

Words	Description
<i>abiotic factor</i>	A non-living thing that has an effect on an organism in an ecosystem
adaptations	Changes in structures or behaviors that increase an organism's chance for survival in a particular environment
adenosine triphosphate (ATP)	Carrier of energy in cells in the body and a compound important in the making of RNA; the body produces ATP from food and then ATP produces energy as needed by the body
alpha decay	Alpha decay is one process that unstable atoms can use to become more stable. During alpha decay, an atom's nucleus sheds two protons and two neutrons in a packet that scientists call an alpha particle. Since an atom loses two protons during alpha decay, it changes from one element to another.
<i>asexual reproduction</i>	Process where a single cell can reproduce by itself
atmosphere	Thick blanket of gases surrounding the Earth EX: nitrogen, oxygen, and other trace gases
atoms	Tiny particles of matter; contain proton, neutrons, and electrons
bacteria	Small single-celled organisms classified together because they lack nuclear membranes; the most primitive living beings; help in the nitrogen cycle
beta decay	Beta decay occurs when the neutron to proton ratio is too great in the nucleus and causes instability. In basic beta decay, a neutron is turned into a proton and an electron. The electron is then emitted.
Big Bang theory	The theory that the universe originated 10-20 billion years ago from the cataclysmic explosion of a small mass of matter at extremely high density and temperature
biogeochemical cycle	Movement of elements among the solid Earth, oceans, atmosphere, and organisms EX: the same atoms of oxygen might move through the water of an ocean, be breathed in by a whale, become part of the atmosphere, move through a person's lungs, pass through a plant, become part of the soil
<i>biotic factor</i>	A living thing that has an effect on an organism in an ecosystem
catalyst	A substance that changes the speed or yield of a chemical reaction without being consumed or chemically changed by the chemical reaction
cell	Basic unit of life found in all organisms
cellular respiration	The process in which a cell breaks down sugar or other organic compounds to release energy used for cellular work; may be anaerobic or aerobic, depending on the availability of oxygen
chemical property	A characteristic of a substance that determines how it will interact to form other substances EX: flammability, reactivity
chemical reaction	A process in which the chemical properties of a substance are altered by a rearrangement of the atoms in the substance
chloroplast	Microscopic organelle in a green plant cell that is the site of photosynthesis
chromosome	Structure found in the nucleus that carries genetic information for an organism
classification	Putting things into groups based on their properties or characteristics EX: elements are grouped by number of protons

<i>classifying</i>	Grouping objects or events by their properties
climate	General weather conditions over many years
<i>collecting data</i>	Gathering and recording bits of information in an organized way
<i>communicating</i>	Using the written and spoken work, graphs, demonstrations, drawings, diagrams, or tables to transmit information and ideas to others
compound	Combination of two or more elements
conductors	Materials which permit the free flow of electrons from atom to atom and molecule to molecule (electricity)
consequences	The direct results of an action
conservation of energy	A law of physics that states that energy cannot be created or destroyed, only converted from one form to another
conservation of matter	Matter can be neither created nor destroyed, only redistributed
conservation of matter	Matter may be neither created nor destroyed. A piece of matter may undergo a change of phase or react chemically either within itself or with other matter, so it may not be recognizable in the same form, but the amount of matter does not change.
conservation of mechanical energy	A principle stating that if a system is subject only to conservative forces, such as gravitational force, then its total mechanical force stays constant EX: If an object with constant mass is in free fall, the total energy of position 1 will equal that of position 2.
conservation of momentum	A principle stating that the total linear momentum of an isolated system remains constant regardless of changes within the system
<i>constructive forces</i>	Forces that deform and change the surface of the Earth EX: crust deformation, volcanic eruption, deposition of sediment
convection current	Current of air moving or circulating within the Earth's system
covalent bonding	A form of chemical bonding formed by the sharing of electrons between atoms
density	Measure of how much mass is contained in a given volume (density = mass/volume)
<i>destructive forces</i>	Forces that wear away and change the surface of the Earth EX: weathering and erosion
<i>detrimental interaction</i>	An interaction that is harmful EX: effect of pollution by people on the earth's water or air
diffusion	The passage of molecules of one substance among those of another, from a region of greater concentration to one of lower concentration
dissipation	Loss of energy, such as heat
diversity	The number and variety of organisms in an area
DNA	Deoxyribonucleic acid; a nucleic acid molecule that contains the genetic instructions used in the development and functioning of all living organisms
<i>Earth materials</i>	Rocks, soil, water, and gases of the atmosphere
earth system	All the parts of the Earth: the atmosphere, oceans, living organisms, and solid earth together
earthquake	A tremor of the earth's surface usually triggered by the release of underground stress along fault lines
ecosystem	All populations living together and the physical parts of the environment with which they interact

electric force	Force between two electric charges; the force can be repulsion, such as the force between two objects having like charges, or it can be attraction, such as the force between two objects having opposite charges
electromagnetic waves	Waves that are created when a charged object is accelerated. EX: radio waves, microwaves, visible light, ultraviolet radiation, x-rays, infrared radiation, gamma rays
electromagnetism	Magnetism produced by electric charge in motion
electron	Negatively charged particle found in an atom orbiting the nucleus
element	Substance that cannot be broken down by chemical or physical changes; consists of only one kind of atom EX: iron, oxygen, uranium
endangered species	A species present in such small numbers that it is at risk of extinction.
energy conservation	Reducing the amount of energy used in order to preserve non-renewable resources
energy transfer	Changing energy from one form to another EX: potential to kinetic
enzyme	Complex protein that brings about a chemical change but does not change itself
erosion	The slow movement of weathered rock and soil from one place to another caused by water, wind, gravity, and glaciers
evidence	Proof or supporting data
experimenting	Designing a way to test a hypothesis
extinction	Disappearance of a species from its geographical range
faulting	A fracture in the continuity of a rock formation caused by a shifting or dislodging of the earth's crust
fission	Splitting of a large nucleus into smaller pieces
food chain	Flow of energy from one organism to another in a community
food web	Connected or linked food chains in a community
force	Push or pull on an object; can be visible (friction, collision) or invisible (gravity, magnetism)
fossil	Imprinted remains of a plant or animal in sedimentary rock that give us clues to the Earth's past
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function	The purpose or role of a body structure
fusion	The joining of two nuclei at extremely high temperatures and pressure; accompanied by the release or absorption of energy; fusion reactions power the stars and produce all but the lightest elements
gamete	A cell involved in sexual reproduction that contains only one copy of each chromosome
gene	Small part of an organism that determines a specific trait EX: eye color and hair color are determined by genes
geological time	The history of the Earth as determined by radioactive dating, rock sequences, and fossils
global climate	Average temperature, average precipitation, average wind, and other features of the Earth's atmosphere and the entire planet's surface
gravitational force	Invisible pull of gravity

gravity	Force of attraction that keeps the planets in orbit and our feet on the ground; it is a universal force that each mass exerts on every other mass.
heredity	Passing of characteristics or traits from one generation to another
homeostasis	The processes whereby the internal environment of an organism tends to remain balanced and stable
<i>hypothesizing</i>	Making predictions that can be tested in experiments
<i>identifying and controlling variables</i>	Manipulating one factor to investigate the outcome of an event while other factors are held constant. Independent/Dependent variables.
<i>inertia</i>	The tendency for an object at rest to remain at rest until acted upon by a force, and for an object in motion to maintain a constant speed in the same direction until acted upon by a force
<i>inferring</i>	Interpreting or explaining observations
<i>inherited trait</i>	Specific characteristic that is genetically determined and passed on from parent to child EX: detached or attached earlobes
insulator	Materials which slow the free flow of electrons from atom to atom and molecule to molecule (electricity)
interdependence	A natural association or connection among things in an environment
intermolecular interactions	Interactions between two or more molecules; can occur among all types of molecules or ions in all states of matter
internal energy	The total energy stored in the atoms and molecules within a substance; sources of internal energy are the decay of radioactive isotopes and the gravitational energy from Earth's original formation
<i>interpreting data</i>	Organizing, analyzing, and synthesizing data using tables, graphs, and diagrams to locate patterns that lead to the construction of inferences, predictions, or hypotheses
intramolecular interactions	Interactions between the atoms within a molecule
ionic bonding	A form of chemical bonding that results from attractions between ions with opposite electric charges; outer electrons are paired by being transferred
isotopes	Atoms having the same atomic number but different mass numbers
laws of thermodynamics	Laws of physics that govern the relationships between states of energy in a closed system: <u>first law of thermodynamics</u> (conservation)--energy is neither created nor destroyed, it changes from one form to another; <u>second law of thermodynamics</u> (entropy) -- the energy available after a chemical reaction is less than that at the beginning of a reaction, energy conversions are not 100% efficient.
magnetic force	A force that exists between two electrically charged moving particles or the force exerted between magnetic poles, producing magnetization
<i>making models</i>	Constructing mental, verbal, or physical representations of ideas, objects, or events to clarify explanations or demonstrate relationships
mantle	Layer of rock below the Earth's crust
matter	Anything that has mass and occupies space
<i>measuring</i>	Determining the size or quantity of something

meiosis	Two-step process of cell division in which the nucleus divides into four nuclei each with half the original number of chromosomes--in the case of humans, from 46 to 23--to form sperm and egg cells; when the sperm and egg cells unite at conception, each contributes 23 chromosomes so the resulting embryo will have the usual 46
mitosis	Process of cell division in which the nucleus divides and two new cells are produced, each with the same number of chromosomes as the original cell; the process of cell division used in the making of new body cells
molecule	Two or more atoms held together by an attractive force; smallest particle of a compound EX: molecule of water
mutation	Permanent change, a structural alteration, in the DNA or RNA
natural selection	A theory developed by Charles Darwin that genes which produce characteristics that are more favorable in a particular environment will be more abundant in the next generation
net force	The total force on an object when all of the separate forces are reconciled
neutron	Neutral particle of the atom found in the nucleus
Newton's Laws of Motion	Three laws that describe relationships between forces and motion: 1st law--inertia, 2nd law--acceleration, 3rd law--reciprocal action
non-polar	Lacking in polarity; characterized by an even distribution of positive and negative charges
nuclear fusion reaction	An atomic reaction in which multiple atoms combine to create a single, more massive atom
nucleic acid	High-molecular weight acid that conveys genetic information
nucleus	Tiny, positively charged center of an atom that contains protons and neutrons; much more massive than electrons
observing	Using the 5 senses (see, hear, touch, smell, taste) to find out about objects and events, their characteristics, properties, differences, similarities, and changes
organ	Body part with one or more special functions EX: heart, lungs, stomach
organism	A living plant or animal
osmosis	The flow of a more concentrated solution through a membrane to a less concentrated solution, until they are equalized; a major factor in regulating the movement of water into and out of tissues in the body
periodic table	A list of elements ordered along horizontal rows according to atomic number (the number of electrons in an atom and also the charge on its nucleus); elements with nearly the same chemical properties occur in the same column
perspective	A way of thinking about or looking at situations or topics
phenomenon/ phenomena	An observable event
phosphate bond	Oxygen and phosphorous bond to produce a functional group EX: nitrogen phosphate; bromide phosphate
photosynthesis	The process by which plants convert water and carbon dioxide into carbohydrates, using sunlight (as the source of energy) and chlorophyll
photosynthesis	The process that plants and some other organisms use to convert light energy into usable food energy

planetary objects	Planets and stars
polar	Having a pair of equal and opposite charges
population	All individuals of a species that live together in a particular place like the desert or ocean
<i>predicting</i>	Using background knowledge and prior observation to form an opinion of what will happen; not guessing
proton	Positively charged particle found in the nucleus of an atom
punnett square	A two-dimensional grid used as a tool in genetics to show the potential offspring of parents
seismic waves	Waves that are created by an earthquake
semiconductors	Solid crystalline substances having electrical conductivity greater than insulators but less than good conductors, and used especially as a base material for computer chips and other electronic devices
sexual reproduction	Process by which sex cells from two organisms join to form a new organism
<i>solar system</i>	The sun and the bodies that revolve around it EX: sun, Earth, moon, other planets
solubility	Amount of substance that will dissolve in a specific amount of another substance at a given temperature
species	Group of similar organisms that can mate and reproduce
structure	The arrangement of parts in an organism; structure and function of cell components are related
superconductor	Material that has little resistance to the flow of electricity EX: iridium, lead, mercury, niobium, tin, tantalum, vanadium, and many alloys
volcano	A vent at the Earth's surface through which magma (molten rock) and gases erupt
wave	Rythmic movement that travels through air or water by transferring energy from one particle or point to another with causing any permanent displacement
weather pattern	Repeating weather EX: several weeks of drought or heavy rainfall
<i>weathering</i>	Slow process that causes rocks to crumble, crack and/or break and changes a rock's physical form and chemical make up