Sun, Moon, and Earth are at right angles to each other, thus decreasing the total tidal force exerted on Earth
neutral	a particle, object, or system that lacks a net charge
neutron	a subatomic particle having zero charge, found in the nucleus of an atom
nucleus	the center region of an atom where protons and neutrons are located; also a cell structure that contains the cell's genetic material
ocean basin	a depression on the surface of Earth occupied by water
plate tectonics	theory of global dynamics in which Earth's crust is divided into a smaller number of large, rigid plates whose movements cause seismic activity along their borders
potential energy	energy stored in an object due to the object's configuration and position
pressure	the force exerted per unit area

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(A knowledge of the terms in the Grade 5 glossary is assumed.)

prism	a piece of glass with polished plane surfaces that disperses a beam of white light into its component colors
proton	a subatomic particle having a positive charge and which is found in the nucleus of an atom
Punnett square	a graphic checkboard used to determine results from a particular genetic cross
radiation	emission of energy in the form of rays or waves
recessive	an allele for a trait that will be masked unless the organism is homozygous for this trait
screw	a type of simple machine that consists of an inclined plane wrapped around a cylinder
sexual reproduction	reproduction involving the union of gametes producing an offspring with traits from both parents
spectroscope	an instrument that uses a prism to separate and catalog light wavelengths
speed	amount of distance traveled divided by time taken; the time-rate at which any physical process takes place
spring tide	the tide of increased range that occurs twice monthly at the new and full phases of the Moon
thermal energy	internal energy found by adding the kinetic energy of particles making up a substance
tropism	the motion of an organism or part of an organism toward or away from an external stimulus
trough	the lowest point on a wave
variable	an event, condition, or factor that can be changed or controlled in order to study or test a hypothesis in a scientific experiment
velocity	the time-rate at which a body changes its position; defined as displacement divided by the time of travel

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(A knowledge of the terms in the Grade 5 glossary is assumed.)

vibration	a repetitive movement around an equilibrium point
virus	a noncellular, disease-causing particle that uses the genetic material from its host to reproduce
wavelength	the distance between crests of a wave
wedge	a type of simple machine that consists of an inclined plane used to separate two objects
wheel and axle	a type of simple machine that consists of a rod driven through the center of a cylinder that is allowed to rotate freely, yielding a mechanical advantage equal to the cylinder's diameter

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(A knowledge of the terms in the Grade 5 and Grade 8 glossaries is assumed.)

accuracy	the extent to which a measurement is in proximity to the standard or expected value
acid	a substance that increases the H^+ concentration when added to a water solution
activation energy	the least amount of energy required to start a particular chemical reaction
adaptation	a particular development, behavior, or physiological change in a population of organisms, in response to changes in the populations
amino acids	an organic molecule containing an amino ($-NH_2$) and a carboxyl (-COOH) group from which proteins are synthesized
aqueous	a solution containing water
astronomical unit	the average distance from Earth to the Sun, approximately 150 million kilometers
atomic number	the number of protons in an atom's nucleus; the atomic number determines an element's placement on the periodic table
base	a substance that increases the OH^- concentration of a solution; a proton acceptor
biome	a complex biotic community characterized by the interaction of living organisms and climatic factors
catalyst	a substance that speeds up or slows down the rate of a reaction without being consumed or altered
centrifugal	the motion away from center or axis
centripetal force	the force on an object required to keep this object on a circular path, pulling toward the center of the circle
compound	a substance made up of at least two different elements held together by chemical bonds that can only be broken down into elements by chemical processes
concentration	the relative amount of a particular substance, a solute, or mixture

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(A knowledge of the terms in the Grade 5 and Grade 8 glossaries is assumed.)

conservation of mass	the principle that mass cannot be created or destroyed; also conservation of matter
convergent boundary	area where two tectonic plates collide
covalent bond	a chemical bond between two atoms of the same or different elements in which each atom shares an electron
diffraction	the bending of a wave around an obstruction
DNA	a nucleic acid that carries genetic material; present in all cellular organisms
electromagnet	a magnet consisting of a coil of wire wrapped around a core that becomes strongly magnetized when current flows through the coil producing a magnetic field
electromagnetic waves	waves generated by the oscillation of a charged particle and characterized by periodic variations of electric and magnetic fields
fault	a rock fracture along which movement or displacement of Earth's crust has taken place
first law of thermodynamics	a law that states the internal energy in a system remains constant and the change in thermal energy of a system is equal to the work done on the system
genotype	the sum total of the genetic information contained in an organism
half-life	the amount of time required for half of an original sample of radioactive material to decay or undergo radioactive transformation
heat of fusion	the amount of heat energy required to convert a unit mass of substance from a solid to a liquid through melting at a constant temperature and pressure
heat of vaporization	the amount of heat energy needed to change a unit mass of substance from a liquid to a gas at its boiling point
indicator	a chemical compound that changes color depending on the pH of the solution or other chemical change

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(A knowledge of the terms in the Grade 5 and Grade 8 glossaries is assumed.)

isotope	the form of an element with the same number of protons but a different number of neutrons
Kelvin	fundamental SI unit of temperature where zero degrees Kelvin is equal to absolute zero (One degree Kelvin equals one degree Celsius.)
mass number	the total number of protons and neutrons in a nucleus
membrane	a thin layer of tissue that surrounds or lines a cell, a group of cells, or a cavity; any barrier separating two fluids
mid-ocean ridge	a continuous, seismic mountain range extending across the floor of the world's major oceans; area where two oceanic plates are moving away from each other; area where new crustal material may be released
molecule	the smallest unit of matter of a substance that retains all the physical and chemical properties of that substance; consists of a single atom or a group of atoms bonded together
momentum	a vector quantity that is the product of an object's mass and velocity; the general effect of ongoing motion
mutation	the process by which a gene undergoes a change in DNA sequence or a structural change
natural selection	the theory stating every organism displays slight variations from other organisms of its kind, and the struggle for limited natural resources results in individuals with certain natural variations adapted to their specific environments
niche	the unique position occupied by a particular species in terms of the area it inhabits and the function it performs within the community
nuclear fission	the process by which an atomic nucleus splits into two or more large fragments of comparable mass, simultaneously producing additional neutrons and vast amounts of energy
nuclear fusion	the process by which two lighter atomic nuclei combine at extremely high temperatures to form a heavier nucleus and release vast amounts of energy

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(A knowledge of the terms in the Grade 5 and Grade 8 glossaries is assumed.)

permeability	the capability of a porous substance or membrane to allow a fluid or gas to enter it; the measure or degree to which a substance can be penetrated by a liquid or gas
pH	a symbol for the measure of the acidity or alkalinity of a solution
phenotype	the appearance or other observable characteristic of an organism resulting from the interaction of its genetic makeup and its environment
precision	the degree of accuracy or exactness of a measurement or tool
product	a substance or compound resulting from a chemical reaction
protein	a biological macromolecule composed of one or more chains of amino acids
rate of reaction	the speed at which reactants are consumed and products are produced in a given reaction
reactant	any substance or molecule that participates in a chemical reaction
rift valley	a long, narrow valley in Earth's crust where two continental plates are separating or between two faults
RNA	a single-stranded nucleic acid consisting of a phosphate group and one of four nitrogenous bases that encodes information needed to synthesize proteins
second law of thermodynamics	a law that states all natural processes proceed in a preferred direction (e.g., heat flows from high temperature regions to low temperature regions)
solar mass	the quantity equal to the mass of the Sun
solubility	the ability or tendency of one substance to dissolve in another at a given temperature and pressure
species	a group of organisms of common ancestry able to reproduce only among themselves and usually geographically distinct

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stimulus	a condition that produces a response
succession	the progressive replacement, on a single site, of one type of community by another
vector	a physical quantity with both a magnitude and direction
velocity	the time rate at which a body changes its position vector; quantity whose magnitude is expressed in units of distance over time