

I. Introduction

1. Energy
2. Matter
 - a. Elements
 - 1) Chemical (atomic) symbols

II. Atom

1. Protons, neutrons, & electrons
 - a. Nucleus
2. Charge
3. Differences
 - 1) Atomic Number (Z)

III. Electrons

- A. Placement
 1. electron orbitals (shells)
- B. Orbital capacities
 1. Filled
 - a. chemically inert
 - 1) noble gases
 - b. Valence

IV. Bonds

- A. Bond Background
 1. molecules
 - a. macromolecules
 - 1) cells
 2. Ion
 - a. Symbols
 - 1) cation
 - 2) anion
- B. Ionic bond
 1. Transfer
 2. Repercussions
- C. Covalent Bond
 1. Sharing

V. Writing bonded atoms

- A. Formulas
 1. Molecular formula
 2. Structural formula

VI. Polar & NonPolar Covalent Bonds

- A. Polar covalent bonds
 1. Electronegativity
 2. Effect
 - a. somewhat negative
 - b. somewhat positive
- B. Non-polar covalent bonds
- C. Consequences
 1. Solubilities
 - a. solute
 - b. solvent

D. Hydrogen Bonds

1. Note:

- a. weak

VII. Chemical Reactions

1. Reactant

2. Product

A. Chemical equation

B. Types of reactions

1. Synthesis reaction

2. Decomposition reaction

3. Exchange reaction