

TABLE OF CONTENTS

Dedicated to Mr. Frank Reidy, a philanthropist who brought the author to the US

Licensing

1: Matter energy and their measurements

- 1.1: Matter and energy
- 1.2: What is chemistry?
- 1.3: Measurements
- 1.4: Significant Figures
- 1.5: Unit conversions
- 1.6: Equations and graphs
- 1.7: Density and specific gravity measurements
- 1.8: Heat and its measurements
- 1.9: Heat and changes in physical states of matter

2: Elements

- 2.1: Dalton's atomic theory
- 2.2: Subatomic particles and a modern view of an atom
- 2.3: Atoms of elements
- 2.4: The periodic table
- 2.5: Electrons in atoms
- 2.6: The periodic trends in properties of the elements

3: Compounds

- 3.1: Bonding in compounds
- 3.2: Naming binary ionic compounds
- 3.3: Polyatomic ions and their compounds
- 3.4: Naming acids
- 3.5: Naming binary covalent compounds
- 3.6: Lewis structures of molecules
- 3.7: Molecular shapes –Valence shell electron pair repulsion (VSEPR) theory
- 3.8: Polarity of molecules
- 3.9: Intramolecular forces and intermolecular forces

4: Stoichiometry –the quantification of chemical reactions

- 4.1: Stoichiometry
- 4.2: The mole
- 4.3: Chemical reaction
- 4.4: Patterns of chemical reactions
- 4.5: Oxidation-reduction reactions
- 4.6: Energetics of chemical reactions
- 4.7: Stoichiometric calculations

5: Solutions

- 5.1: Introduction to solution
- 5.2: Solubility
- 5.3: Electrolytes
- 5.4: Concentration of solutions
- 5.5: Osmosis

6: Acids and bases

- 6.1: What is an Acid and a Base?
- 6.2: Brønsted–Lowry acids and bases
- 6.3: Strength of acids and bases
- 6.4: Acid-base equilibrium
- 6.5: Dissociation of water
- 6.6: The pH
- 6.7: Acid-base reactions
- 6.8: pH Buffers

7: Gases

- 7.1: Characteristics of gases
- 7.2: The pressure-volume relationship
- 7.3: The temperature-volume relationship
- 7.4: The pressure-temperature relationship
- 7.5: The combined gas law
- 7.6: The volume-amount relationship
- 7.7: Ideal gas law
- 7.8: Dalton's law of partial pressure

8: Nuclear chemistry

- 8.1: Introduction to nuclear chemistry
- 8.2: Radioactivity
- 8.3: Half-life of radioisotopes
- 8.4: Radiation measurements
- 8.5: Ionizing radiation exposures
- 8.6: Medical uses of radioisotopes
- 8.7: Making radioisotopes for medical uses
- 8.8: Nuclear fusion and fission

[Index](#)

[Glossary](#)

[Detailed Licensing](#)