

Science Standard Articulated by Grade Level GLOSSARY

The purpose of this glossary is to help the user better understand and implement the Science Standard. It is not intended to be a study guide for the AIMS and is not a comprehensive list of all science terms.

abiotic	nonliving
absorb	to take up (e.g., plant roots absorb water)
adaptation	hereditary features of organisms that allow them to live in a particular environment
affect	to have an influence on
affluence	plentiful supply of material goods; wealth
applied science	research aimed at answering questions that have practical applications, e.g., determining the causes of diseases so that cures might be found
asteroid	small rocky body orbiting the Sun
atmosphere	gaseous envelope surrounding the Earth
atom	smallest particle of an element that retains the chemical nature of the element
barometric pressure	atmospheric pressure as indicated by a barometer, used especially in weather forecasting
basic science	research designed to describe or explain nature to satisfy one's curiosity
bias	statistical sampling or testing error caused by systematically favoring some outcomes over others
biodiversity	<ol style="list-style-type: none"> 1. number and variety of organisms found within a specified geographic region 2. variability among organisms, including the variability within and between species and within and between ecosystems
biome	broad area of the Earth's surface characterized by distinctive vegetation and associated animal life; e.g., broad-leaf forest biome, grassland biome, desert biome
biotic	relating to life or living organisms
calorimetric	relating to the measurement of heat energy by means of temperature measurements
camouflage	concealment by disguise or protective coloring
carrying capacity	maximum number of individuals that a given environment can support for a sustained period of time
catalyst	substance, usually used in small amounts relative to the reactants, that modifies and increases the rate of a reaction without being consumed in the process
cellular respiration	metabolic processes which break down nutrients into usable energy
circuit	<ol style="list-style-type: none"> 1. closed path followed or capable of being followed by an electric current 2. configuration of electrically or electromagnetically connected components or devices
cirrus	high-altitude cloud composed of narrow bands or patches of thin, generally white, fleecy parts
characteristic	distinguishing trait, feature, quality, or property
cladistics	system of classification that constructs evolutionary trees, showing how shared derived characters can be used to reveal degrees of evolutionary relationships between existing and extinct species
classification system	method of organization of objects or organisms using distinct characteristics or features
classify	to arrange or organize according to class or category

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climate	average course or condition of the weather at a place usually over a period of years as exhibited by temperature, wind velocity and precipitation
comet	body of dust, ice, and gas, which orbits the Sun; the orbit is usually highly elliptical or even parabolic
community	group of plants and animals living and interacting with one another in a specific region under relatively similar environmental conditions
compound	substance formed from two or more elements chemically united in fixed proportions
conduction	process by which heat or electrical energy is transmitted through a material or body without gross motion of the medium itself
conifer	any of various mostly needle-leaved or scale-leaved, chiefly evergreen, cone-bearing gymnosperm trees or shrubs such as pines, spruces, and firs
conservation	Life science: the protection, preservation, management, or restoration of wildlife and of natural resources such as forests, soil, and water, to prevent exploitation, destruction or neglect Physical science: a unifying principle of constancy of a quantity under specified conditions
constellation	formation of stars perceived as a figure or design, especially one of 88 recognized groups named after characters from classical mythology and various common animals and objects
consumer	organisms requiring complex organic compounds for food, which is obtained by preying on other organisms or by eating particles of organic matter
contrail	artificial cloud created by an aircraft, caused either by condensation due to the reduction in air pressure above the wing surface, or by water vapor in the engine exhaust
controlled investigation	investigation in which all but one variable remain constant
convection	transfer of heat energy in a gas or liquid by the circulation of currents of matter from one region to another
cumulus	dense, white, fluffy, flat-based cloud with a multiple rounded top and a well-defined outline, usually formed by the ascent of thermally unstable air masses
data	factual information, from observations, organized for analysis
decomposer	organisms such as bacteria and fungi that feed and break down dead organisms, returning constituents of organic substances to the environment
deformation	alteration of shape, as by pressure or stress
deposition	1. act of depositing, especially the laying down of matter by a natural process 2. something deposited; a deposit

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distinguish	to perceive or indicate differences; discriminate
dominant	of, relating to, or being an allele that produces the same phenotypic effect whether inherited with a homozygous or heterozygous allele
DNA	(Deoxyribonucleic acid) double strand of nucleotides that is a self-replicating molecule present in living organisms as the main constituent of chromosomes; contains the genetic code and transmits the heredity pattern
ecology	study of the interactions and relationships between and among organisms and their environment
ecosystem	all the organisms in a given area and the abiotic factors with which they interact
eclipse	partial or complete obscuring, relative to a designated observer, of one celestial body by another
e.g.	abbreviation for <i>for example</i> ; precedes a non-exhaustive list of examples provided as options; other examples may be appropriate but not included (compare to i.e.)
electron	negatively charged fundamental particle in an atom
element	any of more than 100 fundamental substances that consist of atoms of only one atomic number and that singly or in combination constitute all matter
environment	sum of all external conditions affecting the life, development and survival of an organism, including the biotic (living) and abiotic (non-living) elements
erosion	group of natural processes, including weathering, dissolution, abrasion, corrosion, and transportation, by which material is worn away from the Earth's surface
eukaryotic	referring to a cell with a nucleus and other internal structure
experimentation	act of conducting a controlled test or investigation
extinct	no longer in existence
fertilization	<ol style="list-style-type: none"> 1. act or process of initiating biological reproduction by insemination or pollination 2. union of male and female gametes to form a zygote
food chain	arrangement of the organisms of an ecological community according to the order of predation in which each uses the next as a food source
food web	totality of interacting food chains in an ecological community
force	K-6: push or pull that changes the motion or shape of an object 7- HS: vector quantity that tends to produce an acceleration of a body in the direction of its application
formulate	to devise or invent
frequency	ratio of the number of times an event occurs in a series of trials of a chance experiment to the number of trials of the experiment performed; the number of cycles an oscillating system executes in one second
friction	force that resists relative motion between two bodies in contact
front (weather)	interface between air masses of different temperatures or densities

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gas	state of matter that does not have a definite shape or volume and is much less dense than a liquid because its molecules are far apart compared to their diameters
genotype	particular combination of genes in an organism
gravitation	universal force by which every body in the universe attracts every other body
gravity	attraction of the mass of the Earth, the Moon or a planet for bodies at or near its surface
greenhouse gas	atmospheric gas such as carbon dioxide, water vapor, and methane that allows incoming sunlight to pass through but absorbs infrared radiation radiated back from the Earth's surface, leading to the phenomenon whereby the Earth's atmosphere traps solar radiation
guided investigation	teacher-directed investigation
habitat	place or environment where a plant or animal naturally or normally lives and grows
hazardous waste	substance, such as nuclear waste or an industrial byproduct, that is potentially damaging to the environment and harmful to humans and other organisms
heredity	genetic transmission of characteristics from parent to offspring
heterogeneous	consisting of dissimilar elements or parts
homogeneous	uniform in structure or composition throughout
hydrosphere	aqueous envelope of the Earth, including the oceans, all lakes, streams, and underground waters, ice, and the aqueous vapor in the atmosphere
hypothesis	K-5: statement of an anticipated result of an investigation 6-HS: proposed relationship among observable phenomena or an inferred explanation for those phenomena
i.e.	abbreviation for <i>that is</i> ; precedes a specific list of items in which all of the items should be used (compare to e.g.)
igneous	relating to, resulting from, or suggestive of the intrusion or extrusion of magma or volcanic activity; rock formed from molten magma
inorganic	involving neither organic life nor the products of organic life Chemistry: of or relating to compounds not containing carbon
interdependence	state of organisms depending on each other and the environment for survival
interpretation	explanation
interrelationships	interactions between two or more objects or organisms
invertebrate	animal, such as an insect or mollusk, that lacks a backbone or spinal column
investigation	inquiry, research, or systematic examination
involuntary	not under the influence or control of the will; not voluntary; as, the involuntary movements of the body (involuntary muscle fibers)
isotope	any of two or more species of atoms of a chemical element with the same atomic number and nearly identical chemical behavior, but with differing atomic mass and mass number and different physical properties
law	statement that summarizes, identifies, or describes a relationship among observable phenomena

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lever	simple machine consisting of a rigid bar pivoted on a fixed point and used to transmit force, as in raising or moving a weight at one end by pushing down on the other
limiting factor	conditions or resources that control the size of a population
liquid	state of matter that does not hold a definite shape but occupies a definite volume because its molecules are in close contact
lithosphere	outer part of the Earth, consisting of the crust and upper mantle, approximately 100 km (62 mi.) thick
living	state of being alive
lunar	of, involving, caused by, or affecting the Moon
macroscopic	large enough to be perceived or examined by the unaided eye; large compared to a microscopic object
mass	property of a body that is a measure of its inertia and causes it to have weight in a gravitational field, that is commonly taken as a measure of the amount of material it contains
matter	anything that possesses mass and occupies volume
mean	average value of a set of numbers
meiosis	type of cell division that occurs during the reproduction of diploid organisms to produce the gametes. The double set of genes and chromosomes of the normal diploid cells is reduced during meiosis to a single haploid set in the gametes. Crossing-over and, therefore, recombination occur during a phase of meiosis
metamorphic	change in the constitution of rock; specifically, a pronounced change affected by pressure, heat and water that results in a more compact and more highly crystalline condition; a rock produced by these processes
meteor	bright trail or streak that appears in the sky when a meteoroid is heated to incandescence by friction with the Earth's atmosphere; also called falling star, meteor burst, shooting star
microscopic	too small to be seen by the unaided eye but large enough to be studied under a microscope; small compared to a macroscopic object
mimicry	resemblance of one organism to another or to an object in its surroundings for concealment and protection from predators
mitosis	cell division; cell division in multicellular organisms occurs by mitosis except for the special division called meiosis that generates the gametes
mixture	portion of matter consisting of two or more components in varying proportions that retain their own properties
model	schematic description or representation of a system, theory, or phenomenon that accounts for at least some of its known or inferred properties and may be used for further study of its characteristics
molecule	smallest particle of a chemical substance that retains all the properties of the substance and is composed of one or more atoms
mutation	change of the DNA sequence within a gene or chromosome of an organism
mutualism	close, prolonged association between organisms of two different species in which each member benefits; type of symbiotic relationship

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natural selection	process by which, in a given environment, individuals having characteristics that aid survival will produce more offspring, so the proportion of individuals having such characteristics will increase with each succeeding generation. Two mechanisms of natural selection include: <ul style="list-style-type: none"> gradualism - slow genetic modification (evolution) of a population over long periods of time punctuated equilibrium - relatively rapid evolution at a speciation event
neutron	uncharged elementary particle that has a mass a little greater than that of the proton and is present in most atomic nuclei
nonliving	objects that don't reproduce, grow, react, or use food
nonstandard units of measure	units of measurement based on everyday items (e.g., hands, feet, pace, candy, potato, paper clip) used as a precursor to learning and using standard units of measurement
mutualism	close, prolonged association between organisms of two different species in which each member benefits
nucleus	Physical science: central region of an atom, which contains more than 99% of the atom's mass Life science: cellular organelle in eukaryotes that contains most of the genetic material
observation	event that is experienced personally or enhanced through measurement or instruments
openness	mind set that allows a person to consider explanations of a phenomena
organic	of, relating to, or derived from living organisms Chemistry: having to do with carbon compounds
organism	living individual, such as a plant, animal, bacterium, protist, or fungus; a body made up of organs, organelles, or other parts that work together to carry on the various processes of life
periodic table	arrangement of the chemical elements by atomic number, starting with hydrogen in the upper left-hand corner and continuing in ascending order from left to right, arranged in columns according to similar chemical properties
pH	numerical measure of the acidity or alkalinity of a chemical solution; the negative of the logarithm of the hydrogen ion concentration
phenotype	physical or visible characteristics of an organism that are determined by its genotype
photosynthesis	chemical process by which chlorophyll-containing plants use light to convert carbon dioxide and water into carbohydrates, releasing oxygen as a byproduct
pitch	aurally perceived property of a sound, especially a musical tone, that is determined by the frequency of the waves producing it; highness or lowness of sound
plane	flat or level surface
plate tectonics	theory that explains the global distribution of geological phenomena such as seismicity, volcanism, continental drift, and mountain building in terms of the formation, destruction, movement, and interaction of the Earth's lithospheric plates; the theory that the earth's crust is broken into fragments (plates) which move in relation to one another, shifting continents, forming new crust, and causing volcanic eruptions
population	group of organisms of the same species living and reproducing in a particular habitat or geographic region

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population density	number of organisms per unit area
precipitation	any form of water, such as rain, snow, sleet, or hail, which falls to the Earth's surface
predict	to forecast a future occurrence based on past observations or the extension of an idea
prediction	statement of an expected (future) outcome of a planned test assuming that the hypothesis being tested is correct; to be compared with observed result to test the hypothesis
preservation	to keep in perfect or unaltered condition; maintain unchanged
probability	measure of the likelihood of an event occurring
procedures	series of steps taken to accomplish an end
producer	organisms (e.g., green plants) that produce their own organic compounds from simple precursors (such as carbon dioxide and inorganic nitrogen), many of which are food sources for other organisms
prokaryotic	referring to a cell with no nucleus (e.g., a bacterium)
property	characteristic attribute possessed by all members of a class
propose	to put forward for consideration, discussion, or adoption
proton	stable subatomic particle occurring in all atomic nuclei, with a positive electric charge equal in magnitude to that of an electron
pulley	simple machine consisting of a wheel with a grooved rim in which a pulled rope or chain can run to change the direction of the pull and thereby lift a load
pure science	science for the pursuit of scientific knowledge
qualitative	involving quality or kind
quantitative	involving the measurement of quantity or amount
radiation	Physical science: transfer of energy by electromagnetic radiation; process of emitting energy in the form of waves or particles (e.g., visible light, X-rays, alpha and beta radiation). Life science: the geographic spreading of a species
recessive	of, relating to, or designating an allele that does not produce a characteristic effect when present with a dominant allele
reflect	to throw or bend back (light, for example) from a surface
refract	to deflect from a straight path undergone by light or other wave in passing obliquely from one medium (e.g., air) into another (e.g., glass) in which its speed is different
reliability	to yield the same or compatible results in different clinical experiments or statistical trials
respiration	physical and chemical processes by which an organism supplies its cells and tissues with the oxygen needed for metabolism and relieves them of the carbon dioxide formed in energy-producing reactions
revolution	orbital motion about a point, especially as distinguished from axial rotation
RNA	(Ribonucleic acid) nucleic acids that contains ribose and uracil as structural components and is associated with the control of cellular chemical activities

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rotation	act or process of turning around a center or an axis; the turning of a body part about its long axis as if on a pivot
sedimentary	of or relating to rocks formed by the deposition of sediment
sexual	relating to, produced by, or involving reproduction characterized by the union of male and female gametes
simple investigation	investigation involving a single variable
solid	body of definite shape and volume; not liquid or gaseous
species	class of individuals or objects grouped by virtue of their common attributes and their ability to mate and produce fertile offspring, and assigned a common name; a division subordinate to a genus
spectrophotometer	instrument used to determine the intensity of various wavelengths in a spectrum of light
stimulus	object or event that causes a response
stratus	low-altitude cloud formation consisting of a horizontal layer of clouds
structures	way in which parts are arranged or put together to form a whole; makeup Life science: arrangement or formation of the tissues, organs, or other parts of an organism; an organ or other part of an organism
subsystem	component of a system (e.g., a solar system is a subsystem of a galaxy)
symbiotic relationship	close, prolonged association between organisms of two different species that may, but does not necessarily, benefit each member; includes mutualism, commensalisms, and parasitism
system	<ol style="list-style-type: none"> 1. group of body organs that together perform one or more vital functions 2. organized group of devices, parts or factors that together perform a function or drive a process (e.g., weather system, mechanical system)
technology	application of science, especially to industrial or commercial objectives; tools and techniques
temperature	degree of hotness or coldness of a body or environment
theory	collection of statements (conditions, components, claims, postulates, propositions) that when taken together attempt to explain a broad class of related phenomena; inferred explanations for observable phenomena
transient	not regular or permanent
U.S. customary units	measuring system used most often in the United States (e.g., inches, pounds, gallons)
valid	correctly inferred or deduced from a premise
variable	<p>characteristic with values (e.g., numbers, colors, sizes) that differ from one object, event, or situation in a group to the others; e.g., in a group of students, their heights differ, thus "height" is a variable</p> <ul style="list-style-type: none"> • independent: manipulated variable in an experiment or study whose presence or quantity determines the change in the dependent variable • dependent: observed variable in an experiment or study whose changes are determined by the presence or quantity of one or more independent variables

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vector	representation of a quantity having both magnitude and direction, such as velocity or force
velocity	rate of change of position and direction with respect to time
Venn Diagram	representation that uses circles to show relationships between sets
vertebrate	having a backbone or spinal column
viable	capable of living, developing, or germinating under favorable conditions
volume	measure of the capacity of a three-dimensional figure or object, measured in cubic units
voluntary	normally controlled by or subject to individual volition, such as voluntary muscle contractions
weathering	effect of exposure to the action of the elements
wedge	piece of material, such as metal or wood, thick at one edge and tapered to a thin edge at the other for insertion in a narrow crevice, used for splitting, tightening, securing, or levering
wheel and axle	simple machine made up of two coaxial cylindrical objects of different size in which the axle (a small wheel) is attached to the center of a larger wheel; the wheel and axle must move together to be a simple machine; a wheel and axle lifts or moves loads

Processes

analyze	to examine methodically by separating into parts and studying their interrelations
classify	to arrange or organize according to category
compare	to examine in order to note the similarities or differences of
communicate	to convey information about; make known; express oneself in such a way that one is readily and clearly understood
conclusion	statement, or statements, that summarize the extent to which hypotheses have been supported or not supported
evaluate	to examine and judge carefully; appraise
infer	to conclude from evidence or premises
interpret	to explain the meaning of
justify	to demonstrate or prove to be just, right, or valid
measure	to ascertain the dimensions, quantity, or capacity of
observe	to be or become aware of, through one's senses, and may include qualitative or quantitative data
predict	to forecast a future occurrence based on past observation or the extension of an idea
question	to ask
result	quantity or expression obtained by calculation