

In this document, you will find the key words and their associated definitions for **Biology B**.

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| Unit 2: Carbon Cycle |
| Lesson 2: Modeling the Carbon Cycle | * **atmosphere** – the collection of gases that surrounds the planet and provides breathable air
* **biosphere** – the area of Earth where all living things exist
* **carbon cycle** – the movement of carbon between the different areas of the earth
* **carbon dioxide gas** – the main gas moved during the carbon cycle
* **hydrosphere** – the area of Earth covered by water
* **lithosphere** – the area of Earth that is solid; land and soil
* **photosynthesis** – process by which autotrophs convert light energy into chemical energy
* **reservoir** – a location that stores materials
* **residence** – the location where a material is located
* **respirate** – breathing (the exchange of gases between the body and the external environment)
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| Lesson 3: Living Things and the Carbon Cycle | * **atmosphere –** the layer of gases that surrounds the planet
* **biomass** – all the living (or formerly living) material in an ecosystem
* **biosphere** – all the living things on Earth
* **carbon dioxide** – the main gas moved during the carbon cycle
* **carbon sink** – an area where carbon is stored
* **carbon source** – an area or a process that releases carbon
* **geosphere** – the solid Earth, including the crust and Earth's interior
* **hydrosphere** – all the water on Earth
* **keystone species** – species upon which success of the ecosystem depends
* **marine snow** – dead biomass falling from the upper areas of the water column to the lower areas
* **nitrogen** – the main gas of the atmosphere on Earth
* **photosynthesis** – process by which autotrophs convert light energy into chemical energy
* **plankton** – microscopic organisms living in the water; serves as the basis of the food chain
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| Lesson 4: Storage of Carbon | * **biomass** – the total amount of living material in a given area
* **carbon footprint** – measure of the impact that human activities have on global warming
* **carbon sink** – an area where carbon is stored
* **climate intervention** – strategies used by scientists to find alternative ways of storing carbon to reduce or eliminate global warming
* **flux** – movement of carbon in between reservoirs
* **greenhouse gases** – gases that form a barrier for heat to escape Earth’s atmosphere
* **greenhouse effect** – gases released either naturally or through human activity, block heat from escaping Earth’s atmosphere and in turn increase global temperatures
* **reservoir** – an area that stores carbon
* **residence time** – the amount of time carbon spends in a particular reservoir
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| Lesson 5: Cell Work and Carbon  | * **ATP** – adenosine triphosphate; the energy molecule of the cell that powers many reactions
* **cellular respiration** – the reaction that releases energy from the break-down of glucose
* **photosynthesis** – process by which autotrophs convert light energy into chemical energy
* **stomata** – openings on the undersides of leaves that are the sites of gas exchange
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| Lesson 6: Model Versus Real Life | * **artificial** – human-made, not natural
* **carbon cycle** – the movement of carbon and its related molecules through an ecosystem
* **model**– a physical representation of a phenomena
* **photosynthesis** – process by which autotrophs convert light energy into chemical energy
* **photosynthetic organism** – a living thing that performs photosynthesis to make energy for itself
* **respiration** – the reaction that releases energy from the breakdown of glucose
* **toxic materials** – substances that are harmful, particularly to the environment
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| Unit 3: Energy Flow |
| Lesson 2: Cycling of Matter and Energy  | * **aerobic respiration** – a type of cellular respiration that requires oxygen
* **anabolic** – a type of process that requires energy to build up large molecules from smaller ones
* **anaerobic respiration** – a type of cellular respiration that does not require oxygen
* **autotroph** – an organism that captures energy to produce its own food and provide the foundation of the food supply for other organisms
* **catabolic** – a type of pathway that releases energy and is used to break down large molecules into smaller ones
* **cellular respiration** – a process that converts oxygen and sugar into chemical energy and carbon dioxide
* **consumer** – an organism that eats other organisms or organic matter
* **decomposer** – an organism that gets energy by breaking down the remains of dead organisms or animal waste
* **detritivore** – a heterotroph that decomposes organic material and returns the nutrients to the soil, air, and water
* **food** **chain** – a simplified model that shows a single path in which energy and matter flow through an ecosystem
* **food** **web** – a model that shows many interconnected pathways through which energy and matter flow through an ecosystem
* **heterotroph** – an organism that cannot make its own food and receives its nutrients and energy by feeding on other organisms
* **law** **of** **conservation** **of** **mass** – matter cannot be created or destroyed
* **matter** – anything that takes up space and has mass
* **microorganism** – tiny living thing too small to be seen by the naked eye
* **nitrogen cycle –**the circulation of nitrogen that is important for fertile soil and breathable air **omnivore** – an organism that eats both plants and animals
* **photosynthesis** – the process in which the sun’s light energy is converted into chemical energy for use by the cell
* **producer** – an organism that produces its own food
 |
| Lesson 3: Cycling of Matter and Energy Flow | * **biomass** – the amount of organisms in a given area or volume in an ecosystem
* **gross primary productivity**– (GPP) the amount of organic, carbon-based material that is produced by photosynthesis
* **net primary productivity**– (NPP) the measure of the amount of organic material produced minus the amount of organic material used during life processes such as respiration
* **photosynthesis**– process where green plants and other organisms convert light energy into chemical energy using carbon dioxide and water
* **primary consumers** – an organism that feeds on producers such as plants
* **primary productivity** – the rate at which plants and other photosynthetic organisms produce organic compounds
* **producers**– an organism that makes its own food
* **trophic level** – the level in which organisms are found in the food chain
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| Lesson 4: Trophic Levels  | * **biodiversity** – the number of organisms that an area has at any given time
* **food web** – all of the food chains in an ecosystem
* **keystone species** – the organisms an ecosystem heavily depends on to keep its balance
* **photosynthesis** – the process during which green plants and some other organisms use carbon dioxide and water to convert light energy into chemical energy
* **primary consumer** – an organism that feeds on producers such as plants. A primary consumer is also known as an herbivore.
* **producer** – an organism that makes its own food. Producers are also known as autotrophs. A plant is an example.
* **secondary consumer** – an organism that feeds on primary consumers, or herbivores
* **sustainability** – meeting the needs of organisms without affecting the needs of other organisms over time
* **tertiary (third) consumer** – a top-level consumer that is a carnivore and feeds on secondary consumers
* **trophic level –**the level at which an organism is found on the food chain
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| Lesson 5: Ten Percent Rule | * **biomass** – the amount of organisms in a given area or volume
* **invasive species** – any kind of living organism that is not native to the ecosystem and causes harm
* **photosynthesis** – the process during which green plants and some other organisms use carbon dioxide and water to convert light energy into chemical energy
* **primary consumer** – an organism, also known as an herbivore, that feeds on producers such as plants
* **producer** – an organism, also known as an autotroph, that makes its own food. A plant is an autotroph.
* **pyramid of biomass** – the amount of biomass in each trophic level
* **secondary consumers** – an organism that feeds on primary consumers (herbivores)
* **tertiary (third) consumers** – top-level consumers that are carnivores and feed on secondary consumers
* **trophic level** – the level in which organisms are found within the food chain
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| Lesson 6: Life Processes | * **biomagnification** – the increase of toxic substances that have accumulated in organisms, which increases at each trophic level
* **gross primary productivity** – the overall amount of energy captured by plants and other photosynthetic organisms
* **net primary productivity** – the adjusted amount of energy in an ecosystem due to energy use by organisms for respiration
* **photosynthesis** – the process during which plants and some other organisms use carbon dioxide and water to convert light energy into chemical energy
* **primary productivity** – the rate that plants and other photosynthetic organisms produce organic compounds
* **ten-percent rule** – when energy is passed from one trophic level to the next, only about ten percent of the energy will be available
* **trophic level** – the position or level of an organism on the food chain or in an energy pyramid
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| Lesson 7: Recycling of Matter | * **aerobic** **respiration**– a type of cellular respiration that requires oxygen
* **anaerobe** – an organism that relies on just anaerobic respiration and is an important decomposer
* **anaerobic** **respiration** – a type of cellular respiration that does not require oxygen
* **cellular** **respiration** – the process of using glucose and oxygen to create energy in the form of adenosine triphosphate or ATP
* **chemical** **energy** – energy stored in the bonds of chemical compounds, such as those in glucose
* **decomposer** – an organism, usually a bacterium or fungus, that breaks down the cells of dead plants and animals into simpler substances
* **photosynthesis** – the process during which green plants and some other organisms use carbon dioxide and water to convert light energy into chemical energy using carbon dioxide and water
* **radiant** **energy** – energy from the sun (also known as light energy)
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| Lesson 8: Describing the Flow of Energy | * **aerobic** **respiration**– a process that produces cellular energy in the presence of oxygen
* **adenosine** **triphosphate** – energy-carrying biological molecule that drives cellular activities when broken down
* **anaerobic** **respiration** – process that produces cellular energy without oxygen
* **cell** **membrane** – a double layer of lipids and proteins that surrounds a cell and separates the cytoplasm from its surrounding environment
* **cellular** **respiration** – a catabolic pathway in which organic molecules are broken down to release energy in the form of ATP (adenosine triphosphate) for use by the cell
* **eukaryotic** – a cell with membrane-bound nucleus and organelles that is generally larger and more complex
* **mitochondria** – a membrane-bound organelle that converts fuel into energy that is available to the rest of the cell
* **photosynthesis** – the process by which plants, algae, and some bacteria convert radiant energy from the sun into chemical energy
* **prokaryotic** – a cell without a nucleus or other membrane-bound organelles
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| Lesson 9: Chemosynthesis | * **acidophile** – an organism that grows best at acidic (low) pH values
* **alkaliphile** – an organism that grows best at high pH values
* **anaerobe** – an organism that can grow without oxygen present
* **chemosynthesis** – a process that uses chemical energy instead of light energy by converting carbon or methane into organic matter using inorganic molecules such as hydrogen sulfide or methane as an energy source
* **endolith** – an organism that lives inside rock or in the pores between mineral grains
* **extremophile** – an organism that lives in extreme conditions such as minimal sunlight and high or low temperatures
* **halophile** – an organism requiring high amounts of salt for growth
 |
| Unit 4: Biodiversity |
| Lesson 2: Classification of Living Things  | * **botanist –**plant scientist
* **paleontologist –**scientist who studies pre-human life
* **systematist** – scientist who specializes in taxonomy (otherwise known as taxonomist)
* **taxonomy** – the branch of science concerned with naming, classifying, and describing the relationships between all living things on Earth
 |
| Lesson 3: History of Classification  | * **common ancestor** – an ancestor that two or more descendants hold in common.
* **dichotomous key** – a tool that allows its user to classify unknown items. When using a dichotomous key, the user observes her item, then describes its characteristics using a series of choices with two possible answers. Each choice leads the user to another step in the key, until her item is identified.
* **eukaryotic** – a eukaryotic cell is one which has a defined cellular nucleus surrounded by a nuclear membrane. Eukaryotic cells can be found in both single- and multi-celled organisms.
* **phylogenic tree** – a diagram that shows the evolutionary relationships between different species that share a common ancestor
* **prokaryotic** – a prokaryotic cell is one which does not contain a defined nucleus. Prokaryotes are single-celled organisms, such as bacteria, who do not possess a nucleus
* **taxonomy** – the branch of science concerned with naming, classifying, and describing the relationships between all living things on earth
 |
| Lesson 4: Carrying Capacity | * **abiotic –**elements in an ecosystem that have never been alive
* **biodiversity** – the collection of different kinds of organisms living in a given area at a given time
* **biotic** – any living or once-living things in an ecosystem
* **carrying capacity** – the maximum number of individuals of a particular species that an ecosystem can support at a given time
* **ecosystem** – all the organisms in a given area along with the nonliving things with which they interact
* **homeostasis** – living things maintain a stable internal state even when their environment changes
* **keystone species** – a species on which the other species in an ecosystem largely depend, such that if the keystone species were removed the ecosystem would change drastically
* **population** – all members of a particular species in a given area at a given time
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| Lesson 5: Affecting Carrying Capacity | * **carrying capacity** – the maximum number of individuals of a particular species that an ecosystem can support at a given time
* **community** – all members of all species in a given area
* **direct competition** –two or more species that require the same resources and need to compete for them
* **ecosystem** – all the organisms in a given area along with the nonliving things with which they interact
* **population** – all members of a species in a given area at a given time
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| Lesson 6: Impacting Carrying Capacity | * **carrying capacity** – the maximum number of individuals of a particular species that an ecosystem can support at a given time
* **community** – all members of all species in a given area
* **ecosystem** – all the organisms in a given area along with the nonliving things with which they interact
* **population** – all members of a species in a given area at a given time
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| Lesson 7: Biodiversity at Population Levels | * **biodiversity** – the variety of life within a species, a community, or an ecosystem.
* **community** – all members of all species in a given area
* **population** – all members of a species in a given area at a given time
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| Lesson 8: Biodiversity at Different Scales | * **biodiversity** – or biological diversity, the variation among organisms in an ecosystem
* **community** – all members of all species in a given area
* **ecosystem** – all the organisms in a given area along with the nonliving things with which they interact
* **population** – all members of a particular species in a given area at a given time
* **species** – a group of potentially interbreeding individuals
 |
| Lesson 9: Disturbances in Ecosystems | * **biodiversity** – the variety of life in a community, and ecosystem, or the entire world
* **community** – all members of all species in a given area
* **ecosystem** – all the organisms in a given area along with the nonliving things with which they interact
* **population** – all members of a species in a given area at a given time
 |
| Lesson 10: Ecosystem Interactions | * **biodiversity** – the variation among organisms in an ecosystem
* **ecosystem** – all the organisms in a given area along with the nonliving things with which they interact
* **immigration** – the movement of individuals into an area
* **emigration** – the movement of individuals out of an area
* **interspecific competition** – competition for limited resources that occurs between individuals of different species
* **intraspecific competition** – competition for limited resources that occurs between individuals within the same species
 |
| Lesson 11: Complex Ecosystem Transformations | * **biodiversity** – or biological diversity – the variation among organisms in an ecosystem
* **biome** – distinct terrestrial region characterized by its climate and soil conditions and the species of organisms living there
* **community** – all the organisms living in a given area
* **ecosystem** – all the organisms in a given area along with the nonliving things with which they interact
* **population** – all members of a particular species in a given area at a given time
* **tundra biome** – cold, treeless biome in the Arctic, with frozen soil (permafrost) covered by lichens and mosses
 |
| Lesson 12: Effects of Changing Conditions | * **biodiversity** – or biological diversity, the variation among organisms in an ecosystem
* **community** – all the organisms living in a given area
* **ecosystem** – all the organisms in a given area along with the nonliving things with which they interact
* **invasive species** – an introduced species that now shows an ability to outcompete native species in an ecosystem
* **introduced species** – a species not native to an ecosystem, but rather accidentally (or intentionally) transported to the ecosystem by human activity or other means
* **population** – all members of a particular species in a given area at a given time
* **species richness** – the number of species in a community
* **sustainability** – meeting the needs of organisms without affecting the needs of other organisms over time
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| Lesson 13: Modest Disturbances in Ecosystems | * **biodiversity** – or biological diversity – the variation among organisms in an ecosystem
* **ecosystem** – all the organisms in a given area along with the nonliving things with which they interact
* **homeostasis** – the process of an organism maintaining stable internal conditions despite changes to the ecosystem
* **intermediate disturbance hypothesis** – the hypothesis that moderate levels of disturbance will promote a larger diversity of species over a low or high level of disturbance
* **population** – all members of a particular species in a given area at a given time
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| Lesson 14: Extreme Disturbances in Ecosystems | * **community** – all the organisms living in a given area
* **ecosystem** – all the organisms in a given area along with the nonliving things with which they interact
* **pioneer species** – organisms that are first to arrive in an ecosystem that has been disrupted
* **population** – all members of a particular species in a given area at a given time
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| Unit 6: Biological Evolution |
| Lesson 2: How Resources Affect Evolution | * **adaptation** – any trait that can be passed on to subsequent generations that increases the organism’s ability to survive in its environment and reproduce more often
* **competition** – when organisms living in the same community use the same limited resources, but those resources are not enough to fill the needs of every individual organism
* **intraspecific competition** – competition between two or more individuals of the same species
* **interspecific competition** – competition between two or more individuals of different species
* **direct competition** – competition between two or more individuals where the individuals fight one another for the same resource
* **indirect competition** – competition between two or more individuals where the individuals use the same resource but do not interact with each other directly
* **fitness** – how well an individual survives and produces offspring in its environment
* **gene flow** – the transfer of genes from one population to another due to the migration of individuals into or out of a population
* **natural selection** – the process that results in an organism having favorable adaptations to its environment, which are passed on through reproduction, thus changing the genetic makeup of future generations
* **struggle for existence** – the competition for vital resources between members of a population
 |
| Lesson 3: Genetic Variation and Evolution | * **alleles –**a version of a particular gene
* **chromosomes –**a strand of DNA that has been wrapped around protein to make it fit into a smaller volume
* **gene pool –**the genetic information of a population of interbreeding organisms
* **genetic recombination** – an exchange of DNA having the same genes between homologous chromosomes that results in new combinations of alleles from multiple genes on the same chromosome
* **homologous chromosomes** – chromosomes that contain the same genes at the same locations
* **Jurassic period –** a period from about 200 million years ago to 145 million years ago during which dinosaurs were the predominant form of life on land
* **meiosis –** a type of cellular division used in sexual reproduction to produce sex cells, also known as gametes, that have half the number of chromosomes of body cells and a different genetic makeup due to genetic recombination
* **mutation** – a change in genetic information caused by a change in the sequence of DNA
* **recombinant chromosomes** – chromosomes that have undergone genetic recombination and have new combinations of alleles
* **sexual reproduction** – a type of reproduction which requires two individuals to exchange genetic material
* **somatic cells –** cells that make up the body of an individual as opposed to gametes, which are sex cells
* **zygote –**a single cell resulting from the fusion, or combining, of two gametes during sexual reproduction
 |
| Lesson 4: Differential Reproduction | * **competitive exclusion** – a process by which one species outcompetes another species trying to use the same resources in the same environment, reducing the number of individuals of the other species present in that environment
* **natural selection** – the process that results in an organism having favorable adaptations to its environment, which are passed on through reproduction and thus change the genetic makeup of future generations
* **resource partitioning** – when two or more species divide up a resource so they can both coexist in the same environment without having to use the same resources to survive
* **survival of the fittest** – a phrase with the same meaning as natural selection
 |
| Lesson 5: Modeling Evolution | * **adaptation** – any trait that can be passed on to subsequent generations that increases the organism’s ability to survive in its environment and reproduce
* **fitness** – how well an individual survives and reproduces in its environment
* **natural selection** – the process that results in an organism having favorable adaptations to its environment, which are passed on through reproduction and thus change the genetic makeup of future generations
 |
| Lesson 6: Evolution Versus Natural Selection | * **adaptation** – any trait that can be passed on to subsequent generations that increases the organism’s ability to survive in its environment and reproduce
* **bottleneck effect** – a dramatic reduction in the size of a population that results in a decrease in genetic variation
* **evolution** – change in the genetic makeup of a population over time
* **founder effect** – the effect on the resulting gene pool that occurs when a new isolated population is founded by a small number of individuals possessing limited genetic variation relative to the larger population from which they have migrated
* **gene flow** – the movement of alleles, or versions of genes, from one population to another
* **genetic drift** – evolution caused by random events
* **mechanism** – a system or process that produces a given result
* **mutation** – change to the sequence of DNA
* **natural selection** – the process that results in an organism having favorable adaptations to its environment, which are passed on through reproduction, thus changing the genetic makeup of future generations
* **population** – many individuals of the same species that live in the same area
* **reproductive success** – an individual’s ability to survive and produce offspring that are viable, fertile, and successful
* **selection** – a process in evolution, like natural selection or artificial selection, in which only certain individuals reproduce and pass on their DNA to the next generation
* **selective mating** – a process of selection in which individuals will only mate with certain individuals based on their characteristics
* **vector** – an organism that transmits a substance from one organism or source to another
 |
| Lesson 7: Environmental Change | * **adaptation** – any trait that can be passed on to subsequent generations that increases the organism’s ability to survive in its environment and reproduce
* **evolution**– change in the genetic makeup of a population over time
* **population** – many individuals of the same species that live in the same area
* **reproductive isolation** – inability of members of a population to interbreed successfully with other members of the population, due to separation caused by geographic, behavioral, genetic, or other barriers
* **species** – a group of organisms that can interbreed and produce fertile offspring
* **speciation** – formation of new and distinct species as a result of evolution
 |
| Lesson 8: Group Behavior | * **adaptation** – any trait that can be passed on to subsequent generations that increases the organism’s ability to survive in its environment and reproduce
* **fitness** – how well an individual survives and reproduces in its environment
* **altruistic behavior** – behavior exhibited by individuals within a group that potentially reduces the fitness of that individual but enhances the fitness of other members of the group
* **kin selection** – the process by which individual animals choose to protect and care for their closest relatives, even if the decision to do so causes them harm
 |
| Lesson 9: Effects of Change | * **adaptation** – any trait that can be passed on to subsequent generations that increases the organism’s ability to survive in its environment and reproduce
* **mass extinction** – a large-scale dying off of a vast number of species in relatively short geological time
* **species** – a group of organisms that can interbreed and produce fertile offspring
 |
| Unit 7: Natural Selection |
| Lesson 2: Natural Selection Over Time | * **adaptation –**a trait that gives the individual a survival advantage in a certain environment
* **chart** – a sheet used to display information in tabular form
* **graph** – a diagram that shows the relationship between two variables
* **heritable trait** – a trait that can be passed down genetically from parent to offspring
* **indigenous**– produced, growing, living, or occurring natively or naturally in a particular region or environment
* **melanistic gene frequency** – the prevalence of a gene that codes for dark color
* **natural selection** – a process by which individuals that are better adapted to an environment survive better and reproduce more often
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| Lesson 3: Heredity and Reproductive Success | * **data analysis** – the process of observing, recording, and modeling data in order to discover useful information
* **dependent variable** – a variable (represented on the y-axis of a graph) whose value is measured after changing the independent variable
* **graph –** a diagram that shows the relationship between two variables
* **haplotype mapping** – a process by which the inheritance of a group of SNPs is used to establish ancestry or genealogy of a particular individual
* **independent variable** – a variable (represented on the x-axis of a graph) whose value is changed by the researcher in order to see its relationship to a dependent variable
* **locus** – the location on the chromosome at which a gene or sequence of DNA is found
* **phenotypic plasticity** – the ability of an individual genotype to change when subjected to different environmental conditions
* **single nucleotide polymorphism (SNP)** – a mutation that only changes a single base in a sequence of DNA
 |
| Lesson 4: High Altitude Living | * **adaptations** – biological mechanisms that enable organisms to adapt to new environments
* **allele** – one of two or more alternate versions of a gene
* **hemoglobin** – an iron-containing red protein that is responsible for transporting oxygen in the blood of vertebrates
* **genotype**– the alleles for a certain gene within an individual
* **natural selection** – the process where organisms better adapted to their environment will survive and produce more offspring
 |
| Lesson 5: Competitive Advantage | * **adapted** – a term used to describe a species that has evolved characteristics and/or behaviors that can be inherited from generation to generation that allow the species to better survive and reproduce in a given environment
* **adaptive radiation** – an evolutionary phenomenon in which populations of a single ancestral species become isolated and adapt to different ecosystems, evolving adaptations specific for that environment, which results in the evolution of several different but related species from a single ancestral one over a relatively short amount of time from a geological perspective
* **competitive advantage** – a trait of an organism that gives it a greater chance of surviving and reproducing in a given environment
* **evolution** – a change in the characteristics and/or behavior of a species or population over time
* **niche** – a term that describes the habitat and resources used by a species or population along with its interactions with other species within an ecosystem
* **operant conditioning** - a kind of learning in which rewards or punishments reinforce behavior
* **resource partitioning** – a phenomenon in evolutionary biology in which species living in the same ecosystem will use different food, water, and shelter resources in order to avoid competition between each species
* **species -**a group of organisms that can interbreed and produce fertile offspring
* **speciation** - the process of developing new species
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| Lesson 6: Evolution of the Influenza Virus | * **antigenic drift** – a natural process seen in viruses in which mutations caused by the process of viral replication cause the virus to appear differently to the immune system
* **genetic drift** – variation in the frequency of genes in a population due to random chance events, such as natural disasters or disease
* **influenza** – a viral infection that affects many animal species
* **interferon** – a substance produced by the body that activates the body’s defenses against viruses
* **mutate** – to undergo genetic change
 |
| Lesson 7: Color and Natural Selection | * **causation** – when an observed event or action makes another event or action happen
* **correlation** – a relationship between two sets of variables in which one variable responds to changes in another variable
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| Lesson 8: Transitional Fossils | * **causation** – when an observed event or action makes another event or action happen
* **correlation** – a relationship between two sets of variables in which one variable changes in response to another
* **evidence** – information that supports or refutes a hypothesis
* **transitional fossil** – a fossil that has features of organisms from different parts of the evolutionary tree, which demonstrates an evolutionary relationship between those parts of the evolutionary tree and supports Darwin’s theory of evolution and common ancestry
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| Unit 8: Biological Evolution Evidence |
| Lesson 2: Biological Evolution Evidence | * **amino acids** – a collection of 20 molecules that link together to form proteins
* **cladogram** – a specific type of phylogenetic tree in which all evolutionary relationships are linked back to a common ancestor shared by all species in the tree
* **common ancestry** – a real or theoretical species from which two or more recent species evolved
* **gene** – a sequence of DNA that codes for a protein or nucleic acid, like RNA
* **last universal common ancestor** – a hypothesis presented by Charles Darwin that states that all life on Earth evolved from a single common ancestor billions of years ago
* **phylogenetic tree or chart** – a tree-like diagram that shows the evolutionary relationships of two or more different species
* **proteins** – large molecules that are encoded by DNA and perform most functions for the cell
* **taxonomy** – the branch of biology that studies the relationship between organisms in order to classify them into related groups based on shared characteristics
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| Lesson 3: Fossil Record and Embryology | * **comparative anatomy** – a field of study that compares and contrasts the body structures of organisms to gain a better understanding of how life on Earth evolved
* **comparative embryology** – a field of study that compares the structures of embryos to find evolutionary relationships between organisms
* **fossils** – the remains, imprints, or traces of living things from a previous geological age
* **radiometric dating** – a technique that uses radioactive decay to determine the age of objects, such as rocks, fossils, etc.
* **radioactive decay** – the release of energy and/or particles from atoms that are unstable and fall apart over time
* **sedimentary rock** – rock made from layers of sediment
* **vertebrate embryos** – unborn or unhatched animals with backbones
* **vestigial structure** – a body part that has lost its original function over time through the process of evolution
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| Lesson 4: Animal Phylogenetic Tree Portfolio 1 | * **convergent evolution** – a phenomenon in which two species that do not share a recent common ancestor evolve similar characteristics due to the environments in which they live being similar
* **cladogram** – a diagram that shows evolutionary relationships among organisms
* **derived character** – a trait that separates a group of organisms from its ancestor
* **morphological** – related to the form or structure of the organism
* **phylogeny** – the study of evolutionary relationships between organisms; the study of evolutionary lines of descent
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| Lesson 5: Animal Phylogenetic Tree Portfolio 2 | * **analogies** – characters that are similar not because of common ancestry but that instead evolved as adaptations to similar environmental challenges
* **character polarity** – the explanation of how inherited traits evolved from ancestor organisms
* **homologies** – characters that are similar because they are inherited directly from a common ancestor
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| Lesson 6: Animal Phylogenetic Tree Portfolio 3 | * **clade** – a group of organisms that share a common ancestor
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| Lesson 7: Evidence of Evolution | * **amino acids** – a group of 20 different molecules that serve as the building blocks of proteins
* **tetrapod** – a four-legged animal
* **vertebrate embryo** – unborn or unhatched animal with a backbone
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