ST. MARY'S COLLEGE

FORM 4 - CHEMISTRY

Course Outline (Teacher's Version)

Term 1

Proposed Week	Section	Specific Objective	Explanatory Notes	Textbook Reference
1	Principles of Chemistry	States of matter	Evidence to support the particulate theory of matter Distinguish among the three states of matter Explain the changes between states of matter ***Diffusion of ammonia and hydrochloric acid***	Chapter 1
2-4	Principles of Chemistry	Mixtures and separations	Distinguish between pure substances and mixtures Distinguish among solutions, suspensions and colloids Identify different types of solutions Investigate the effect of temperature on solubility of solids Apply suitable separation techniques Extraction of sucrose from sugar cane ***Solubility curve of potassium nitrate Cooling curve of stearic acid Use of separating funnel Simple distillation Paper chromatography Dyes in permanent markers***	Chapter 5

5	Principles of Chemistry	Atomic structure	Diagrammatic representation of atoms 1 – 20 Properties of protons, neutrons and electrons Define atomic number and mass number Define relative atomic mass Interpret atomic notation Define isotopy	Chapter 2
			Uses of isotopes	
6-7	Principles of Chemistry	Periodic Table and periodicity	Arrangement of elements in the periodic table Trends in group II Trends in group VII Trends in period 3 Predict properties of unknown elements	Chapters 3 & 6
8-11	Principles of Chemistry	Structure and bonding	Formation of ionic and covalent bonds Predict the likelihood of the formation of ionic and covalent bonds Formulae of ions, molecules and formula units Formation of metallic bonding Describe ionic, simple molecular and giant molecular crystals. Distinguish between ionic and molecular solids. Properties and uses of sodium chloride, diamond and graphite. Explain allotropy.	Chapter 4
12 - 14	-	Examinations	Christmas Exams	

Term 2

Proposed Week	Section	Specific Objective	Explanatory Notes	Textbook Reference
1 - 6	Principles of Chemistry	Mole concept	Define mole and molar mass Perform calculations involving the mole State Avogadro's Law State the Law of Conservation of Matter Write balanced equations Apply the mole concept to equations Define standard solutions	Chapters 7-10
7 - 12	Principles of Chemistry	Acids, bases and salts	Define acid, acid anhydride, base, alkali, salt, acidic, basic, amphoteric and neutral oxides Explain the pH scale Discuss the strength of acids and alkalis Reactions of acids Examples of acids in living systems Reactions of bases Investigate salt preparation Uses and dangers of salts Distinguish between acid and normal salts Investigate neutralization reactions using indicators and temperature changes Perform volumetric analysis calculations ***Acid/ base titration using methyl orange*** ***Acid/ base titration using phenolphthalein*** ***Preparation of copper sulphate***	Chapter 11

13	-	-	- Easter Activities	

Term 3

Proposed Week	Section	Specific Objective	Explanatory Notes	Textbook Reference
1 - 3	Principles of Chemistry	Oxidation - Reduction reactions	Investigate the action of oxidizing and reducing substances Define oxidation and reduction Deduce oxidation number Identify oxidation and reduction reactions	Chapter 12
			Distinguish between oxidation and reduction reactions ***Redox titration***	

4 - 7	Principles of Chemistry	Electrochemistry	Classification of conductors and non-conductors Distinguish between metallic and electrolytic conduction Distinguish between strong and weak electrolytes Define electrolysis, cathode, anode, cation, anion Identify ions present in electrolytes Predict the electrode to which ions drift Predict chemical reactions using electrochemical series Discuss electrolysis of certain substances Define the Faraday constant Perform electrolysis calculations Describe industrial applications of electrolysis ***Electrolysis of dilute copper sulphate*** ***Classification of electrolytes***	Chapter 13
8 - 9	Principles of Chemistry	Rates of reaction	Define rate of reaction Identify factors that affect reaction rates Predict the effect of factors on reaction rates Interpret rate graphs ***Effect of concentration on reaction rate*** ***Investigative Project Proposal***	Chapter 14
10 - 12	-	Examinations	- End of Year Examinations	

Suggested lab activities printed in BOLD