



Level 7

Science

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Glossary

(The lesson number included in the definition refers to the first time a question or teaching on this topic appears in the book.)

Abiotic [ey-bahy- ot -ik]	the nonliving components in an environment (Lesson #12)
Acoustic Energy	also known as sound energy; energy carried in vibrations which can be heard (Lesson #107)
Active Transport	processes requiring energy to allow substances to enter and exit a cell (Lesson #48)
Adaptations	changes an individual makes in order to survive (Lesson #18)
Air Resistance	type of friction in which one of the objects is air (Lesson #98)
Ammonia	a chemical containing nitrogen; part of the nitrogen cycle (Lesson #2)
Amniotic Egg	hard-shelled egg containing water, nutrients, and the developing embryo (Lesson #82)
Amphibian	group of cold-blooded vertebrates that spend part of their life in water and part out of water (Lesson #81)
Anaphase	the third step in mitosis when matching chromosomes are pulled apart (Lesson #56)
Angiosperms	plants with transport tissue; reproduce from seeds developed in flowers (Lesson #62)
Animalia	one of the five kingdoms; multicelled organisms that cannot make their own food (Lesson #59)
Annelid	segmented worm; invertebrate with segmented body plan (Lesson #71)
Archaea [ahr- kee -uh]	one of three domains; consists of organisms found in extreme environments (Lesson #58)
Arthropod	family of invertebrates with an exoskeleton and segmented body parts; includes insects, arachnids and crustaceans (Lesson #73)
Atmosphere	the domain enveloping the Earth; made up of gases (Lesson #6)
Autotroph [aw -tuh-trof, -trohf]	organism which can make its own food (Lesson #59)
Benthic Zone	one of the four ocean zones; the bottom of the ocean; little life is found here due to extreme cold and absence of light (Lesson #30)

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Bilateral Symmetry [sim -i-tree]	organization of a body type in which the two halves of the body are mirror images (Example: human face) (Lesson #63)
Biome	a geographical area defined by climate and location (Lesson #11)
Biosphere	where interactions occur between living and nonliving components of Earth (Lesson #8)
Biotic	living components in an environment (Lesson #12)
Bird	warm-blooded vertebrate which lays eggs; most are capable of flight (Lesson #84)
Boiling	the change in state from liquid to gas due to heating; a cause of evaporation (Lesson #94)
Bony Fish	fish whose skeleton is formed from bone; includes goldfish, tuna, and many more (Lesson #79)
Brackish	water which contains a concentration of salt higher than freshwater, but lower than the ocean (Lesson #33)
Brooding	behavior in which the adult warms and protects the developing eggs; typically seen in birds (Lesson #84)
Caecilian [see- sil -ee-uh n]	legless amphibian that burrows underground (Lesson #81)
Camouflage	adaptation in color or body plan which helps an organism blend in with its surroundings (See: cryptic coloration) (Lesson #18)
Canopy	overlapping tree tops in the rainforest; protects the understory and is responsible for considerable photosynthesis (Lesson #24)
Carapace [kar -uh-peys]	protective shell found on many mollusks (Lesson #74)
Carbohydrate	biomolecule used for energy and energy storage; also used by plants to provide structure (Lesson #14)
Carbon Cycle	flow of carbon as it changes from one form to another (Lesson #3)
Carbon Dioxide	a carbon containing molecule, one of the two reactants needed for photosynthesis (Lesson #49)

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Carrying Capacity	number of individuals an ecosystem can support (Lesson #8)
Cartilaginous Fish [kahr-tl- aj -uh-nuh s]	fish whose skeleton is formed from cartilage, a substance slightly more flexible than bones; includes sharks and rays (Lesson #79)
Cell	smallest unit of any living object; all living things are made of cells (Lesson #41)
Cell Cycle	life cycle a cell undergoes, includes growth and division (Lesson #55)
Cell Division	cell transformation that produces two new cells (Lesson #55)
Cell Wall	cell organelle found in plant cells; it surrounds the cell membrane, providing rigidity and protection (Lesson #44)
Cellular Respiration	chemical reaction in which glucose is broken down to release energy and form water and carbon dioxide (Lesson #49)
Central Vacuole [vak -yoo-ohl]	cell organelle found in plant cells; a large, water-containing vesicle which provides storage and support for the plant (Lesson #44)
Cephalopod [sef -uh-luh-pod]	group of mollusks, including the octopus and squid (Lesson #74)
Channel	opening in a cell's membrane or wall which allows small substances to flow in and out (Lesson #48)
Chemical Change	a change in identity; formation of a new substance (Lesson #95)
Chemical Defense	adaptation involving odors or toxins intended to scare off predators (Lesson #18)
Chemical Energy	energy stored in the chemical bonds of a substance (Lesson #107)
Chemical Potential Energy	energy stored in the chemical bonds of a substance (Lesson #100)
Chemical Property	a characteristic of a substance; observed in a chemical reaction (Lesson #90)
Chlorophyll [klawr -uh-fil, klohr -]	type of chemical called a pigment (found in the chloroplasts); necessary to conduct photosynthesis (Lesson #49)

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Chloroplast	photosynthesis occurs here; found only in plant cells and some algae (Lesson #43)
Circulatory System	the body system responsible for distributing nutrients and oxygen throughout the body (Lesson #65)
Class	classification subcategory under Phylum (Lesson #57)
Classification	grouping of objects with similar characteristics (Lesson #57)
Climate	long term weather patterns (Lesson #19)
Closed Circulatory System	a body system in which nutrients are carried through the body enclosed in veins (Lesson #71)
Cnidarian [nahy- dair -ee-uh n]	group of invertebrates which includes jellyfish, coral, and anemones (Lesson #67)
Cold Front	weather condition that occurs when the new air mass moving in is colder (and more dense) than the existing air mass (Lesson #34)
Collar Cells	specialized cells within a sponge responsible for taking in water and particles (Lesson #66)
Combustion	chemical reaction in which one substance is converted to another by burning (Lessons #3 and #100)
Commensalism [kuh- men -suh l ism]	relationship between two organisms in which one partner is helped and the other partner is neither harmed nor helped (Lesson #16)
Community	grouping of several populations (Lesson #11)
Competition	struggle for resources among organisms (Lesson #16)
Complete Digestive System	body system distinguished by two openings (simple systems have only one opening) (Lesson #70)
Compound	grouping of atoms bonded together having a definite composition (Lesson #89)
Compound Light Microscope	tool used to magnify objects; includes at least two lenses and uses light to illuminate the object (Lesson #40)
Condensation	process of water changing from gas state to liquid state (Lessons #9 & #94)

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Conduction	transfer of heat through direct contact (Lesson #102)
Coniferous Forest	temperate weather biome distinguished by trees with needles (Lesson #22)
Convection	process of moving energy through circulating fluids (air or water) (Lesson #9)
Coral Reef	ecosystem found in the ocean built around animals called polyps; their skeletons provide the reef's structure (Lesson #36)
Crustacean [kruh- stey -shuh n]	group of arthropods, often aquatic, including crabs and barnacles (Lesson #73)
Cryptic Coloration [krip -tik]	adaptation in color or body plan which helps an organism blend in with its surroundings (see camouflage) (Lesson #18)
Current	the number of electrons that flow past a given point (Lesson #103)
Cytoskeleton	tangle or web of proteins which provides cell structure (Lesson #41)
Decomposer	living organism which helps to break down decaying objects (Lesson #2)
Decomposition	1) breakdown of living organisms 2) a chemical reaction in which a compound is broken apart (Lesson #3)
Deforestation	loss of forests caused by the removal or clearing of trees (Lesson #8)
Denitrification [dee- nahy -truh-fahy-ka-shun]	process by which nitrogen-containing compounds are broken down and the nitrogen is released into the atmosphere (Lesson #2)
Density	the relationship between an object's mass and volume; how tightly packed an object's particles are (Lesson #93)
Deposition	change in state from a gas directly to a solid (Lesson #94)
Desert	land biome distinguished by hot temperatures and very little rainfall (Lesson #26)
Desertification	process that wears down the soil of an area due to overgrazing of livestock (Lesson #5)

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Diaphragm [dahy -uh-fram]	an organ found only in mammals which separates the heart and lungs from the other organs and supports breathing (Lesson #85)
Diffusion	movement of molecules by collision, moving from high concentration to low concentration (Lesson #47)
Digestive System	body system responsible for handling food or nutrient requirements (Lesson #64)
Direct Force	push or pull that requires contact between two objects (Lesson #98)
Diversity	variety of plants and animals; greater variety means greater diversity (Lesson #8)
DNA	molecules that contain the information needed to pass on traits; full name is deoxyribonucleic acid (Lesson #51)
Domain	1) region characterized by a specific substance (example: the hydrosphere's domain is water, the lithosphere's is stones/soil) (Lesson #4) 2) the highest (broadest) level of classification for living things (Lesson #57)
Echinoderm [i- kahy -nuh-durm, ek -uh-nuh-durm]	group of invertebrates with spiny skin and an interior skeleton; mostly marine (Lesson #75)
Ecosystem	group of nonliving and living individuals co-existing in a specific location (Lesson #11)
Ectotherms [ek -tuh-thurm]	vertebrates whose body temperature changes with the environment (Lesson #78)
Efficient	functioning in the best possible manner, with minimum waste
Elastic Potential Energy	a type of potential energy found in stretchy materials and springs (Lesson #100)
Electrical Potential Energy	energy created by a build up of electrons (Lesson #100)
Electromagnetism	interaction between electricity and magnetism (Lesson #104)
Electron	negatively charged particle which orbits the nucleus of the atom (Lesson #88)

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Element	simplest form of matter; all atoms of an element are identical (Lesson #89)
Endocytosis [en-doh-sahy- toh -sis]	active transport process in which the cell membrane surrounds a particle and pulls it into a cell (Lesson #48)
Endoplasmic Reticulum [en -duh-plaz-mik ri- tik -yuh-luh m]	cell organelle; a series of tubes which work to transport proteins and other molecules around the cell (Lesson #43)
Endoskeleton	a skeleton underneath the skin (Lesson #75)
Endotherm	vertebrate with internal mechanisms to control body temperature (Lesson #78)
Energy	ability to create change or do work (Lesson #99)
Erosion	wearing or grinding away of the Earth's surface (Lesson #9)
Estivation	period of rest in which animals slow down body functions, burrow, or seal off their bodies to avoid hot temperatures (Lesson #27)
Estuary [es -choo-er-ee]	biome connecting the saltwater of the ocean with the freshwater of the river; contains salt but has less salt than the ocean (Lesson #33)
Eubacteria [yoo-bak- teer -ee-uh]	bacteria; one of the three domains of life, consists of most prokaryotic organisms (except for those in Archaea) (Lesson #58)
Eukarya [yoo- kar -ee-aah]	one of the three domains of life; consists of all eukaryotic organisms (Lesson #58)
Eukaryotic Cell [yoo- kar -ee-oht ik]	cell containing a nucleus and organelles responsible for specific functions (Lesson #41)
Exocytosis [ek-soh-sahy- toh -sis]	active transport process in which the cell membrane surrounds a particle in order to remove it from the cell (Lesson #48)
Exoskeleton	rigid outer covering found on some animals, protects and provides structure (Lesson #73)
Exosphere	the fifth and outermost level of the atmosphere; the boundary between Earth and outer space (Lesson #7)
Eyepiece	one of two lenses found in a compound light microscope (Lesson #40)

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Family	classification subcategory under Order (Lesson #57)
Fish	group of cold blooded vertebrates; spend their lives in water (Lesson #79)
Flagella [fluh-jel-uh]	hair-like structures found in the collar cells of a sponge, filter out particles (Lesson #66)
Flammability	chemical property indicating a substance's tendency to burn (Lesson #90)
Flatworm	group of invertebrates including the planaria and tapeworm; many are parasites (Lesson #69)
Force	a push or pull (Lesson #98)
Fossil Fuel	chemical formed from the decay of animals and plants alive long ago (Lessons #108 and #109)
Freezing	the change in state from liquid to solid (Lesson #94)
Friction	type of direct force caused by objects rubbing against each other (Lesson #98)
Front	weather condition that occurs when two air masses with different densities and temperatures collide (Lesson #34)
Fungi	one of five kingdoms, consists of single or multicelled organisms (Lesson #59)
Ganglia [gang-gee-uh]	small groupings of nerve cells (Lesson #69)
Gas	one of the three states of matter; gases have no definite volume or definite shape (Lesson #94)
Gastropod	group of mollusks which include slugs and snails (Lesson #74)
Generator	large coil of wire inside of a large magnet; as the coil moves, an electrical current is generated (Lesson #106)
Genus	classification subcategory under Family (Lesson #57)
Geothermal Energy	energy collected by running water pipes through hot spots in the Earth's crust (Lesson #110)

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Gill	part of the respiratory system found in fish and immature amphibians; gills absorb oxygen from the water (Lesson #79)
Global Warming	gradual increase in the Earth's average surface air temperature (Lesson #6)
Glucose	carbon-containing molecule, known as a sugar; its production is the end result of photosynthesis (Lesson #49)
Golgi Complex [gawl-jee]	cell organelle; packages and distributes the cell's molecules (Lesson #43)
Grasslands	land biome distinguished by a short rainy season, a long dry season, and a lack of trees (Lesson #25)
Gravitational Potential Energy	energy created from the attraction between two objects (Lesson #100)
Gravity	a force which occurs over a distance; an attraction between two objects (Lesson #98)
Greenhouse Gases	mixture of gases in the atmosphere which prevent all of the sun's energy from bouncing off the Earth and returning to outer space; one way the Earth stays warm (Lesson #6)
Gymnosperm [jim-nuh-spurm]	plant which has transport tissue and reproduces from seeds developed in cones (Lesson #62)
Habitat Destruction	loss of an organism's natural living space; can be natural or human-made (Examples: fire or building a mall) (Lesson #8)
Heredity	ability of living things to pass on their traits (Lesson #51)
Heterotroph [het-er-uh-trof, -trohf]	organism which cannot make its own food and must get its nutrition from outside sources (Lesson #59)
Hibernation	period of rest in which animals slow down body functions, burrow, or seal off their bodies to avoid cold temperatures (Lesson #28)
High Pressure Area	geographic area in which the atmospheric pressure is higher than the surrounding areas (Lesson #38)
Homeostasis [hoh-mee-uh-stey-sis]	ability to maintain a stable internal environment (for example, a consistent body temperature) (Lesson #51)

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Hormones	special messsenger molecules (Lesson #53)
Hydropower	power created by water falling from a dam (Lesson #108)
Hydrosphere [hahy -druh-sfeer]	domain emcompassing all forms of water on Earth (Lesson #4)
Induction	the transfer of a charge (magnetism) by bringing objects close together (Lesson #102)
Insect	group of arthropods with three body segments and six legs (Lesson #73)
Interdependence	interconnectedness between organisms in an ecosystem (Lesson #8)
Interphase	stage of cell cycle when the cell is growing and preparing to divide (Lesson #55)
Intertidal Zone	one of four ocean zones, distinguished by shallow and active warm water (Lesson #30)
Invertebrate	animal which does not have a backbone (Lesson #66)
Ion [ahy -uhn, ahy -on]	atom which has gained or lost electrons and has a charge (Lesson #88)
Isobar	weather symbol on surface area maps, drawn to connect areas with similar atmospheric pressure (Lesson #38)
Jawless Fish	thought to be the oldest group of fish; the lack of a jaw causes these fish to suck their food or shovel it from the ocean floor (Lesson #79)
Kinetic Energy	energy of motion (Lesson #99)
Kingdom	classification subcategory under Domain (Lesson #57)
Lake	freshwater biome of standing water; small lakes are called ponds (Lesson #32)
Lateral Line	sensory organ in many fish which allow them to sense vibrations and detect movement (Lesson #79)
Law of Conservation of Energy	energy can not be created or destroyed (Lesson #114)

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Lipid	large biomolecule used by the body for long term energy storage and the production of hormones (Lesson #53)
Liquid	one of the three states of matter; liquids have definite volume but vary in shape (Lesson #94)
Lithosphere [lith -uh-sfeer]	encompasses all the different forms of soil/stone on Earth (Lesson #5)
Low Pressure Area	geographic area in which the atmospheric pressure is lower than the surrounding areas (Lesson #38)
Macromolecule	large, complex molecule made by linking smaller molecules together (Lesson #53)
Magnetism	force which occurs over a distance; an attraction based on opposite charges (Lesson #98)
Mammal	group of warm-blooded vertebrates; the fetus develops internally (Lesson #85)
Mammary Glands	special organs on mammals which produce milk for nourishment of the young (Lesson #85)
Marsh	a wetland biome where the predominant plant life is grasses (Lesson #32)
Marsupial	a type of mammal whose young are born not fully developed and continue their development in a pouch on the mother (Lesson #86)
Mechanical Energy	energy of motion; examples include airline propellers or a car motor (Lesson #107)
Membrane	covering around all cells, protects and separates one cell from another (also any thin film separating two fluids) (Lessons #41 and 47)
Mesosphere [mez -uh-sfeer]	the third of five layers of the atmosphere; protects Earth from meteors which burn up in this layer (Lesson #7)
Metalloid [met -l-oid]	type of element; has properties between those of metals and nonmetals (Lesson #91)
Metal	type of element; most are shiny, malleable, and conduct electricity (Lesson #91)
Metaphase	the second step in mitosis: chromosomes line up in the center of the cell (Lesson #56)

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Migratory	moving from one geographic area to another during different times of the year (Lesson #28)
Mimicry	adaptation in which a harmless organism imitates another organism which is toxic or harmful (Lesson #18)
Mitochondria [mahy-tuh- kon -dree-uh n]	organelle responsible for processing the body's energy (Lesson #42)
Mitosis [mahy- toh -sis]	portion of the cell cycle when the cell is actively dividing (Lesson #55 – 56)
Mixture	combination of two or more substances (Lesson #89)
Molecules	groups of atoms bonded together (Lesson #88)
Mollusk [mol-uh sk]	group of invertebrates, mainly aquatic, which have a soft, unsegmented body, typically enclosed in a shell (Examples: octopus and clam) (Lesson #74)
Monera [muh- neer -uh]	one of the five kingdoms; consists of all prokaryotic organisms (Lesson #59)
Monotreme	a type of mammal which lays eggs instead of having internally developed offspring (Lesson #86)
Mutualism	relationship between two organisms in which both organisms benefit (Lesson #16)
Neritic Zone [nuh- rit -ik]	one of the four ocean zones, distinguished by stable water; home to the majority of ocean life (Lesson #30)
Nervous System	the body system responsible for an organism's response to stimuli (Lesson #65)
Neutron	neutral particles found in the nucleus of the atom (Lesson #88)
Nitrate	a chemical containing nitrogen; part of the nitrogen cycle (Lesson #2)
Nitrogen Cycle	flow of nitrogen as it changes from one form to another (Lesson #2)
Nitrogen Fixation	process by which nitrogen is changed from gas into other forms living things can use (Lesson #2)
Nocturnal	active during the night instead of during the day (Lesson #26)

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Nonmetal	one type of element; most are brittle and do not conduct electricity (Lesson #91)
Nonrenewable Energy	energy sources which take a great deal of time to form; nonrenewable energy sources can run out (Lesson #109)
Nonvascular Plants	plants which do not have transport tissue (veins) and use spores to reproduce (Lesson #61)
Nuclear Power	power created by a nuclear reaction which occurs as an element's nucleus decays (Lesson #108)
Nucleic Acids	large biomolecules which carry information necessary to pass on traits; DNA & RNA are the two types of nucleic acids (Lesson #53)
Nucleus	organelle found in cells; contains the organism's DNA and communicates with other parts of the cell (Lesson #42)
Nutrient Cycle	flow of an element as it changes from one form to another (Example: the water cycle) (Lesson #1)
Objective Lens	second lens in a compound light microscope (Lesson #40)
Ocean	water biome composed of salt water (Lesson #29)
Oceanic Zone	one of the four ocean zones, also known as the deep ocean; depth can be great and the temperature of the water varies considerably (Lesson #30)
Open Circulatory System	body system in which the veins carrying the nutrients empty into open body cavities (Lesson #65)
Order	classification subcategory under Class (Lesson #57)
Organ	grouping of tissues with a specific purpose (Lesson #46)
Organ System	group of organs working together (Lesson #46)
Organism	an individual in an ecosystem (Lesson #11)
Osculum [os-kyuh-luh m]	an opening at the top of a sponge through which water exits (Lesson #66)
Osmosis [oz-mohsis]	water molecule diffusion (Lesson #47)

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Overpopulation	occurs when individuals in an ecosystem exceed the carrying capacity (Lesson #8)
Ozone Action Days	days of extremely warm weather when we are asked to avoid activities that produce ozone (Lesson #10)
Ozone Layer	layer of oxygen molecules in the stratosphere; filters ultraviolet radiation, limiting the amount that can reach Earth's surface (Lesson #6)
Parasitism	relationship between two organisms in which one partner is helped and the other partner is harmed (Lesson #16)
Passive Transport	process which allows substances to enter or exit a cell without using energy (Lesson #48)
Permafrost	permanently frozen soil; most often associated with the tundra biome (Lesson #28)
Photosynthesis	process in which the sun's energy is used to convert carbon dioxide and water into sugar (glucose) (Lesson #3)
Phyla [fahy -luh]	classification subcategory under Kingdom; plural for Phylum (Lesson #57)
Physical Change	a change in appearance, not in identity (Lesson #95)
Physical Property	an observable quality that doesn't change with observation (Lesson #90)
Placenta [pluh- sen -tuh]	the organ which supplies oxygen and nutrients to the developing fetus (Lesson #85)
Placental	group of mammals whose offspring develop internally until they are ready to be born (Lesson #85)
Plantae	one of the five kingdoms, consists of multicelled organisms that can make their own food (Lesson #59)
Population	a group of similar organisms or individuals (Lesson #11)
Potential Energy	energy of position; energy related to the possibility that something will happen (Lesson #99)

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Precipitation	process of water falling to Earth; occurs in many forms including rain, snow, or hail (Lesson #9)
Primary Consumer	organism that gets its energy from producers, often called herbivores; on the second level of an energy pyramid (Lesson #14)
Producer	living organism which can produce its own food from the sun's energy; capable of performing photosynthesis and is the first level in an energy pyramid (Lesson #14)
Product	chemical that is formed at the end of a chemical reaction (Lesson #49)
Prokaryotic Cell [proh- kar -ee-oht-ik]	cell which does not contain a nucleus or other organelles (Lesson #41)
Prophase	the first step in mitosis, when the chromosomes coil up (Lesson #56)
Protein	nitrogen-containing molecule which provides structure in living organisms; also in special molecules called enzymes (Lesson #2)
Protista [proh- tis -tuh]	one of five kingdoms, consists of single-celled, eukaryotic organisms (Lesson #59)
Proton	positively charged particle found in the nucleus of the atom (Lesson #88)
Pure	substances which have a definite composition (Lesson #89)
Radial Symmetry [sim -i-tree]	present in the body of an object organized around a central point (Example: starfish) (Lesson #63)
Radiant Energy	energy carried in light waves (Lesson #107)
Rainforest	warm weather forest biome distinguished by the existence of a canopy (Lesson #24)
Reactant	chemical that exists at the start of a chemical reaction (Lesson #49)
Reactivity	chemical property which indicates whether one substance is likely to react with another (Lesson #90)
Renewable Energy	energy sources which can be renewed or regrown; energy sources which don't run out (Lesson #109)

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Reptile	group of cold-blooded vertebrates, most spend the majority of their time on dry land (Lesson #82)
Reservoir	storage place within a cycle where a substance can be found for an extended time (Lesson #1)
Resistance	opposition to electron flow; caused by friction between electrons and the substance they are moving through (Lesson #103)
Resource Depletion	reduction of necessary resources (Example: clean water or food) (Lesson #8)
Respiration	1) process by which living organisms break down glucose to release energy (Lesson #3) 2) ability to break down food to release energy; also known as cellular respiration (Lesson #51)
Respiratory System	body system responsible for taking in oxygen and ridding the body of carbon dioxide (Lesson #64)
Ribosome [rah-y-buh-sohm]	organelle found in cells, responsible for the manufacture of the body's proteins (Lesson #42)
River	freshwater biome involving running or moving water (Lesson #31)
Roundworm	invertebrate with a smooth, unsegmented body plan; often parasitic (Lesson #70)
Scanning Electron Microscope	tool used to magnify objects, uses electrons to illuminate the object; produces a highly detailed, black and white, three dimensional image (Lesson #45)
Scientific Law	a scientific statement; states a tested and accepted scientific fact (Lesson #118)
Secondary Consumer	organism that gets its energy from other consumers; found at the higher levels in the energy pyramid and is carnivorous (Lesson #14)
Seedless Plant	plant which has transport tissue (veins) and uses spores to reproduce (Lesson #61)
Segmented Worm	invertebrate with segmented body plan; also known as an annelid (Lesson #71)
Semi-Permeable	membrane which allows some substances to flow through it while others are stopped (Lesson #48)

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Solar Power	power generated from panels which absorb the sun's energy (Lesson #110)
Solid	one of the three states of matter; solids have definite volume and definite shape (Lesson #94)
Specialized Teeth	designed for special purposes such as grinding or biting (Lesson #85)
Species	classification subcategory under Genus, the most specific category (Lesson #57)
Specific Heat	describes how easily a substance changes temperature (Lesson #117)
Sphere	region of the Earth which has a specific character (See: Domain) (Lesson #4)
Spicules [spik-yool z]	hard fibers which provide structure and support in sponges (Lesson #66)
Spider	group of arthropods with two body segments and eight legs (Lesson #73)
Static Electricity	one type of electrical potential energy (Lesson #100)
Station Model	type of weather map which gives conditions such as rainfall, cloud cover, and temperature for a specific area (Lesson #37)
Stationary Front	weather condition that occurs when neither of two air masses is strong enough to push the other aside; associated with very gradual changes in weather (Lesson #35)
Stinging Cells	also known as cnidocytes; contain barbs and toxin which sting if contact is made (Lesson #67)
Stoma	openings in a plant's stems or leaves which allow air to enter (Lesson #49)
Stratosphere	the second of the five layers of the atmosphere; weather balloons are placed here (Lesson #7)
Subatomic Particles	particles which make up an atom; includes protons, electrons, and neutrons (Lesson #88)
Sublimation	the change in state from solid directly to gas (Lesson #94)
Succulent [suhk-yuh-luh nt]	plant which has modified stems and leaves to increase water storage (Lesson #26)

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Surface Weather Map	type of weather map which shows general weather trends over large areas such as continents (Lesson #38)
Swamp	wetland biome where the predominant plant life is trees (Lesson #32)
Swim Bladder	a special organ found in most bony fish; helps prevent fish from sinking (Lesson #80)
Symbiosis [sim-bee- oh -sis]	a relationship between two organisms living in association with each other (Lesson #16)
Symmetry	level or type of organization an object has (Lesson #63)
Telophase	the final step in mitosis when one cell splits into two cells (Lesson #56)
Temperate Deciduous Forest	temperate weather forest biome distinguished by trees that do not have leaves during winter (Lesson #21)
Theory	a model which summarizes scientific conclusions (Lesson #17)
Thermal Energy	heat energy (Lesson #107)
Thermosphere	the fourth of the five layers of the atmosphere; the space shuttle flies here (Lesson #7)
Tissue	grouping of cells with a specific purpose (Lesson #46)
Trachea [trey -kee-uh]	part of the respiratory system; tubes which bring oxygen into the body (Lesson #73)
Transmission Electron Microscope	tool used to magnify objects by using electrons to illuminate the object; produces a highly detailed, colored, two dimensional image (Lesson #45)
Trichinosis [trik-uh- noh -sis]	disease caused by a flatworm (Lesson #69)
Trophic Level	a single level in an energy pyramid (Lesson #14)
Troposphere	one of the five layers of the atmosphere, closest to the Earth; weather occurs in the troposphere (Lesson #7)
Tundra	cold weather land biome distinguished by lack of trees; found on mountain tops and near the arctic (Lesson #28)

Help Pages

Glossary

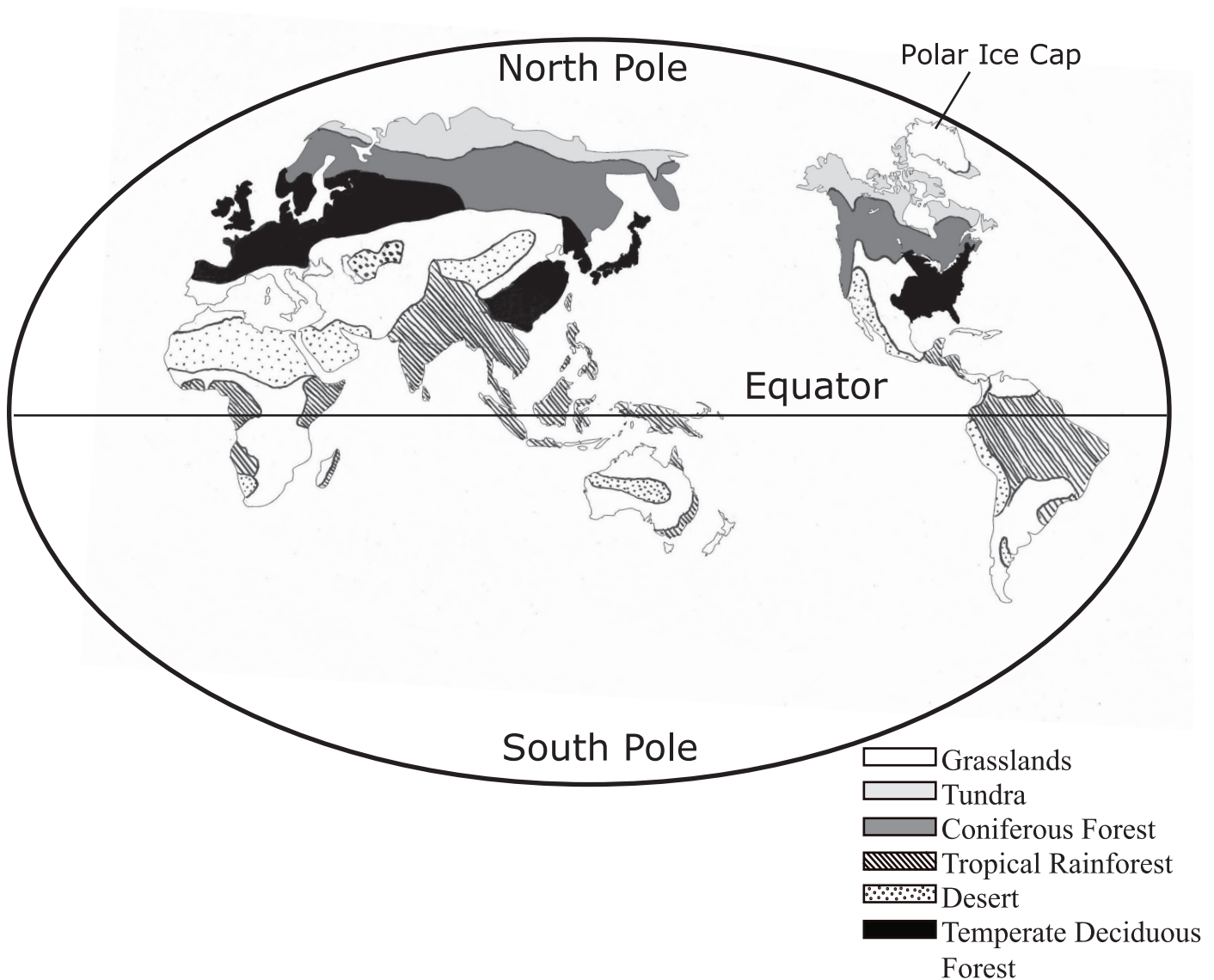
Turbidity [tur- bid -uh-tee]	the muddiness of water caused by stirring up the sediment in a stream or lake (Lesson #9)
Turbine	wheel with a series of blades; often moved by wind, water, or steam (Lesson #106)
Vertebrate	an animal with a backbone (Lesson #78)
Vesicle [ves -i-kuh l]	cell organelle which stores substances such as waste or water (Lesson #43)
Voltage	force that causes electrons to flow; created by a build up of electrons (Lesson #103)
Warm Front	weather condition that occurs when the new air mass moving in is warm (and less dense) than existing air mass (Lesson #35)
Warning Coloration	adaptation involving bright colors or distinct markings which stand out and warn off predators (Lesson #18)
Water Vascular System	a unique body system found in echinoderms which moves water in and out of the animal's body; serves as both a respiratory and circulatory system (Lesson #75)
Weather	conditions in the atmosphere at a certain place and time (Lesson #34)
Wetlands	freshwater biome that is underwater part of the year and dry land the other part of the year; marshes and swamps are wetlands (Lesson #32)
Windpower	power created when wind strikes a turbine (Lesson #108)

Help Pages

Aquatic Biomes

Freshwater	Brackish Water	Saltwater
Rivers and Streams Lakes and Ponds (near shore, open water, deep water) Wetlands: Swamps (trees and vines) Marshes (grasses)	Estuaries	Oceans


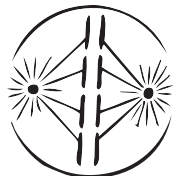
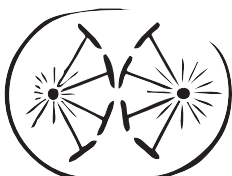

Biome Map



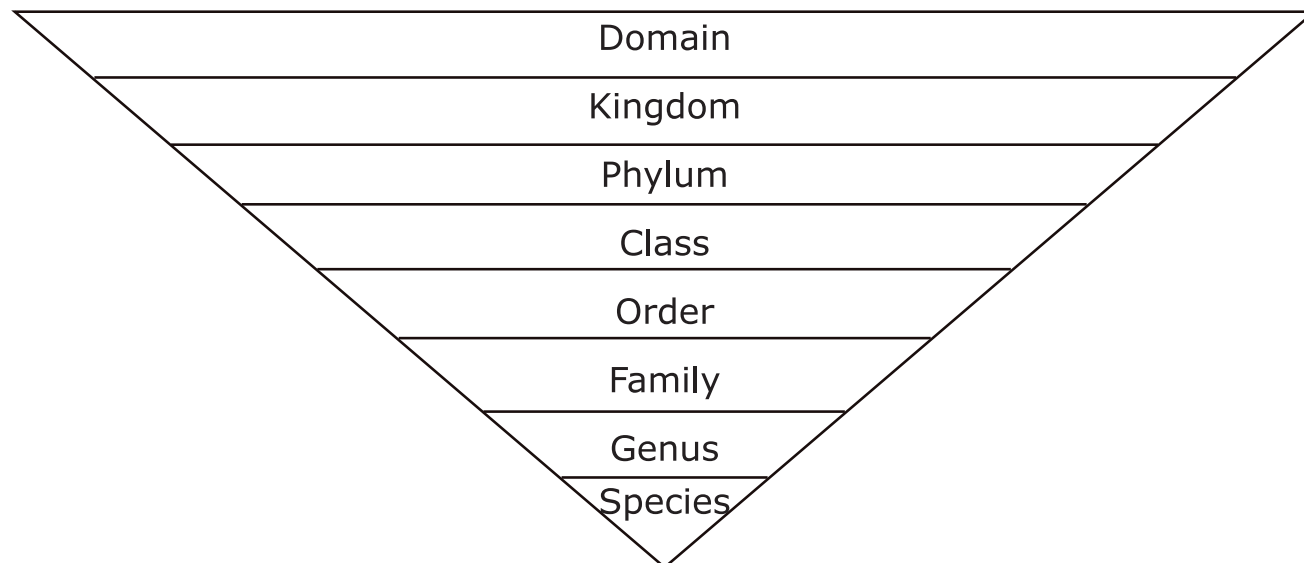
Help Pages

Cell Cycle

Mnemonic Device: Perfect Meatballs Are Tasty!

Interphase		before mitosis; when the cell is growing and preparing for division; chromosomes and organelles are copied	
Mitosis	Prophase	DNA molecule is unwound; chromosomes coil up to separate neatly and to prevent the fragile DNA from being broken	
	Metaphase	chromosomes line up in the center of the cell	
	Anaphase	matching copies of chromosomes are pulled apart to opposite sides of the cell	
	Telophase	a membrane forms down the middle of the cell, dividing it in two	

Classification Hierarchy



Help Pages

Invertebrates


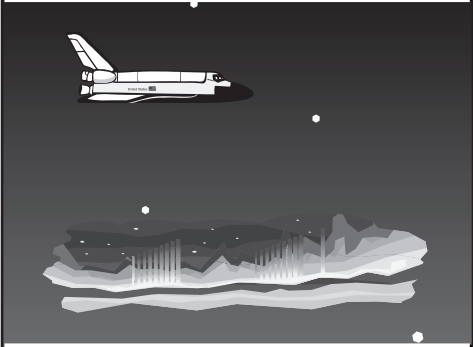

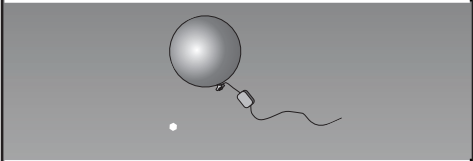

Invertebrate	Examples	Symmetry	Systems	Habitat & Description
Sponge	sea sponge	no symmetry	no organs or systems; water and food flow through the organism	structure consists of groupings of spicules (hard fibers); individual cells clumped together; able to regenerate; aquatic habitat
Cnidarian	jellyfish, coral, sea anemone, Man o' War	some radial; others are asymmetrical	simple nerve system (no brain); basic stomach (called gut)	absorbs oxygen directly (no respiratory system); aquatic habitat
Flatworm	planaria, tapeworm	bilateral	nervous, excretory	flat bodies; well defined head region; simple gut for processing food; obtain oxygen through diffusion; some are parasitic, others are free living
Roundworm	hookworm, pinworm	bilateral	simple nervous; complete digestive	a.k.a. nematode; smooth and round, not segmented; gets oxygen through diffusion; defined head region; some are parasitic, others are free living
Annelid	earthworm, leech	bilateral	complete digestive; closed circulatory	bodies are segmented; simple brain
Arthropod	shrimp, lobster, crab, spider, tick, scorpion; all insects	bilateral	simple respiratory & nervous; complete digestive; open circulatory	crustaceans and arachnids; most diverse and abundant invertebrate group; segmented bodies; exoskeletons; terrestrial & aquatic habitats
Mollusk	slug, snail, octopus, squid, nautilus	bilateral	complete digestive; well-developed nervous; some have circulatory and respiratory systems	gastropods and cephalopods; soft bodies; may have outer covering called a carapace (shell); most live in aquatic habitats
Echinoderm	star fish, sea urchin, sand dollar	radial	complete digestive; water vascular	spiny skin; endoskeleton; live exclusively in the ocean

Help Pages

Kingdoms

Kingdom	Cell Type	Characteristics
Monera	prokaryotes single-celled	some autotrophs (make their own food through photosynthesis); others are consumers; include bacteria and blue-green algae
Protista	eukaryotes mostly single-celled	some autotrophs; others are consumers; include algae, diatoms, and mold
Fungi	eukaryotes some are single-celled, others are multicellular	cannot move or make food; decomposers
Plantae	eukaryotes multicellular	cannot move; all are autotrophs - plants make their own food through photosynthesis
Animalia	eukaryotes multicellular	cells do not have a cell wall; most are mobile (can move) but none can make food

Layers of the Atmosphere

	Exosphere
	Thermosphere The space shuttle flies in this layer. This is where auroras occur.
	Mesosphere Meteors burn up in this layer.
	Stratosphere Weather balloons fly in this layer.
	Troposphere Airplanes fly in this layer. This is where weather occurs.

Help Pages

Molecules of Life

Macromolecule	Function
Protein	responsible for the body's structure, including muscles, blood cells, and enzymes
Carbohydrate	sugars and starches; used to produce energy during respiration; stores energy; provides body structure
Lipid	fats; stores long-term energy; essential hormones
Nucleic Acid	carries genetic material that passes on an organism's traits

Nutrient Cycles

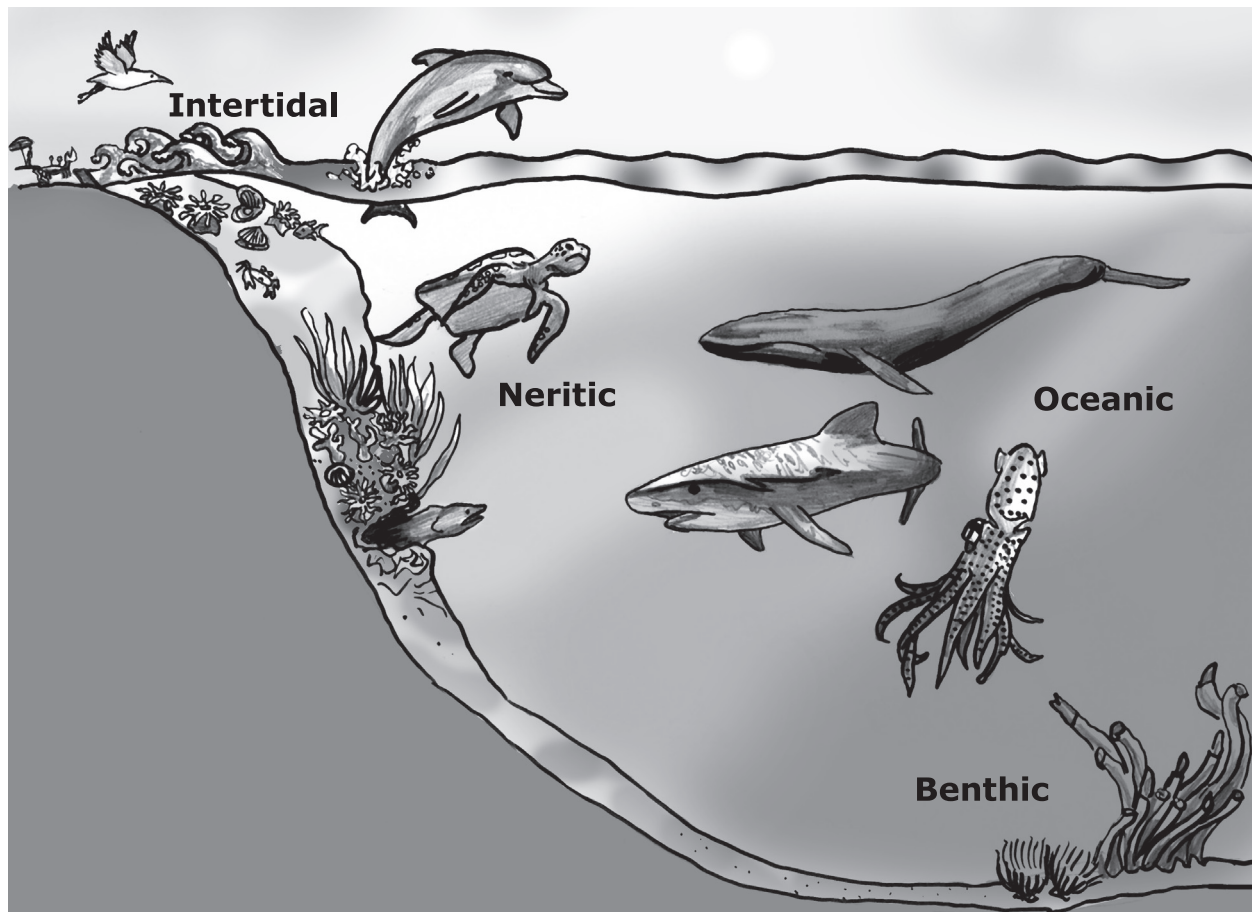
Cycle	Process	Reservoir
Water	evaporation, condensation, precipitation	atmosphere, oceans, rivers, lakes, streams, groundwater, snowcaps, glaciers, bodies of plants and animals
Nitrogen	nitrogen fixation, decomposition, denitrification	atmosphere, soil, bodies of plants and animals
Carbon	photosynthesis, respiration	atmosphere, rocks and minerals, bodies of plants and animals

Help Pages

Ocean Zones

Mnemonic Device: Iguanas Never Offer Bribes

Zone	Description/Location	Animal Life
Intertidal	where the land and ocean meet; very shallow and warm	crabs, clams, sea anemones
Neritic	extends from the edge of the land to the edge of the continental shelf; stable water; sunlight	dolphins, sea turtles, fish, eels, phytoplankton
Oceanic	includes all open ocean areas away from shore	whales, sharks, squid
Benthic	the ocean floor; very dark	bacteria, worms, sea urchins



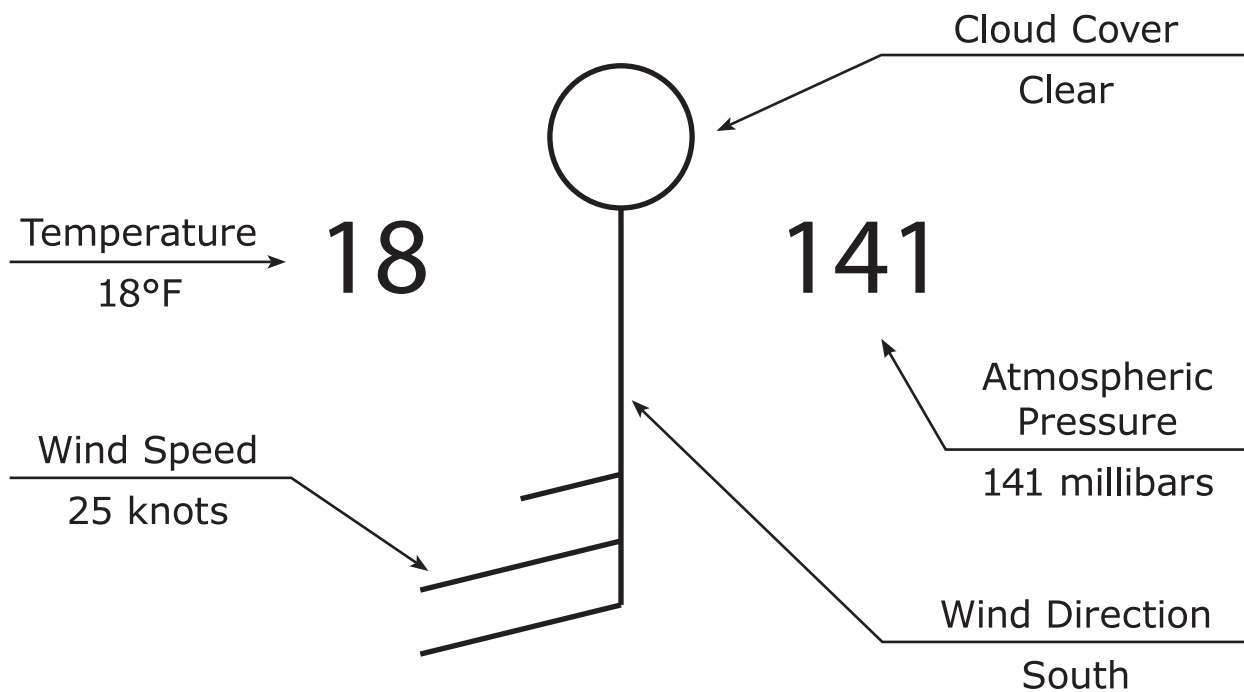
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Organelles and Their Functions

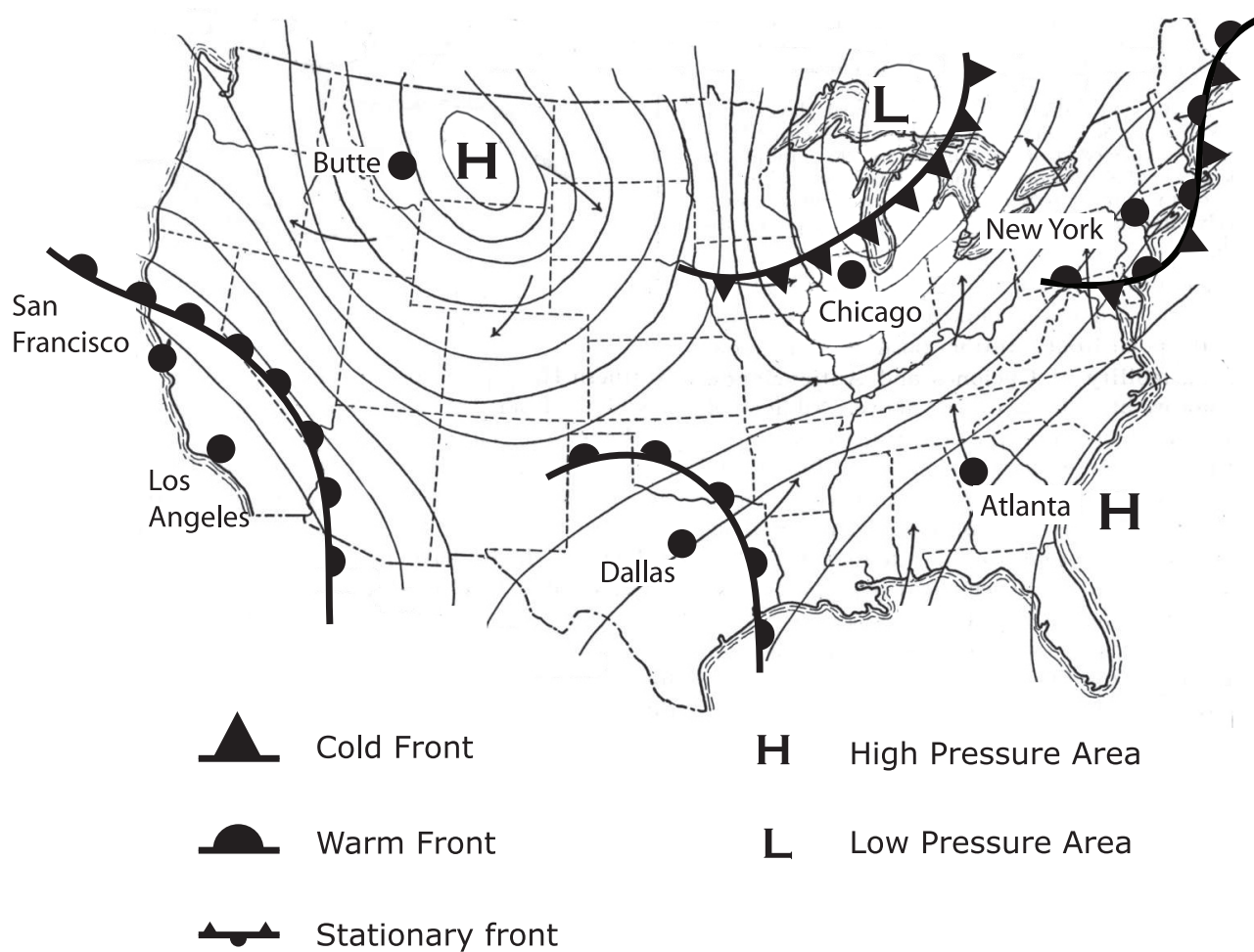
Organelle	Nickname (Lessons #42 & 43)	Function
nucleus	city hall	stores information in the form of DNA; reads DNA and communicates with the rest of the cell
mitochondria	power plant	converts food to usable energy; stores energy for the cell
ribosomes	factories	manufacture proteins
endoplasmic reticulum	transport system	moves proteins and other substances throughout the cell
Golgi complex	post office	package and distribute lipids and proteins made in the cell
chloroplasts (plant cells only)	solar panels	absorb the sun's energy and convert it into chemical energy through photosynthesis
vesicles	storage bubble	cleans up and stores waste (lysosome); stores water (vacuole)

Help Pages

Station Model



Surface Weather Map



Cold Front



Warm Front



Stationary front

H

High Pressure Area

L

Low Pressure Area