

What You Should Already Know from Your Prerequisite Introductory Course in Chemistry

Matter and Energy

- physical and chemical properties/reactions/processes
- endo and exothermic reactions/processes
- pure substances/mixtures
- elements and compounds

Measurement and Calculations

- exponential notation
- metric system/prefixes
- significant figures
- problem solving by dimensional analysis
- conversions
- temperature and conversions (F,C,K)

Atomic Structure

- Dalton's theory
- discovery of the electron
- discovery of the nucleus
- protons, electrons, neutrons
- isotopes and averaging for atomic mass
- the periodic table and terms (metals, non-metals, transition metals, halogens, etc)
- continuous vs. quantized
- the Bohr model- spectral lines
- electron configurations for simple atoms
- energy diagrams
- periodicity (atomic size, 1st ionization energy)

Bonding

- loss and gain of electrons to form ions
- ionic bonding
- Lewis diagrams and covalent bonding/ isomers

Nomenclature

- name/write formulas for ionic, covalent compounds and acids

Formulas and Calculations

- atom counting
- molar mass
- % composition and calculations using
- mol concept and conversions
- Avogadro's number
- empirical formulas

Reactions

reaction types- complete and balance

single and double displacement, acid/ base, combustion, combination, decomp

stoichiometry- mass relationships, gases, and the molar volume of a gas

Solutions

definitions

%

molarity

dilutions

solution stoichiometry

Ionic Reactions

Arrhenius and ionization

ionic and net ionic equations

Acid/Base Theory

Arrhenius

Bronsted/Lowry

acids/bases and conjugates

Redox Reactions

definitions

assign oxidation numbers

species oxidized, reduced, oxidizing agents, reducing agents