MACRO-MOLECULE	BUILDING BLOCKS (MONOMERS)	GROUPS	EXAMPLES	FUNCTIONS	NOTES
CARBO-HYDRATES					
LIPIDS					
PROTEINS					
NUCLEIC ACIDS					

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CARBO-HYDRATES	mono-saccharides (simple sugars)	mono- di- poly- saccharides	mono-: glucose fructose galactose di-: sucrose maltose lactose poly-: starch, cellulose, glycogen	mono-, di-: Energy source poly-: starch; food storage-plants cellulose: plant support glycogen: food storage-animals	bond: α or β glycosidic linkage between sugar monomers. α linkages between monomers in starch, β linkages in cellulose. Enzymes specific for catalyzing the breakdown of α linkages are ineffective on β linkages. Humans cannot digest wood or the fibers in celery or whole grain. This fiber acts as "roughage" stimulating the intestine to secrete mucus to promote regular bowel movements.
LIPIDS	3 fatty acids + glycerol (3C)	triglycerides (simple lipids) phospholipids cholesterol	→→→ →→→ →→→	nutrition cell membrane cholesterol derivatives like hormones	bond: ester linkage between each fatty acid and the glycerol.
PROTEINS	amino acids		sucrase→ transmembrane→ insulin→ antibodies→ muscles, hair,→ skin, fingernails	enzymatic cell membrane messengers immunity structural	bond: peptide bond between carboxyl and amino group of 2 amino acids.
NUCLEIC ACIDS	nucleo-tides: phosphate, sugar, nitrogen base	deoxyribo-nucleic acid (DNA) and --- ribonucleic acid (RNA)	→→→ →→→	control of the cell heredity --- messenger (mRNA) organizer (rRNA) translator(tRNA)	bond: phosphodiester between phosphate and sugar Bacterial DNA has a main chromosome plus circular DNA called plasmids 10 nucleotides per turn A=T(U); C=G