

ESSENTIAL VOCABULARY-BIOLOGY AHSGE

Ecology

Abiotic factors	The non-living part of the ecosystem (i.e., temperature, rainfall, sunlight)
Acid Rain	Rain, snow, sleet or fog with a pH below 5.6; causes deterioration of forests, lakes, statues, and buildings
Adaptation	1. Tendency of an organism to suit its environment; 2. Behavior that helps an organism survive in a particular environment
Autotrophs	Organism that that makes its own energy (from the sun) in the form of photosynthesis (ex: plants, plankton) **Also called Producers
Biodiversity	The different types of lie in an area; usually measured in number of species
Biotic factors	Living part of the ecosystem (i.e. organisms, plants...)
Carnivore	An animal that feeds on other animals (ex: tigers)
Camouflage	Natural coloration of an organism where it blends in with its surroundings to avoid detection by enemies
Chemical Defense	Chemicals that are used as a defense mechanism
Clear-cutting	Deforestation; the logging of trees in a forested area which causes destruction to a habitat
Commensalism	Symbiotic relationship where one species benefits and the other specie is neither harmed nor benefited
Communities	Collection of several interacting populations in a given area
Conservation	Field of biology that studies ways to preserve biodiversity.
Consumers	The higher levels in a food pyramid; (consist of: Primary consumer [feeds on producers] → Secondary Consumer

	[feeds on primary consumer]
Decomposer	Organism that breaks down dead organisms, returning basic chemicals back to the atmosphere, water and soil.
Deforestation	Clear-cutting
Density-Dependent limiting factors	Limiting factors in an environment that affect growth of a population Ex: disease, parasites, or food availability
Density-Independent limiting factors	Factors that disrupt a population regardless of their density Ex: temperature, storms, floods, drought or habitat destruction
Ecosystem	The organisms living in an area and its physical environment
Energy Pyramid	Energy flow in an ecosystem; Shows producers on the first level and consumers on the higher levels
Food Chain	A simple model that shows how energy is transferred in an ecosystem. Energy is lost at each level
Food Web	Complex network of feeding relationships among species in an ecosystem
Habitat	The environment in which a population lives
Herbivore	An animal that eats plants or algae
Heterotrophs	Organism that obtains its nutrients by feeding on autotrophs or other nutrients. **Also called Consumers
Mimicry	Close resemblance of one organism to another by copying; may be used as a form of protection
Mutualism	A symbiotic relationship where both species benefit
Parasite	Organism that lives in or on another organism
Parasitism	A symbiotic relationship where one species benefits at the expense of the other
Population	Group of individuals of the SAME SPECIES living in the SAME AREA. (ex: a herd of gazelle would be a population)

Predator	Organism that kills and consumes other living organism
Prey	Organism killed and consumed by a predator
Producer	Organism at the first level of a food pyramid; organism that makes food from the sun; usually plants making food by photosynthesis **Also known as Autotrophs
Succession	Changes that take place in an ecosystem over time
Trophic Levels	Feeding steps that represent a food chain or food web

Biomes

Aquatic Biomes	Are biomes found in the water Freshwater and saltwater biomes
Biomes	Groups of ecosystems with the climate or climax community
Biosphere	Portion of the earth that supports life
Deciduous Forest	Forest made of hardwood trees that lose their leaves in the winter time
Deserts	Arid (dry) region with almost little to no plant life; less than 25 cm of rain per year; the driest biome
Deserts (Antarctica)	Worlds largest desert is found in Antarctica
Estuary	Mixture of freshwater and saltwater making a brackish mixture
Grasslands	Biome covered with rich soil, grasses, and small plants.
Glacial Lake	Is a lake is obtained by a glacier
Permafrost	A layer of permanently frozen ground that is found under the topsoil in the Tundra
Rainforest	Biome found around the equator; characterized by large amounts of rain, warm temperatures, and large variety of plants and animals
Taiga (coniferous)	Biome south of the Tundra; characterized by a boreal or northern coniferous forest with fir, hemlock, & spruce trees

forest)	
Terrestrial Biomes	Are biomes found on land
Tundra	Biome just south of the north & south poles; treeless land with long summer days and short periods of winter sunlight; characterized by permafrost
Wetlands	Area of land saturated by moisture permanently or seasonally; examples: bogs, swamps, and marshes

Cells

Active Transport	The movement of molecules across the cell membrane (from regions of low concentration to regions of high concentration) with the use of ENERGY in the form of ATP.
Aerobic	Chemical reactions that require oxygen; needed in cellular respiration
Amino Acids	Basic building blocks of proteins
Anaerobic	Chemical reactions that do not require oxygen; part of cellular respiration called fermentation
ATP/ Adenosinetriphosphate	Energy storing molecule found in the cell
Carbohydrates	Organic compound used by cells to store and release energy
Cell	Basic unit of all organisms; all living things are made of cells
Cell Membrane	A membrane that is found around prokaryotic and Eukaryotic cells
Cell Wall	The relatively rigid covering of a plant cell; Animal cells do not have cell walls
Cellular Respiration	A metabolic process where cells make energy in the

	<p>form of ATP from glucose</p> $*C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$
Chloroplast	Disk-like organelle with a double membrane; found in the plant cell; site of photosynthesis
Cytoplasm	The plasmas liquid inside the cell that holds the organelles
Diffusion	The movement of <u>particles</u> in a cell from areas of HIGH concentration to areas of LOW concentration (type of passive transport)
Dynamic Equilibrium	A condition in a cell where there is continuous movement of particles, but no change in concentration
Endoplasmic reticulum	Organelle in the cell that transports proteins to the nucleolus
Endocytosis	Active transport where a cell engulfs materials within the cell
Exocytosis	Active transport where materials are secreted from the cell as waste
Golgi Body/Apparatus	Organelle in the cell that sorts, packages and transports proteins
Homeostasis	The ability to maintain a regular internal body temperature as it is suitable for survival
Hypertonic	In a solution where the concentration of dissolved substances OUTSIDE the cell is HIGHER than INSIDE the cell
Hypotonic	In a solution where the concentration of dissolved substances OUTSIDE the cell is LOWER than INSIDE the cell
Isotonic	In a solution where the concentration of dissolved substances OUTSIDE the cell and INSIDE the cell are EQUAL

Lipids	Organic compounds made of carbon and hydrogen and oxygen; examples are fats, oils, waxes, and steroids
Mitochondria	Organelle in the cell that makes energy in the form of ATP; the powerhouse of the cell
Nucleolus	Organelle in the cell that makes DNA
Nucleus	Organelle in the cell that controls the functions of the cell; the brain
Organelle	Cell parts that carry out individual functions (nucleus, mitochondria, ER...)
Osmosis	Diffusion or movement of molecules (water) across the cell membrane
Passive Transport	The movement of molecules across the cell membrane (from regions of low concentration to regions of high concentration) requiring NO ENERGY.
Prokaryotic Cell (Prokaryote)	A cell with NO TRUE NUCLEUS. Bacteria are the only example!
Ribosome	Organelle made of RNA that make proteins; The site of protein synthesis
Smooth Endoplasmic Reticulum	Organelle in the cell that does not contain ribosomes
Rough Endoplasmic Reticulum	Organelle in the cell that does contain ribosomes
Semi-permeable Membrane (selectively)	A part of the plasma membrane that maintains homeostasis within the cell & keeps unwanted materials out of the cell
Turgor Pressure	In plant cells, the force where the cell membrane presses against the cell wall to make the cell wall hold upright
Unicellular	One celled organism

Vacuole	Organelle in the cell that remove waste products and store ingested foods
Vesicle	Organelle in the cell that stores, transports cell products or waste

DNA

Adenine	Nitrogen base found in DNA; bonds with T or Thymine
Crossing Over	Exchange of genetic material between non-sister chromatids during Prophase I of meiosis
Cytosine	Nitrogen base found in DNA; bonds with G or Guanine
DNA/ Deoxyribonucleic Acid	A nucleic acid; the master copy of an organisms genetic code
Guanine	Nitrogen base found in DNA; bonds with C or Cytosine
Nucleotide	Part of the DNA double helix; made of phosphate acid, deoxyribose, and nitrogen base
Thymine	Nitrogen base found in DNA; bonds with A or Adenine
Transcription	Where DNA is copied into RNA
Translation	Process of converting information in mRNA into sequences of amino acids
Uracil	Nitrogen base found in RNA; bonds with A or adenine

Genetics

Allele	Alternative forms of a pair of genes for each variation of a trait of an organism
Chromosomes/ Genetic Information	Structure in the nucleus of a cell that consist of DNA molecules that contains genes
Codominance	Phenotypes of both parents are dominant and expressed

	equally so the offspring shows both traits. Example; WW X BB == WB
Color blindness	An X-linked recessive trait where individuals have difficulty identifying certain colors
Cystic Fibrosis	Common among white Americans; due to a defective protein in the plasma membrane; results in a formation and accumulation of thick mucus in the lungs and digestive tract.
Dihybrid Cross	Crossing more than one trait at a time; TtHh x TtHh
Diploid (2N)	The number of chromosomes in the cell; is equal to two times the number of chromosomes 2N.
Dominant Allele	The trait that is shown when an allele is expressed in heterozygotes
Downs Syndrome	Trisomy 21; three chromosomes found on the 21 st pair of chromosomes
Egg	Haploid female sex cell made by meiosis
Embryo	Early stage of development of plant and animals
Genes	A segment of DNA that controls the protein production and the cell cycle
Genetics	Branch of biology that studies heredity
Genotype	Combination of genes in an organism
Haploid	The number of chromosomes in the cell; is equal to the number of chromosomes N.
Hemophilia	
Heterozygous	Traits having two different alleles (one dominant, one recessive) for a trait; Tt
Homozygous	Traits having two identical alleles for a given trait; TT or tt
Incomplete Dominance	Inheritance pattern where a presence of a third genotype is present; red flower x white flower results pink flower
Meiosis	Cell division where the chromosomes replicate, followed by

	two nuclear divisions.
Mitosis	The division of the cell's nucleus and nuclear material
Monohybrid Cross	Crossing one trait at a time; Tt x TT
Mutation	Any heritable change in the nucleotide sequence of DNA
Pedigree	A graphic representation of genetic inheritance
Phenotype	Combination of genes in an organism; written expression
PKU (Phenylketonuria)	Recessive disorder that results from the absence of an enzyme that changes one amino acid to another
Punnett Square	A box used to predict the possible offspring of certain genetic traits
Recessive	An allele expressed only in homozygous form or when the dominant allele is absent
Sex-Linked Trait	Traits that are passed along on the X or Y chromosome
Sickle Cell Anemia	Most common in black Americans; inherited disorder that results in sickle shaped blood cells
Tay-Sachs Disease	Recessive disorder of the central nervous system

Classification

Animalia	Kingdom of animals
Archaeobacteria	"Old" bacteria; chemosynthetic prokaryotes that live in harsh environments
Binomial Nomenclature	A system used by Carolus Lianneus giving 2 names to each plant and animal (genus and species)
Classification	Grouping of objects based on similarities
Dichotomous Key	A key using description to identify plants and animals
Genus	A classification of plants or animals with common

	characteristics; the subcategory of a family; Genus is always written with a capital letter <i>Homo sapien</i>
Fungi	Kingdom of fungus such as mushrooms, mold
Monera	Old kingdom classifying eubacteria and archaebacteria
Plantae	Kingdom of plants
Protista	Kingdom of protists such as amoeba, euglena, and paramecium
Taxonomy	Branch of biology that groups and names organism based on shared characteristics

Animals

Amphibian	Phylum of reptiles
Asexual Reproduction	Type of reproduction where one parent produces 1 or more identical offspring without the fusion of gametes
Asymmetry	A body plan that cannot be cut into equal halves; sponges are examples
Bacteria	Only prokaryotic cell; no true nucleus
Bilateral symmetry	A body plan that can be divided into two mirror images of organisms
Budding	Type of asexual reproduction in unicellular yeast where the cells pinch off from the parent
Cilia	Hair-like organelles extending from the membranes of organisms such as the paramecium
Cold-blooded (Ectotherm)	Animals with a body temperature that develops from the surrounding temperatures
Contractile Vacuole	A pore that pumps excess water out of the paramecium
Endoskeleton	Internal skeleton
Eubacteria	True bacteria; group of prokaryotes with strong cell walls
Eukaryotic Cell (Eukaryote)	Unicellular or Multi-cellular organisms with a "true" nucleus; consist of plants, animals, protists, & fungi

Exoskeleton	External skeleton; shrimp, lobster
Fission	Type of reproduction of bacteria and fungi (binary fission/ bacterial fission)
Flagella	Long whip-like tail found on some prokaryotic and Eukaryotic cells
Hibernation	Animals that conserve energy by lowering body temperature, slow down breathing which lowers the metabolic rate
Invertebrate	Animals without a backbone
Lichens	In the fungi kingdom; has mutualism relationships with trees and rocks; can form pioneer succession
Mammals	A vertebrate where the females have milk-secreting glands to feed their young (mammary glands)
Migration	Instinctive seasonal movements of animals from place to place
Multi-cellular	More than one cell
Organisms	Anything that possesses all the characteristics of life
Radial symmetry	A body plan that can be cut along any plane and have two equal halves
Species	Group of individualized organisms
Vertebrates	Animals with a backbone
Warm-blooded (Endothermic)	Animals that maintains a constant body temperature and is not dependent on the environmental temperature
Unicellular	One celled organisms

Plants

Angiosperms	Flowering plants
Bromeliads	Flower that is found in America; belongs to the pineapple family; member of the epiphyte (plant that grows on other plants)
Cone	A woody, scaly structures found on gymnosperms

Cotyledons	A seed leaf that sprouts
Cross pollination	The transfer of pollen from anther to pistil on two different plants
Dicots	Plants that have two seed leaf's, netted leaf veins, flower parts in multiples of 4 or 5, and vascular bundles in rings
Fruits	Seed-containing ripened ovary of a flower
Gymnosperms	Cone bearing plants
Monocots	Plants that have one seed leaf, parallel leaf veins, flower parts in multiples of 3, and scattered vascular bundles
Nonvascular plants	Plants that do not contain a xylem (transports water) and phloem (transports sugars)
Photosynthesis	A process where autotrophs trap energy from sunlight with chlorophyll and use the energy to convert carbon dioxide and water to simple sugar in the form of glucose **CO₂ + 2H₂O + sunlight ---> O₂ + (C₆ H₁₂O₆) + H₂ O
Pistil	Female reproductive part of the flower (consist of stigma, style, ovary and ovum)
Pollination	The transfer from male reproductive organs to female reproductive organs in a plant
Roots- Fibrous/Tap	Tap Root: accumulate and store food Fibrous Root: have many small branching roots
Seed	Plant organ; consist of embryo, food supply and a protective coat
Self-Pollination	Transfer pollen from stamen to pistil on the same plant
Stamen	Male reproductive part of the flower (consist of anther and filament)
Stomata	Pores on the underside of leaves that can be opened and closed to control gas exchange and water loss
Succulent	Water retaining plants; store water in leaves, stems, and roots
Transpiration	The loss of water molecules from the leaves of plants

Vascular plants	Plants having a xylem (transport water) and a phloem (transport sugars)
-----------------	---