



# Glossary

## A

**acetyl CoA:** the combination of an acetyl group derived from pyruvic acid and coenzyme A which is made from pantothenic acid (a B-group vitamin)

**acid:** a substance that donates hydrogen ions and therefore lowers pH

**activation energy:** the amount of initial energy necessary for reactions to occur

**active site:** a specific region on the enzyme where the substrate binds

**active transport:** the method of transporting materials into or out of a cell that requires energy

**adaptation:** a heritable trait or behavior in an organism that aids in its survival in its present environment

**adenosine triphosphate (ATP):** is the primary energy currency of all living cells

**adhesion:** the attraction between water molecules and molecules of a different substance

**aerobic cellular respiration:** the use of oxygen as an electron acceptor to complete metabolism

**alcohol fermentation:** the steps that follow the partial oxidation of glucose via glycolysis to regenerate NAD<sup>+</sup> and produces the products ethanol and carbon dioxide

**allele:** one of two or more variants of a gene that determines a particular trait for a characteristic

**allopatric speciation:** a speciation that occurs via a geographic separation

**allosomes:** chromosome pair twenty-three and determines a person's sex

**allosteric activation:** the mechanism for activating enzyme action in which a regulatory molecule binds to a second site (not the active site) and initiates a conformation change in the active site, allowing binding with the substrate

**allosteric inhibition:** the mechanism for inhibiting enzyme action in which a regulatory molecule binds to a second site (not the active site) and initiates a conformation change in the active site, preventing binding with the substrate

**alternative RNA splicing:** a post-transcriptional gene regulation mechanism in eukaryotes in which multiple protein products are produced by a single gene through alternative splicing combinations of the RNA transcript

**amino acid:** a monomer of a protein

**anabolic:** describes the pathway that requires a net energy input to synthesize complex molecules from simpler ones

**anaerobic cellular respiration:** the use of an electron acceptor other than oxygen to complete metabolism

**anaerobic:** process in which organisms do not require oxygen

**analogous structure:** a structure that is similar because of evolution in response to similar selection pressures resulting in convergent evolution, not similar because of descent from a common ancestor

**anaphase:** the stage of mitosis during which sister chromatids are separated from each other

**aneuploid:** an individual with an error in chromosome number; includes deletions and duplications of chromosome segments

**anion:** a negative ion formed by gaining electrons

**anticodon:** three consecutive nucleotides on tRNA that complement the codon on a mRNA

**aquaporin:** channel protein that allows water through the membrane at a very high rate

**asexual reproduction:** produces genetically identical clones to the parent organism

**atom:** a basic unit of matter that cannot be broken down by normal chemical reactions

**atomic number:** the number of protons in an atom

**ATP synthase:** a membrane-embedded protein complex that regenerates ATP from ADP with energy from protons diffusing through it

**ATP:** adenosine triphosphate; the cell's energy currency

**autosomal dominant inheritance:** pattern of dominant inheritance that corresponds to a gene on one of the 22 autosomal chromosomes

**autosomal recessive inheritance:** pattern of recessive inheritance that corresponds to a gene on one of the 22 autosomal chromosomes

**autosome:** chromosome pairs one through twenty-two and does not determine a person's sex

**autotroph:** an organism that can make its own food from materials in its environment

## **B**

**base:** a substance that absorbs hydrogen ions and therefore raises pH

**binary fission:** the process of prokaryotic cell division

**biology:** the study of life

**biosphere:** a collection of all ecosystems on Earth

**blending hypothesis of inheritance:** states that when two individuals made an offspring, their original parental traits were lost because their traits blended together when the offspring was formed

**bottleneck effect:** the magnification of genetic drift as a result of natural events or catastrophes

**buffer:** a solution that resists a change in pH by absorbing or releasing hydrogen or hydroxide ions