Organic Molecules

The 4 Main Macromolecules aka Organic Molecules	Carboh-ydrates
	Lipids
	Proteins
	Nucleic Acid

Dehydration Synthesis

Video: http://youtu.be/_p_ihfeyirg

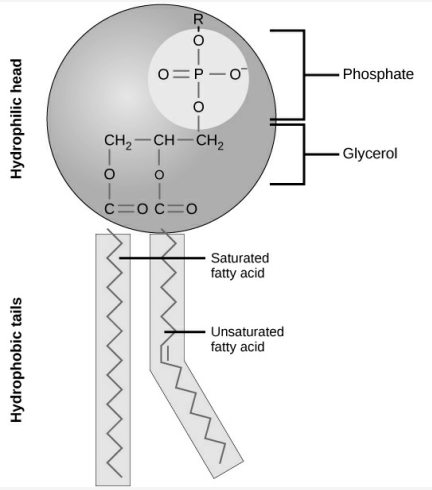
Enzyme (PN) comes and forces the covalent bond to break--> bond breaks and water is formed

Hydrolysis

Video: http://youtu.be/_p_ihfeyirg

-lysis = break
this is an enzyme catalyzed reaction

Phospholipids



Amphipathic: both water loving (head) and hating (tails)
Most often found in the plasma(cell membrane)

Mono, Di, and Poly mers

Monomers	Dimers	Polymers
one subunit	2 subunits of monomers connected by a covalent bond	a chain of 3 or more monomers connected by a double bond
0	0---0	0---0---0---0---0

Polymers

False Polymers	True Polymers
Heteropolymer	Homopolymers
different monomers are attached in a chain	same monomer gets repeated in a chain
0---X---Y---0---X---0	0---0---0---0---0
Lipids	Proteins(PN), Carbs, Nucleic Acid

Lipids

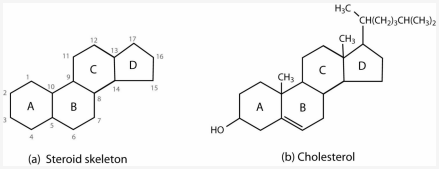
Do not form polymers	Fat	Phosph-olipid	Steroid
little to no affinity to water, hydrop-hobic	1) Glycerol 2) fatty acid	1)Glycerol 2) fatty acid 3) phosphate	4 or more fused carbon rings

Functional Group: Carboxyl
Covalent bond = ester linkage

Fatty Acid

Fat loses OH- on the Carboxyl bc =O	Glycerol loses H+ bonds to the Carboxyl	Unsatu rated Fatty Acid	Saturated Fatty Acid
H2O Produced	H2O Produced	0----/\-\--/\---	0-------
		kinked chain = double bond	no kinks = no double bond

Steroids



ONLY STEROIDS ARE FUSED RINGS

Carbohydrates

Polymer: Polysacch-aride	Covalent bonds in carbs	Functional Group: Carboxyl C=O
Dimer: Disacc-haride	Alfa A: \o/ Glycosidic	C=O at beginn-ging= Aldose
Monomer: Monosa-ccharide	Beta B: /o\ Glycosidid	C=O in middle-=Ketose

Monosaccharides

3-6 Carbons	CH2O
C3H6O3	Triose
C5H10O5	Pentose

Sponsored by **Readable.com**
Measure your website readability!
https://readable.com

Dissachrides



When bonding together:
Glucose will always lose OH-
Fructose will always lose H+

The anomeric carbon is the C attached to OH- and O

Polysaccharides

Cellulose	Chitin
a component of tough cell wall (not digestible)	Forms the exoskeleton of anthropods, makes strong flexible surgical suture
	(C8H13O5N)n

Proteins(PN)

Function: structure, storage, transport, cellular communication, movement, defense against foreign substances	Very complex 3D structures	Examples:	Examples:
One mistake at the PN level --> genetic mutation --> death	Several chains of polypeptides attached	Enzymes: digestive; selective acceleration of chemical reactions	Structural: support; silk fibers, collagen, keratin, horns etc

Proteins(PN) (cont)

Storage: store amino acids, egg whites, protein in milk	Transport: movement of other substances, hemoglobin
Hormonal: coordination of organism activity; insulin	Receptor: response of cell to chemical stimuli; receptors in nerve cell membrane
Contractile and Motor: movement; actin & mysoin in muscles; motor proteins in cilia and flagella	Defense: protection against disease; antibodies that fight bacteria viruses

encompasses 50% of the dry mass of most all cells

Sponsored by **Readable.com**
Measure your website readability!
https://readable.com