**Sci 10**

**Chapter 4: Atomic theory explains the formation of compounds.**

**After each section you should be able to:**

4.1 Atomic Theory and Bonding

1. Define the 3 subatomic particles and describe some properties including their charge, where they are found in an atom
2. define and give examples of *ionic bonding* (ex. Metal and non-metal) and *covalent bonding* (ex. Two non-metals, diatomic elements)
3. identify valence electrons using the periodic table (excluding lanthanides and actinides)
4. draw and interpret Bohr models, including protons, neutrons and electrons, of atoms (neutral), ions (charged), molecules (covalent bonding (ex. O2, CH4), and ionic compounds (ex. CaCl2). (*First 20 elements only.)*
5. draw and interpret Lewis diagrams showing single bonds for simple ionic compounds and covalent molecules (ex. NaCl, MgO, BaBr2, H2O, CH4, NH4.)
6. distinguish between lone pairs and bonding pairs of electrons

4.2 Names and Formulas of Compounds

1. Name and write formulas of binary ionic and covalent compound and also compounds containing multivalent and polyatomic ions.
2. Understand what a subscript represents
3. Know what prefixes poly-, per-hypo- and suffixes –ate, -ite mean when naming polyatomic ions

4.3 Chemical Equations

1. Identify what occurs in a chemical change
2. Distinguish the different states of matter
3. Write a balanced chemical equation form either word problems or skeletal equations
4. Use the Law of Conservation of Mass to balance equations
5. Understand the role of coefficients in Writing balanced chemical equations

**Chapter 5: Compounds are classified in different ways**

5.1 Acids and Bases

5.2 Salts

5.3 Organic Compounds

**Chapter 6: Chemical reactions occur in predictable ways**

6.1 Types of Chemical Reactions

6.2 Factors Affecting the Rate of Chemical Reactions

**Chapter 7: The atomic theory explains radioactivity**

7.1 Atomic Theory, Isotopes and Raedioactive Decay

7.2 Half-life

7.3 Nuclear Reactions