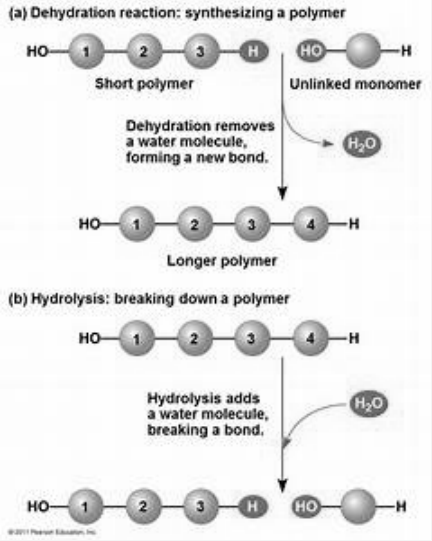
Reactions



Properties of Water

Hydrogen Bonds (Polarity)	Cohesion: attracted to each other; Adhesion: attracted to other things; Surface tension: water molecule collect tighter on surface; Capillary Action: cohesion + adhesion
High Specific Heat	Resists temp change; High Hvap; Evaporative cooling: high nrg particles evaporate
Universal Solvent	Hydrophilic, repels hydrophobic or non-polar

Elements of Life

Carbon	Used to build biological molecules such as carbohydrates, proteins, lipids, and nucleic acids; used in storage compounds and cell formation in all organisms
Nitrogen	Used to build proteins and nucleic acids
Phosphorus	Used to build nucleic acids and certain lipids

DNA/RNA

DNA
Structure: antiparallel double helix, each strand runs opposite 5' to 3' orientation (5' phosphate and 3' hydroxyl)
-A + T takes 2 H-Bonds
-C + G takes 3 H-Bonds
-Deoxyribose, uses thymine, double stranded, antiparallel
RNA
-Ribose, single stranded, uses uracil
Both:
-Sugar, phosphate group, and a nitrogenous base
-5' and 3' ends
-Nitrogenous bases perpendicular to sugar--phosphate backbone

Biomolecules

Carbs	Sugar monomers, connected w/ covalent bonds -Structures determine the properties and functions of the molecules; Nrg storage, structure and protection
Lipids	Saturated: no bends, stack, solid; Unsaturated: bendy, liquid; more than one double bond= polyunsaturated; Hydrophobic, hormones, store nrg and coat body (waxes/oils)

Biomolecules (cont)

Nucleic Acids	A five-carbon sugar (deoxyribose or ribose), a phosphate, and a nitrogen base (adenine, thymine, guanine, cytosine, or uracil); Form RNA and DNA; Held together by phosphodiester H-bonds; protein synthesis
Protein	Primary structure: sequence of constituent amino acids; Secondary structure: folding of the amino acid chain into alpha--helices and beta-sheets; Tertiary Structure: overall three-dimensional shape of the protein and often minimizes free energy (hydrophobic interactions, disulfide bridges, H-bonds, ionic bonds); Quaternary: arrangement of polypeptide subunit