

Unit 2 – The Chemical Basis For Life

Study Guide

1. Definitions
 - a. Matter
 - b. Element
 - c. Molecule
 - d. Compound
2. Elements
 - a. Naturally occurring vs. man-made
 - b. Chemical symbols
 - c. Major ones in living organisms
 - i. N
 - ii. O
 - iii. H
 - iv. C
 - d. Trace amounts
 - i. Fe
 - ii. Na
 - iii. K
 - iv. P
3. Atoms
 - a. Subatomic particles
 - i. Proton
 - ii. Neutron
 - iii. Electron
 - b. Atomic number
 - c. Atomic mass
 - d. Nucleus
 - e. Electron Cloud
4. Molecules and Compounds
 - a. Chemical Bonds
 - i. Ionic
 - ii. Covalent
 1. Polar
 2. Non-polar
 - iii. Hydrogen
 - b. Properties different than parent elements
5. Chemical Reactions
 - a. Synthesis reaction
 - b. Decomposition reaction
 - c. Exchange reaction (aka Replacement reaction)
 - d. Energy absorbed/released
 - e. Catalysts

6. Compounds in Living Organisms
 - a. Inorganic compounds
 - i. Salts
 - ii. Acids
 - iii. Bases
 - iv. Water
 1. Solutions
 - a. Solvents
 - b. Solutes
 2. Hydrophilic
 3. Hydrophobic
 - b. Organic compounds
 - i. Hydrocarbons
 - ii. Carbohydrates
 - iii. Lipids
 - iv. Proteins
 - v. Nucleic acids
7. pH (measure of acidity)
 - a. Range
 - b. Measurement
 - c. Normal ranges of water, blood, saliva, stomach acid
 - d. Metabolic acidosis
8. Proteins
 - a. Amino Acids
 - b. Functions
 - i. catalysts for chemical reactions
 - ii. immune system
 - iii. structural framework....bones, tendons, ligaments
 - iv. physical movement
9. Nucleic Acids
 - a. DNA
 - b. RNA
 - c. Nucleotides
 - d. Genes