**Cells:**

**Cell Structure and Function:**

prokaryote: A unicellular organism that lacks a nucleus and membrane bound organelles

eukaryote: A cell that contains a nucleus and membrane bound organelles

carbohydrates: the starches and sugars present in foods; broken down to glucose to provide energy

proteins: any of a class of nitrogenous organic compounds that consist of large molecules composed of one or more long chains of amino acids and are an essential part of all living organisms, especially as structural components of body tissues such as muscle, hair, collagen, etc., and as enzymes and antibodies.

lipids: Energy-rich organic compounds, such as fats, oils, and waxes, that are made of carbon, hydrogen, and oxygen.

nucleic acids: macromolecules containing hydrogen, oxygen, nitrogen, carbon, and phosphorus; make up DNA & RNA

elements in cells: carbon, hydrogen, oxygen, nitrogen, phosphorous, sulfur

**Understand cell organelles for their functions in the cell processes not for what they look like in the cell (this was covered in middle school):**

cell membrane: phospholipid bilayer that surrounds all cells and regulates what enters and leaves the cell

nucleus: A part of the cell containing DNA and RNA and responsible for growth and reproduction

ribosome: Cytoplasmic organelles at which proteins are synthesized.

mitochondria: An organelle found in large numbers in most cells, in which the biochemical processes of respiration and energy production occur.

chloroplast: organelle found in cells of plants and some other organisms that captures the energy from sunlight and converts it into chemical energy

endoplasmic reticulum: A cell structure that forms a maze of passageways in which proteins and other materials are carried from one part of the cell to another.

Golgi bodies (complex, apparatus): a complex of vesicles and folded membranes within the cytoplasm of most eukaryotic cells, involved in secretion and intracellular transport.

lysosome: cell organelle filled with enzymes needed to break down certain materials in the cell

cytoskeleton: network of protein filaments within some cells that helps the cell maintain its shape and is involved in many forms of cell movement

**Cellular Processes:**

photosynthesis: process by which plants and some other organisms use light energy to convert water and carbon dioxide into oxygen and high-energy carbohydrates such as sugars and starches

chemosynthesis: Process by which some organisms, such as certain bacteria, use chemical energy to produce carbohydrates

ATP: (adenosine triphosphate) main energy source that cells use for most of their work

cellular respiration: Process that releases energy by breaking down glucose and other food molecules in the presence of oxygen

anaerobic respiration: Respiration in the absence of oxygen. This produces lactic acid in animal cells and ethanol in bacteria.

enzymes: proteins that act as biological catalysts

substrate: reactant of an enzyme-catalyzed reaction

enzyme-substrate complex: A temporary complex formed when an enzyme binds to its substrate molecule(s).

denature: Characteristic of proteins; a change in shape that stops the protein from functioning.

pH: a scale of acidity from 0 to 14. It tells how acidic or alkaline a substance is. More acidic solutions have lower pH. More alkaline solutions have higher pH. Substances that aren't acidic or alkaline (that is, neutral solutions) usually have a pH of 7

catalyze: cause or accelerate (a reaction) by acting as a catalyst

hypertonic solution: A solution in which the concentration of solutes is greater than that of the cell that resides in the solution

hypotonic solution: A solution in which the concentration of solutes is less than that of the cell that resides in the solution

isotonic solution: A solution in which the concentration of solutes is essentially equal to that of the cell which resides in the solution

osmosis: Diffusion of water through a selectively permeable membrane

diffusion: Movement of molecules from an area of higher concentration to an area of lower concentration.

facilitated diffusion: process of diffusion in which molecules pass across the membrane through cell membrane channels

passive transport: movement across a cell membrane; requires NO energy, movement of molecules from high to low concentration, moves with the concentration gradient

active transport: Energy-requiring process that moves material across a cell membrane against a concentration difference

endocytosis: A process in which a cell engulfs extracellular material through an inward folding of its plasma membrane to form a vesicle.

exocytosis: release of substances out a cell by the fusion of a vesicle with the membrane.

**Cell Division and Differentiation:**

cell division: the process in reproduction and growth by which a cell divides to form daughter cells

binary fission: type of asexual reproduction in which an organism replicates its DNA and divides in half, producing two identical daughter cells

differentiation: process in which cells become specialized in structure and function

stem cell: undifferentiated cells that retain the ability to become a wide variety of specialized cells

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