

Chemistry

I. Atom

1. Elements
 - a. 92
 2. Chemical symbols
- A. Particles
1. protons, neutrons, & electrons
 2. atomic number (Z)

II. Electrons

- A. Electron location
1. electron orbitals (shells)
- B. Orbital capacities
1. 2 electrons
 2. 8 electrons.
 3. 8 electrons

III. Bonds

- A. Background
1. molecules
 - a. macromolecules
 - 1) cells
 2. Ion
 - a. Symbols
 - 1) cation
 - 2) anion
- B. Ionic bond
1. Loss and Gain
 2. Transfer
- C. Covalent Bond = sharing
- a. single
 - b. double
 - c. triple
- D. Summary

IV. Polar & Nonpolar Covalent Bonds

- A. Nonpolar covalent bonds
- B. Polar covalent bonds
1. electronegativity
 2. Effect of electronegativity
 - a. somewhat negative
 - b. somewhat positive
 - c. polar covalent bond
- C. Consequences
1. Solubilities
 2. Like dissolves like
- D. Hydrogen Bonds
1. water
 2. Hydrogen bond
 - a. weak

V. Chemical Reactions

1. Reactant
2. Product
- A. Types of reactions
 1. Synthesis reaction
 - a. Anabolism
 2. Decomposition reaction
 - a. Catabolism
 3. Exchange reaction
- B. Metabolism

VI. Inorganic cpds

- A. WATER
 1. abundant
 2. universal solvent
 3. reactivity
 - a. hydrolysis rxn.
 - b. dehydration rxn.
- B. pH scale
 1. origination of scale
 2. overview
 - a. backwards direction
 3. calculations
- C. Acids and Bases
 1. Acid
 2. Base
 - a. hydroxyl ion
- D. Buffer
 1. chemistry of buffers
 2. Composition