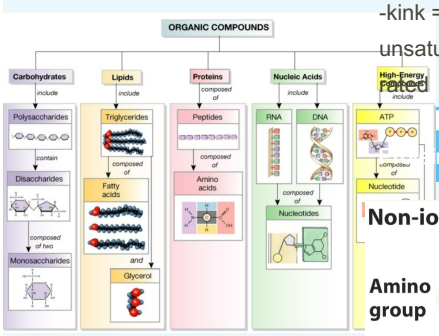
MACROMOLECULES

Common Functional Groups

Hydroxyl	-OH	polar
Carboxyl	-COOH	polar
Carbonyl	-CO	polar
Amino	-NH3	polar
Phosphate	-PO3	polar
Methyl	-CH3	non-polar
Sulfhydryl	-SH	non-polar

Organic Compounds Overview



*more details underneath this block

Carbohydrates

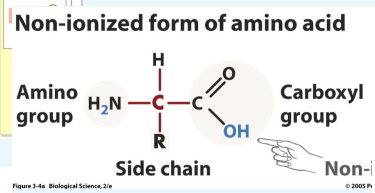
Monosacch-arides	Disacc-harides	Polysacch-arides
-glucose	-sucrose	"starch"
-fructose	-lactose	-cellulose
	-dextrose	-chiton
	-maltose	-amylose
	-galactose	-glycogen

*sugars can dissolve in H20 because they are NON-POLAR!

Lipids

Triglycerides	Phospholipids	Steroids
-made of glycerol and fatty acids	-forms a bilayer (membranes)	-4 rings
-three "-strands"	-polar, hydrophilic heads	-cholesterol
-no kink = saturated	-nonpolar, hydrophobic tails	-estrogen
-kink = unsaturated		-testosterone

ns

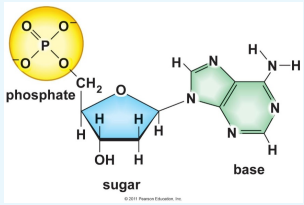


*R groups can be a mix of the following: uncharged, non-polar, polar, hydrophilic, hydrophobic

*amino acids are joined by a PEPTIDE BOND
^this results in a dehydration (taking H20 out)

*protein = shape

Nucleotides



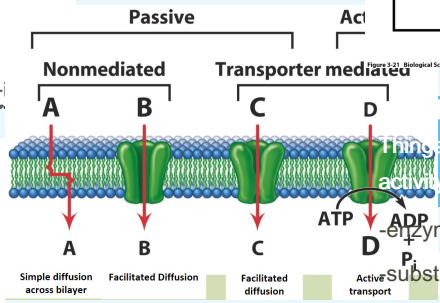
*amount of Pi (phosphate group) can change

TRANSPORT/ENZYMES

Osmosis

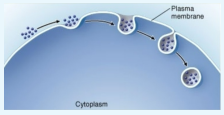
Hypertonic	Hypotonic	Isotonic
high solute, less water	low solute, high water	equilibrium
cell shriveled	cell swells (hippo)	cell is normal

ort

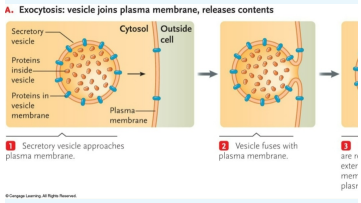


*more descriptions below

Endocytosis



Exocytosis

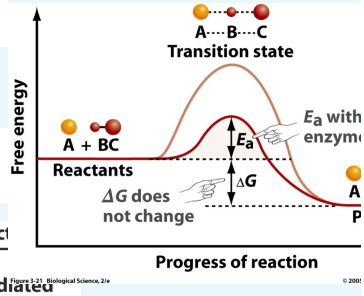


Enzymes

-bind to a substrate. These fit depending on the SHAPE of enzymes

-competitive inhibitors can block substrates by changing the shape of the enzyme

Enzymes are catalysts



Things that factor enzyme activity:

-enzyme concentration

-substrate concentration

-temperature

-pH

*enzymes have an optimal temp. and pH
^this depends on the specific enzyme!

*enzymes usually can go back to its original form, unless it DENATURES

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CELL STRUCTURES/ORGA-NELLES

Prokaryotic vs Eukaryotic

-no nucleus	-nucleus
-mainly bacteria	-animals, plants, fungi, protists
-small! simple!	-large! more complex!
-no organelles	-orangelles

organelle: membrane-bound structures with a function

Cell wall / Cell membrane

-only in plants	-plants and animals
-provide strong support	-phospholipid bilayer

-doesn't move during osmosis

Nucleus

-stores DNA (chromatin)

Mitochondria

-ATP and cellular respiration

-has a double membrane and its own DNA/ribosomes

Vesicles

-transport materials

-can be led by MOTOR PROTEINS

Lysosomes

-break down materials

Cytoskeleton

-dense network of protein fibers

-support and shape the cell

-anchors organelles

Golgi Apparatus

-protein modification and sorting

Endoplasmic Reticulum

Rough ER	Smooth ER
-ribosome synthesis	-lipid synthesis
	-detoxifi-cation

Ribosomes

-read RNA

-synthesize proteins

Chloroplasts

-photosynthesis

-thylakoid stacks (green color)

-own DNA and ribosomes

Central vacuole

-H20 regulation

-only plants

METABOLISM

Redox Reactions

LEO	GER
lose electrons	gain electrons
oxidizing	reduction

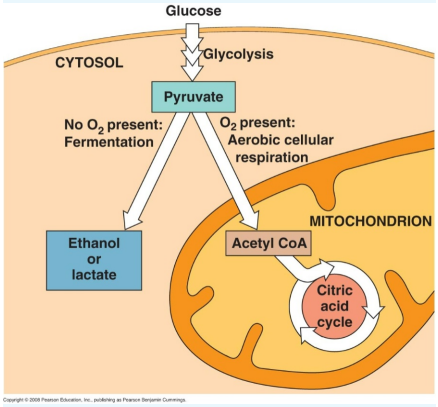
Electron movement

*an electron closer to the nucleus has LESS energy than an electron further from the nucleus

*when an electron moves closer to the nucleus, it gives off small amts of energy

^must be slow steps

Glycolysis -> pyruvate



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