**Chemical Studies Curriculum Guide 2017-2018**

* Physical Behavior of Matter – Classification of matter, introduction to solids, liquids, gases
* Units and Measurements – SI units, unit conversion using dimensional analysis, significant figures, accuracy, precision and percent error
* Atomic Theory and Concepts – What is an atom, development and understanding of the atomic concept, sub-atomic particles, atomic number, atomic mass and isotopes
* Periodic Table – Arrangement of elements, periodicity of elements, physical and chemical properties, trends in properties
* Chemical Bonding – How compounds are formed, Types of bonds, Chemistry of common compounds
* Chemical Reactions – Types of chemical reactions
* Gas Laws and Kinetic Molecular Theory of Gases – How gases behave, temperature, pressure, volume effects on gases, diffusion theory
* Environmental chemistry – Greenhouse gases, air pollution, solid-liquid pollution, water pollution, recycling
* Recycling – Water purification, waste material chemistry, recycling of electronics and heavy metals
* Kinetics and Equilibrium – Rates of reaction, Equilibrium, Potential Energy Diagram
* Water chemistry – Properties of water
* Solution chemistry – What are solutions, Solubility Properties, Molarity and Concentrations
* Acids, Bases and Salts – Properties, Acid-Base Theory, pH, Indicators
* Electrochemistry – Redox reactions, Half Cells and Batteries
* Organic Chemistry – Hydrocarbons, Functional Groups
* Nuclear Chemistry – Nuclear particles, Nuclear Reactions, Radioactive elements, Uses and Misuses of nuclear chemistry