Grade 11 Chemistry Syllabus

Term 1: Quantitative analysis

Oxidation and Reduction

- Definitions of oxidation and reduction
- Oxidation number
- Common oxidizing and reducing agents
- Substances that behave as both oxidizing and reducing agents
- Industrial extraction of iron
- Corrosion of metals

Electrochemistry

- Conductors and non-conductors
- Metallic and electrolytic conductors
- Strong and weak electrolytes
- Definition of electrolyte, cathode, anode, cation and anion
- Ion present in electrolytes
- Electrochemical series
- Factors affecting discharge of ions
- Diagrams of circuits
- Electrolysis of specific substances
- Faraday constant
- Calculation using Q = It
- Industrial applications
- Extraction of aluminium from alumina

Rates of Reaction

- Definition of rates of reaction
- Factors affecting rates of reaction
- Collision theory
- Industrial preparation of ammonia and sulphuric acid
- Enzymes
- Exothermic and endothermic reactions
- Energy profile diagrams

- Calculations
- Alternative energy sources

Term 2

Organic Chemistry

- Catenation
- Formation of single, double and triple carbon – carbon bonds
- Homologous series
- Functional groups
- Structural isomerism
- Reaction of alkanes
- Reaction of alkenes
- Uses of hydrocarbons
- Distinguishing between alkanes and alkenes
- Reaction of alcohols, acids and esters
- Fermentation
- Hydrolysis of esters
- Soap and soap-less detergents
- Hydrolysis of polysaccharides
- Hydrolysis of proteins
- Definition of polymers
- Addition and condensation polymerization
- Uses of polymers
- Differences between polymers and monomers

Qualitative Analysis

- Identification of cations
- Identification of anions
- Identification of gases