

SALEM - Immanuel Lutheran College (2010-2011)**S.4 Chemistry Teaching Schedule**

Teachers: Mr Aman Wong C. M.

Textbooks: HKDSE Chemistry A Modern View, E. Cheng, J. Chow, Y.F. Chow, A. Kai, K.K. Lai & W.H. Wong, Aristo, 2009

Reading/IT Element: <http://www.ilc.edu.hk/SubjectWeb/ChemWeb/index.htm>

Date/Cycle	No. of Periods	Topics/Contents	Teaching Aids/ Experiments	Tests/Assignments
02/09/10 (1)	2 2 2	Introduction to NSS Chemistry Revision: 1.3 Classification of matter 1.4 Properties of substances 1.5 Physical and chemical change Revision: 2.1 Getting to know our planet earth 2.2 The atmosphere	Keynote	
10/09/10 (2)	2 2 2	Revision: 2.3 Separation of oxygen and nitrogen from air 2.4 Properties of oxygen Revision: 3.1 Introducing oceans and seas 3.2 Composition of sea water Revision: 3.3 Extraction of common salt from sea water 3.4 Tests for sodium and chloride ions in common salt	Keynote	
20/09/10 (3)	2	Revision: 3.5 Tests for the presence of water in a sample 3.6 Electrolysis of sea water and uses of products Revision: 4.1 Rocks	Keynote	

	2	4.2 Extraction of metals from their ores 4.3 Limestone, chalk and marble Revision: 4.4 Weathering and erosion of rocks		
	2	4.5 Chemical changes involving calcium carbonate 4.6 Tests for calcium carbonate in a sample of limestone/chalk/marble		
30/09/10 (4)	2	5.1 What is an element? 5.2 Classification of elements based on physical states 5.3 Classification of elements into metal and non-metals	Keynote	
	2	5.4 Chemical symbols for elements 5.5 Atoms 5.6 Structure of atom		
	2	5.7 Atomic number and mass number 5.8 Isotopes		
11/10/10 (5)	2	5.9 Relative masses of atoms 5.10 Arrangement of electrons 5.11 Stability of noble gases related to their electronic arrangements	Keynote	Presentation I: Discoveries related to the structure of the atom
	2	6.1 Elements with similar chemical properties 6.2 The Periodic Table Presentation I		
	2			
19/10/10 (6)	2	6.3 Patterns in the Periodic Table 6.4 Groups – similarities and trend 6.5 Predicting chemical properties of an unfamiliar element	Keynote www.wikipedia.org “Elements” – iPad Apps	Exercise I Chapters 1-4
	2	7.1 Formation of ions from atoms 7.2 Colors and migration of ions		
	2	7.3 Formulae of ions Exercise I		

02/11/10 (7)	2 2 2	7.4 Elements and ions 7.5 Chemical bonds 7.6 Ionic bond and ionic substances 7.7 Structures of solid ionic compounds Experiment I	Keynote www.wikipedia.org Experiment I <i>7.2 Investigating the migration of ions</i>	Uniform Test Chapters 1-6
10/11/10 (8)	2 2 2	7.8 Formulae and names of ionic compounds 8.1 Covalent bonding and covalent substances 8.2 Prediction of formulae for covalent compounds Quiz I	Keynote www.wikipedia.org	Quiz I Chemical formulae and names of ions
18/11/10 (9)	2 2 2	8.3 Particles that make up matter – a summary 8.4 Relative molecular mass and formula mass 9.1 Structure of substances Quiz II	Keynote	Quiz II Chemical formulae and names of ionic compounds
29/11/10 (10)	2 2 2	9.2 Simple molecular structures 9.3 Macromolecules 9.4 Giant ionic structures 9.5 Giant covalent structures 9.6 Giant metallic structures 9.7 Comparison of structures and properties of substances Quiz III	Keynote	Quiz III Chemical formulae and names of covalent substances
07/12/10 (11)	2 2 2	9.8 Predicting structure from physical properties 9.9 Predicting physical properties from bonding and structure 9.10 Applications of substances according to their structures 11.1 Different reactivity of metals 11.2 Comparing reactivity of common metals 11.3 The metal reactivity series	Keynote	

15/12/10 (12)	2 2 2	11.4 Chemical equations 11.5 Metal reactivity series and the tendency of metals to form positive ions 11.6 Displacement reactions of metals in aqueous solution 11.7 Ionic equations 11.8 Extraction of metals from their ores Quiz IV	Keynote	Quiz IV Chapters 10, 11 & 13 First Examination Chapters 1-13
21/01/11 (13)	2 2 2	12.1 The mole concept in general 12.2 Percentage by mass of an element in a compound 12.3 Chemical formulae of compounds 12.4 Determination of empirical formulae Experiment 2	Keynote Experiment 2 <i>12.1 Determining the empirical formula of magnesium oxide</i>	
10/02/11 (14)	2 2 2	12.5 Determination of molecular formulae 12.6 Calculation based on equation 25.1 Simple molecular substances with non-octet structures 25.2 Shapes of simple molecules 26.1 Unequal sharing of electrons in covalent bonds 26.2 Polar and non-polar molecules	Keynote	
21/02/11 (15)	2 2 2	27.1 Introducing intermolecular forces 27.2 Van der Waal's forces 27.3 Hydrogen bonding 27.4 Comparing the strengths of van der Waals' forces, hydrogen bonding and covalent bonding 28.1 Molecular crystals 28.2 Structure and properties of ice 28.3 Structure and properties of fullerenes Quiz V	Keynote	Quiz V Shapes of molecules

01/03/11 (16)	2 2 2	35.1 Conservation of energy 35.2 Exothermic and endothermic reactions Presentation 2	Keynote	Presentation 2 Topic TBD
09/03/11 (17)	2 2 2	36.1 Standard enthalpy change of combustion, neutralization, solution and formation 36.2 Simple calorimetric methods Exercise II	Keynote	Exercise II Chapters 35-36
21/03/11 (18)	2 2 2	37.1 Hess's Law 37.2 Calculation involving enthalpy changes of reactions 38.1 Introducing rate of reaction 38.2 Describing rate of reaction – average rate, instantaneous rate and rate curve	Keynote	
04/04/11 (19)	2 2 2	38.3 Methods of following the progress of a chemical reaction Experiment III	Keynote Experiment III <i>38.5 Studying the progress of a reaction by measuring the color intensity</i>	Uniform Test Chapters 25-28, 35-37
13/04/11 (20)	2 2 2	39.1 What factors affect rate of reaction? 39.2 A theory about reaction rate – the collision theory 39.3 Effect of concentration of reactants on rate of reaction 39.4 Effect of temperature on rate of reaction 39.5 Effect of surface area of solid reactant on rate of reaction 39.6 Effect of catalyst on rate of reaction 39.7 Importance of catalyst in chemical industries and biological systems	Keynote	

04/05/11 (21)	2 2 2	40.1 Molar Volume 40.2 Calculation involving molar volume of gases Quiz VI Experiment IV	Keynote Experiment IV <i>39.2 Investigating the effect of concentration on the rate of reaction using a micro-scale experiment</i>	Quiz VI Chapter 38-39
13/05/11 (22)	2 2 2	40.3 Miscellaneous calculations based on the mole concept 41.1 Irreversible and reversible reactions 41.2 Characteristics of dynamic equilibrium Experiment V	Keynote Experiment V 40.1 Determining the molar volume of a gas	
23/05/11 (23)	2 2 2	42.1 Equilibrium Law and equilibrium constant 42.2 Equilibrium constants for homogeneous equilibrium and heterogeneous equilibrium 42.3 Significance of the magnitude of equilibrium constant 42.4 Calculations involving equilibrium constant 42.5 Determination of equilibrium constant from experiments Exercise III	Keynote	Exercise III Chapter 40-41
01/06/11 (24)	2 2 2	43.1 The effect of concentration change on chemical equilibria 43.2 The effect of temperature change on chemical equilibria 43.3 Using Le Châtelier's principle to predict the shift in equilibrium position Applications of chemical equilibrium in industries	Keynote	First Examination Chapters 25-28, 35-43