

Biology Glossary

(For use with DIVE and CLEP Professor Biology)

abiotic environment - All of the physical, or non-living, components of given ecosystem.

abscissic acid - A plant hormone that controls dormancy, and inhibits other hormones.

absorption - The process in which soluble food molecules are diffused, and pass into the blood stream, usually in the small intestine.

acid - A substance with a pH less than 7, that donates a hydrogen ion when dissolved in water.

activation energy - The minimum amount of energy that is required to start a chemical reaction.

activator protein - These bind to a location of the DNA molecule, causing an increase in transcription of a nearby gene.

active immunity - Immunity caused by the body's production of antibodies or activated T cells.

active transport - The movement of a substance across a cell membrane to an area of higher concentration, using energy to do so.

adaptation - The ability of an organism to thrive in conditions different from their native environment.

adaptive radiation - The rapid diversification of a lineage, resulting in new lineages branching out and adapting differentiated traits and characteristics.

ADP - Produced when ATP loses one of its phosphate groups, it is a lower energy form of ATP.

adrenal cortex - The outer portion of the adrenal gland, which helps regulate stress response through mineralocorticoid and glucocorticoid production.

adrenal glands - Part of the endocrine system, one is located on top of each kidney.

adrenal medulla - The inner region of the adrenal gland, which works with the sympathetic nervous system to prepare the body to react in stressful situations.

aerobic cellular respiration – Also known as “aerobic respiration”, it is a metabolic process that uses oxygen to break down food to produce energy.

agglutinate - The clumping together of particles or substances. This reaction can occur if blood of different types is mixed together.

albumen - The white liquid that keeps the yolk suspended inside of an eggshell.

alcoholic fermentation - The process by which sugars are broken down and converted into cellular energy, and produce ethanol and carbon dioxide as waste.

algae - A broad group of autotrophic organisms, they are photosynthetic, but are simpler than most land based plants.

allantois - Where an embryo's metabolic waste is stored.

allele - Multiple forms of the same gene, that occupy the same locus, but have unique characteristics.

allergen - A normally harmless substance that provokes an allergic reaction.

allergy - A disorder of the immune system in which it treats harmless substances as pathogens, and attempts to fight them off.

alternation of generations - A life cycle found in plants in which it goes through alternating haploid and diploid stages.

altricial - Birds that hatch from their eggs in an undeveloped state. They lack feathers, are blind, and rely on parents to feed them by dropping food into their open mouths.

altruism - Concern for the well being of others, instead of a focus only on one's own well being.

alveoli - Small spherical chambers in the lungs where gas is exchanged.

amino acids - The building blocks of proteins.

anammoxosome (annamoxosome) - A membrane bound compartment inside the cytoplasm of some planctomycete bacteria, which is the locus of anammox (anaerobic ammonium oxidation) catabolism. Highly toxic hydrazine is an intermediate in the anammox reaction, which is probably why it is necessary for the reaction to take place inside an organelle.

amniocentesis - A method of testing a fetus to detect any genetic abnormalities.

amnion - A fluid filled sac that surrounds and cushions the embryo.

amniotic egg - An egg in which the embryo is protected by a hard or leathery shell.

amniotic fluid - A clear liquid that surrounds the fetus, and serves to nourish and protect it.

amphibian - A class of vertebrates that undergo a metamorphose, from a water breathing form at birth, to an air breathing form as an adult.

anabolic steroid - A synthetic form of testosterone.

anabolism - Energy is used to create products.

anadromous - Fish that live in salt water, but migrate to freshwater to spawn, such as salmon.

anaerobic cellular respiration – Also known as “anaerobic respiration”, it is a metabolic process that breaks down food to produce energy, without using oxygen.

anaphase - Daughter chromosomes migrate to opposite ends of the cell, pulled by kinetochore fibers.

anatomy - The study of the structure of living things, and how they are put together.

aneuploid - The addition or subtraction of one chromosome from the diploid genome.

angiosperm - A group of flowering plants that produces seeds enclosed by an ovum.

Animalia - The animal kingdom, made up of heterotrophic, multicellular, eukaryotic organisms.

annual plant - A plant that sprouts, flowers, produces seeds, and then dies, all in one year or season.

annual ring - The secondary (outward) growth of a tree in one year. Growth rate and type are affected by the seasons, which results in visible rings.

antagonists - The relaxed muscle in a pair that perform opposition actions.

antediluvian - Referring to a time before the great flood.

antennules - A smaller set of antenna found on crustaceans.

anterior - In the direction of the front.

antheridium (plural: antheridia) - Structure that produces male gametes in mosses, ferns, and some algae and fungi.

anthropogenic - Caused by humans. It often refers to harmful by products from other human activities.

antibiotic - A chemical or compound that kills or inhibits the growth of bacteria.

antibody - Proteins produced by the immune system which are used to bind to and neutralize bacteria, viruses, and other foreign particles.

anticodon - Contained on tRNA, they are a compliment to the codon.

antigen - Foreign cells, usually proteins, that prompt a response by the immune system.

apical dominance - The main or central stem is dominant over any stems branching outward from it, resulting in a conical branch pattern.

apical meristem - The area at the tip of a stem, made up of meristematic cells that can form into stem tissue, leaves, and flowers.

appendicular skeleton - The section of a skeleton made up of the limbs, and girdles attaching them to the axial skeleton.

applied science - Solving practical problems by the application of one or more fields of pure science.

arachnoid membrane - The thin, delicate middle layer of the meninges covering the brain and spinal cord.

Archaeobacteria - A kingdom made up of single celled prokaryotic organisms that are known for being able to survive in extreme conditions.

archegonium - The female structure on a plant during the gametophyte stage that holds the ovum.

artery - Blood vessels that carry blood away from the heart.

articular cartilage - A thin bluish layer of cartilage that covers the surface of the epiphyses. It provides cushioning between bones, and it important in allowing bones to move smoothly at the joint.

artificial competence - Cells are passively made permeable to DNA, by artificially creating favorable conditions that would otherwise not normally occur.

artificial selection - Selective breeding to intentionally influence specific traits and characteristics.

artificial system of classification - A method of classification based on observable physical traits and characteristics.

ascospore - Spores produced by fungi from the Phylum Ascomycota.

asymmetry - An uneven or unbalanced form. The lack of symmetry.

atom - The smallest unit of elements, made up of electrons surrounding the nucleus of protons and neutrons.

atomic number - The number of protons in an atom. It is always constant, and can be used to identify an atom.

ATP - Adenosine Triphosphate. Energy released from digested food molecules is converted to ATP, which can be used in smaller increments.

ATP synthase - An enzyme involved in the synthesis of ATP from ADP.

attenuated vaccine - Made up of live virus particles that have been altered to reduce their virulence, rendering them harmless.

autoimmune disease - A disease in which the immune system attacks the body's own cells.

autonomic nervous system - Part of the peripheral nervous system that controls automatic, or unconscious functions.

autosome - A chromosome that is not a sex chromosome.

autotroph - Organisms that make their own food, self feeding.

auxins - A plant hormone that plays a role in promoting cell growth, preventing fruit from dropping, and contributing to apical dominance.

axial skeleton - The section of a skeleton made up of the vertebral column, skull, and ribs.

B cell - Lymphocytes, or white blood cells, whose main function is to produce antibodies.

bacillus - A rod shaped bacteria.

bacterial transformation - Lateral transfer of genetic material caused by the uptake, genetic incorporation, and expression of foreign genetic material.

bacteriophage - A virus that infects a bacteria.

balanced polymorphism - The simultaneous presence of multiple distinct phenotypes, or physical traits, within the same population of a species. These separate forms remain constant and balanced.

baramin – Hebrew word referring to the created “kinds” described in Genesis and elsewhere. Organisms that we classify as different “species”, yet can hybridize, are possibly from the same baramin. However, hybridization could also be a result of different baramins with similar designs. Only God knows what the original baramins were.

basal metabolic rate - The amount of energy used during normal bodily functions, while at rest.

base - A substance with a pH of 8 or greater, that accepts protons.

benign - Does not spread into surrounding tissue.

bias - An inclination or predisposition in a certain direction that prevents an unprejudiced consideration of a question.

biennial plant - A plant that sprouts and grows in one season, then flowers, produces seeds, and dies the next season.

bilateral symmetry - An object with a top and bottom, and right and left sides. If cut top to bottom, and front to back, one half would form a mirror image of the other.

binary fission - A form of asexual reproduction in which a prokaryotic cell divides into two separate parts, both of which can grow to the size of the original.

biodegradable - Substances that can be processed and broken down.

biological magnification - The process in which a substance becomes more concentrated as it is passed up the food chain. This normally occurs in substances that are not broken down easily.

biopsy - The removal of a section of tissue or cells for medical testing.

biotechnology - Technology that is based on the use of living organisms.

biotic community - All of the biological, or living, components of a given ecosystem.

biotic potential - The maximum rate a population could grow, given optimal environmental factors such as food, water, and space.

birth canal - The channel formed by the vagina and cervix during childbirth.

birth rate - The ratio of births to population. It is usually expressed as births per 1000 individuals per year.

blastocyst – During pregnancy, it is a mass of cells produced during cleavage that forms a fluid filled sphere.

blood - A bodily fluid that delivers oxygen and nutrients to the body’s cells, and then transports carbon dioxide and waste away from them.

bloom condition - An algal bloom occurs when there is a rapid growth and accumulation of algae, caused by all factors affecting growth reaching optimal levels simultaneously.

book lungs - A type of respiratory organ found in the abdominal cavity of arachnids. Air flows over the page like folds of the lung.

botany - The scientific study of plants.

brain - The central organ of the nervous system.

breathing - The process of pulling air into the alveoli, small spherical chambers in the lungs where gas is exchanged, and then pushing the air back out of the body.

bronchi - Two tubes that branch out from the trachea to the lungs.

bud scale - The protective outer layer of a bud that covers its embryonic leaves and any flowering parts.

budding - An asexual form of reproduction that can occur in single-celled organisms such as yeast, or in organisms such as sponges. A cell or group of cells begins to grow on the parent's body, before breaking off to form a new organism.

buffer - A solution that maintains its pH properties when a strong acid or strong base is added.

bulb - A modified stem that is made up of a collection of leaves growing underground from a disc on the stem.

C3 pathway - Also known as the Calvin cycle, it is the light independent step of photosynthesis in which carbon dioxide is used to produce sugars.

C4 pathway - A pathway of photosynthesis that can take place in lower concentrations of carbon dioxide.

calorie - A unit of energy, usually used to measure the energy content of food. It is defined as the energy necessary to raise one gram of water one degree Celsius.

CAM pathway - A pathway of photosynthesis in which plants in dry climates open their stomata for carbon fixing only at night.

cambrian explosion - The relatively brief period in which all modern phyla suddenly appeared in the fossil record.

camouflage - A method of avoiding detection, through colors and shapes that help an organism blend into its surroundings.

cancer - Unrestrained cell growth that results in a lack of certain genes expressing themselves.

canopy theory - The theory that a water vapor canopy existed around the earth, which shielded the earth before the flood, and provided the water for the flood.

capillarity - The adhesion of water molecules to surrounding material. This can help move water in some plants, but is not enough to pull water from the roots to the leaves of larger plants on its own.

capillary - The smallest blood vessels, they carry blood from the arteries into the body's tissues.

capsid - The protein shell that encloses the genetic material of a virus.

capsule - A layer that surrounds the cells of certain bacteria.

carbohydrates - Organic compounds that contain carbon, hydrogen, and oxygen.

carbon cycle - The cycle in which carbon dioxide is taken from the atmosphere by plants during the dark phase of photosynthesis, and then replaced during the respiration of sugar, or from the decomposition of dead organisms.

carbon-14 dating method - A radiometric dating system that uses the amount of carbon-14 to determine the age of an object.

cardiac muscle - Involuntary muscle tissue found in the heart.

carnivorous - Animals whose main, or exclusive, source of food is other animals.

carrying capacity - The sustainable population size given the natural resources available in an ecosystem.

cartilage - Stiff but flexible connective tissue. Found in humans and many animals, it forms the skeleton of sharks.

catabolism - Products are broken down, and energy is released.

catalyst - It helps a reaction to proceed, but the catalyst itself is not changed.

caudal - Relating to the tail, or hind end.

cell wall - A protective layer that adds structure and support, found outside of the cell membrane for some types of cells.

cell-mediated immunity - The use of a variety of T cells to fight an infection, instead of antibodies.

cementum - A protective layer that covers the root of a tooth.

central dogma of molecular biology - Once information has been transferred into protein, it cannot be transferred back to nucleic acid.

central nervous system - Made up of the brain and spinal cord.

centriole - Organelles found in eukaryotic cells that are involved in organizing the mitotic spindle during cell division.

centromere - The middle of a cell, where the sister chromatids line up to attach to each other.

centrosome - Found in the cytoplasm of eukaryotic cells, it serves as the microtubule-organizing center, and plays a role in cell division.

cephalic - Relating to the head.

cephalothorax - The forward section of an arthropod, composed of the head and thorax.

cerebellum - The section of the brain that deals with fine motor skills. It does not initiate movement, but helps coordinate it. It also plays a role in some involuntary movement.

cerebral cortex - The outermost layer of the cerebrum, the gray matter.

cerebrospinal fluid - The fluid that fills any spaces between the arachnoid membrane and pia mater, and in the ventricles.

cerebrum - The section of the brain that controls voluntary muscle movement.

chelicerae - Mouth parts found on Chelicerata, such as arachnids.

chemical change - Takes place in definite proportions, and results in the formation of new compounds and/or elements.

chemosynthesis - Similar to photosynthesis, it is the process of a plant converting other chemicals to glucose.

chemotherapy - Treatment of cancer by a chemical that kills rapidly dividing cells, specifically cancerous cells.

chitin - A polysaccharide that helps add toughness and flexibility to an exoskeleton.

chlorophyll - The green pigment in plants that absorbs solar energy.

chloroplast - Organelles that serve as the site for photosynthesis in any photosynthetic organisms.

chlorosome - Photosynthetic organelles found in green bacteria.

chorion - The outermost membrane that separates a developing fetus and its mother, or shell. It contributes the fetal portion of the placenta.

chromatin - The collection of DNA and proteins found in the nucleus of eukaryotic cells.

chromatophores - Pigmented cells that reflect light, and are used to color organisms such as fish and amphibians.

chromosome - Located inside the nucleus of a cell, it consists of a long thin section made up of thousands of genes.

cilia - A tiny hair like extension from a cell's membrane that aids in sensing, movement, and feeding.

ciliate - A type of protozoan characterized by tiny hair like cilia which are used to sense, move, and feed.

citric acid cycle - Also known as the Krebs cycle, it is an important process in cellular respiration in the generation of usable energy.

clade - A group composed of a single common ancestor, and all of its descendants.

cladistics - The classification of species based on evolutionary ancestry.

cladogenesis - Evolutionary process by which one species branches into two or more different species.

cleavage - The dividing of cells as the zygote undergoes mitosis.

climax vegetation - The vegetation that establishes itself in an area, in the absence of outside disturbances.

clone - An exact genetic copy of an organism or cell.

cloning - Producing a genetically identical copy of an organism. This can occur naturally in asexual reproduction, or be performed artificially.

cnidoblast - Stinging cells found in cnidarians. They produce the nematocysts, poisonous barbs, which are used to disable prey.

coagulation - The process by which blot clots are formed.

coccus - A spherically shaped bacteria.

codominance - When neither allele completely masks the other, and both contribute to the phenotype.

codon - Made up of 3 bases on an mRNA molecule, it is the code for a specific amino acid.

coenzyme - An organic molecule that must be present for certain enzymes to function correctly.

cohesion-tension theory - See **transpiration-cohesion theory**

colloid - A mixture in which one substance made up of very small particles in the dispersed phase is evenly dispersed throughout the continuous phase.

columnar - A single unbranched stem, topped by a cluster of leaves. This type of branching pattern includes palm trees.

commensalism - A type of symbiosis in which one organism benefits, with little to no affect on the other.

common ancestor - According to the theory of evolution, all living organisms have descended from a common ancestor.

communicable disease - Diseases that are transmitted through replicating pathogens, as opposed to toxins.

competition - When interaction between members of the same species, or between different species, lowers the fitness of one of them. This is caused by a limited supply of resources used by both of them.

complete metamorphosis - The developmental process common to most insects, in which they go from egg, to larva, to pupa, and finally adulthood.

compound eye - Type of eye made up of thousands of individual lenses.

compounds - Made up of two or more different elements.

conditioned behavior - Responses that are learned through experience.

conduction deafness - When vibrations are prevented from being transmitted to the inner ear.

conidia - Asexual vegetative spores formed by a fungus.

conidiophores - Specialized stalks on which conidia are formed.

conjugation - In bacteria it is the transfer of genetic material between two cells that are temporarily connected.

connective tissues - A form of fibrous tissue involved in the structure and support of an organism, including tendons, cartilage, bones and ligaments. Blood and lymph are also considered connective tissue.

consumer - Organisms that require an outside source of food for energy.

contractile vacuole - A membrane bound cavity that pumps fluid from inside of a cell to the outside to maintain equilibrium.

control - The standard in an experiment that whatever factors are being tested are not applied to.

convergent evolution - The development of similar traits or structures in unrelated lineages.

copy number variation - Individuals normally have one pair of genes, but it is possible to have more than a dozen copies of a gene.

cork cambium - Once a stem has outgrown its original epidermal cell layer, this layer produces protective cork cells.

corona radiate - Made up of two to three layers of follicular cells attached to the zona pellucida, and used to supply proteins to the cell.

coronary circulation - The circulation of blood to and from the heart muscle.

cortex - The layer of a root or stem immediately under the epidermis, outside of the endodermis.

cotyledon - A leaf like structure inside the seed that provides energy to embryo.

countershading - A form of camouflage in which the top and bottom are colored differently, which helps reduce visibility when viewed from either side.

covalent bonds - A sharing of electrons between two elements that are non-metals.

cranial nerves - Nerves that emerge directly from the brain, are mainly associated with sensation and movement related to the head and neck.

cristae - Compartments formed by folds of the inner membrane of a mitochondrion, which are separated from the matrix by the inner membrane.

crossing over - An exchange of genetic material between homologous chromosomes.

crown - The section of the tooth that extends above the gum line.

crustose - Can refer to a lichen that grows close to the surface of a rock, tree, or other substance.

cud - Partially digested food that can be regurgitated, and chewed a second time.

cyanobacteria - Sometimes known as blue green algae, it is a bacteria that generates energy through photosynthesis.

cyst - A closed sac that protects a microorganism while in an unfavorable environment.

cytokinesis - Everything divides, and two daughter cells are formed.

cytokinins - A plant hormone that causes lateral bud growth and promotes cell division.

cytology - The study of cells.

cytolysis - When too much water enters a cell, causing it to burst.

cytoplasm - The contents of a cell enclosed by the cell membrane, excluding the nucleus in eukaryotic cells.

cytoskeleton - A network of various types of filaments branching throughout the cytoplasm. It provides structure that maintains a cell's shape, and assists in a variety of mechanical and transportation functions.

dark phase photosynthesis - ATP produced in the light phase is converted to glucose.

data - A collection of facts and information, which you may have recorded during an experiment, from which conclusions and decisions can be made.

daughter cells - The result of cell division, and each daughter cell is capable of dividing again.

daughter chromosomes - Sister chromatids that have split.

day-age theory - Each day in the Biblical account of creation represents a much longer period of time, an entire "age".

DDT - A synthetic pesticide, primarily known for killing mosquitoes. It also causes the thinning of egg shells for birds, which greatly reduced their populations, which led to it being banned.

death rate - The ratio of deaths to population. It is usually expressed as deaths per 1000 individuals per year.

decidua basalis - The part of the uterine lining that interacts with the outer layer of a blastocyst, and develops into the maternal portion of the placenta.

deciduous - Plants that shed leaves shortly before winter to conserve energy.

deductive reasoning - Starts with general statements and leads towards specifics ("logic leads to truth").

deletion - When a section of a chromosome is missing.

deliquescent - A branching pattern in which there is no dominant stem or bud in the mature plant. This can result in a rounder shape, as there is no single dominant branch.

deluge fossil formation theory - The idea that fossils were formed during the Biblical flood.

density – 1) The mass per unit volume of a substance. 2) When referring to populations, it is the ratio of people to space.

denticles - The body covering found on sharks, made up of tiny tooth-like structures that give it a sandpaper-like texture.

dentin - A bone-like substance that makes up the structure of a tooth.

dermis - The thicker layer of skin just under the epidermis, that contains nerve endings, sweat glands, hair follicles, and blood vessels.

design theorists - A proponent of the theory that nature shows tangible signs of having been designed by a preexisting intelligence.

detritus - Non-living organic matter, made up of dead leaves, animals, and excrement.

detritus food chain - The cycle that involves organisms that eat detritus, or detritivores.

diabetes mellitus - A condition in which the body cannot produce enough insulin, resulting in high glucose levels in the blood.

diaphragm - A domed sheet of muscle that separates the lungs from the abdominal organs. Contractions of this muscle are responsible for drawing air into the lungs.

diaphysis - The middle section of a long bone, that makes up most of its length.

diastole - When the heart muscle relaxes, allowing the heart to fill with blood.

dicot - Plants whose seeds contain two cotyledons.

diffusion - When particles spread out to evenly fill a space.

digestion - The process in which food is broken down into a form that can be absorbed by the body.

dihybrid cross - A cross where two hybrid characteristics are being considered.

dimorphism - Having two different forms of growth.

dinoflagellate - A broad group of single celled protists, they are characterized by the presence of two flagella. Many are photosynthetic, and some are parasitic. In bloom conditions, they can form a red tide.

diploid - Cells that contain two sets of chromosomes.

disaccharides - A carbohydrate formed by a combination of two monosaccharides.

diurnal - The behavior of organisms that are active during the day.

divergent evolution - The accumulation of differences which leads to the formation of a new species.

DNA - Deoxyribonucleic acid; it contains the genetic blueprints for all living organisms.

DNA binding protein - Proteins used to prevent separated DNA strands from re-connecting.

DNA fingerprint - A technique that is used to determine the probability that genetic material came from a specific individual or group.

DNA methylation - The modification of a strand of DNA after it is replicated, in which a methyl (CH₃) group is added to any cytosine molecule that stands directly before a guanine molecule in the same chain. DNA methylation can suppress gene expression, which can have positive or negative effects. This epigenetic effect can be influenced by food choices, and effects can be passed onto offspring, and reversed in later generations.

DNA polymerase - An enzyme that aids in the synthesis of a new strand of DNA during DNA replication.

DNA replication - The process by which all living organisms copy their DNA.

domain - The highest level of classification in the three-domain system, above kingdom.

dominant trait - Requires the presence of only one gene, inherited from one parent, to manifest itself.

dormancy - A state of inactivity caused by unfavorable growing conditions. The plant is able to conserve energy until conditions improve.

dormant bud - A bud formed in the fall that has survived winter.

dorsal - Upward, towards the upper surface.

Down's syndrome - Results from the addition of an extra chromosome 21, which was gain as a result of nondisjunction.

ductus arteriosus - A blood vessel connecting the pulmonary artery and aorta that closes as soon as a baby is born.

dura mater - The tough outer layer of the meninges that lines the inner surface of the cranium.

ecosystem - All of the combined living and non-living components that make up the environment of a limited area.

ectoderm - The outermost embryonic germ layer, that eventually forms the nervous system, hair, nails, and tooth enamel.

ectothermic - Known as "cold blooded" these animals lack the ability to generate heat internally, and their body temperate varies with the outside temperature. They have to regulate their temperature through their environment.

egestion - The process in which undigested waste products are eliminated.

egg - An immature egg cell. In humans, the primary oocyte undergoes meiosis to form a mature ovum and three polar bodies.

electron - Smaller than protons or neutrons, they have a negative charge.

electron transport chain - See **hydrogen-electron transport system**.

element - A pure substance, composed of atoms with the same atomic number, that cannot be broken down by ordinary chemical reactions.

elongation region - Located just above the meristematic region, the cells formed there begin to grow and develop.

embolus - A freely floating thrombus, or blood clot, that can become lodged in an artery and cause major damage by blocking the vital flow of blood.

embryology - A branch of science that focuses on the study of the development of an embryo.

emerging virus - A newly discovered virus, that may have existed previously, but has only recently started spreading to new areas and population groups.

emulsifier - A substance that stabilizes an emulsion, a two phase system in which one substance is evenly distributed and suspended in another, that it will not mix with.

enamel - The protective material that covers the dentin above the gum line. It is the hardest substance in the body.

endocrine - Ductless glands that secrete hormones directly into the bloodstream, where they are transported to cells containing specific receptor sites.

endocytosis - The movement of a substance into a cell. The cell membrane surrounds the material, pulling it inside.

endoderm - The innermost embryonic germ layer, that eventually forms the lining of the digestive system, the bladder, and urethra.

endodermis - Root layer that is one cell thick, and forms a barrier that incoming substances must pass through to get to the vascular tissue.

endomembrane system - The membranes that separate different sections, or organelles, of a eukaryotic cell.

endoskeleton - An internal system of bones and cartilage that provides support and structure for vertebrates.

endosperm - Tissue formed by the union of sperm with two polar nuclei, that provides nutrients to the embryo.

endospore - A dormant structure that forms a thick internal wall in some bacteria.

endosteum - Thin layer of connective tissue that lines the marrow cavity, and is used in bone growth and repair.

endothermic – 1)Known as "warm blooded", animals that generate heat internally, and maintain a constant body temperature. 2) A reaction that absorbs energy, in the form of heat.

endotoxin - A toxin that is actually a structural component of the bacteria.

energy - The ability or capacity to do work.

energy pollutants – Excess heat, light, sound, or radiation that can disrupt or harm an ecosystem.

entropy - The measure of disorder that is present in a system.

environmentalism - Concern for the natural environment, which is centered on conservation and protection of it, while also trying to improve it.

environmental determinism - The idea that an organisms surrounding is the key factor in its survival and development.

environmental resistance - Environmental factors that put constraints on population growth.

enzyme - Proteins that serve as catalysts. They can help synthesize a new compound, or break down a compound.

epiallele - Any of two or more genetically identical alleles that are epigenetically distinct due to DNA methylation.

epidermis - The outer, visible, layer of skin.

epigenetics –The study of chemical factors involved in gene expression, that produce both differences in cell types within an organism (somatic epigenetics), as well as heritable changes not caused by DNA mutations (germline epigenetics).

epigenome – A term to describe all the layers and levels of cell memory and stored information not found in the DNA.

epinephrine (adrenalin) - A hormone produced by the adrenal medulla in response to stress.

epiphyseal plate - The thin layer of cartilage found between the diaphysis and epiphyses in bones that are still growing, also known as the growth plate.

epiphyses - The rounded end of a long bone, which contains the joint structure used to attach it to another bone.

epithelial tissues - It is composed of layers of cells that form the outer and inner surfaces of organs and structures throughout the body, including blood vessels.

erythrocyte - Also known as red blood cells.

estivation - A period of inactivity that amphibians go through when temperatures get too high. To stay cool, they move to the bottom of a pond, burrow into the mud, or find a cool place to hide.

estrus - The period when a female is fertile, and her ovum are able to be fertilized.

ethanol - A high energy product of alcoholic fermentation.

ethylene - A plant hormone that causes fruit to ripen, and promotes the detachment of leaves, flowers, and fruit.

etiolated - The result of a plant not receiving enough light. Stem growth increases, while leaves are reduced. The plant will be a pale green, yellow, or whitish color.

etiology - Study that deals with the origin, or causation of a disease.

Eubacteria - A kingdom that is composed of a very wide variety of single celled prokaryotic organisms. It covers what most people think of as bacteria.

eugenics - The study of an individual's genetic quality, and selective breeding in humans.

euglenoid movement - Expansion and contraction of the pellicle, which gives a euglenoid its shape, creating movement.

eukaryote - An organism whose cells contain a nucleus.

euploidy - Having multiples of the haploid number of chromosomes.

eustachian tube - A tube that connects the middle ear cavity to the throat.

eutrophication - The buildup of chemical nutrients in an ecosystem to the point that it can have a harmful effect, by the excessive growth of one organism. This is seen when fertilizer run off causes excessive algae growth in water, which disrupts the ecosystem, and kills off many other organisms.

excretion - The process by which waste products are eliminated.

excurrent - A conical pattern of branches.

exocrine - Glands such as sweat, sebaceous, and mammary glands that transport secretory products to the surface of the body through ducts.

exocytosis - The movement of a substance out of a cell membrane. The membrane bound vesicle fuses with the cell membrane, and then releases its contents outside of the cell.

exon - Sections of the DNA base that contain the coding information for amino acid sequences, they are separated by introns.

exoskeleton - An external system of plates that provides protection and support.

exothermic - A reaction that releases energy, in the form of heat.

exotoxin - A toxin secreted by a microorganism, that may cause damage to the host.

expiration - The emptying of air from the lungs.

expiratory reserve volume - When exhaling, it is the amount of air a person can force out of their lungs, after the tidal volume.

external digestion - The process in which an enzyme is released that helps digest nutrients, before an organism ingests or absorbs them.

external respiration - The step of respiration in which oxygen is transferred from air inside the alveoli, into the blood.

eyespot - A photoreceptive organelle that allows cells to orient themselves towards or away from light.

fact - Something that actually exists, that has been observed or experienced.

facultative anaerobe - Bacteria that will grow in both aerobic and anaerobic conditions.

faith - Confidence or trust in something, that is not based on actual proof.

fat bodies - A mass of fatty tissue that frogs use as an energy reserve.

fats - A compound made up of three fatty acids connected to a glycerol molecule.

feedback mechanism - The method of hormone regulation in which hormones produced in one gland control the hormone production of another gland.

fermentation - The anaerobic process in which carbohydrates are broken down into pyruvic acid, which is then broken down into alcohol and lactic acid or carbon dioxide.

fern - Lacking seeds and flowers, they reproduce through spores. They are vascular, and have stems, roots, and leaves commonly referred to as fronds.

fertility rate - The average number of children born to a female throughout her lifetime.

fertilization - The union of a sperm and an egg, that produces a zygote.

fertilizers - Chemicals that can be added to the soil to increase, or replenish, the nutrients necessary for plants to grow.

fetus - The stage in which the embryo starts to develop recognizable features, which is approximately 8 weeks after fertilization in humans.

fever - An increase in body temperature by the immune system trying to fight a bacterial or viral infection.

filament - 1) A long chain of cells. 2) The stalk attached to the stamen, the male organ of a flower.

first filial generation - Known as the F1 generation, it is the first generation of offspring from a specific cross of parents.

First Law of Thermodynamics - States that energy can be converted from one form to another, but cannot be created or destroyed.

flagella - A complex whip like extension from a cells membrane that acts as a propeller in moving a cell.

flame cell - Specialized cells which serve as an excretory system for certain invertebrates such as flatworms.

flight feather - Large vaned feathers with interlocking rows or barbules.

flower - Structure that forms the reproductive organs of flowering plants.

flowering plant - Plants in which seeds grow within an ovum, inside a flower.

fluid mosaic model - It describes the composition of a cell membrane as protein molecules floating in a fluid layer of phospholipids.

foliose - A flat leafy type of lichen.

follicle - 1) A hair follicle contains the hair root, and forms hair by packing dead cells together. 2) Tiny structures found in the ovary that each contain a single immature ovum.

food - A substance that can be eaten, and processed for nutritional value.

food chain - A simple linear representation of the nutritional relationships among the various species within an ecosystem.

food poisoning - An illness that is caused by eating food contaminated by a toxin.

food web - A complex representation of all of the possible nutritional relationships between organisms in an ecosystem.

foramen ovale - An opening between the right and left atrium that closes as soon as a baby is born.

fragmentation - An asexual form of reproduction in which the organism breaks into separate fragments, which each develop into a clone of the original.

frond - A long, divided leaf belonging to a fern.

fruticose - A type of lichen that has small branches that bear fruiting bodies at the ends.

fruit - The mature ovary of a flowering plant that encloses its seeds.

fruiting body - A multicellular structure which holds spore producing structures.

Fungi - Kingdom composed of heterotrophic organisms that feed on decaying organic matter, and includes mushrooms, yeasts, and molds.

fungicide - A biological organism or chemical compound that will kill fungi and fungal spores.

gametes - In organisms that reproduce sexually, it is a cell that fuses with another during fertilization.

gametogenesis - The production of haploid gametes.

gametophyte - The haploid stage of a plant going through alternation of generations, in which it produces gametes through mitosis.

gap theory - Evolutionary ages spanning millions of years took place before the 7-day creation week described in the Bible.

gastrula - An embryonic stage following the blastula, in which it is a hollow sac like structure composed of the ectoderm, mesoderm, and endoderm.

gemmule - A means of asexual reproduction found in sponges, they are made up of a group of cells covered by a tough protective coat. When harsh conditions kill the parent, they remain dormant. When conditions improve, the gemmule opens and a new sponge begins to grow.

gene duplication - When a group of genes is duplicated.

gene expression - When information from a gene is actually put into use.

gene inversion - When the order of a group of genes is reversed.

gene pool - All of the possible alleles for a given species.

gene therapy - Inserting genes into an organism's cell to replace defective genes.

gene translocation - Information from one of two homologous chromosomes breaks and binds to the other.

gene - Genes are made up of DNA.

genetic disorder - A disease or illness caused by an abnormality in the genes of an organism.

genetic entropy – A fundamental biological principle stating that, apart from intelligent intervention, the total functional information within living systems (excluding viruses) must decrease with time.

genetic engineering - Directly manipulating an organisms genes.

genetic screening - Testing to determine the presence of inherited diseases.

genetics - The study of heredity.

genome - The entire hereditary information of an organism, contained in every gene on every chromosome.

genotype - The genetic composition of alleles concerned with a specific trait.

genus - A grouping of similar organisms, that contains multiple species.

genus-species name - The scientific name for an organism, it is composed of the final two layers of the classification of that specific organism.

geotropism - The movement or growth of a plant that is in response to gravity, demonstrated by the upward growth of young plants.

germination - The process in which the embryonic plant inside of a seed begins to grow. This can only happen when temperature, moisture, and oxygen reach required levels for that particular type of plant.

gestation - The length of time that it takes an embryo to develop.

gill slits - A series of openings that lead to the chamber containing the gills. These are found in some jawless fish, and in cartilaginous fish, such as sharks.

globulin - One type of protein found in blood plasma.

glottis - The vocal folds, or chords, and the space between them.

glucagon - A hormone that stimulates the production of glucose, to raise the blood sugar level.

glucocorticoid - A hormone produced by the adrenal cortex that plays a role in regulating the metabolism of carbohydrates, fats, and proteins.

glucose - A monosaccharide, or simple sugar, containing 6 carbons.

glycogen - Molecules that serve as long term energy storage in animal cells.

glycolysis - The anaerobic process by which glucose is broken down into 2 pyruvic acids, hydrogens, electrons, and produces 2 ATP molecules.

goiter - A swelling in the thyroid gland, caused by iodine deficiency, or a problem with the thyroid.

golgi apparatus - Organelles found in eukaryotic cells that process and store large molecules including proteins and lipids.

gonad - The organ that produces gametes; reproductive organ.

green gland - Glands that filter waste out of the bloodstream of an arthropod.

growth rate - The rate at which a population increases, or the change in population over time.

guard hair - A visible layer of fur that grows over the underhair, and is longer and coarser.

gullet – 1) A passage that takes food to the digestive tract. 2) A fold or sheath in some protozoans into which food is taken into from the oral groove.

gymnosperm - A group of vascular non-flowering seed bearing plants, "naked seeds". This group includes the phylum Coniferophyta.

habitat - The natural environment of a specific organism.

half-life - The average length of time required for one half of a given substance to decay.

haploid - A cell that contains a single set of unpaired chromosomes.

haustoria - It is the hyphal tip used by parasitic fungi to penetrate the host's tissue, but remain outside of its cellular membrane.

Haversian system - Cylindrical structures that make up the fundamental functional unit of compact bone.

helicase - A type of enzyme used to separate, or "unzip", strands of DNA during processes such as DNA replication.

hemocytoblast - Stem cells found in the bone marrow that develop into all different types of blood cells as needed.

hemoglobin - The red pigment found in blood cells that carries oxygen.

hemotoxin - A slower acting toxin that destroys red blood cells, damages blood vessels, and disrupts clotting. It can be more deadly to large animals than a neurotoxin.

herbivorous - Animals that feed on plants.

heredity - The transmission of traits and characteristics from parents to their offspring.

heterocyst - A specialized nitrogen fixing cell that is formed by some filamentous cyanobacteria.

heterogametes - Male and female reproductive cells, the smaller sperm fertilizes the larger egg.

heterotroph - Organisms that depend on other organisms for food.

heterozygous - When each allele is different, meaning it carries the dominant and recessive trait.

hibernation - A state of reduced metabolic activity in animals, usually done in winter when food is scarce. By using food and energy at a greatly reduced rate, they can survive for days to weeks.

helium - The point where a seed was attached to the ovary wall.

histology - The study of tissue and cells, on a microscopic level.

histone - The main protein found in chromatin, where it is wrapped in DNA.

holdfast - The anchoring base of algae.

homeostasis - When the rate of anabolism equals that of catabolism, and amount of energy being stored is the same amount that is being released.

homologous structures - Similar body parts on organisms of different species, but sometimes serve different functions.

homologous - Similar, they share the same characteristics in the same order.

homozygous - When both alleles are identical.

hoofed mammals - Or "ungulates", they include the orders Perissodactyla, odd toed, and Artiodactyla, even toed.

hormone - Chemicals that produced in the endocrine glands, then travel through the blood stream to interact with certain areas or organs.

host - An organism that serves as a habitat for a virus or bacteria.

hox genes - An important gene in the development of embryonic segment structures.

humoral immunity - The production of antibodies which are used to fight infections.

humus - Dead organic matter.

hybrid vigor - When a hybrid is stronger and possesses more desirable traits than either of its parents.

hybridization - Breeding between two genetically unrelated organisms of the same species, or from very closely related species, to form a new hybrid.

hydrogen and electron transport system - A process in aerobic respiration that produces ATP energy.

hydrogen bond - A weak bond formed between positively charged hydrogen and a negatively charged atom.

hydrolysis - A chemical reaction in which water helps break down other molecules.

hydrophilic - Physical property of polar molecules being attracted to water, and forming hydrogen bonds with water.

hydrophobic - Physical property of non-polar molecules that repel water.

hypersecretion - The production of too much of a substance.

hypertension - A condition in which blood pressure is elevated.

hypertonic solution - A solution that has a greater solute concentration than the solution on the other side of a membrane.

hyphae - A long thin filament that makes up the body of a fungus.

hypocotyl - The stem of an embryonic plant, where it is attached to the cotyledon.

hypoglycemia - A condition in which the body produces too much insulin, resulting in a drop in glucose levels in the blood.

hyposecretion - The production of too little of a substance.

hypothalamus - Located below the thalamus, it controls many involuntary functions, and hormones released by the pituitary gland.

hypothesis - An educated guess, based on preliminary research and broad ideas, that can then be tested and verified or not.

hypotonic solution - A solution that has a lower solute concentration than the solution on the other side of a membrane.

immune - Having the capability fighting off, or resisting the effects of, an infection.

immunity - Being immune.

implantation - The attachment of the blastocyst to the inner wall of the uterus, during which the placenta forms.

in vitro fertilization - A process in which the egg is fertilized in a laboratory, and then implanted into a uterus.

Inactivated vaccine - Made up of dead virus particles, it cannot reproduce, but still provokes a response by the immune system.

inborn behavior - Instinctive or reflexive behavior that an animal possesses from birth.

incomplete dominance - When an allele for a certain trait is does not completely mask the other.

incomplete metamorphosis - The developmental process which goes from egg, to nymph, and after a series of moltings, to adult.

incubation period - The period of time it takes for symptoms to appear after exposure to a pathogen.

induced mutation - A mutation caused by a mutagen, such as chemicals, radiation, or viral infections.

Inductive reasoning - Starts is facts and works towards general conclusions (science).

inflammation - An organism's reaction to irritation, injury, or infection of the skin or vascular tissue. It helps remove harmful matter and dead tissue, as well as stimulate healing.

information – The sending and receiving of knowledge or intelligence.

ingestion - The consumption of a substance, normally food.

inner bark - Made up of secondary phloem and the cortex.

inner membrane space - The space between the inner and out membrane of a mitochondrion.

insertion - The location of a muscle tendon that is attached to a bone that moves in relation to the origin.

inspiration - The filling of the lungs with air.

inspiratory reserve volume - The extra amount of air that a person can inhale, in addition to the tidal volume.

integumentary system - The protective covering of a body, primary made up of skin, but also includes appendages such as hair, feathers, scales, and nails.

intelligence - The capacity to process information, and use that to manipulate the environment, communicate, or solve problems.

intelligent design theory - The theory that certain features of the world and living things were designed by an intelligent cause.

interactome – The whole set of molecular interactions in a cell. Also known as the cell's "Internet" system.

interbreeding - Breeding between members of a population.

interferons - Proteins released by the cells in response to pathogens, which stimulates a response by the immune system.

internal respiration - The step of respiration in which oxygen is transferred from the blood, into body cells.

interphase - Consists of the three stages, G1-growth, S-replication, and G2 - mitosis preparation.

intron - A noncoding sequence of DNA that divides exons.

inversion - When a section of a chromosome is broken off, and reattached in reverse.

ionic bonds - A transfer of electrons from one element to another.

irreducibly complex system - A system that is too complex to have naturally evolved from a simpler system.

isogametes - Reproductive cells that are of similar size and shape from both sexes.

isomer - Compounds that have identical molecular formulas, but different structural formulas.

isotonic solution - A solution that contains the same concentration as the solution on the other side of a cell wall.

isotope - Atoms that have the same number of protons, but different numbers of neutrons.

Jacobson's organs - An organ that aids in the sense of smell, especially in snakes.

joint capsule - A sheath made of connective tissue that covers the connecting bones at a joint.

joints - A location where two or more bones make contact.

keel - The central ridge of a bird's sternum that allows for flight muscles used in flight to be attached.

kidney - Organs that filter waste from the blood, forming urine.

kin selection - Behavior by an organism that benefits its relatives, at its own expense.

kinetochore - Located at the centromere of the chromosome, they are structures made of protein that spindle fibers attach to during cell division.

kingdom - The highest level of classification in the six kingdom system, or the second level under domain in the three domain system.

kingdom Plantae - Organisms belonging to the plant kingdom are characterized as being autotrophic, photosynthetic, multicellular eukaryotes that contain cellulose in their cell walls.

Koch's postulates - Criteria for establishing whether a disease was caused by a given bacteria.

Krebs cycle - See **citric acid cycle**

k-selection - Species that maintain population equilibrium during times of abundant resources, or in times of lean resources. They are characterized by having fewer offspring that usually require more parental care, and longer life spans.

labor - A term used to describe the birthing process.

lac operon - Made up of three adjacent structural genes, a promoter, a terminator, and an operator, it is required for the transport and metabolism of lactose.

lactate – A salt, or an ester of lactic acid.

lactic acid fermentation - The process by which sugars are broken down and converted into cellular energy, and produce lactate as waste.

larva - The wormlike stage of an insect undergoing metamorphosis. Its primary purpose is to feed.

larynx - An organ found in the necks of mammals that contains the vocal cords.

lateral - Towards the side.

law - An established principle or scientific generalization that is believed to be universally true.

Law of Independent Assortment - During gamete formation, alleles of different genes assort independently of each other.

Law of Segregation - When any individual produces gametes, the copies of a gene separate, so that each gamete receives only one copy (the haploid number of chromosomes).

leaf - An organ of plants that carries out photosynthesis.

lethal - Something that could cause the death of an organism.

leucocyte - Cells used by the immune system to fight infection, also known as white blood cells.

lichen - A composite organism that is formed by the symbiotic relationship of a fungus and a photosynthetic algae.

life history - The reproductive cycle of plants and animals.

ligament - Fibrous bands of connective tissue that hold bones together at a joint.

light phase photosynthesis - Light energy from the sun is collected by pigment in the chloroplasts, and then converted to ATP.

lignin - A complex chemical compound that provides strength and stiffness in the secondary cell wall of plants and some algae.

Linnaean taxonomy - The classification of species based on rank, from most general to most specific.

lipids - A diverse group of molecules containing fats, waxes, and sterols; they are insoluble in water.

literal interpretation - The idea that Creation took place exactly as described in the Bible, over a period of 7 days.

loam - Soil that is composed of a mixture of sand, silt, and clay.

locus - Identifies a specific location of a gene, or allele, on a chromosome.

lumen - The inner channel or cavity of a tubular structure, such as the compartment formed by the thylakoid membrane.

lung - The main respiratory organ involved with transferring gases from the air into the blood.

lymph - Fluid that is absorbed by lymph capillaries from the spaces between cells, then returned to the blood stream.

lymph capillary - Extremely small thin walled vessels that absorb excess fluid from between cells.

lymph node - Small organs located along the lymph vessels that filter out foreign particles, and fight infections.

lymph vessel - Vessels that are fed by lymph capillaries, and carry lymph back through lymph nodes, and eventually back into the blood stream.

lysosome - An organelle that contains enzymes used to digest food, or other substances.

lytic cycle - The primary source of viral reproduction, which results in the death of the host cell.

macroevolution - The idea that all current organisms originated from an original single celled organism.

macronucleus - A larger nucleus found in ciliates, it controls metabolic functions.

malaria - Caused by a type of parasitic type of protozoan, called a Sporozoan, that infects the liver and blood.

malignant - Will spread into surrounding tissue and become worse.

Malthusianism – The theory that if unchecked, human population grows in an exponential manner, while food supplies increase in a linear manner. Eventually population exceeds food supply, reducing individual wealth, unless it is limited by wars, disease, or famine.

mammary glands - The organs found in mammals that produce milk used for the nourishment of their young.

mantle cavity - The void in between the body of a mollusk, and its mantle.

marrow cavity - The hollow central cavity that extends the length of the diaphysis.

marsupials - Mammals that give birth to young with must then be nourished in a pouch, where they complete their development.

mass - Usually used interchangeably with weight, because an objects mass and weight are proportional to each other. The quantity of inertia possessed by an object that can be multiplied by the acceleration due to gravity to determine its weight.

matrix - The nonliving component of tissue that forms a network or frame that other cells are supported or suspended by.

matter - Anything that takes up space, and has mass.

maturation region - Located just above the elongation region, the cells begin to differentiate to form various tissues.

medulla oblongata - Located at the tip of the spinal cord, it is the lower part of the brainstem. It regulates functions such as heart rate, breathing, and blood pressure. It also transmits impulses to and from the spinal cord.

medusa - A form of cnidaria that swims by expanding and contracting its bell shaped body. The jellyfish is a medusa.

megaspore - Spores that mature into the female gametophyte.

meiosis - A two stage process of cell division which results in four haploid gametes.

melanin - The pigment that produces color in skin.

melanocyte - Melanin producing cells located at the bottom of the epidermis.

membrane protein - Proteins within the phospholipid layer that transport water soluble substances across the lipid bilayer.

meninges - The system of protective membranes that covers the brain and spinal cord.

meristematic region - Made up of meristematic tissue located at the tip of the root, where the undifferentiated cells are reproducing through mitosis.

meristematic tissue - Located in the buds, roots, and stems of plants, it is made up of undifferentiated cells that can form any tissue of that particular plant.

mesoderm - The middle embryonic germ layer, that eventually forms bones, muscle, and connective tissue.

mesosome - A fold in the plasma membrane of bacterial cells.

messenger RNA - RNA that is transcribed from a DNA template, and carries coding information to the ribosomes.

metabolism - It is the difference between rates of anabolism and catabolism.

metallic bonds - In a bond between metals, electrons are shared among a lattice of atoms.

metamorphosis - Developmental process in which the organism go through abrupt, distinct changes in form.

metaphase - Sister chromatids line up along the equatorial plane.

microevolution - Changes in the relative frequencies of alleles in the gene pool.

microfilaments - Composed of the protein actin, it is the thinnest filament found in the cytoplasm.

micronucleus - A smaller nucleus found in ciliates, it controls sexual reproduction.

micropyle - A small opening at the entrance of the ovule.

microspore - Male reproductive spores that develop into sperm cells, or pollen tubes.

microtubules - A type of filament made up of the protein tubulin. It is one of the main components of the cytoskeleton and the eukaryotic flagellum.

midbrain - The region of the brain between the thalamus and the pons, it contains the centers for body movement, and relays impulses related to movement.

migrate - When an animal travels to a new location for improved environmental conditions, on a seasonal or annual basis. Birds travel some of the longest distances in their annual migrations.

migration - Movement of organisms to a different habitat.

migration rate - The rate at which new individuals migrate into an area. The net migration rate is the difference between individuals entering an area, and those leaving.

mimicry - When a harmless organism looks similar to a more dangerous organism, that would be predators are wary of.

mineralocorticoid - A hormone produced by the adrenal cortex that plays a role in regulating salt and water balance in the body.

missing link - Intermediate forms of life that would have to exist for one species to evolve into a different one.

mitochondria - Organelles that serve as the site for cellular respiration, breaking down glucose and forming most of a cell's ATP.

Mitochondrial Eve - The female most recent common ancestor, who passed down the mitochondrial DNA present in all humans.

mitochondrial matrix - The location of the citric acid cycle.

mitosis - The process by which a cell separates the chromosomes in its cell nucleus into two identical sets in two nuclei.

mixtures - Two or more substances that are mixed together.

molecular clock - The use of genetic information combined with fossil data to find the point at which two species diverged.

molecular formulas - Expresses how many atoms of each element that are in a chemical compound.

molecules - Made up of two or more different, or similar elements.

molt - The process in which an exoskeleton is shed, so that an arthropod can grow, before forming a new, larger exoskeleton.

monocot - Plants whose seeds contain one cotyledon.

monohybrid cross - A cross where only one trait is being tracked.

monosaccharides - The simplest form of sugar, it is the most basic unit of carbohydrate.

monotremes - Mammals that lay eggs, which are then incubated similarly to birds.

mosaic evolution - The theory that evolution occurs in a series of unevenly spaced stages.

most recent common ancestor - The most recent individual from which all organisms in a group are directly descended from.

motor proteins - They use the cytoskeleton system as a network of tracks to transport chromosomes and other components throughout the cell.

mucus - A slimy substance secreted by glands under the scales of a fish. It forms a waterproof coating that protects the fish, and helps reduce friction as it swims through the water.

mulch - Decomposing organic matter that can be used to replenish the nutrient content of soil.

multiple alleles - A set of three alleles.

multiple gene interaction - When two or more different genes each have an impact on a given trait.

muscle fibers - Long cylindrical multi-nucleated cells that are bundled together to form muscle tissue.

muscle tissues - It has the ability to contract, creating movement. This can be movement of limbs or structures, or the movement of a substance.

mutation - A change in the DNA of an organism.

mutagen - A chemical or physical agent that induces changes in DNA.

mutation-selection theory - The theory that genetic mutations are responsible for the evolution of life.

mutualism - A type of symbiosis in which both organisms benefit.

mycelia - A mass of hyphae that forms the body of a fungus.

naiad - A nymph that develops in the water until it reaches its adult form.

nasal cavity - The chamber into which air is drawn into, where it is filtered, warmed, and humidified before passing into the rest of the respiratory system.

nastic movement - Movements caused by a gain or loss of turgor in certain cells. This is the mechanism by which certain flower petals close at night, and open in the morning.

natality - The birth rate, or ratio of births to population size in a given area.

natural competence – A cell's ability to take up DNA in normal laboratory conditions.

natural history research – Research performed to interpret unobservable and unverifiable past events. Involves the use of scientific tools, as well as inputs from other disciplines such as philosophy, history (including historical documents like Scripture), and theology.

natural selection - Organisms that are best suited to their environment have a better chance of survival, and the chance to pass down desirable traits.

natural system of classification - A method of classification based on biochemistry and genetics characteristics.

neck - The narrow band of a tooth that is surrounded by the gums, in between the crown and root.

nerve cord - Nerve tissue that runs the length of the body, dorsal to the notochord or vertebral column. It is a main component of the nervous system.

nerve deafness - Caused by malfunction of, or damage to the cochlea, auditory nerve, or brain.

nerve net - A simple nervous system that consists of interconnected nerve cells that allow an organism to respond to stimulus for actions such as feeding. It is found in cnidarians, such as hydra.

nervous tissues - It is made up of nerve cells that transmit and receive impulses, and is used in sensory input, muscle control, and mental activity.

neural tube - A tube made of ectodermal cells in an embryo, which eventually develops into the spinal cord.

neuron - Also known as nerve cells, they process and distribute impulse, and are the core components of the nervous system.

neurotoxin - A fast acting toxin that specifically targets the nervous system, causing paralysis.

neurulation - A process in the development of the central nervous system in an embryo, in which the neural plate develops and then forms the neural tube.

neutral mutation - A mutation that is neither beneficial, nor harmful, to an organism.

neutron - Particles that have a neutral charge.

niche - The specific role that an organism fits into in its habitat.

nictitating membrane - A transparent membrane similar to an eyelid, that slides across a frog's eye to protect it and keep it moist.

nocturnal - The behavior of organisms that are active during the night.

nondisjunction - When chromosome pairs fail to separate during meiosis, resulting in a cell with one too many or too few chromosomes.

norepinephrine - A hormone produced by the adrenal medulla, that works with epinephrine in response to stress.

nose - The external structure on the face, and the nasal cavity located behind it.

notochord - A tough, flexible rod that runs the length of the body, and is present in members of the phylum Chordata at some stage of their development. In many, it is replaced by the vertebrae prior to birth or hatching.

nuclear area - A non-membrane bound region that contains a prokaryotic cell's genetic information.

nuclear pore - Openings in the nuclear membrane through which molecules pass into and messenger RNA passes out of.

nucleobase - Sometimes simply referred to as "bases", they are the parts of DNA and RNA involved in pairing. They are mainly composed of cytosine, guanine, adenine, thymine, and uracil.

nucleoli - A structure located in the nucleus of a eukaryotic cell that produces ribosomal RNA.

nucleosomes - Coils formed by chromatin, which are then coiled to form chromosomes.

nucleotide deletion - Removal of nucleotide causes the remainder of the sequence to be out of order.

nucleotide insertion - Addition of nucleotide causes the remainder of the sequence to be out of order. It is also referred to as a frame shift mutation.

nucleotide inversion - Portion of nucleotide is reversed.

nucleotide substitution - The replacement of a nucleotide.

nucleotides - Consisting of a sugar, a phosphate, and an amino acid, they are the pieces that make up RNA and DNA.

nymph - The intermediate stage of an insect going through incomplete metamorphosis. It looks similar to the adult form when it initially hatches from the egg, but lacks wings and reproductive organs.

obligate aerobe - Bacteria that only grow in the presence of oxygen.

obligate anaerobe - Bacteria that only grow in the absence of oxygen.

obligate parasite - A parasitic organism that cannot survive independent of its host.

observation - The act of receiving information through the senses, and recording it.

olfactory lobe - The section of the brain that is involved in the perception of odors.

olfactory receptors - Neurons located in the sinus cavities that are responsible for detecting odors.

olfactory sac - Small pouches located used by fish to smell water, and anything dissolved in it.

omnivore - Organisms that can consume plants or animals as their primary source of food.

oncovirus - A virus that can cause cancer .

oogenesis - Similar to meiosis, but the sizes of the cells are different, and you end with 3 polar bodies and one ovum.

oogonium - An undeveloped ovum.

open circulatory system - Instead of being restricted to blood vessels, blood is pumped into cavities in which the organs are bathed.

operator - The segment of DNA between the promoter and the genes of the operon, which the activator protein or repressor protein binds to.

operon - A unit that produces mRNA. It is made up of a sequence of DNA that includes, and operator, promoter, terminator, and one or more structural genes.

optic lobe - The section of the brain involved in the perception of visual information.

oral groove - A depression which allows some types of protozoa to take in food.

organ system - A group of organs that work together to achieve a common task.

organ - A collection of tissues that are grouped together to carry out a common function.

organelle - Specialized cell components that carry out specific tasks.

organic chemistry - The branch of chemistry that deals with compounds containing carbon.

origin - The origin of a muscle is found where the tendon is attached to the more stable bone.

orthologs - Homologous, or very similar, sequences of genetic material found in different species that have been passed down from a common ancestor.

osmoregulation - Regulating the osmotic pressure of the body's fluid by ensuring that it does not get too dilute, or too concentrated.

osmosis - Diffusion of water through a semi-permeable membrane, from an area of low solute concentration, to an area of higher solute concentration.

osmotic pressure - The force water molecules exert on a semi-permeable membrane when there is a greater concentration on one side.

ossification - The process in which calcium and other minerals are introduced to the cartilage matrix, as it forms into bones.

osteocytes - Living bone cells that are fed by fluid from the Haversian blood vessels.

outer bark - The outer layer of dead cork cells, that is continuously being split by the secondary growth of a tree, and added to by the cork cambium.

ovary - 1) The female reproductive organ that produces ovum, or eggs. 2) The female reproductive structure of a plant that houses the ovule, and once the ovule is fertilized, it matures into a fruit surrounding the seed.

oviparous - Animals that lay eggs, in which all or most of the embryonic development takes place outside of the mother.

ovoviviparous - Animals in which the embryo develops inside eggs that stay inside the mother's body.

ovule - Structure containing the female reproductive cells, which matures into a seed after fertilization.

ovum - A female reproductive cells, or gamete.

oxygen cycle - The process in which living organisms take in oxygen that has been released from plants during photosynthesis and is either dissolved in water or in atmospheric gases, for use in respiration, and release carbon dioxide.

oxygen debt - A build up of lactic acid in the muscles and liver that is caused by a lack of oxygen.

palate - The structure that separates the top of the mouth from the bottom of the nasal cavity.

pantheism - The belief that god is a part of everything, and everything is a part of god.

parasitism - A type of symbiosis in which one organism benefits, while the other is harmed or killed.

parasympathetic nervous system - A part of the autonomic nervous system that functions to help the body relax, so that processes such as digestion can proceed.

parathyroid gland - Structures located behind the thyroid that are a part of an endocrine system, controlling calcium and phosphorous levels.

parthenogenesis - A form of asexual reproduction between females that allows them to produce offspring from unfertilized eggs.

passive absorption - The process in which water passes from an area of higher concentration in the soil, to an area of lower concentration in the root cells, by osmosis.

passive immunity - Temporary immunity caused by the addition of antibodies from an outside source, such as a baby's immunity caused by antibodies contained in breast milk.

passive mediated transport - Passive transport that can only take place with the aid of a protein factor.

passive transport - Diffusion across a cell membrane, without the use of energy.

pathogen - Sometimes referred to as a germ, it is an infectious agent that spreads a disease or illness.

PCR - A method of copying a segment of DNA to form a large number of new copies.

pectoral girdle - The section of the appendicular skeleton that attaches the arms to the axial skeleton.

pedicel - The supporting stalk of a flower.

pedigree - The phenotypes of a given organism and its ancestors, that can be used to track various traits.

pedipalp - The second pair of appendages found on arachnids, they are used for sensory reception.

pellicle - Found in protozoa, it is a thin outer membrane that is flexible, but stiff enough to protect and maintain its cell shape.

perennial plant - A plant that lives for more than 2 years, or seasons. This includes woody plants and trees.

pericycle - A layer of meristematic tissue under the endodermis that can form cork cambium or secondary roots.

periosteum - A membrane composed of dense white fibrous tissue that lines the outer surface of the diaphysis, used in bone growth and repair, and the attachment of muscle fibers.

peripatric speciation - Closely related species that are separated by a natural barrier, which caused them to develop separately.

peripheral nervous system - The components of the nervous system that extend from the central nervous system, connecting it to limbs and organs.

peroxisome - An organelle that contains enzymes used the metabolism of fatty acids, and also in eliminating peroxide from the cell.

pH - It is the measure of acidity or basicity of a solutions.

phagocytosis - The process by which a cell "eats", or takes in nutrients and other solid particles.

pharynx - Known as the throat, it is the tube that connects the mouth and nose to the larynx, and the mouth to the esophagus.

phenotype - A physical trait or characteristic that is determined by the genotype.

pheromones - Hormones that send a chemical signal from one organism to different organism, provoking a response by the one receiving.

phloem - Vascular tissue in plants that transports sugar, and other photosynthetic products, throughout the plant. Most of these come from leaves, but photosynthesis does occur in other parts of the plant.

phospholipids - One side is attracted to water, while the other repels water, and they are found in cell membranes.

phosphorus cycle - The cycle that describes the movement of phosphorus through the soil, water, and various ecosystems in general.

photolysis - In photosynthesis, the process by which water is split into hydrogen, oxygen, and electrons.

photosynthesis - The conversion of solar energy to chemical energy in the form of glucose.

photosystem I and II - Protein complexes found in the thylakoid membrane, which are involved in photosynthesis.

phototropism - The movement or growth of a plant, that is in response to the direction, intensity, and color of light.

Phylogenetic tree - A chart that shows the relationships among different biological species according to the theory of macroevolution.

phylum Anthophyta - Flowering plants: this is the phylum that contains angiosperm.

phylum Bryophyta - Mosses: non-vascular plants that lack roots, stems, and leaves, and reproduce through spores.

phylum Coniferophyta - Vascular plants that reproduce through seeds grown in cones. This group includes pine trees, cedars, and firs.

phylum Pteridophyta - Ferns: vascular plants that reproduce through spore.

physical change - Results in change of state and/or appearance, but not the formation of a new compound and/or element.

physiology - The branch of biology that deals with the understanding of the chemical and physical processes and functions that go on inside of living organisms.

phytoplankton - Made up of photosynthetic plankton, including algae, and is an important source of oxygen.

pia mater - The thin lower layer of the meninges that lines the surface of the brain and spinal cord.

pilus - A tube that allows bacteria to transfer genetic material during conjugation.

pineal gland - A small *endocrine* gland that produces melatonin, which helps regulate waking and sleeping patterns.

pinocytosis - The process by which a cell "drinks", and takes in fluids.

pith ray - Undifferentiated cells between vascular bundles, extending from the central pith core.

pith - The core of a stem, it is composed of undifferentiated cells, and stores food.

placenta - An organ that connects the embryo to the uterine wall of the mother, and provides nutrients to the embryo.

plankton - A wide range of microscopic organisms that float near the surface of the ocean, or other aquatic system.

Plantae - The plant kingdom, mostly composed of autotrophic photosynthetic organisms.

plantlet - A small, but complete plant that grows from a stem or leaf of a parent plant in a natural form of vegetative reproduction.

plasma - The yellow liquid component of blood.

plasma membrane - Also known as the cell membrane, it is a semi-permeable barrier that surrounds all cells, regulating what substances can enter or leave the cell.

plasmid - A laterally transferable DNA segment, often circular, that is capable of autonomous replication within a suitable host.

plasmolysis - When the plasma membrane of a cell pulls away from the cell wall due to the loss of too much water.

platelet - Small, irregularly shaped cell fragments that play a role in reducing blood loss and forming blood clots.

pleiotropy - When one gene has influence in multiple phenotypes.

pleura - Thin membranes that cover the lungs, and the chest wall, separating them.

point mutation - A single base nucleotide is changed.

pollen - A powder like substance that contains the male gamete in flowering or coniferous plants.

pollen cone - Smaller cones that produce and release pollen, the male reproductive gamete.

pollen grain - A shell that holds the male gametes of a plant.

pollen tube - A structure that emerges from the pollen grain to allow the male gametes to travel to the ovule.

pollution - The introduction of a substance that has a negative impact on an ecosystem.

polygenic inheritance - The inheritance of traits that are influenced by multiple genes, and the environment.

polyp - A form of cnidaria that is sessile, meaning it is attached or anchored at the base, and cannot move freely on its own. It has a mouth and tentacles at one end, and is anchored at the other.

polyploid - Three or more sets of chromosomes.

pons - A rounded region of the lower brain that relays information between different sides of the brain. Paired with the medulla oblongata, it controls heart rate, respiration, and digestion.

population - All members of a specific species in a given area.

population genetics - The study of genetics in a specific population within a species.

portal circulation - The flow of nutrient rich blood from the digestive organs, along with oxygenated blood from the hepatic artery, to the liver.

positive selection - New advantageous genetic variances sweep a population.

posterior - In the direction of the rear.

potential - The electrical charge difference between two different areas.

precocial - Birds that hatch from their eggs in a more developed state. They have feathers, are alert, and can feed themselves, but still stay close to their parents for protection.

predation - When one organism feeds on another, killing it to improve its own fitness.

pre-formed toxin - Toxins that have been formed or produced by pathogens before entering the body.

pressure-flow model - The process by translocation, the movement of carbohydrates from leaves to meristematic tissue, takes place.

primary tissue - The tissue above the maturation regions that is formed during the primary growth of the root.

principle of independent assortment - Alleles of different genes, on different chromosomes behave independently in the production of gametes.

principle of segregation - Each gamete receives only one allele, so that any offspring receive one allele from each parent.

producer - Organisms that produce their own food, through photosynthesis, such as green plants and algae.

productivity - The rate of photosynthesis by the producers in a given ecosystem.

proglottid - A sections of the body of a tapeworm. Each proglottid contains male and female reproductive organs, and can reproduce independently.

progressive creationism - Intermittent acts of Creation were interspersed between long periods of slow, or no evolution.

prokaryote - A group of organisms that lack a cell nucleus.

promoter - A nucleotide sequence in DNA that mark the binding location for RNA polymerase, to facilitate RNA transcription.

prophase - During this phase, sister chromatids begin to coil up.

protein coat - Structure made up of proteins serves as the outer coat of a virus.

protein translocation - After protein is formed in translation, it is transported to other parts of the cell.

proteins - Organic compounds that are constructed from chains of amino acids.

proteome - The set of proteins found in a specific cell under a given set of conditions.

prothallus - Forms from a germinated spore of a fern that is in the gametophyte stage.

protist - A broad grouping of single celled eukaryotic organisms, from the kingdom Protista.

Protista - The kingdom that contains algae and protozoans.

proton - Carry a positive charge, and the number of protons distinguishes one element from another.

protonema - A thread like chain of cells that grows from a spore, which then develops into a gametophyte.

protozoans - An "animal like" protist, they ingest food as a method of nutrition.

pseudopodium - Temporary cytoplasmic extensions that allow a cell to move or feed.

puberty - A step in the maturation process in which hormones trigger the development of secondary sex characteristics.

pulmonary circulation - The flow of oxygen depleted blood from the right ventricle of the heart, to the lungs where it absorbs oxygen and released carbon dioxide, and then back to the left ventricle of the heart.

pulp cavity - The interior of a tooth, that houses blood vessels, nerves, and connective tissue.

pulse - The temporary expansion of an artery caused by the force of a heartbeat, which can be used to measure the heart rate.

punctuated equilibrium - This theory suggests that evolution occurred in bursts, instead of as a gradual process.

Punnett Square - A diagram used to visualize the possible outcomes of a genetic cross.

pupa - The stage in which a larva wraps itself in a cocoon, before emerging as an adult, as an insect undergoes complete metamorphosis.

pure science - It is based on deductions from demonstrated facts and truths, but is not focused on practical applications, "the quest for knowledge".

pure strain - A group of organisms that are homozygous for certain traits, meaning their offspring will share those same traits.

pus - Is made up of dead white blood cells.

pyrenoid - A structure in the chloroplast of some algae that serves as a center for starch production.

pyruvate - The carboxylate anion of pyruvic acid that is a key intersection in multiple metabolic pathways.

pyruvic acid - An organic acid that supplies energy to cells in the citric acid cycle.

quadrate bone - The bone that connects a snake's lower jaw to its skull, which functions as a hinge, allowing the mouth to open extremely wide.

quill - The section of the central rib of a feather that extends past the vane.

rachis - The rib that runs the length of the vane in a feather.

radial symmetry - An object that has a top and bottom, but no distinction between right and left sides.

radical - The embryonic root that emerges from a seed during germination.

radiometric dating method - Measuring the difference between the initial amount of radioactive material and the current amount, and using the rate of decay to determine its age.

radula - A small tooth covered structure used to scrape food particles into a mollusk's mouth.

ray - The arm of a starfish.

receptacle - The end of the pedicel that forms a structure that holds the rest of the flower.

recessive trait - Will only manifest itself if the same gene is inherited from both parents.

recombinant DNA - Splicing together DNA fragments from different sources to artificially create new combinations of DNA.

recycling - Breaking down waste products, so that they can be reused as raw materials.

red bone marrow - Tissue that produces red blood cells, platelets, and white blood cells.

referred pain - Pain that is perceived in one area, but originates from another area. This can happen when damage to an internal organ is perceived as pain in an unrelated body part.

regeneration - A method of asexual reproduction found in sponges. If a section of sponge is cut off of the parent, it will eventually grow back into complete sponge.

regulatory gene - A gene involved in regulating the expression of structural genes.

renal circulation - The circulation of blood to and from the kidney, where waste materials are removed.

replication - The process by which all living organisms copy their DNA.

repressor protein - Prevents mRNA from being formed, by binding to the operators or promoters, preventing RNA polymerase from transcribing RNA.

reproduction - The biological process that produces offspring as part of an organism's life cycle.

residual volume - The amount of air left in a person's lungs after forced expiration.

respiration - Creating useable cellular energy by converting glucose to ATP.

restriction enzymes - Enzymes that cut precise segments of DNA, using nucleotide sequences to identify the exact locations.

reverse transcription - The synthesis of double stranded DNA from single stranded RNA.

rhizoid - Made up of hyphae embedded into the material a fungus is growing on, which functions as a root system.

rhizome - The horizontal underground stem of a plant.

ribosomal RNA - It coordinates the process in which the tRNA delivers the amino acids to the appropriate mRNA codon.

ribosomal subunit - Two units that work together in translating mRNA during protein synthesis.

ribosome - The component of a cell that produces protein from amino acids.

RNA - Ribonucleic acid; involved in the synthesis of protein, this single stranded molecule is transcribed from a strand of DNA.

RNA polymerase - An enzyme that aids in RNA production from a DNA template.

RNA transcription - The synthesis of an equivalent RNA copy of a section of DNA.

root - 1) The underground section of a plant, it absorbs water and dissolved minerals, and serves to anchor the plant. 2) The section of the tooth that is embedded into the socket.

root cap - A structure made up of dead cells that protects the meristematic region on the tip of the root.

root hair - Hair-like cellular extensions from the epidermal layer that allow the root to reach and absorb more water.

root pressure - As the active transport of minerals into the root increases its solute concentration, water continues to enter through osmosis. This ongoing process results in a continued net movement of water into the root cells. As pressure builds up, water and dissolved nutrients are pushed up the stem.

rough endoplasmic reticulum - An organelle made up of an interconnected network of tubules and sac like structures, covered with ribosomes.

r-selection - Opportunistic species that exploit an abundance of natural resources to maximize population growth. They are characterized by having short life spans, and abundant offspring.

rumen - A chamber found in the digestive system of some animals that allows them to break down and digest cellulose.

saprophytic - An organism that survives by feeding on dead or decaying organic matter.

scales - A series of overlapping rigid plates that covers most fish.

science - A systematic study through careful observation, collection of data, and experimental investigation; observations of the physical universe.

scientific method - The systematic collection and classification of data, and usually the formulation and testing of a hypothesis based on that data.

scolex - The head like structure that houses hooks and suckers on a tapeworm.

scute - Scales found on the underside of a snake that aid in movement by helping it grip the ground.

sebaceous gland - Produces an oily substance called sebum, that is used to lubricate the skin. They are usually attached to hair follicles.

second filial generation - Offspring created by crossing two members of the F1 generation.

Second Law of Thermodynamics - While the amount of energy in closed system remains constant, the entropy increases as some energy is converted into an unusable form.

secondary growth - Outward growth that increases the diameter of a plant.

secretion - The process of releasing a secreted chemical from a cell.

sedimentary rock - A type of rock that is formed by a variety of sedimentary material, that forms a crusts that covers much of the earth's surface.

seed cone - Larger cones that produce ovules, which are then fertilized by pollen, and then grow into seeds.

seed - A structure composed of the embryonic plant, stored nutrients, and a protective seed coat.

selective breeding - Breeding based on certain desirable traits.

selectively permeable membrane - Also known as a semi-permeable membrane, it allows some molecules to pass through, and not others.

semicircular canal - A structure composed of three interconnected tubes located in the inner ear that is involved in equilibrium and balance.

semipermeable membrane - A membrane that allows certain particles to pass through, but not others.

serum - An fluid made from the blood of someone possessing antibodies, which can be given to someone else to invoke a passive immunity.

sessile - Permanently attached to something, unable to move freely.

sex chromosomes - Chromosomes which determine the sex of an organism.

sex-linked traits - A trait from an allele that is only carried by one gender.

sexual reproduction - A union of haploid gametes.

signal sequence - Short amino acid sequence on some proteins that identify its target destination.

simple dominance - When there are two alleles at one locus, and one of them completely masks the other.

simple eye - Made up of only a single lens, and offering less sensitivity and view than a compound eye.

siphon - A tube found in some mollusks that draws in and expels water. It is used in feeding and movement.

sister chromatids - Pairs of attached chromosomes that are lined up at the centromere and are ready to split.

skeletal muscles - Muscles attached to bones that are used for voluntary movement.

slime mold - A broad grouping of organisms, similar to fungus, that reproduce using spores.

smooth endoplasmic reticulum - An organelle made up of an interconnected network of tubules and sac like structures, which plays a role in several metabolic functions.

smut - A type of fungus that causes plant disease.

solute - A substance that is dissolved into a solvent to form a solute.

solution - A homogeneous mixture that is made up of a solute dissolved in a solvent.

solvent - A solid, liquid, or gas that can dissolve particles to form a solution.

soredia - Asexual reproductive structure of a lichen composed of a fungal hyphae wrapped around an algae.

sori - A cluster of spore producing sporangia. In ferns, they can take the appearance of insect eggs.

spawn - The process of fish laying eggs. It also can refer to the young that hatch from these eggs.

speciation - Evolutionary process by which over time one species evolves into a different species, or diverges into two or more separate species.

species – According to Ernst Mayr’s popular definition “Groups of interbreeding populations that are reproductively isolated from each other.”

species richness - The number of different species living in a specific area.

specific heat - The amount of heat energy required to raise the temperature of one gram of a substance one degree Celsius.

specified complexity - Something that demonstrates complexity in an extremely low probability of occurring by chance, and specificity by matching a recognizable pattern.

sperm - Male reproductive cells, or gametes.

spermatogenesis - The development and continuous production of sperm cells.

spinal cord - A bundle of nerve tissue that extends from the brain down just past the first lumbar vertebrae. Its main function is the transmission of neural signals between the brain and the rest of the body.

spindle - Structures that separate chromosomes into separate daughter cells during cell division.

spinal nerve - Nerves that emerge directly from the spinal cord, branching out to either side of the body.

spirillum - A spiral shaped bacteria.

spliceosome – A molecular machine responsible for splicing together exons by removing the non-coding introns.

spongy bone - Lower density tissue that fills the ends of long bones. It contains red bone marrow and fat cells.

spontaneous mutation - A mutation that occurs without the presence of a mutagen, usually due to a malfunction of cellular enzymes.

sporangiophore - A specialized hypha that forms a sporangia bearing branch.

sporangium - A chamber that produces and holds spores.

sporophore - A spore-bearing branch in fungi.

sporophyte - The diploid stage of a plant going through alternation of generations, in which a zygote (fertilized ovum) grows into a capsule that produces spores.

starch - A polysaccharide found in plants that consists of a large number of glucose units.

stasis - A period in which there are no changes.

statocyst - The organ used for balance that is found at the base of each antennule of a crustacean.

stem - Structure in vascular plants that supports the leaves, conducts water and nutrients between the leaves and roots, and stores nutrients.

stem cell - Self regenerating cells that possess the capacity to differentiate into specialized cell types, found in embryos and the bone marrow of adults.

stigma - The receptive tip of the pistil, which catches pollen.

stolon - Stem like structures that grow along the surface of the ground, and serve as a method of propagation for some plants.

stroma - The matrix that surrounds thylakoid disks inside of a chloroplast.

structural formulas - A chemical formula that gives a visual representation of the atoms and bonds in a chemical compound.

structural gene - A gene that encodes the amino acid sequence of a protein.

structural tissue - The xylem, a type of vascular tissue, cells form much of the structural support for plants.

style - Part of the pistil of a flower, which supports the stigma.

subcutaneous layer - A layer of fatty connective tissue that connects the dermis to the muscle that lies under it.

substance pollutants - Pollutants that have substance, as opposed to energy pollutants.

succession - The process in which one act or event follows another, in sequence.

survival of the fittest - Most commonly used to refer to **natural selection**.

sutures - Immovable joints at the interlocking margins of skull plates.

sweat gland - Used for temperature regulation by releasing water, salt, and other organic substances onto the surface of the skin.

symbiosis - A close relationship between organisms of different species, which benefits at least one of the organisms.

sympathetic nervous system - A part of the autonomic nervous system that functions to prepare the body to react in times of stress.

synergists - A muscle that functions in support of a prime mover, sometimes to stabilize surrounding bones or joints.

synovial membrane - Soft tissue lining found in joint cavities, that produces a lubricating fluid.

synthesis – Combining two or more separate substances to form something new.

systemic circulation - The flow of freshly oxygenated blood out of the left ventricle of the heart, throughout the body, and then back to the right ventricle of the heart.

systole - When the heart muscle contracts, pumping blood out of the heart.

T cells - Helper, cytotoxic, suppressor, and memory T cells work together to fight infection in cell mediated immunity.

talon - Long curved claws found on the toes of birds with grasping feet.

taproot - A large central root, with many secondary roots branching outward from it.

taste buds - Small structures on the surface of the tongue that contain the cells that perceive taste.

tegument - A protective case that covers the body of some organisms such as flatworms.

telophase - Chromosomes begin to uncoil, and the nuclear membrane starts to re-form around the daughter chromosomes.

tendon - Fibrous bands of connective tissue that attach muscles to bones.

tendrils - A specialized stem or leaf used for support, it wrap itself around anything it comes into contact with.

terminator - A DNA segment that marks the end of the operon being transcribed.

tetraploid - Four sets of chromosomes.

thalamus - A pair of oval structures near the center of the brain that is responsible for receiving general sensations and relaying them to different parts of the cerebral cortex.

thallus - A plant or algal body that lacks true roots, leaves, or stems.

theory - It has been verified a number of times experimentally, and is stronger than a hypothesis, although not as strong as a law

theory of demographic transition - As a country develops, its birth and death rates both decrease, as its wealth increases.

theory of recapitulation - The theory that a developing embryo go through successive stages that resemble adult organisms from its evolutionary development.

thermoregulation - The regulation of a body's temperature through mechanisms such as sweating, shivering, and the dilation or restriction of blood vessels.

thigmotropism - The movement or growth of a plant that is in response to touch, such as rocks or other plants.

thrombus - A blood clot that forms within a healthy blood vessel, causing a blockage that results in further damage.

thylakoid membrane - The location of light dependent reactions during photosynthesis.

thymus gland - An organ located in the chest that plays a role in the production of T cells.

thyroxine - A hormone produced by the thyroid gland.

tidal volume - The amount of air that enters the lungs through inspiration, and then leaves through respiration, during sleep.

tissue - A group of similar cells from the same origin that work together.

topsoil - Soil that is made up of loam, humus, and living organisms.

total lung capacity - The total amount of air that can fit in a person's lungs, which is the vital capacity, plus the residual capacity.

trachea - 1) A tube that connects the lungs to the mouth or throat. 2) Small tubes and passages that carry oxygen directly to the tissue of some spiders.

transcription factor - A protein that controls the transfer of genetic information from DNA to mRNA.

transcription - The process by which messenger RNA (mRNA) is formed.

transduction - The process in which genetic material is transferred from one bacteria to another.

transfer RNA - An RNA molecule that binds to specific amino acids and delivers them to the appropriate codon in the mRNA.

transformation - A living bacteria takes genetic information from a dead bacterial cell.

translation - The mRNA carries the code from the DNA inside the nucleus to the ribosome in the cytoplasm.

translocation - 1) When pieces of nonhomologous chromosomes are broken off and rearranged. 2) The movement of carbohydrates produces in leaves, to meristematic tissue to be used for growth.

translocon - The complex of proteins involved in the transport of proteins across cell membranes.

transpiration - The release of water from a plant, mainly through leaves.

transpiration-cohesion theory - As water evaporates from leaves (transpires), the attraction of water molecules to each other (cohesion) helps to pull more water upward from the roots.

treatment - A variable in a scientific experiment.

triploid - When there are three sets of chromosomes in a cell.

trocophore - A larval form of mollusk that uses cilia to swim freely.

trophic level - An organism's position in the food chain.

tropism - A plants growth in response to a stimulus.

truth - Anything that is not false.

tube feet - Hollow tubes found on the underside of a starfish. Each one is connected to a system in which the pressure can be regulated. Using this system, the starfish can grip any surface to anchor itself, or pry apart mollusk's shells.

tuber - A modified stem serves as an underground storage system.

tumor - An abnormal growth of cells.

turgor - Stiffness in a cell caused by water pressure. If the amount of water drops, the cells lose turgor, and rigidity.

turgor pressure - Pressure caused by the contents of a cell pressing against the cell wall.

tympanic membrane –Sometimes referred to as the eardrum, it is membrane that transmits vibrations in the ear.

umbilical cord - The membrane covered bundle of blood vessels that connects an embryo to the placenta.

underhair - A layer of soft fur found closest to an animal's skin, that provides insulation.

uterus - Female organ that the embryo develops in during gestation.

vaccine - Dead or weakened pathogens that provoke a response by the immune system, but to not cause infection. This allows the body to recognize and fight that specific infection in the future.

vacuole - A membrane bound space in a cell that forms an enclosed compartment. It can be used to transport food into a cell, waste out of it, as storage, or to help maintain cell pressure.

vane - The wide, flat part of a feather, made up of barbs that are hooked together in rows.

variables - Something that is changed, and is different in each experiment.

vascular cambium - Meristematic tissue that can form xylem or phloem as needed.

vascular cylinder - A central column of vascular tissue in a root, made up of xylem and phloem separated by a layer of vascular cambium.

vascular tissue - Responsible for carrying water and nutrients throughout a plant.

vegetative reproduction - An asexual method of plant reproduction, which produces offspring with the same genetic makeup and traits as the parent. This can occur naturally, or be induced for the purpose of making sure desirable traits are passed down.

vein - At the end of the capillaries, blood vessels widen back into veins, which carry the blood back to the heart.

ventral - Lower, towards the lower surface.

ventricle - 1) Chambers in the heart that pump blood. 2) Cavities in the brain.

verify - To confirm that accuracy of something.

vertebrae - An individual segment of the bone, or flexible material, that make up the vertebral column.

vertebral column - The flexible column that provides the main source of support for an animal, and characterizes vertebrates.

vestigial structures - Organs that no longer have any purpose, but may be functional in closely related species.

virulence - The severity of a disease caused by a pathogen.

virus - An infectious agent that requires a host organism to be able to grow and reproduce.

visceral muscle - Muscles that work with internal organs, and whose functions are involuntary.

vital capacity - The total amount of air that a person can forcefully exchange with the environment, which is the sum of the inspiratory volume, tidal volume, and expiratory reserve volume.

vitalism - Belief that there is a life force outside the realm of physical or chemical law that governs natural phenomena.

viviparous - Animals that give birth to live offspring that have developed inside of the mother, while attached by a placenta that supplies nutrients to the fetus.

volume - How much space a substance occupies.

walking leg - Four pairs of appendages used for movement by arachnids.

warning coloration - An easily visible color scheme that scares away would be predators, by warning them of dangers of attacking.

water cycle - The ongoing process whose main steps include: evaporation, condensation, precipitation, and collection.

water mold - Eukaryotic microorganisms that are similar to fungus, produce both sexually and asexually, and can be pathogenic or saprophytic.

water-vascular system - A complex series of canals and tubes used for movement and feeding, by echinoderms such as starfish.

wind - Movement of air caused by the rotation of the earth, and changes in temperature of large masses of air.

womb - A term for the uterus.

xylem - Vascular tissue in plants that transports water, and some nutrients, from the roots throughout the plant.

yellow bone marrow - Mostly made up of fat cells, it replaces red bone marrow with age.

yolk sac - Is the food source prior to hatching for some vertebrates, and helps form the umbilical cord in humans.

zona pellucida - A thick protective layer surrounding the ovum.

zooflagellate - A type of Protist that feeds by absorbing food across a membrane, and moves via whip like flagella.

zoospore - An asexual spore, that uses a flagellum for movement. It is used by some algae for propagation.

zygospore - A reproductive structure in some fungi formed by the union of isogametes.

zygote - The initial cell that is produced by the fusion of two gametes in sexual reproduction.