

Chapelton Academy Y12 Curriculum Intent Plan

Subject: Chemistry

Procedural knowledge (exam technique, skills etc):

- a. 3D modelling
- b. Numerical calculations and algebra
- c. Data Analysis – using tables, drawing graphs, errors & anomalies
- d. Decoding exam scientific terminology
- e. Revision techniques
- f. Managing time limited tasks
- g. Practical Skills – setting up apparatus, drawing apparatus
- h. Collaborating on tasks
- i. Exam error solving/problem solving
- j. Drawing structures

No of lessons	Disciplinary Knowledge sequence	Disciplinary knowledge, that this interleaves with	Procedural knowledge progression	RS revision knowledge topic	HW focus and actions	Assessment (topic and skills assessed)
10	GCSE Recall Balancing chemical equations, using mathematical equations to solve problems, standard form, use of scientific vocabulary	All A Level content	b, d, f, i, j,	GCSE core content Green pen baseline assessment	Exam questions - Exampro Chemsheets	Baseline Assessment

10	3.1.1 – Atomic Structure 1 – Particles, mass number & isotopes 2 – Electron configuration (Z=32) 3 – TOF MS	3.1.2 – Amount of substance 3.1.3 – Bonding 3.3.14 – Organic Analysis	b, d, f, i, j	Atomic structure evolution over time – recall from GCSE Electronic configuration practice	TOF problems – address issues with mathematical skills and misconceptions	
15	3.1.2 – Amount of Substance 1 – RAM/RMM definitions 2 – Balancing equations & calculations 3 – Moles & Avogadro Constant 4 – PV=nRT 5 – Empirical/molecular formula calculations	Part of all Physical Chemistry topics	b, l, f, g, c	Recap of balancing acid/base equations and building to more complex balancing	Unit conversions, SI units within calculations Problem solving for moles, concentration and volume – mix of problems outlying the 3 different ways of being able to solve for moles. Chemsheets booklet	Required practical 1: Titrations
15	3.1.3 - Bonding 1 – Ionic Bonding 2 – Covalent and dative covalent bonding 3 – Metallic bonding 4 – Physical Properties of different types of structures 5 – Shapes of molecules and ions 6 – Bond polarity and electronegativity 7 – Intermolecular forces	3.1.2 - Atomic Structure 3.2 - Inorganic Chemistry (periodicity and group trends)	A,b,c,d,f,g,h	Practice to enable Students to differentiate between bonding types and structures governed by valance electrons. Explore relationships between atomic structure and intermolecular forces/polarities.	Relevant Chemsheets Exampro questions	
10	3.3.1 - Organic Chemistry Introduction 1 – Naming and drawing structures 2 – Isomerism	3.1.2 Atomic Structure 3.3.2 Alkanes 3.3.3 Haloalkanes 3.3.4 Alkenes 3.3.5 Alcohols 3.3.6 Organic Analysis	a,d,e,h,j	Chemsheets booklet	Chemsheets booklet Exampro past paper questions Revision for AP	AP - 3.1.1,3.1.2,3.1.3

	<i>CPD and PD</i>					
10	3.3.2 Alkenes	3.1.2 Atomic Structure 3.3.3 Haloalkanes 3.3.4 Alkenes 3.3.6 Organic Analysis GCSE: Balancing Equations	a,f,i,j	1 Recall from GCSE: Distillation, cracking & combustion	Relevant Chemsheets: Balancing equations for combustion, free radical mechanisms	
	Holiday					
15	3.3.3 - Haloalkanes 1 – Nucleophilic substitution 2 – Elimination reactions 3 - Polymerisation	3.1.3 Bonding: bond polarity 3.3.6 organic analysis 3.3.4 Alkenes GCSE: polymers from monomers	A,f,i,j	Exampro: questions on mechanisms and conditions Polymer revision	Chemsheets and Exampro past paper questions	
10	3.3.4 Alkenes	3.3.2 alkenes	A,f,i,j	conditions and mechanisms for addition rxns. Look at carbocations	Chemsheets and Exampro	
	<i>CPD</i>					
10	3.1.7 - Oxidation, Reduction & Redox	Balancing equations GCSE recall for oxidation and reduction	l,j,e,d,f,b	GCSE recall: all relevant definitions	Oxidation State calculations Writing and combining half equations Chemsheets and Exampro past paper questions	
10	3.2 Inorganic Chemistry 3.2.1 - Periodicity 1 – classification of s,p,d,f 2 – properties and trends of period 3 elements	S,p,d,f notation	c,d,e,f,i	memorise trends and anomalies	Exampro and Chemsheets	

	Holiday					
10	3.3.2 - Group 2 1 - Properties and trends 2 - Uses	Atomic structure S,p,d,f notation	c,d,e,f,i	Revision for AP Memorise trends and anomalies	Revision including past paper questions not on the mock	AP: 3.1.1-3.1.3 & 3.3.1 - 3.3.4, 3.2. 3.21 & 3.22
10	3.2.3 - halogens 1 – Trends in group 7 2 - Uses	Electronegativity Atomic structure S,p,d,f notation	c,d,e,f,i	Memorise trends and anomalies	Exampro and Chemsheets questions	
	<i>PD</i>					
20	3.1.4 - Energetics 1 – Enthalpy changes and definitions 2 – Calorimetry 3 – Hess's Law 4 – Bond enthalpies	Amount of substance: moles, concentration, SI units	b,g,h,c,e,i	Numerical problem practice	Chemsheet and Exampro questions	Required practical 2: calorimetry
	<i>CPD</i>					
	Holiday					
7.5	3.1.5 - Kinetics 1 – Collision theory 2 – Boltzman distribution 3 - Effect of T on rate 4 - Effects of c & p on rate 5 - Catalysts	PV=nRT Amount of substance GCSE recall	b,f,i,c,d	Numerical problem solving Definitions	Chemsheets and Exampro questions	AP: Synoptic questions
7.5	3.1.6 - Chemical Equilibria 1 – Le Chatelier's principle 2 – Kc calculations and effects of T & P	GCSE recall Kinetics	b,c,f,d,e,i	Why equilibrium position can change – problem solve	Writing expressions and solving for Kc	

10	3.3.5 - Alcohols 1 – Production 2 – Types of alcohols and oxidation reactions 3 – Elimination reactions of alcohols 4 – oxidation of alcohol to aldehyde	Organic analysis Mechanisms, curly arrows Functional groups	a,d,e,j	Compare advantages/disadvantages of ethanol production	Mechanism questions on Chemsheets and Exampro	
10	3.3.6 Organic Analysis 1 – Identification of functional groups 2 – mass spec 3 – IR spec	ToF Amount of substance Organic functional groups	a,c,d,b,e,l,j	Revision for mock exam ToF recap of calc's and mass spec	Chemsheets and Exampro	
	Y12 Exams		e,i			Examine the whole of year 12 AQA specification knowledge in the form of 2 complete past papers for O+P & I+P
	Holiday					
						Data
						Data

	Holiday					
	Y12 exam leave Y12 mock exams					
	Y12 mock exams and post-18 sessions					
	Personal Statement Week					Data
	Work experience week					