KS5 Chemistry Curriculum plan

Year 12 lessons start the first week with a QA of the bridging work and some revision then the initial pixl test which is teacher marked.

Homework is set every lesson, the key homework are pieces that must be completed to provide consistency. The rest is up to the teacher to set from the SOL or provide their own.

Each topic starts with the syllabus front sheet and ends with a written PLC – students can keep these separate and build up a revision guide in a separate folder.

AS topics

Physical Chemistry 1a

Lesson	Module	Lesson Topic	Assessment	Key Homework
1.1	Mod1 Atomic Structure	Fundamental particles		
1.2		Isotopes		
1.3		Mass Spectrometry		H/W sheet 1.3
1.4		Electron arrangement in atoms	Teacher FAR mark homework sheet 1.3 with feedback and actions for students to respond to and correct	
1.5		Ionisation energy		Mod 1 PLC
1.6		Revision and test	Teacher FAR mark Module 1 test with actions on correction and general feedback tasks to complete to support weaknesses	
1.7		Test review		Complete feedback tasks

Lesson	Module	Lesson Topic	Assessment	Key Homework
2.1a 2.1b	Mod2 Amount of substance	Relative atomic and molecular masses, Avogadro's constant and the mole (2 lessons)		
2.2		The Ideal gas equation		H/W sheet 2.2
2.3		Empirical and Molecular formula	Teacher FAR mark homework sheet 2.2 with feedback and actions for students to respond to and correct	
2.4		Balanced Equations		
2.5		Calculating masses	Teacher FAR mark plenary exam question sheet with feedback and actions for students to respond to and correct	
2.6		Titration calculations		
2.7		Titration practice		
Required Practical 1 - Make up a volumetric solution and carry out a simple acid-base titration (might take 2 lessons with review)				
2.9		Water of crystallisation	Teacher FAR mark required practical on table sheets then mark and action table and calculation	2.9 Exam Question
2.10		Atom economy and percentage yield	PA 2.9 H/W Exam Question	Mod 2 PLC
2.11		Revision and test	Teacher FAR mark Module 1+2 test with actions on correction and general feedback tasks to complete to support weaknesses	
2.12		Test review		Complete feedback tasks

Lesson	Module	Lesson Topic	Assessment	Key Homework
3.1	Mod3 Bonding	Types of bonding 1		
3.2		Types of bonding 2		3.1 Bonding
3.3		Types of bonding 3	Students create review questions for each other	
3.4		Electronegativity	Teacher FAR mark homework sheet 3.1 with feedback and actions for students to respond to and correct	
3.5		Forces acting between molecules		
3.6		The shapes of molecules		
3.7		Bonding and physical properties		
3.8		Revision		Mod 3 PLC
3.9		Test	Teacher FAR mark Module 1-3 test with actions on correction and general feedback tasks to complete to support weaknesses	
3.10		Test review		Complete feedback tasks

Organic Chemistry 1

Lesson	Module	Lesson Topic	Assessment	Key Homework
4.1	Mod4 Introduction to organic chemistry	Carbon compounds		
4.2		Nomenclature – naming organic compounds		4.2 Naming sheet
4.3		Isomerism	Teacher FAR mark 4.2 naming sheet with feedback and actions for students to respond to and correct	Mod 4 PLC

Lesson	Module	Lesson Topic	Assessment	Key Homework
5.1	Mod5 Alkanes	Alkanes and Fractional distillation		
5.2		Industrial Cracking		
5.3		Combustion of alkanes	Teacher FAR mark 5.3 exam question with feedback and actions for students to respond to and correct	H/W sheet 1.3
5.4		The formation of halogenoalkanes		
5.5		Revision		Mod 5 PLC
5.6		Module 1-5 Test	Teacher FAR mark Module 1-5 test with actions on correction and general feedback tasks to complete to support weaknesses	
5.7		Test review		Complete feedback tasks

Lesson	Module	Lesson Topic	Assessment	Key Homework
6.1	Mod6 Halogenoalkanes	Halogenoalkanes – Introduction		
6.2		Nucleophilic substitution in halogenoalkanes		
6.3		Nucleophilic substitution in halogenoalkanes		6.3 Mechanism exam question
6.4		Elimination reactions in halogenoalkanes	Teacher FAR mark 6.3 homework sheet with feedback and actions for students to respond to and correct	
6.5		Revision lesson		Mod 6 PLC

Lesson	Module	Lesson Topic	Assessment	Key Homework
7.1	Mod7 Alkenes	Alkenes		7.1 Isomers sheet
7.2		Reactions of Alkenes	Group/peer mark the homework sheet	
7.3		Reactions of alkenes practice		7.2/3 Exam questions
7.4		Polymerisation of alkenes	Teacher FAR mark 7.2/3 exam questions with feedback and actions for students to respond to and correct	Mod 7 PLC
7.5		Module 1-7 test	Teacher FAR mark Module 1-7 test with actions on correction and general feedback tasks to complete to support weaknesses	
7.6		Test review		Complete feedback tasks

Lesson	Module	Lesson Topic	Assessment	Key Homework
8.1	Mod8 Alcohols	Alcohol production		
8.2		Reactions of alcohols		
8.3		Reactions continued		
8.4		Reactions continued	Students present research on reactions of alcohols	
8.5		Aldehydes and ketones tests		
8.6a		Practical techniques		Required practical risk assessment and question
8.6b		Required practical preparation	Teacher mark the required practical risk assessment and practical question with actions and feedback for students to correct	
Required practical 5 - Distillation of a product from a reaction				
8.7		Practical follow up and Revision lesson	Teacher FAR mark required practical on table sheets then mark and action student write up	Mod 8 PLC

Lesson	Module	Lesson Topic	Assessment	Key Homework
9.1	Mod9 Analytical Techniques	Mass spectrometry and IR Spectroscopy		
9.2		Exam Practice and revision		Mod 9 PLC
RSC Spectroscopy in a suitcase				
Required Practical 6 - Tests for alcohol, aldehyde, alkene and carboxylic acid				
9.4		Module 1-9 Test	Teacher FAR mark required practical on table sheets then mark and action student write up	
9.5		Test Review	Teacher FAR mark **Module 1-9** test with actions on correction and general feedback tasks to complete to support weaknesses	Complete feedback tasks

Physical Chemistry 1b – **tests for these topics will depend on topic rotations and teachers**

Lesson	Module	Lesson Topic	Assessment	Key Homework
10.1	Mod10 Energetics	Exothermic and Endothermic reactions		
10.2		Calorimetry		Writing a plan
10.3		Measuring enthalpy change	Students PA plans	10.3 Calorimetry Exam Question
10.4		Enthalpy changes of solution	Teacher FAR mark 10.3 exam questions with feedback and actions for students to respond to and correct	
Required Practical 2 - Measurement of an enthalpy change				
10.5		Hess' Law (formation)	Teacher FAR mark required practical on table sheets then mark and action student write up	
10.6		Hess' Law (combustion)		
10.7		Bond Enthalpies		Mod 10 PLC

Lesson	Module	Lesson Topic	Assessment	Key Homework
11.1	Mod11 Kinetics – Independent study module	Kinetics Independent Study		
11.2		Kinetics Independent Study and required practical prep		Required practical preparation
Required Practical 3 - Investigation of how the rate of a reaction changes with temperature				
11.3		Revision and required practical review	Teacher FAR mark required practical on table sheets then mark and action student write up	Mod 11 PLC
11.4		Module 10+11 Test	Teacher FAR mark Module 10+11 test with actions on correction and general feedback tasks to complete to support weaknesses	
11.5		Test Review		Complete feedback tasks

Lesson	Module	Lesson Topic	Assessment	Key Homework
12.1	Mod12 Equilibria	Equilibria and changing conditions		
12.2		Equilibria in industry		
12.3		Equilibrium constant (2 lessons)		Mod 12.3 exam questions
12.4		Changing conditions	Teacher FAR mark 12.3 exam questions with feedback and actions for students to respond to and correct	Mod 12 PLC

Lesson	Module	Lesson Topic	Assessment	Key Homework
13.1	Mod13 Redox	Oxidation, Reduction and half equations	Students complete a workbook for this topic	
13.2		Oxidation states	13.2 Exam Question Teacher FAR mark exam question with feedback and actions for students to respond to and correct	
13.3		Redox reactions		Mod 13 PLC

Inorganic Chemistry 1

Lesson	Module	Lesson Topic	Assessment	Key Homework
14.1	Mod14 Periodicity	Periodicity and Period 3	Students research and present	
14.2		Periodicity and Period 3 continued	14.1 Exam Question Teacher FAR mark exam questions with feedback and actions for students to respond to and correct	
14.3		Closer look at Ionisation energies		Mod 14 PLC

Lesson	Module	Lesson Topic	Assessment	Key Homework
15.1	Mod15 Group 2	Physical properties		
15.2		Chemical properties		Mod 15.2 Exam Question Mod 15 PLC

Lesson	Module	Lesson Topic	Assessment	Key Homework
16.1	Mod16 Group 7	Physical and Chemical properties	Teacher FAR mark 15.2 exam questions with feedback and actions for students to respond to and correct	Mod 16.1 Exam Question
16.2		Reactions of halide ions	Students SA exam question homework	Chlorine in drinking water article
Required Practical 4 Carry out simple test-tube reactions to identify cations and anions in aqueous solution				
16.3		Revision and required practical follow up	Teacher FAR mark required practical on table sheets then mark and action student write up	Mod 16 PLC

A2 Topics - tests for these topics will depend on topic rotations and teachers

Physical Chemistry 2

Lesson	Module	Lesson Topic	Assessment	Key Homework
17.1	Mod17 Thermodynamics	Enthalpy changes		
17.2		Born Haber cycles		
17.3		Born Haber cycle examples		17.3 HW Exam Q
17.4		Enthalpy of hydration	Teacher FAR mark 17.3 exam questions with feedback and actions for students to respond to and correct	
17.5		Enthalpy of hydration calculations		
17.5		Lattice enthalpy and bonding		
17.6		Mean bond enthalpies		
17.7		Entropy and Gibbs free energy		
17.8		The entropy of vaporisation of water		Mod 17 PLC
17.9		Module 17 test	Teacher FAR mark Module 17 test with actions on correction and general feedback tasks to complete to support weaknesses	
17.10		Test review		Complete feedback tasks

Lesson	Module	Lesson Topic	Assessment	Key Homework
18.1	Mod18 Kinetics	Kinetics revision and determining rates		
18.2		Kinetics revision and determining rates		Required practical full plan
18.3	**Required Practical 7b** - Measuring the rate of reaction by a continuous monitoring method			
18.4		The rate expressions and order of reaction	Teacher FAR mark required practical on table sheets then mark and action student write up	
18.5		Determining the rate equation		
18.5		Exam Question practice		Required practical full plan
18.6	**Required practical 7a** – Measuring the rate of reaction by an initial rate method			
18.7		The Arrhenius equation	Teacher FAR mark required practical on table sheets then mark and action student write up	
18.8		Rate determining step		Mod 18 PLC
18.9		Module 17+18 test	Teacher FAR mark Module 17+18 test with actions on correction and general feedback tasks to complete to support weaknesses	
18.10		Test review		Complete feedback tasks

Lesson	Module	Lesson Topic	Assessment	Key Homework
19.1	Mod19 Equilibrium constant Kp	Equilibrium recap		
19.2		Equilibria in gas phase		1-10-2 Exam questions
19.3		Review	Teacher FAR mark 1-10-2 exam questions with feedback and actions for students to respond to and correct	Mod 19 PLC

Lesson	Module	Lesson Topic	Assessment	Key Homework
20.1	Mod20 Electrode potentials and electrochemical cells	Redox equations		
20.2		Electrochemical cells		
20.3		Electrochemical cells		
20.4		Predicting the direction of a redox reaction		1-11-4 Exam Questions
20.5		Electrochemical cells	Teacher FAR mark 1-11-4 exam questions with feedback and actions for students to respond to and correct	
20.5		Rechargeable batteries practical		
20.6	**Required practical 8** - Measuring the EMF of an electrochemical cell			
20.7		Review and revision	Teacher FAR mark required practical on table sheets then mark and action student write up	Mod 20 PLC
20.8		Mod 17-20 test		
20.9		Test review	Teacher FAR mark Module 17-20 test with actions on correction and general feedback tasks to complete to support weaknesses	Complete feedback tasks

Lesson	Module	Lesson Topic	Assessment	Key Homework
21.1	Mod21 Acids, bases and buffers	Defining an acid		
21.2		The pH scale		21.2 Exam Q
21.3		Finding the pH of weak acids and bases	Teacher FAR mark 21.2 exam questions with feedback and actions for students to respond to and correct	
21.4		Acid-base titrations		
21.5		Choice of indicators in titrations		21.5(1-12-5)Ex Qs
21.5		Buffer solutions basics	Teacher FAR mark 21.5 exam questions with feedback and actions for students to respond to and correct	Required Practical plan
21.6		Buffer solutions - calculations		
21.7	**Required practical 9** - Investigate pH changes of weak acid with strong base and strong acid with weak base			
21.8		Review and revision	Teacher FAR mark required practical on table sheets then mark and action student write up	Mod 21 PLC
21.9		Mod 17-21 test		
21.10		Test review	Teacher FAR mark Module 17-21 test with actions on correction and general feedback tasks to complete to support weaknesses	Complete feedback tasks

Inorganic Chemistry 2

Lesson	Module	Lesson Topic	Assessment	Key Homework
22.1	Mod22 Periodicity	Reactions of Period 3 elements with water and oxygen		Flip learning task
22.2		Period 3 oxides		Mod 22.2 Exam Q
22.3		Review if needed	Teacher FAR mark 22.2 exam questions with feedback and actions for students to respond to and correct	Mod 22 PLC

Lesson	Module	Lesson Topic	Assessment	Key Homework
23.1	Mod23 The transition metals	The general properties of the transition metals		
23.2		Complex ions		
23.3		Coloured ions		Mod 23.3 Exam question
23.4		Variable oxidation states of transition elements	Teacher FAR mark 23.2 exam questions with feedback and actions for students to respond to and correct	Required practical plan
23.5		Catalysis		
23.5	**Required Practical 11** - Carry out simple test tube reactions to identify transition metal ions in aqueous solution			
23.6		Required practical review and revision	Teacher FAR mark required practical on table sheets then mark and action student write up	Mod 23 PLC

Lesson	Module	Lesson Topic	Assessment	Key Homework
24.1	Mod24 Reactions of inorganic compounds in aqueous solutions	The acid-base chemistry of aqueous transition metal ions		
24.2		Ligand substitution reactions		
24.3		Review and revision		Mod 24 PLC
24.4		Mod 22-24 test		
24.5		Test review	Teacher FAR mark Module 22-24 test with actions on correction and general feedback tasks to complete to support weaknesses	Complete feedback tasks

Organic Chemistry 2

Lesson	Module	Lesson Topic	Assessment	Key Homework
25.1	Mod25 Nomenclature and isomerism	Functional groups		
25.2		Synthesis of optically active compounds		Mod 25 PLC

Lesson	Module	Lesson Topic	Assessment	Key Homework
26.1	Mod26 Compounds containing the carbonyl group	Aldehydes and Ketones revision		
26.2		Aldehydes and Ketones reactions	Students present revision	
26.3		Carboxylic acids and esters		
26.4		Analysing organic compounds by melting point analysis		Flip learning – Page 164 and 165
26.5		Reactions of Carboxylic acids and Esters		Mod 26.5 (3.9.3) Carboxylic Acids and Esters Sheet
26.6		Synthesising Esters	Teacher FAR mark 23.2 exam questions with feedback and actions for students to respond to and correct	
26.7		The uses of Esters		Mod 26.7 (3.9.4) Exam Q
26.8		Acylation	SA Exam questions	
26.9		Practical circus		Mod 26 PLC
26.10		Revision – Mod 25-26	3.9.8 Exam questions SA/PA	Required Practical Plan
26.11	**Required Practical 10b** - Preparation of a pure organic liquid			
26.12		Mod 25-26 Test	Teacher FAR mark required practical on table sheets then mark and action student write up	
26.13		Test review	Teacher FAR mark Module 25-26 test with actions on correction and general feedback tasks to complete to support weaknesses	Complete feedback tasks

Lesson	Module	Lesson Topic	Assessment	Key Homework
27.1	Mod27 Aromatic chemistry	Introduction to Arenes		
27.2		Reactions of Arenes	SA - Arenes exam questions	Mod 27 PLC

Lesson	Module	Lesson Topic	Assessment	Key Homework
28.1	Mod28 Amines	Introduction to Amines		
28.2		Amines as nucleophiles and their synthesis.		Flip learning Q
28.3		Revision – Exam Questions	SA/PA exam questions	Mod 28 PLC

Lesson	Module	Lesson Topic	Assessment	Key Homework
29.1	Mod29 Polymerisation	Condensation polymers		
29.2		Playing with polymers		
29.3		Revision – Exam questions	SA/PA Exam Questions	Mod 29 PLC

Lesson	Module	Lesson Topic	Assessment	Key Homework
30.1	Mod30 Amino acids, proteins and DNA	Introduction to amino acids	Teacher FAR mark 30.1 exam questions with feedback and actions for students to respond to and correct	Flip learning
30.2		Peptides and Proteins	Peer teaching – teacher assess understanding	
30.3		Enzymes and DNA		
30.4		Cis-Platin (+ Chromatography)		Mod 30 PLC
30.5		Mod 25-30 Test		
30.6		Test review	Teacher FAR mark Module 25-30 test with actions on correction and general feedback tasks to complete to support weaknesses	Complete feedback tasks

Lesson	Module	Lesson Topic	Assessment	Key Homework
31.1	Mod31 Organic synthesis and analysis	Organic synthesis		
31.2		Organic analysis		
31/3.3		TLC Chromatography		
31.4	**Required Practical 10a** - Preparation of an organic solid and a test of its purity			
31.5		Revision	Teacher FAR mark required practical on table sheets then mark and action student write up	Mod 31 PLC

Lesson	Module	Lesson Topic	Assessment	Key Homework
32.1	Mod32 Structural determination (NMR)	NMR – Carbon-13		
32.2		Proton NMR		
32.3		Interpreting proton NMR		
32.4		Revision (including Mod 33 TLC)		Mod 32 PLC
32.5	**Required Practical 12** - Separation of species by TLC			
32.6		Mod 31-33 test	Teacher FAR mark required practical on table sheets then mark and action student write up	
32.7		Test review	Teacher FAR mark Module 31-33 test with actions on correction and general feedback tasks to complete to support weaknesses	Complete feedback tasks