Vocabulary/Ch. 2

Friedland

**matter**: Anything that occupies space and has mass

**mass**: A measure of the amount of matter an object contains

**atom**: The smallest particle that can contain the chemical properties of an element

**element**: A substance composed of atoms that cannot be broken down into smaller, simpler, components

**periodic table**: A chart of all chemical elements currently known organized by the properties

**molecule**: A particle containing more than one atom

**compounds**: A molecule containing more than one element

**atomic number**: The number of protons in the nucleus of a particular element

**mass number**: A measurement of the total number of protons and neutrons in an element

**isotopes**: Atoms of the same element with different numbers of neutrons

**radioactive decay**: The spontaneous release of material from the nucleus of radioactive isotopes

**half-life**: The time it takes for one-half of the original radioactive parent atoms to decay

**covalent bonds**: The bond formed when elements share electrons

**ionic bonds**: A chemical bond between two oppositely charged ions

**hydrogen bonds**: A weak intermolecular force that occurs when hydrogen atoms that are covalently bonded to one atom are attracted to another atom on another molecule. (F, O, or N)

**polar molecule**: A molecule in which one side is more positive and the other side is more negative

**surface tension**: A property of water that results from the cohesion of water molecules at the surface of a body of water

**capillary action**: A property of water that occurs when adhesion of water molecules to a surface is stronger than cohesion between the molecules.

**acid**: A substance that contributes hydrogen ions to a solution

**base**: A substance that contributes hydroxide ions to a solution

**pH scale**: A way to indicate the strength of acids and bases

**chemical reaction**: Occurs when atoms separate from the molecules they are a part of or recombine with other molecules

**Law of Conservation of Matter**: States that matter cannot be created or destroyed; it can only change form

**inorganic compounds**: Compounds that either do not contain the element carbon or do contain carbon but only carbon bound to elements other than hydrogen

**organic compounds**: Compounds that have carbon-carbon and carbon-hydrogen bonds

**carbohydrates**: Compounds composed of carbon, hydrogen, and oxygen atoms

**proteins**: Made up of long chains of nitrogen-containing organic molecules called amino acids

**nucleic acids**: Organic compounds found in all living cells, which form in long chains to make DNA and RNA

**DNA**: The genetic material that contains the code for reproducing the components of the next generation, and which organisms pass on to their offspring

**RNA**: Translates the code stored in the DNA and allows for the synthesis of proteins

**lipids**: Smaller organic biological molecules that do not mix with water

**cell**: A highly organized living entity that consists of the four types of macromolecules and other substances in a water solution, surrounded by a membrane

**energy**: The ability to do work, or transfer heat

**electromagnetic radiation**: A form of energy emitted by the Sun that includes, but is not limited to, visible light, ultraviolet light, and infrared energy, which we perceive as heat

**photons**: Massless packets of energy that travel at the speed of light

**joule**: The amount of energy used when a 1-watt light bulb is turned on for one second

**potential energy**: Energy that is stored but has not yet been released

**kinetic energy**: The energy of motion

**chemical energy**: Potential energy stored in chemical bonds

**temperature**: The measure of the average kinetic energy of a substance

**first law of thermodynamics**: States that energy is neither created nor destroyed, it only changes form

**second law of thermodynamics**: When energy is transformed, the quantity of energy remains the same, but its ability to do work diminishes

**energy efficiency**: The ratio of the amount of work that is done to the total amount of energy that is introduced into the system

**energy quality**: The ease with which an energy source can be used for work

**entropy**: A measure of randomness or disorder

**open system**: Exchanges of matter or energy occur across system boundaries

**closed system**: Matter and energy exchanges across system boundaries do not occur

**inputs**: Additions to a given system

**outputs**: Losses from the system

**systems analysis**: In which inputs, outputs, and changes in a system are measured under various conditions

**steady state**: Where inputs equal outputs, so the system is not changing over time

**feedback**: Adjustments in input or output rates caused by changes to a system

**negative feedback loops**: In which a system responds to a change by returning to its original state, or at least by decreasing the rate at which the change is occurring

**positive feedback loop**: A type of feedback that amplifies changes

**adaptive management plan**: A strategy that provides flexibility so that managers can modify it as future changes occur