

# Biology Glossary

- Adaptation:** A trait or characteristic that helps an organism survive and reproduce in its environment.
- Active transport:** The movement of molecules across a cell membrane against a concentration gradient, requiring energy.
- Allele:** A variant form of a gene.
- Amino acid:** The building blocks of proteins.
- Antibiotic:** A substance that kills or inhibits the growth of bacteria.
- Antibody:** A protein produced by the immune system that neutralizes pathogens.
- ATP (Adenosine triphosphate):** The molecule that provides energy for cellular processes.
- Bacteria:** Single-celled prokaryotic organisms.
- Biodegradable:** Capable of being decomposed by bacteria or other living organisms.
- Biodiversity:** The variety of life in a particular habitat or ecosystem.
- Biome:** A large naturally occurring community of flora and fauna occupying a major habitat.
- Biotechnology:** The use of living systems and organisms to develop or make products.
- Carbohydrate:** An organic compound consisting of carbon, hydrogen, and oxygen, serving as a primary source of energy.
- Cell:** The basic structural and functional unit of all living organisms.
- Cell membrane:** The lipid bilayer that surrounds a cell and regulates what enters and exits.
- Cell wall:** A rigid layer outside the cell membrane in plant, fungal, and bacterial cells, providing structural support.
- Cellular respiration:** The process by which organisms convert glucose into ATP.
- Chloroplast:** The organelle in plant cells where photosynthesis occurs.
- Chromosome:** A thread-like structure of nucleic acids and protein carrying genetic information.
- Circulatory system:** The system that transports blood throughout the body.
- Class:** A taxonomic rank below phylum and above order.
- Classification:** The process of arranging organisms into groups based on similarities.
- Codon:** A sequence of three nucleotides that codes for an amino acid.
- Community:** An assemblage of different populations living together in a defined area.
- Consumer:** An organism that obtains energy by consuming other organisms.
- Cytoplasm:** The gel-like substance inside a cell that contains organelles.
- Decomposer:** An organism that breaks down dead organic matter.
- Diffusion:** The movement of molecules from an area of high concentration to an area of low concentration.
- Digestive system:** The system that breaks down food and absorbs nutrients.
- DNA (Deoxyribonucleic acid):** The molecule that carries genetic information.
- Domain:** The highest taxonomic rank.
- Dominant:** An allele that masks the expression of a recessive allele.
- Endocrine system:** The system that produces and secretes hormones.
- Endoplasmic reticulum (ER):** A network of membranes involved in protein and lipid synthesis.
- Enzyme:** A protein that catalyzes (speeds up) chemical reactions.
- Ecosystem:** A community of interacting organisms and their physical environment.
- Evolution:** The change in the characteristics of a species over several generations.
- Evolutionary adaptation:** the accumulation of beneficial genetic changes that allow an organism to better match its environment over time.
- Excretory system:** The system that removes waste products from the body.
- Family:** A taxonomic rank below order and above genus.
- Food web:** A network of interconnected food chains.
- Fungus:** A eukaryotic organism that includes yeasts, molds, and mushrooms.
- Gene:** A unit of heredity that is transferred from a parent to offspring and determines some characteristic of the offspring.
- Genus:** A taxonomic rank below family and above species.
- Genome:** The complete set of genetic material in an organism.

Genotype: The genetic makeup of an organism.

Golgi apparatus: An organelle that modifies, sorts, and packages proteins.

Habitat: The natural home or environment of an organism.

Heredity: The passing of traits from parents to offspring.

Homeostasis: The maintenance of a stable internal environment.

Hormone: A chemical messenger that regulates bodily functions.

Immune system: The system that defends the body against pathogens.

Kingdom: A high-level taxonomic rank below domain.

Lipid: A fatty or oily compound that is insoluble in water and serves various biological functions.

Meiosis: The process of cell division that produces gametes (sex cells) with half the number of chromosomes.

Mitochondria: The organelles responsible for cellular respiration and ATP production.

Mitosis: The process of cell division that produces two identical daughter cells.

Mutation: A change in the DNA sequence.

Muscular system: The system that enables movement.

Natural selection: The process by which organisms better adapted to their environment tend to survive and reproduce.

Nervous system: The system that controls and coordinates bodily functions.

Niche: The role and position a species has in its environment.

Nucleotide: The building blocks of DNA and RNA.

Nucleus: The organelle that contains the cell's DNA and controls cell activities.

Order: A taxonomic rank below class and above family.

Organ: A structure composed of different tissues that work together.

Organ system: A group of organs that work together to perform a major bodily function.

Organism: An individual living thing.

Osmosis: The movement of water across a semipermeable membrane.

Pathogen: A disease-causing organism.

pH: A measure of how acidic or basic a solution is.

Phenotype: The observable characteristics of an organism.

Phloem: vascular tissue that transports sugars and other organic compounds.

Photosynthesis: The process by which plants convert light energy into chemical energy.

Phylum: A taxonomic rank below kingdom and above class.

Population: A group of individuals of the same species living in the same area.

Producer: An organism that produces its own food (e.g., plants).

Protein: A molecule composed of amino acids that plays essential roles in cell structure and function.

Recessive: An allele that is masked by a dominant allele.

Replication: The process of copying DNA.

Respiratory system: The system that facilitates gas exchange.

Ribosome: The organelle responsible for protein synthesis.

RNA (Ribonucleic acid): A molecule that plays a role in protein synthesis.

Skeletal system: The system that provides support and protection.

Species: A group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding

Stem cell: An undifferentiated cell that can differentiate into specialized cell types.

Taxonomy: The science of classifying organisms.

Tissue: A group of similar cells that perform a specific function.

Transcription: The process of copying DNA into RNA.

Translation: The process of synthesizing proteins from RNA.

Vacuole: A membrane-bound organelle that stores water, nutrients, and waste.

Variation: Any difference between cells, individual organisms, or groups of organisms of any species caused either by genetic difference or by environmental factors.

Virus: A microscopic infectious agent that replicates inside the living cells of an organism.

Xylem: vascular tissue that transports water and minerals.