

GLOSSARY AND CREDITS

The cell theory states that the most basic unit of life is the cell. You have trillions of cells in your body. In this unit, you will see how all parts of the cell work together to keep you alive. You will also be introduced to some specialized cells in your body that perform essential functions in your daily life. These cells work together to enable you to move your arms and legs, to digest your meals, to hear sounds, to breathe air, to think, and even to sit here and read.

VOCABULARY

adenosine triphosphate (ATP)	the high energy chemical compound with three phosphate groups that provides energy for all other cell activities
cell	the basic building block of all forms of life
cell theory	the idea of Schleiden and Schwann that the basic unit of life is the cell and that all living organisms are composed of cells
cell wall	the rigid wall that surrounds the cell membrane of plant cells
cellular level	a degree of organism complexity; either unicellular or colonial
cellular respiration	chemical reactions in plants and animals that break down food molecules into energy (ATP)
centriole	a rod-shaped structure on the side of an animal cell nucleus; thought to play a role in the formation of the spindle during cell division
chlorophyll	a green pigment in plants that serves to trap the Sun's energy for photosynthesis
chloroplast	the tiny body that contains chlorophyll; part of the cell in which photosynthesis takes place
cytokinesis	the part of the cell division that causes the separation of the cytoplasm
cytoplasm	the living substance of a cell, excluding the nucleus

cytoskeleton	protein fibers that provide support and shape for the cell
diffusion	movement of particles or molecules from higher concentration to lower concentration
endocytosis	when cells engulf or ingest substances
endoplasmic reticulum	a series of tubes in the cytoplasm of a cell that are believed to be used as channels for transporting molecules within the cell
enzyme	a protein molecule that is specialized to speed up a specific chemical reaction in biological systems
eukaryote	a cell that has a membrane-bound nucleus and/or organelles as its major characteristic
exocytosis	when cells expel or get rid of substances from within
feedback loops	self-regulation mechanisms that send information to appropriate physiological systems so that appropriate adjustments can be made
flagella	whip-like cell extensions that give the cell motility
Golgi body	a flattened sac within the cytoplasm of the cell; an extension of the endoplasmic reticulum; involved in producing and packaging secretions
homeostasis	the relatively constant state in the internal environment of an organism
hypertonic	a solution that has a higher salt concentration than the salt concentration inside the cells
hypotonic	a solution that has a lower salt concentration than the salt concentration inside the cells
isotonic	a solution with the same salt concentration as the salt concentration inside the cells

lysosome	packets within the cell cytoplasm that contain digestive enzymes
membrane	a protein and fat structure serving as a covering and enclosure for cells
mitochondria	structures within the cell cytoplasm responsible for the production of energy and the storage of energy in ATP
negative feedback	a control mechanism that inhibits or counteracts an earlier reaction
nucleolus	small, dark structure within the nucleus of a cell; thought to make r-RNA to construct the ribosomes
nucleus (pl. nuclei)	the protoplasmic substance separate from the cytoplasm; the cell headquarters or information center; location of DNA and RNA; contains chromosomes and the nucleolus
organ	a group of tissues working together as a unit for a particular purpose in the body
organelle	a small structure within the cell that serves specialized functions
organismal theory	theory that states that the basic unit of life is the organism itself, which may be divided into cells for efficiency
osmosis	the diffusion of water across a semipermeable membrane
peroxisome	packets within the cell cytoplasm that contain powerful enzymes
phagocytosis	when cells eat other cells or large substances
phospholipid	a molecule with polar and nonpolar ends that, along with protein, makes up the plasma membrane
pinocytosis	when cells eat small or dissolved substances
plasma membrane	the semipermeable membrane surrounding human and animal cells; made of phospholipids and proteins

plastid	tiny sacs in the cell that may either contain starch or oils as stored food or a plant pigment
polar molecule	a molecule that has partial positive and negative charges at each end
prokaryote	a cell whose nucleus is not bound by a membrane
positive feedback	a control mechanism that intensifies or enhances an earlier reaction
protein	a large, complex organic molecule consisting of a large number of amino acids linked together by peptide bonds
protoplasm	the organic substance making up the cells of all living things
peroxisome	packets within the cell cytoplasm that contain powerful enzymes
resolving power	the ability to clearly distinguish between two objects
ribosome	tiny, dot-like bodies in the cytoplasm or on the endoplasmic reticulum; important in protein synthesis
specialization	limiting a cell to a specific function
spindle	the fibers that direct the even distribution of chromosomes to each daughter cell during nuclear division
system	a group of organs working together for a common purpose
system level	a degree of organism complexity; cells arranged into systems
tissue	a group of cells working together to perform a particular task
vacuole	a cell storage body that increases in size with age; included within, but not a part of the cytoplasm; often stores water and poisonous by-products of cell activities
vesicle	sacs containing protein produced by the endoplasmic reticulum
virus	differs from a cell and consists of a nucleic acid (RNA or DNA) in a protein coat