Unit 1

Transfer of electrons from one atom to another atom forms ion.	Organic chemistry is the study of compounds with covalently bonded carbon.	Carbon can form large molecules called macromolecules, this means there can be more molecular diversity thanks to carbon.	Carbohydrates inculde both sugars and polymers of sugars.

Unit 1 (cont)

Hydrogen atoms are partially positive and one polar covalent molecule will be attracted to an electronegative atom in another covalent molecule electrons will not be shared equally, this is called a hydrogen bond.	Proteins are molecules consisting of polypeptides folded into a 3D shape	Organic compounds are compounds that contain carbon and hydrogen.	Nucleic acids are polymers made of nucleotide monomers	The four classes of macromolecules inculde: Carbohydrates, proteins, nucleic acids, and lipids	Carbohydrates contain carbony group a many hydroxy groups that are compris of C, H and O

Unit 1 (cont)

The hydrogen bonds between water molecules make it more structured than most liquids, this allows for things such as surface tension.

Carbon can form single, double, or triple covalent bonds.

Along with carbon, nitrogen is an important element for building proteins and nucleic acids. Phosphorus is important for building nucleic acids and some lipids.

Monosaccharides are simple sugars that have molecular formulas with multiple units of CH_2O

Unit 1 (cont)

Water molecules can form a lot of hydrogen bonds with other water molecules.

The shape of a protein determines its function

Carbon can form covalent bonds with other carbons.

Nucleic acids can be either DNA or RNA

Polymers are chain-like macromolecules of similar or identical repeating units that are covalently bonded together.

The most common monosaccharide is glucose, which is used by many cells for nutrients and fuel, it is also used in cellular respiration

Unit 1 (cont)

Water is a polar molecule

The protein is folded and unequal, they contain an electronegative group, a carboxyl group, a central carbon atom, and an r chain, the r chain can change depending on what protein the amino acid is.

Nucleic acids consist of organic molecules consisting of a base, a five carbon sugar, and phosphate group(s).

Monomers are the repeating units that make up polymers.

Monosaccharides can be building blocks for amino acids, or as monomers for di- and polysaccharides

Unit 1 (cont)

Cohesion is the attraction of molecules to other molecules of the same type.

Dehydration reactions are the bonding of two molecules with the loss of water.

Disaccharides are two monosaccharides joined bo covalent bonds, polysaccharides are a polymers with many monosaccharides joined by dehydration reactions

The interaction of side chains with each other is what determines the shape and function of a protein

Unit 1 (cont)

Pyrimidines have one ring with 6 atoms while purines have one ring with 6 atoms bonded to one ring with 5 atoms.

Unit 1 (cont)

In a water molecule, water is partially positive and oxygen is partially negative.

Each end of a polypeptide is unique, one end is a free amino acid and one is a free carboxyl group

RNA is a single stranded polynucleotide

The properties of water include: Adhesion, the clinging ofd one molecule to a different molecule, which allows water to stick to the wall of xylem and resist gravity, Capillary action, The upward movement of water due to the forces of cohesion, adhesion, and surface tension. This phenomenon occurs when adhesion is greater than cohesion. Temperature Control, water has a high specific heat, meaning it can resist changes in temperature. Evaporative cooling, water cools things when evaporating. Floating Ice, as water solidifies it becomes less dense because of the crysta-lline structure formed by the hydrogen bonds.	Hydrolysis is the breaking of the bonds in a polymer using water.	Plant and animal cells use polysa-cch-arides as stored energy, they are also used for structure	Many AA are linked with peptide bonds, every polype-ptide has a unique link of amino acids.	DNA consists of two polynu-cle-otides in a double helix.

Unit 3

Metabolism is all of the chemical reactions in an organism.

Energy is the ability to do work

Laws of thermo dyn-amics are the study of energy transf-orm-ations in matter is called thermo dyn-amics

The free energy change of reactions determines whether or not the reaction occurs sponta-niously

Unit 3 (cont)

Cellular metabolic pathways

Metabolic pathways are a series of chemical reactions that either build complex molecules or break down complex molecules

Kinetic energy is the energy associated w/ motion.

The 1st law of thermo-dynamics is that energy cannot be created nor destroyed but it can be transf-erred or transf-ormed

Exergonic reactions are reations that release energy

Unit 3 (cont)

There are two types of metabolic pathways, catabolic and anabolic. Catabolic pathways are pathways that release energy while anabolic pathways consume energy

Adenosine triphosphate is a molecule that organisms use to perform work

thermal energy is energy associated w/ the movement of atoms and of molecules.

the 2nd law of thermo-dynamics is that energy transf-ormation increases the entropy of the universe.

Endergonic reactions are reactions that absorb energy

Unit 3 (cont)

Potential energy is stored energy	enzymes can be inhibited in order to stop the production of too many products.

Unit 3 (cont)

chemical energy is potential energy available for release in a chemical reaction

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