CORNELL NOTES

Name: _____ Period: _____
Class: _____ Date: 20-21 Oct 2015

Topic: Chapter 4, Section 2 Moving Cellular Materials/Chapter 4 Section 3 Energy for Life

Question Column	*Notes Column*
Cell membrane	A barrier that separates the inside of the cell from the outside Environment. Only allows certain substances to move into And out of the cell, and helps give the cell its shape. O2, H2O, waste is sent out, nutrients, Na, K, sugar or glucose. It Is called a semi-permeable plasma membrane. Made of Lipids (fats) and proteins.
Passive transport	The movement of substances through the cell membrane Without the input of energy. Three types: diffusion, osmosis, Facilitated diffusion.
Diffusion	The random movement of molecules from an area where There is relatively more of them to an area where there is Relatively fewer of them. Move to an area of high concentration to low concentration.
Equilibrium	Occurs when molecules of one substance is spread evenly Inside and outside the cell. Diffusion stops when the molecules are equal in and out but only for a fraction of a second.
Osmosis	Only happens with water molecules. The diffusion of water Through a cell membrane. Higher concentrations of water Will move through the cell membrane to where there are lower concentrations of water. H2O
Facilitated Diffusion	Large molecules move into and out of the cell membrane with the use of transport proteins imbedded in the cell membrane. Glucose molecules moving inside the cell.

Active Transport	When energy is required for materials to move through the Cell membrane, through transport proteins in the cell Membrane. ATP (Adenosine Tri-Phosphate) energy Molecule is needed for active transport. Movement Of large molecules.
Endocytosis	Process of taking substances into the cell by surrounding that Large substance by parts of the cell membrane (called a vesicle) so the cell can break down the large substance with a lysosome and uses its Nutrients.

Cornell Notes Continued:

Exocytosis	When a vesicle inside the cell (parts of a cell membrane) containing material, moves to the cell membrane and releases that material outside the cell.

Section 3 Energy for Life:

Metabolism	The total of all the chemical reactions that take place in all Cells of the organism. Cellular Energy. How an organism uses energy and all organisms are different.
Photosynthesis	Chloroplasts take light (photons from the sun), carbon Dioxide from the air, water from roots and makes sugar And oxygen. Sugar is produced and used inside the cell to Make ATP. Oxygen is waste product and released into the Air. Sugar is also stored to be used when the cell needs it.

Photosynthesis Chemical Equation:

Sunlight energy + $6CO_2$ + $6H_2O$ ------> $C_6H_{12}O_6$ + $6O_2$

Where: CO_2 = carbon dioxide
H_2O = water
Light energy is required
$C_6H_{12}O_6$ = glucose
O_2 = oxygen

Cellular Respiration Chemical reactions occur in the Mitochondria using oxygen

And food (sugar) to make CO2 and Water, which are waste Products, and also produces ATP energy molecule. Key: To this reaction is the breaking down of sugar to make ATP.

Cellular Respiration Chemical Equation:

$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + ATP\ energy$

glucose + oxygen → carbon dioxide + water + ATP energy

Fermentation When cells do not have enough oxygen for respiration in the Mitochondria, they use the process called fermentation to Release some of the energy stored in glucose (sugar) Molecules. It produces a by-product called Lactic Acid. When fermentation happens in your muscle cells, lactic acid Is produced and your muscles feel sore. Fermentation in Yeast produces carbon dioxide and alcohol.

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