

## Chemistry Unit 2 Outline: Atoms, Moles and the Periodic Table

### Chapter 3: Atoms and Moles

| Classes | Topics  | Suggested Reading                             | ✓ | Assignments  | ✓ |
|---------|---|---|---|--|---|
| 1       | Law of Definite Proportions, law of Conservation of Mass, Law of Multiple Proportions, Dalton's Atomic Theory   | 3.1 Substance Are Made of Atoms (pg. 74 – 78) |   | pg. 78 #1 to 9   |   |
| 2       | Electrons, Cathode Ray, Cathode Ray Tube (CRT), J.J. Thomson's Plum Pudding Model, Gold Foil Experiment, Rutherford's Nuclear Model, Nucleus (Protons and Neutrons), Atomic Number, Mass Number, Number of Neutrons, Protons and Electrons, Atomic Symbols, Monoatomic, Diatomic and Polyatomic Elements, Isotopes  | 3.2 Structure of Atoms (pg. 79 – 89)          |   | pg. 86 #1 to 4 (Practice)<br>pg. 89 #1 & 2 (Practice)<br>pg. 89 # 1 to 8           |   |
| 3 & 4   | Bohr's Atomic Model, Energy Levels and Energy Level Diagrams, Valence Electrons, Quantum Mechanics Model, Electrons as Matter (Particles) and Waves, de Broglie and George Thomson (X-ray Crystallography), Atomic Orbitals, Light, Wavelengths and Frequencies, Electromagnetic Spectrum, Light Emission, Ground State versus Excited State, Quantum Numbers, Subshells ( <i>s</i> , <i>p</i> , <i>d</i> and <i>f</i> orbitals), Pauli Exclusion Principle, Electron Configurations and Aufbau Principle | 3.3 Electron Configuration (pg. 90 – 99)      |   | pg. 99 #1 & 2 (Practice)<br>pg. 99 #1 to 11  |   |
| 5       | Atomic Mass, Mole, Molar Mass, Avogadro's Number, Converting between Mass, Mole, and Avogadro's Number using Molar Mass   | 3.4 Counting Atoms (pg. 100 – 105)            |   | pg. 102 #1 to 4 (Practice)<br>pg. 103 #1 to 3 (Practice)<br>pg. 104 #1 to 13       |   |
| 6       | <b>Lab #2: Flame Tests and Emission Spectroscopy</b><br>(C Block: October 8, Thurs) (D & F Blocks: October 9, Fri)  | Lab #2 Procedure                              |   | <b>Lab #2 Report Due</b><br>(C & D Blocks: Oct 20, Tues)<br>(F Block: Oct 19, Mon) |   |
| 7       | <b>Chapter 3 Quiz</b><br>(C, D & F Blocks: October 15, Thurs)   |   |   | pg. 107–108 #12, 13, 16, 17, 18, 20 to 26, 28 to 34, 36, 38 to 46                  |   |

### Chapter 4: The Periodic Table

| Classes | Topics  | Suggested Reading  | ✓ | Assignments  | ✓ |
|---------|---|--|---|--|---|
| 1       | John Newlands and the Law of Octaves, Dmitri Mendeleev, Periodic Law, Valence Electrons, Groups and Periods, Henry Moseley, Main Group Elements, Alkali Metals, Alkaline Earth Metals, Halogens, Noble (Inert) Gases, Metals versus Non-metals, Metalloids (Semi-metals), Hydrogen, Transition Metals, Lanthanides and Actinides, Alloy | 4.1 How are Elements Organized (pg. 116 – 123)<br>4.2 Tour of the Periodic Table (pg. 124 – 131) |   | pg. 122 #1 to 14<br><br>pg. 131 #1 to 13                       |   |
| 2       | Electron Shielding, Effective Nuclear Charge, Ionization Energy, Atomic Radius, Electronegativity, Electron Affinity, Melting and Boiling Points, Periodic Trends   | 4.3 Trends in the Periodic Table (pg. 132 – 141)   |   | pg. 141 #1 to 7, 9 to 12, 14, 16, 17                           |   |
| 3       | <b>Unit 2 Test</b><br>(C & D Blocks: October 27, Tues) (F Block: October 26, Mon)   |  |   | pg. 150–153 #14 to 16, 18 to 27, 29 to 33, 48, 51, 52 59 to 64 |   |