Chemistry 1st Year Scheme of Work 2024-25

w/b	Content – teacher 1 (double lesson)	Test – teacher 1 (double lesson)	Practical – teacher 1 (double lesson)	Content – teacher 2 (single lessons)	Test – teacher 2 (single lessons)	Practical – teacher 2 (single lessons)
Sep 9th	Course introduction and lab rules 2.1.1 Atomic structure and isotopes		1. Magnesium silicide	2.1.1 Relative atomic masses 2.1.2 Compounds, formulae		
Sep 16th	2.1.2 Balancing equations	0. Induction test		2.1.5 REDOX: oxidation numbers and redox reactions		
Sept 23rd	2.1.3 Amount of substance: the mole 2.1.3 Determining empirical and molecular formulae			2.2.1 Electronic structure: energy levels, shells, sub-shells, atomic orbitals, electron configurations		
Sept 30th	2.1.3 Water of crystallisation		2. Finding the formula of copper oxide (preparation for practical 3)	2.2.2 Bonding and structure: ionic, covalent, dative covalent		
Oct 7th		1. Atomic structure & ½ moles	3. **ASSESSED PRACTICAL: PAG 1** Determination of the formula for magnesium oxide	2.2.2 Bonding and structure: ionic, covalent, dative covalent		
Oct 14th	2.1.3 Reacting mass calculations		4. Finding the value of x in the formula: $CuSO_4.xH_2O$	2.2.2 Shapes of molecules and ions		
Oct 21st	2.1.3 Volumes of gases		5. Finding the relative atomic of an unknown metal	2.2.2 Electronegativity and bond polarity		
Autumn ½ term: Oct 28th – Nov 1st						
Nov 4th	2.1.3 Volumes and concentrations of solutions			2.2.2 Intermolecular forces		
Nov 11th	2.1.3 Ideal gases			3.1.1 Periodicity: trends in electron configuration and ionization energy		
Nov 18th	2.1.3 Percentage yield and atom economy 2.1.4 Acids and bases			3.1.1 Periodic trends in structure and melting point	4. Bonding, shape & intermolecular forces	
Nov 25th	2.1.4 Acid-base titrations		[Reactions of acids]	3.1.1 Periodic trends in structure and melting point		
Dec 2nd	2.1.4 Acid-base titrations	2. Full moles	6a. Preparing a standard solution	3.1.2 Group 2		9. Group 2
Dec 9th			6b. Determination of concentration of HCl (preparation for practical 7)	3.1.3 Group 7 properties & displacement reactions		
Dec 16th			7. **ASSESSED PRACTICAL: PAG 2** Identification of an unknown carbonate	3.1.3 Group 7 uses & disproportionation		10. Group 7: The halogens
Christmas holidays: Dec 19th – Jan 3rd						
Jan 6th	4.1.1 Organic Chemistry: basic concepts	3. Acids, bases & electrons		3.1.4 Qualitative analysis: tests for halide ions		11. Group 7: The halides
Jan 13th	4.1.1 Organic Chemistry:			3.1.4 Qualitative analysis: tests for ions		12a. Demo: Qualitative analysis (preparation for 12b)

	functional groups, nomenclature						
Jan 20th	4.1.1 Structural isomerism				3.2.1 Enthalpy changes: endothermic/exothermic reactions, activation energy, enthalpy change definitions		12b. **ASSESSED PRACTICAL PAG 4** Identifying unknowns
Jan 27th		Mid-year exam			3.2.1 Enthalpy changes: calculations involving experimental data		
Feb 3rd	4.1.2 Alkanes, combustion and radical substitution		18. Alkanes and alkenes			6. Group 2 and Group 7	13. Enthalpy change of combustion
Feb 10th	4.1.3 Alkenes, stereoisomerism				3.2.1 Enthalpy changes: calculations involving bond enthalpies		14. Determination of enthalpy change of neutralisation
Spring ½ term: Feb 17th – Feb 21st							
Feb 24th	4.1.3 Alkenes: electrophilic addition				3.2.1 Enthalpy changes: calculations involving Hess cycles		
Mar 3rd	4.1.3 Alkenes: other reactions (hydration, hydrogenation)	9. Basic concepts and alkanes			3.2.2 Reaction rates: collision theory & measuring rate		15. **ASSESSED PRACTICAL PAG 3** Determination of an enthalpy change by Hess' Law
Mar 10th	4.1.3 Addition polymerization				3.2.2 Reaction rates: catalysis	7. Enthalpy changes	
Mar 17th	4.2.1 Alcohols: properties, classification and oxidation				3.2.2 Reaction rates: Boltzmann distribution		16. Rate of reaction of $CaCO_3$ and HCl
Mar 24th	4.2.1 Alcohols: oxidation	10. Alkenes	[Alcohols mini-practical]		3.2.3 Chemical equilibria: Le Chatelier's principle		
Mar 31st	4.2.1 Alcohols: other reactions (elimination, substitution)				3.2.3 Chemical equilibria: Le Chatelier's principle		17. To illustrate Le Chatelier's Principle
Easter holidays: Apr 7th – Apr 19th							
Apr 22nd			19. Oxidation of ethanol (preparation for practical 20)		3.2.3 Chemical equilibria: K_c		
Apr 28th	4.2.2 Haloalkanes	11. Alcohols	21. Hydrolysis of haloalkanes		4.2.4 Analytical techniques: infrared spectroscopy, mass spectrometry,		
May 5th			20. **ASSESSED PRACICAL PAG 5** Preparation of cyclohexene		4.2.4 Combined techniques	8. Rates and equilibrium	
May 12th	4.2.2 Haloalkanes	12. Haloalkanes and analysis			4.2.4 Combined techniques		
May 19th	Study leave Transfer exam: 2 hours 15 mins, covering all Year 1 content.						
Summer ½ term: May 26th – May 30th							