

Vocabulary for *The Human Body: Fearfully and Wonderfully Made!*

Module 1:

- Effector** - A structure in the body that can change the value of a variable (7)
- Endocytosis** - The process by which large molecules are taken into the cell (25)
- Exocytosis** - Transportation of material from inside the cell to outside the cell (26)
- Gross Anatomy** - The study of the macroscopic structures of an organism (1)
- Histology** - The study of tissues (2)
- Homeostasis** - A state of equilibrium in the body with respect to its functions, chemical levels, and tissues (5)
- Microscopic anatomy** - The study of the microscopic structures of an organism (1)
- Organ** - A group of tissues specialized for a particular function (4)
- Physiology** - The study of the functions of an organism and its parts (2)
- Selective Permeability** - The ability to let certain materials in or out while restricting others (21)
- Tissues** - Groups of cells specialized for a particular function (4)

Module 2:

- Apocrine Glands** - Exocrine glands that have cytoplasm in their secretions (43)
- Chondrocytes** - Mature cartilage cells (50)
- Endocrine Glands** - Ductless glands that secrete hormones into the bloodstream (42)
- Exocrine Glands** - Glands that secrete substances outward through a duct (42)
- Extracellular Matrix** - The chemical substances located between connective tissue cells (46)
- Fibroblasts** - Spindle-shaped cells that form connective tissue proper (47)
- Holocrine Glands** - Exocrine glands whose secretions are made up of disintegrated cells (43)
- Labile Cells** - Cells that undergo mitosis regularly and quickly (55)
- Merocrine Glands** - Exocrine glands that secrete without losing cellular material (43)
- Parenchymal Cells** - Cells that provide the actual function of the tissue (55)
- Permanent Cells** - Cells that cannot undergo mitosis (55)
- Stable Cells** - Cells that do not regularly undergo mitosis but are able to if the need arises (55)
- Stromal Cells** - Cells that provide structure or support for parenchymal cells (55)

Module 3:

- Appendicular Skeleton** - The portion of the skeleton that attaches to the axial skeleton and has the limbs attached to it (80)
- Articular Cartilage** - Hyaline cartilage that covers the ends of a bone in a joint (78)
- Axial Skeleton** - The portion of the skeleton that supports and protects the head, neck, and trunk (80)
- Cancellous Bone** - Bone with many small spaces or cavities surrounding the bone matrix (77)
- Compact Bone** - Dense bone matrix enclosing only a few small spaces (77)
- Dermis** - Dense irregular connective tissue that forms the deep layer of the skin (62)
- Epidermis** - The outer portion of the skin, formed by epithelial tissue which rests on the dermis (62)
- Foramen** - A hole (86)
- Hemopoiesis** - The process by which the formed elements of blood (blood cells) are made in the body (76)
- Hypodermis** - Loose connective tissue underneath the dermis which connects the dermis to muscle or bone (62)
- Meatus** - A passageway (86)
- Ossification** - Bone formation (78)
- Process** - A projection on a bone (85)
- Sinus** - A hollowed out space in a bone (86)
- Suture** - A junction between flat bones of the skull (85)

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Module 4:

Anatomical Position - The position acquired when one stands erect with the feet facing forward, the upper limbs hanging at the sides, and the palms facing forward with the thumbs to the outside (115)

Callus - A mass of tissue that connects the ends of a broken bone (105)

Hematoma - A localized mass of blood that is confined to an organ or some definable space (105)

Osteoblast - A bone forming cell (97)

Osteoclast - A large, multinucleated cell that breaks down bone (97)

Osteocyte - A mature bone cell surrounded by bone matrix (97)

Module 5:

All-or-none law of skeletal muscle contraction - An individual muscle fiber contracts with equal force in response to each action potential (143)

Maximal Stimulus - A stimulus which is strong enough to create action potentials in all the motor neurons innervating a whole muscle (144)

Motor Unit - One motor neuron and all the muscle fibers it innervates (141)

Muscle Tone - The state of partial contraction in a muscle, even when the muscle is not being used (145)

Neuron - The functional unit of the nervous system, a nerve cell (136)

Neurotransmitter - A chemical released by a neuron. This chemical travels across the synaptic cleft, allowing the neuron to communicate with another cell. (138)

Sarcomere - The repeating unit of myofibril (129)

Submaximal Stimuli - Stimuli of increasing strength that create more action potentials along more neurons (144)

Subthreshold Stimulus - A stimulus too small to create an action potential in a neuron (144)

Synapse - The interface between a nerve cell and another cell (137)

Threshold Stimulus - A stimulus strong enough to create one action potential in a neuron (144)

Module 6:

Belly - The largest part of the muscle, which actually contains the muscle cells (156)

Extrinsic Hand Muscles - Muscles in the forearm which create motion in the hands (169)

Insertion - The point at which a muscle's tendon attaches to the moveable bone (156)

Intrinsic Hand Muscles - Muscles within the hand which create motion in the hand (169)

Mastication - The process of chewing (162)

Origin - The point at which a muscle's tendon attaches to the more stationary bone (156)

Module 7:

Afferent Neurons - Neurons which transmit action potentials from the sensory organs to the central nervous system (182)

Association Neuron - A neuron that conducts action potentials from one neuron to another neuron within the central nervous system (185)

Autonomic Nervous System - The system that transmits action potentials from the central nervous system to the smooth muscles, cardiac muscles, and glands (182)

Cranial Nerves - Nerves which originate from the brain (182)

Efferent Neurons - Neurons which transmit action potentials from central nervous system to the effector organs (182)

Excitability - The ability to create an action potential in response to a stimulus (191)

Ganglia - Collections of neuron cell bodies which are outside of the central nervous system (181)

Nerves - Bundles of axons and their sheaths which extend from the central nervous system (181)

Parasympathetic Division - Division of the autonomic nervous system that regulates resting and nutrition-related functions such as digestion, defecation, and urination (182)

Potential Difference - A measure of the charge difference across the cell membrane (192)

Somatic Motor Nervous System - The system that transmits action potentials from the central nervous system to the skeletal muscles (182)

Spinal Nerves - Nerves which originate from the spinal cord (181)

Sympathetic Division - Division of the autonomic nervous system that generally prepares the body for physical activity (182)

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Module 8:

Commissures - Connections of nerve fibers which allow the two hemispheres of the brain to communicate with one another (228)

Decussation - A crossing over (220)

Gray Matter - Collections of nerve cell bodies and their associated neuroglia (219)

Vital Functions - Those functions of the body necessary for life on a short-term basis (220)

White Matter - Bundles of parallel axons and their sheaths (219)

Module 9:

Chemoreceptors - Sensory receptors which respond to chemicals (258)

Cutaneous Receptors - Receptors in the skin (262)

Mechanoreceptors - Sensory receptors which respond to movement (258)

Nociceptors - Sensory receptors which respond to pain or excess stimulation (258)

Photoreceptors - Sensory receptors which respond to light (258)

Proprioceptors - Receptors in the muscles and tendons (262)

Sensory Receptor - An organ which responds to a specific type of stimulus by ultimately triggering an action potential on a sensory neuron (257)

Somatic Receptors - Sensory receptors in the skin, muscle, and tendons (257)

Special Receptors - Sensory receptors in specific locations (258)

Thermoreceptors - Sensory receptors which respond to heat or cold (258)

Visceral Receptors - Sensory receptors in the internal organs (257)

Module 10:

Neurosecretory Cells - Neurons of the hypothalamus that secrete neurohormone rather than neurotransmitter (304)

Prostaglandins - Biologically active lipids which produce many effects in the body, including smooth muscle contractions, inflammation, and pain (310)

Module 11:

Antigen - A protein or carbohydrate that, when introduced in the blood, triggers the production of an antibody (332)

Arteries - Blood vessels that carry blood away from the heart (337)

Arterioles - The smallest arteries that still have three tunics (347)

Capillaries - Tiny, thin-walled blood vessels that allow the exchange of gases and nutrients between the blood and cells (337)

Cardiac cycle - One complete round of systole and diastole (345)

Chemotaxis - Attraction of cells to chemical stimuli (323)

Coagulation Factors - Proteins in blood plasma which help initiate the blood coagulation process (329)

Diapedesis - Passage of any formed element of blood through the blood vessel and into the tissue spaces (322)

Diastolic Phase - The phase of the cardiac cycle in which the ventricles relax (345)

Erythrocytes - Red blood cells which carry the oxygen in blood (319)

Formed Elements of Blood - The cells and cell parts of blood produced by the bone marrow (318)

Hemopoiesis - The process by which the formed elements of blood (blood cells) are made in the body (324)

Hemostasis - The process by which the body stops blood loss (326)

Leukocytes - White blood cells which perform various defensive functions in blood (319)

Plasma - The fluid portion of the blood, which is mostly water (318)

Platelets - Cell fragments in blood which help prevent blood loss (320)

Pulmonary Circulation - Circulation of the blood over the air sacs of the lungs (338)

Systemic Circulation - Circulation of the blood through the other tissues of the body (338)

Systolic (systole) Phase - The phase of the cardiac cycle in which the ventricles contract (345)

Veins - Blood vessels that carry blood back to the heart (337)

Venules - Small veins that do not have three tunics but instead have only an endothelium, a basement membrane, and a few smooth muscle cells (347)

Viscosity - The resistance to flow and alteration of shape due to cohesion (317)

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Module 12:

- Acquired Immunity** - An immune response targeted at a specific pathogen or toxin (366)
Cell-mediated Immunity - Immunity which comes from the actions of T-lymphocytes (371)
Complement - A series of 20 plasma proteins activated by foreign cells or antibodies to those cells. They (1) lyse bacteria, (2) promote phagocytosis, and (3) promote inflammation. (368)
Diffuse Lymphatic Tissue - Concentrations of lymphatic tissue with no clear boundaries (360)
Edema - A buildup of excess of fluid in the tissues, which can lead to swelling (358)
Humoral Immunity - Immunity which comes from antibodies in blood plasma (371)
Immunological Defense - The process by which the body protects itself from pathogenic invaders such as bacteria, fungi, parasites, and foreign substances (359)
Innate Immunity - An immune response that is the same regardless of the pathogen or toxin encountered (366)
Interferon - Proteins secreted by cells infected with a virus. These proteins stimulate nearby cells to produce virus-fighting substances. (368)
Lymph - Watery liquid formed from interstitial fluid and found in lymph vessels (356)
Lymph Nodes - Encapsulated masses of lymph tissue found along lymph vessels (356)
Lymph Nodules - Lymphatic tissue arranged into compact, somewhat spherical structures (360)
Lymph Tissue - Groups of lymphocytes and other cells which support the lymphocytes (356)
Pyrogens - Chemicals which promote fever by acting on the hypothalamus (370)

Module 13:

- Adventitia** - A thin layer of loose connective tissue that binds an organ to surrounding tissues or organs (393)
Deglutition - The act of swallowing (387)
Digestion - The breakdown of food molecules into their individual components (381)
Gastric Juice - The acidic secretion of the stomach (391)
Lumen - The hole in the center of a tube (396)
Macronutrients - The nutrients the body needs in large amounts: carbohydrates, fats, and proteins (406)
Mastication - The process of chewing (381)
Micronutrients - The nutrients the body needs in small amounts, such as vitamins and minerals (406)
Peristalsis - The process of contraction and relaxation of circular smooth muscles which pushes food through the alimentary canal (388)

Module 14:

- Aspirate** - To take in by means of suction (429)
Compliance - The ease with which the lungs inflate (426)
External Respiration - The process of O₂ and CO₂ exchange between the alveoli and the blood (417)
Functional Residual Capacity - The volume of air left in the lungs after a normal exhalation (430)
Internal Respiration - The process of O₂ and CO₂ exchange between the cells and the blood (418)
Lower Respiratory Tract - The part of the respiratory system containing the larynx, trachea, bronchi, and lungs (416)
Pneumothorax - Air in the pleural cavity, which leads to a collapsed lung (425)
Residual Volume - The volume of air left in the lungs after a forceful exhalation (431)
Surfactant - A molecule with a hydrophilic end and a hydrophobic end (425)
Tidal Volume - The volume of air inhaled or exhaled during normal, quiet breathing (430)
Total Lung Capacity - The maximum volume of air contained in the lungs after a forceful inhalation (430)
Upper Respiratory Tract - The part of the respiratory system containing the nasal cavity, paranasal sinuses, and pharynx (416)
Ventilation - The process of getting air into the lungs and getting it back out (417)

Module 15:

- Buffer System** - A mixture of an acid and a base which resists changes in pH (471)
Erythropoiesis - The production of red blood cells (erythrocytes) (456)
Filtrate - Blood plasma without proteins, found in the nephrons of the kidneys (458)
Glomerular Filtration Rate - The rate at which filtrate is produced in glomerular filtration (125mL/minute) (460)
Renal Blood Flow Rate - The rate at which blood flows through the kidneys (1 liter/min) (459)
Retroperitoneal - Behind the parietal peritoneum (454)
Tubular Maximum - The maximum rate of reabsorption by active transport through the nephron tubules (463)