

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 |
| 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 | 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 |
| 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 |

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| 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 |
| 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 |
| 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 |

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| 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 |
| 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 |

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| 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 |