

Yan Oi Tong Tin Ka Ping Secondary School
NSS1 Chemistry Teaching Schedule

NSS1

Topic	Number of lessons	Cycle(s)
<u>Fundamentals of chemistry [Chapter 1]</u> ♦ Scientific method ♦ Laboratory safety and apparatus	0	0
<u>Planet Earth [Chapters 2 – 4]</u> ♦ The ocean ♦ The atmosphere ♦ Rocks and minerals	10	1 – 2
<u>Microscopic World I [Chapters 5 – 8]</u> ♦ Atomic structure ♦ The Periodic Table ♦ Ionic and covalent bondings	15	3 – 5
<u>Microscopic World I [Chapter 9]</u> ♦ Structure and properties of ionic and covalent compounds	10	6-7
<u>Microscopic World II [Chapter 26]</u> ♦ Shape of molecules	3	7 – 8
<u>Metals [Chapters 9 – 11]</u> ♦ Reactivity of metals ♦ Giant metallic structure and metallic bonding ♦ Uses of metals	15	9 – 11
<u>Mole Concept (I) [Chapter 12]</u> ♦ Reacting masses	10	12 – 13
First Examination		
<u>Acids and Bases [Chapter 14]</u> ♦ Introduction to acids and alkalis	10	14 – 15
<u>Mole Concept (II) [Chapter 15]</u> ♦ Concentration of solutions	5	16

Topic	Number of lessons	Cycle(s)
<u>Acids and Bases [Chapters 16 – 19]</u> <ul style="list-style-type: none"> ◆ Volumetric analysis involving acids and alkalis ◆ Indicators and pH ◆ Salts and neutralization / {Heat of neutralization} ◆ Strength of acids and alkalis 	20	17 – 20
<u>Redox Reactions [Chapter 31]</u> <ul style="list-style-type: none"> ◆ Oxidation and reduction ◆ Oxidizing agents and reducing agents ◆ Electrochemical series ◆ Concentrated nitric acid as an oxidizing agent ◆ Concentrated sulphuric acid as an oxidizing agent 	20	21 – 24
<u>Simple Chemical Cells [Chapters 29, 30 and 32]</u> <ul style="list-style-type: none"> ◆ Chemical cells with two metal electrodes ◆ Half-cells and half equations of cell reaction 	10	25
Yearly Examination		
<u>Metals [Chapter 13]</u> <ul style="list-style-type: none"> ◆ Corrosion of metals and their protection ◆ Rusting as a redox reaction ◆ Anodization of aluminium 	10	Summer Tutorial

NSS2

Topic	Number of lessons	Cycle(s)
<u>Fossil Fuels and Carbon Compounds [Chapter 20]</u> ♦ Fossil fuels ♦ Fractional distillation of crude oil ♦ Petroleum fractions and their uses	10	1 – 2
<u>Microscopic World II [Chapter 27]</u> ♦ Intermolecular forces – van der Waals' forces		
<u>Fossil Fuels and Carbon Compounds [Chapters 20, 22 and 23]</u> ♦ Hydrocarbons ♦ Homologous series and naming of carbon compounds ♦ Alkanes and alkenes ♦ Cracking ♦ Reactions of alkanes and alkenes ♦ Consequences of using fossil fuels / {Heat of combustion}	20	3 – 6
<u>Chemical Reactions and Energy [Chapters 35 – 37]</u> ♦ Endothermic and exothermic reactions ♦ Standard enthalpy changes of combustion, neutralization, solution and formation ♦ Hess's law	10	7 – 8
<u>Rate of Reaction [Chapters 38 – 39]</u> ♦ Instantaneous and average rates ♦ Factors affecting rate of reaction ♦ Methods to follow the progress of a chemical reaction	15	9 – 11
<u>Instrumental Analytical Chemistry [Chapter 66]</u> ♦ Colorimetry		
<u>Mole Concept (III) [Chapter 40]</u> ♦ Molar volume of gas	5	12
First Examination		

Topic	Number of lessons	Cycle(s)
<u>Rate of Reaction [Chapters 53 – 55]</u> ♦ Rate equation ♦ Activation energy	10	13 – 14
<u>Rate of Reaction [Chapters 53 – 55]</u> ♦ Energy profile ♦ Arrhenius equation ♦ Catalysis	10	15 – 16
<u>Chemical Equilibrium [Chapters 41 – 43]</u> ♦ Reversible reactions and dynamic equilibrium ♦ Equilibrium constants ♦ Factors affecting chemical equilibria	15	17 – 19
<u>Industrial Processes [Chapters 52 and 56]</u> ♦ Importance of industrial processes ♦ Production of fertilizers ♦ Social, economic and environmental considerations of industrial processes	10	20 – 21
<u>Electrolysis [Chapter 33]</u> ♦ Anodic and cathodic reactions ♦ Preferential discharge of ions ♦ Electroplating and purification of impure copper	15	22 – 24
<u>Industrial Processes [Chapter 56]</u> ♦ Chloroalkali industry		
<u>Patterns in the Chemical World [Chapters 49 – 51]</u> ♦ Periodic properties in physical properties of the elements Li to Ar ♦ Bonding, stoichiometric composition and acid-base properties of the oxides of elements from Na to Cl ♦ General properties of transition metals	10	25 – 26
Yearly Examination		
Topic	Number of lessons	Cycle(s)
<u>Chemistry of Carbon Compounds [Chapters 44 – 47]</u> ♦ Physical properties of organic compounds ♦ Typical reactions of various functional groups	15	Summer Tutorial

NSS3

Topic	Number of lessons	Cycle(s)
<u>Chemistry of Carbon Compounds [Chapters 46 – 47]</u> <ul style="list-style-type: none"> ◆ Physical properties of organic compounds ◆ Typical reactions of various functional groups ◆ Inter-conversion of carbon compounds 	20	1 – 4
<u>Separation and Purification Methods [Chapter 64]</u> <ul style="list-style-type: none"> ◆ Crystallization ◆ Distillation and fractional distillation ◆ Liquid-liquid extraction ◆ Paper, column or thin-layer chromatography ◆ Test for purity 		
<u>Instrumental Analytical Chemistry [Chapter 66]</u> <ul style="list-style-type: none"> ◆ Mass spectrometry ◆ Infra-red spectroscopy 		
<u>Chemistry of Carbon Compounds [Chapter 45]</u> <ul style="list-style-type: none"> ◆ Isomerism 		
<u>Fossil Fuels and Carbon Compounds [Chapter 24]</u> <ul style="list-style-type: none"> ◆ Addition polymer 	20	5 – 8
<u>Chemistry of Carbon Compounds [Chapters 24 and 48]</u> <ul style="list-style-type: none"> ◆ Aspirin ◆ Detergents ◆ Addition polymers ◆ Condensation polymers – nylon and polyesters ◆ Carbohydrates, lipids and proteins 		
<u>Industrial Processes [Chapter 56]</u> <ul style="list-style-type: none"> ◆ Manufacture of vitamin C ◆ Production of methanol 		
<u>Green Chemistry [Chapter 57]</u> <ul style="list-style-type: none"> ◆ Principles of green chemistry ◆ Practices of green chemistry 		

Topic	Number of lessons	Cycle(s)
<u>Qualitative Analysis of Analytical Chemistry [Chapter 63]</u> ♦ Chemical tests for molecules, cations, anions and functional groups	5	10
<u>Quantitative Analysis of Analytical Chemistry [Chapter 65]</u> ♦ Gravimetric analysis	5	11
<u>Importance of Chemistry in the Modern Way of Living [Chapters 34 and 67]</u> ♦ Redox reactions ♦ Analytical chemistry	5	12
Mock Examination		
Revision		