Unit 3 Cell Structure & Function

Cell Structure & Function (pgs. 182-211)
Online Textbook http://www.glencoe.com/ose Access Code: DAD47D351D

Learning Targets
- I can describe the difference between living and nonliving systems.
- I can describe how organisms maintain homeostasis.
- I can explain the structure and function of the cell/plasma membrane.
- I can distinguish between active and passive transport.
- I can explain how substances are moved across the membrane.
- I can compare and contrast prokaryotic and eukaryotic cell.
- I can compare and contrast plant and animal cells.
- I can relate cell structures to their function.

Unit 3 Vocabulary https://quizlet.com/_gpft7

1.**active transport:** the movement of particles against a concentration gradient which requires energy

2.**cell theory:** all living things are made of cells, cells are the basic unit of structure, cells come from other cells

3.**cell wall:** a thick, rigid mesh of fibers that supports the cell located outside of the plasma membrane

4.**centrioles:** microtubules that serve a function during cell division (animal cells)

5.**chloroplasts:** organelles that conduct photosynthesis by converting light energy into chemical energy (food/glucose)

6.**cilia:** short, numerous projections on the outside of the cell that resemble hairs

7.**cytoplasm:** the semifluid material inside the plasma membrane

8.**cytoskeleton:** a supporting network of long, thin protein fibers (microtubules) that form a framework for the cell

9.**diffusion:** the net movement of particles from an area of high concentration to an area of low concentration that does not require energy

10.**dynamic equilibrium:** a condition in which there is continuous movement across a semipermeable membrane but there is no overall change in conditions

11.**endocytosis:** the process by which a cell surrounds a substance in the outside environment, causing its enclosure in part of the plasma membrane

12.**endoplasmic reticulum:** membrane system of folded sacs and interconnected channels that produce proteins and lipids (smooth or rough)

13.**eukaryotic:** cells that contain a nucleus and membrane-bound organelles (animals, plants, fungi, protists)

14.**exocytosis:** the secretion of large materials at the plasma membrane using energy.

15.**facilitated diffusion:** uses transport proteins to move ions and other small molecules across the plasma membrane

16.**flagella:** long whip-like structure used for movement

17.**fluid mosaic model:** model of the phospholipid bilayer where molecules can float freely

18. **golgi apparatus/body:** organelle with flattened stack of membranes that sorts and packages proteins into sacs called vesicles
19. **hypertonic solution:** solution where there is less water outside the cell than solute, water moves out of the cell causing it to shrink
20. **hypotonic solution:** solution where there is more water outside the cell than solute, water moves into the cell causing it to swell
21. **isotonic solution:** condition in which the cell is at equilibrium with its solution and there is no net movement of water
22. **lysosomes:** vesicles that contain substances that digest excess or worn out organelles and food particles (animal cells)
23. **mitochondria:** organelles that conduct cellular respiration by converting food/glucose particles into usable forms of energy
24. **nucleolus:** organelle that makes ribosomes inside the nucleus
25. **nucleus:** organelle that controls the cell containing the DNA, found in eukaryotes
26. **organelles:** specialized structures that carry out specific cell functions
27. **osmosis:** diffusion of water across a semipermeable membrane
28. **passive transport:** movement of substances across the cell/plasma membrane without using energy from high to low concentrations. Examples: diffusion, osmosis
29. **phospholipid bilayer:** two layers of phospholipids are arranged tail to tail that makes up the plasma/cell membrane
30. **plasma membrane:** a special boundary that helps control what enters and leaves the cell (cell membrane)
31. **prokaryotic:** cells that do not have a nucleus or membrane bound organelles (bacteria)
32. **ribosomes:** organelles responsible for the manufacture of cell proteins
33. **selective permeability:** a property of the plasma membrane that allows some substances to pass through while keeping others out
34. **transport proteins:** protein that moves substances or waste materials through the plasma membrane
35. **vacuole:** organelle used to store food, enzymes, wastes, and other materials needed by the cell (larger in plants)

Michigan HSCE for Biology
B2.3A Describe how cells function in a narrow range of physical conditions, such as temperature and pH, to perform life functions.
B2.3B Describe how the maintenance of a relatively stable internal environment is required for the continuation of life.
B2.5B Explain how the major systems and processes work together in animals and plants, including relationships between organelles, cells, tissues, organs, organ systems, and organisms. Relate these to molecular functions.
B2.3d Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe the ways that these systems interact with each other.
B2.3e Describe how human body systems maintain relatively constant internal conditions (temperature, acidity, and blood sugar).
B2.4g Explain that some structures in the modern eukaryotic cell developed from early prokaryotes, such as mitochondria, and in plants, chloroplasts.

B2.4h Describe the structures of viruses and bacteria.

B2.4i Recognize that while viruses lack cellular structure, they have the genetic material to invade living cells.

B2.5g Compare and contrast plant and animal cells.

B2.5h Explain the role of cell membranes as a highly selective barrier (diffusion, osmosis, and active transport).

B2.5i Relate cell parts/organelles to their function