Now that the revised curriculum has been taught, please consider the Implementation and Impact of the curriculum you taught. What changes might need to be made to the Curriculum Intent (See Curriculum Map and Overviews) in light of this year's experiences?

Year 10 Overview 2024-25 – Chemistry									
Date	Wk	Week	Units Studi	ed & Learning Outcomes	Key Concepts & Assessment				
	8 weeks (12 Lessons) (38Days)								
2-Sep 9-Sep 16-Sep* 23-Sep 30-Sep 7-Oct 14-Oct 21-Oct	A B A B A B A B B	1 2 3 4 5 6 7 8	8 weeks (12 Lessons) Overview of Unit/No. lessons • Structure of the Atom and the Periodic Table (7 lessons) • Bonding (4 lessons) Lesson Sequence of Content: 1, 2 & 3. Size of the atom, isotopes, ions & standard form (3 lessons) 4 - 7. Groups of the periodic table & transition metals (4 lessons) 8, 9 & 10. lonic bonding & properties (3 lessons) 11. Simple covalent molecules & properties (1 lesson) 12. Polymers and large molecules (1 lesson) 12. Polymers and large molecules (1 lesson) 12. Polymers and large molecules (1 lesson) 13. Structures and ties of ionic and ple covalent the Periodic table & orbitals n structures and ties of ionic and ple covalent groups of the Periodic Table & different types of bond elements in different groups of the Periodic Table types of bond elements in different groups of the Periodic Table types of bond elements in different spous of the Periodic Table types of bond elements in different spous of the Periodic Table and explain properties of eir bonding cation of knowledge, identify patterns from ta about properties		 Foundational concepts: Atomic structure & the periodic table Understand the size of the atom Understand properties of group 1, 7 and 0 in the periodic table Understand properties of transition metals (SEPARATES) Understand structure and properties of ionic bonds and simple covalent structures Tier 2/3 Vocabulary Glossaries, quick quizzes, within exam questions, PowerPoints. KW: Atom, nucleus, proton, neutron, electron, ion, isotope, alkali metals, hydroxide, halogens, noble gases, ionic, electrostatic, conduction, covalent, intermolecular, forces, lattice, transition metal, catalyst Links to root words (etymology): The periodic table is so called for the arrangement, in which similar properties recur at intervals in elements in the same area as you read down the rows of the table. Isotope "having the same place," from Greek isos "equal" (see iso-) + topos "place" (see topos); so called because, despite having different atomic weights, the various forms of an element occupy the same place on the periodic table. History: 400 B.C. Democritus' atomic theory posited that all matter is made up small indestructible units he called atoms. To write with colours literally translated from its Greek roots chroma and graphein , chromatography was first developed by the Russian botanist Mikhail Tswett in 1903 as he produced a colourful separation of plant pigments through a column of calcium carbonate. Career links - CSI investigator use separation techniques to test samples collected from crime scenes Equality Diversity and Inclusion (EDI) links? Maria Goeppert-Mayer won a Nobel Prize for formulating the nuclear shell model which made it possible to understand how the nucleus of an atom works Scientists from different nationalities Mildred Cohn – pioneer of stable isotopic tracers 				
Prior Year 8 – Pe table Year 9 – at structu • GW: reca • BI: descr and prop • EW: expl structure • Recall of observat Assessment: • Quick qu • Exam sty • Q&A • Interleav	riodic comic re all group ibe prop erties o ain tren es in rela knowled ions, int iz ile quest ing	Explai Pe Explain properisim sim s of the Pe erties of e f different d in group tion to the dge, applic erpret dat							
				 Misconceptions: Atomic 'mass' instead of 'weight' Alkali metals are alkaline 					

						•	Ionic conduct because of delocalised electrons
						•	Small molecules have low melting and boiling point
						- D -	due to weak bonds
Half-Term			Querrieux of Unit/N	7 WEEKS (10-11 IESS)	ons) (3	5 Da	ys)
4-Nov	А	9	Bonding & properti	<u>0. IESSONS</u> es of structures (5 lessor	ns)	FOU	ndational concepts:
			Rate and extent of	chemical reactions (5 les	isons)	Stru	ictures, properties & substances
11-NOV	в	10			,	•	Understand the structure and properties of giant
10 No.	•		Lesson Sequence	of Content:		•	covalent structures
18-NOV	А		1 & 2. Giant covaler	nt structures (2 lessons)		•	Linderstand the structure and properties of graphone
25 No.		11	3. Graphene & fulle	renes (1 lesson)		•	and fullerenes
25-INOV	в	12	4 & 5. Metallic bon	ding & alloys (2 lesson)		•	Understand structure and properties of metallic
2.0	•		7 Rate of reaction	- factors that affect rate	(1	•	honding
2-Dec	А	10	lesson)		(1		Understand properties and applications of
0.0		13	8 & 9. Rate of react	ion – surface area (2 less	sons)		nanonarticles
9-Dec	в	14	10. Rate of reaction	 concentration (1 lesso 	on)	•	Understand how to calculate and measure the rate of
46						•	a chemical reaction
16-Dec	А	4 5				•	Understand how surface area, concentration
		15				•	temperature & catalyst affect the rate of a chemical
Pric	or .		Current	Next			reaction
Year 9 – a	atomic	Expla	in structures and	Year 12 – rate of		•	Understand how to calculate rate of reaction
struct	ure	pro	perties of giant	reaction		•	Understand how to explain rate of reaction in terms
		cova	lent structures &			•	of the collision theory
Year 8 – c	hemical	metallic structures		Year 12 – rate of		•	onderstand now to measure the rate of reaction
react	ion			reaction		Tior	· 2/3 Vocabulary
		Ider	ntify factors that			 Glossaries, quick quizzes, w 	Glossaries, guick guizzes, within exam guestions.
Year 9 – re	eactions	affect the rate of					PowerPoints.
of me	tals		reaction				
						KW	: covalent, intermolecular, graphene, graphite,
		Exp	lain how factors			fulle	erene, nanotube, nanoparticle, concentration, surface
		affect the rate of				area, catalyst, metal, alloy, electrostatic, rate, activation	
			reaction			tem	perature, catalyst, collisions
		Do	scribo ways to				
		m	easure rate of			Link	<pre>sto root words (etymology):</pre>
			reaction			•	nano- best explained as "very small."
			reaction			•	Graphene - from Greek graphein "write"
• GW: rec	all differer	nt types	of bond, Identify som	e factors that affect rate	e of	•	Collide - Latin collidere "to strike together"
reaction	ı					•	Temperature - from Latin temperature, sense of
• BI: descr	ribe prope	rties of o	lifferent types of bon	d, Describe how differen	nt		degree of heat of cold
factors a	affect the r	ate of re	eaction			Car	eers:
• EW: exp	olain prope	rties of s	structures in relation	to their bonding, Explain	how	Арр	lied Research & Product Development,
the diffe	erent facto	rs affect	the rate of reaction u	using the collision theory	/	Che	minformatics, Chemical Engineering, Chemical
						Tec	hnology, Industrial Management, Laboratory
Recall of know	wledge, ap	plicatio	n of knowledge, ident	ify patterns from		Mai	nagement, Project Management
observations,	, interpret	data					
Assessment:						Hist	tory:
Quick qu	uiz					•	Early history Its structure was determined from single-
• Exam sty	yle questic	ons					crystal diffraction in 1924. The theory of graphene
• Q&A							was first explored by P. R. Wallace in 1947 as a
Interleave	ving						starting point for understanding the electronic
Practica	I skills	valuation	o skills				properties of 3D graphite.
 Interpre Data and 	alvsis skills	valuatio	II SKIIIS			•	of metals that impacted humanity. The Sumerians in
	arysis skills						the third millennia BC developed an alloy of 90 per
							cent conner to 10 per cent tin
							cent copper to to per cent tin.

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ED: Selection is from different nationalities crystallographer June Sutor, C-HO bonding hypothesis Misconceptions: Admic Trass Instead of Weight' Atalian tables Carbon is a metal due to some of its properties Metals conduct because of positive metal lons Carbon is a metal due to some of its properties Metals conduct because of positive metal lons 6 - Jan B 16 Overview of Unit/No. lessons Metals conduct because of positive metal lons 13 - Jan A 17 Lessons Sequence of Content: Lenery changes (4 lessons) 20-Jan B B. 3. Rate of reaction - temperature (2 lessons) Understand how to calculate rate of reaction in terms of reaction - temperature (2 lessons) Understand how to calculate rate of reaction in terms of reaction a exothermic & endothermic (1 lesson) 9 & 10. Equilibrium (2 lessons) Understand how to calculate rate of reaction is Understand what a equilibrum is							nanoparticles were ninth century Meso effect on the surface	used by artisans as far back as the potamia for generating a glittering e of pot.	
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2.7 Feb B 20 3-Feb B 20		27-lan	A	10	 3. Rate of reaction - ca 4, 5 & 6. Required practical practi	talyst (1 lessons) ctical – rate of reaction (2	temperature & cata reaction	lyst affect the rate of a chemical	
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Assessment: Quick quiz history. The first known use of inorganic catalysts is Exam style questions from 1552 when Valerius Cordus (1514-1554) used Q&A sulfuric acid to catalyze the conversion of alcohol to	• • • Redat	Prid Year 8 – c react Year 9 – re of me ear 8 – ex & endot reacti GW: Ider exothern BI: Descr happens EW: Expl collision endother call of know	br hemical ion eactions etals otherm hermic ions ntify som nic & enc ibe how to temp ain how theory, E rmic reac vledge, a results, e vrite prac	e facto dotherr differe erature the diff xplain ction ar pplicat evaluat	Current Explain how factors affect the rate of reaction Describe ways to neasure rate of reaction Explain how energy is transferred during chemical reactions ors that affect rate of reacti mic reaction are ent factors affect the rate of e during an exothermic and ferent factors affect the rate of e during an exothermic and ferent factors affect the rate of e during an exothermic and ferent factors affect the rate in terms of energy what ar re	Next Year 12 – rate of reaction Year 12 – Dynamic equilibrium on, State what an f reaction, Describe what endothermic reaction using the exothermic and patterns in data, interpret ry out practical	Understand what ec Understand how cha equilibrium (HIGHEF er 2/3 Vocabulary Glossaries, quick qu PowerPoints. W: rate, activation ener oncentration, temperat cothermic, endothermic quilibrium, yield nks to root words (etyr Collide - Latin collide Temperature - from "degree of heat or c Equilibrium - from L balance areers: chemical operat eaction engineer, develo eld chemist, operations istory:	quilibrium is anging conditions effects anging conditions effects anging conditions effects anging conditions effects argy, particles, surface area, ure, catalyst, collisions, c, temperature, reversible, and angenerature, reversible, and angenerature, reversible, atin temperature, sense of old" atin aequilibrium "an even atin aequilibrium "an even atin aequilibrium "an even atin aequilibrium "an even angener, catalysis & appment engineer, field engineer, technician	
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ether (Cordus, 1575).	P P P P P P P P P P P P P P P P P P P	Prid Year 8 – c react Year 9 – re of me ear 8 – ex & endot reacti GW: Ider exothern BI: Descr happens EW: Expl collision endother call of know ta, analyse pcedures, w sessment: Quick qu Exam sty	br hemical ion eactions tals otherm hermic ions ntify som nic & enc ibe how to temp ain how theory, E rmic reac vledge, a results, e vrite prac	e facto dotherr differe erature the diff ixplain ction ar pplicat evaluat	Current Explain how factors affect the rate of reaction Describe ways to neasure rate of reaction Explain how energy is transferred during chemical reactions ors that affect rate of reacti mic reaction are ent factors affect the rate of e during an exothermic and ferent factors affect the rate of e during an exothermic and ferent factors affect the rate in terms of energy what ar re tion of knowledge, identify e practical procedures, car nethods	Next Year 12 – rate of reaction Year 12 – Dynamic equilibrium on, State what an f reaction, Describe what endothermic reaction te of reaction using the exothermic and patterns in data, interpret ry out practical	Understand what ed Understand how cha equilibrium (HIGHEF er 2/3 Vocabulary Glossaries, quick qu PowerPoints. W: rate, activation ener oncentration, temperat cothermic, endothermic quilibrium, yield nks to root words (etyr Collide - Latin collide Temperature - from "degree of heat or of Equilibrium - from L balance areers: chemical operat eaction engineer, develo eld chemist, operations istory: The art of producing fermentation is know history. The first know	quilibrium is anging conditions effects anging conditions effects anging conditions effects anging conditions effects and and an angineer and angineer angy, particles, surface area, ure, catalyst, collisions, c, temperature, reversible, and angineer angineer atin temperature, reversible, atin temperature, sense of old" atin aequilibrium "an even for, chemical engineer, catalysis & opment engineer, field engineer, technician g alcohol from sugar by win from the beginning of human own use of inorganic catalysts is lerius Cordus (1514-1554) used	

Interleavi	ing				
Practical	skills		1.10.	EDI: Scientists from different nationalities	
 Interpret Data anal 	ation & (lysis skill	evaluation	n skills		
- Data and	19515 5111	5		Misconceptions:	
					Particles move 'more' rather than faster
					Bigger pieces have a bigger surface area
Half-Term				6 weeks (9 lessons) (29	Davs)
25-Feb	В	22	INSET 24th Feb		Foundational concepts:
3-Mar	A	23			Earths resources
10-Mar	B	23	Overview of Unit/	No. lessons	
17-Mar	Δ	25	Treatment of	f water (3 lessons)	 Understand what a pure substance and formulation
24-Mar	B	26	Lesson Sequence	e of Content:	 Understand how to obtain potable water and how it is
31-Mar		20	1. Purity & formu	ations (1 lesson)	treated
51 1101			2. Potable water (1 lesson)	Understand how to treat waste water
			3. Waste water (1	lesson)	
			6 -9. Revision	actical – Water (5 lessons)	Tier 2/3 Vocabulary
	А	ST1			PowerPoints.
Prio	or		Current	Next	
Year 7 – A	Acids &	E	Explain how to		KW: pure, formulation, potable, sludge, effluent,
Alka	lis	det	ermine the mass		scamentation, scenisation, intration, sewage
		of	solute in water		Links to root words (etymology):
					Latin potabilis "drinkable"
 GW: state the difference between potable and pure water BI: describe how potable & waste water are treated EW: explain the stages in treatment of potable and waste water Recall of knowledge, application of knowledge, interpret data, analyse results, 					 Careers: waste water engineer, water distribution engineer, ecologist, ocean environmental scientist, design engineer, electrical engineer, project manager History: Historical introduction. The concept of chemical equilibrium was developed after Berthollet (1803)
rearrange equ	lations, c	complete	multi-step calculation	ons	 Fritz Haber filed a German patent in 1908 for the synthesis of ammonia for which he won a Nobel Prize
Quick qui	iz				in Chemistry in 1918.
Exam styl	le questi	ons			• Early evidence of distillation was also found related to
Q&A	ina				alchemists working in Alexandria in Roman Egypt in the 1st century. Distilled water has been in use since
 Interleave Practical 	skills				at least c. 200, when Alexander of Aphrodisias
Interpret	ation & o	evaluatio	n skills		described the process.
Data ana	lysis skill	S			
					EDI:
					 Sciencists from different nationalities Understanding of water treatment in different parts
					of the world
					Understanding of sanitation and waste water in
					 different parts of the world Discussion of water shortages and lack of safe drinking
					water in certain parts of the world
					Misconceptions:
					Waste water is used for drinking water
					Potable water comes from sea water in the UK
					Potable water is pure
Easter Holiday				5 weeks (7-8 lessons) (23	Days)
22-Apr	В	ST1	Easter Monday 21	st	Foundational concepts:

Now that the revised curriculum has been taught, please consider the Implementation and Impact of the curriculum you taught. What changes might need to be made to the Curriculum Intent (See Curriculum Map and Overviews) in light of this year's experiences?

28-Apr			Early May bank h	ol 6/5	Quantitative Chemistry
- F	Α	ST1		<i>I</i>	
5-May		30	Overview of Unit	<u>No. lessons</u>	Understand how to calculate Relative formula mass
,	В		Quantitative	Chemistry (6 lessons)	• Understand how to calculate the number of moles in
12-May	Α	31			a given mass
19-May			1 – 3. Exam Fee 4. QC – Relative	dback (3 lessons) formula mass (1 lesson)	Understand how to calculate the mass of solid in a solution
			5. QC – Moles (2	L lesson)	 Tier 2/3 Vocabulary Glossaries, quick quizzes, within exam questions, PowerPoints.
			6 & 7. QC – Con	centration of solutions (2	
	В	32	lessons)		
Prior			Current Next		KW: moles, concentration, volume, mass
			Year 11 – yield, atom		
Year 8 – Chemical		Un	Understand how to economy titration		Links to root words (etymology):

Links to root words (etymology):

atomos "uncut, indivisible,"

Chemist, Materials Scientist, Pharmacologist

been in use at least a century earlier.

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History:

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EDI:

Atom - Latin atomus "indivisible particle," from Greek

Careers: Analytical Chemist, Chemical Engineer, Chemistry Teacher, Forensic Scientist, Geochemist, Hazardous Waste

The name mole is an 1897 translation of the German

unit Mol, coined by the chemist Wilhelm Ostwald in 1894 from the German word Molekül (molecule).

However, the related concept of equivalent mass had

In 1865 Loschmidt used kinetic molecular theory to

estimate the number of particles in one cubic

Hypatia - (370 - 415) first woman to have taught maths

centimeter of gas at standard conditions.

Scientists from different nationalities

		Year 11 – yield, atom	
Year 8 – Chemical	Understand how to	economy, titration	
reactions	carry out a range of	calculations	
	chemical calculations		
Year 9 – reactions of		Year 12 – moles &	
metals and balancing		quantities	
equations			

- GW: Calculate relative formula mass
- BI: Rearrange an equation to change the subject of the calculation
- EW: Complete multi-step calculations

Recall of knowledge, application of knowledge, interpret data, analyse results, carry out practical procedures, write practical methods, recall equations, rearrange equations, complete multi-step calculations

Assessment:

- Quick quiz
- Exam style questions .
- Q&A .
- Interleaving .
- Practical skills .
- Interpretation & evaluation skills
- Data analysis skills
- Quantitative skills

Half-Term) (34	l Days)		
2-Jun	Α	33	SJBF INSET 4/7		Fou	Foundational Concepts:	
9-Jun	В	34		1	Qua	antitative chemistry & chemical reactions	
16-Jun	Α	35	Overview of Unit/No Ouantitative Cha	<u>- Iessons</u> emistry (6 - 10 lessons)		Understand how to calculate the masses of reactants	
23-Jun	В	36	Energy changes	(2 lessons)	& products from balanced symbol equations	& products from balanced symbol equations	
30-Jun	А	37	Lesson Sequence of Content: 1 & 2. QC – Reacting masses (2 lessons)			Understand how to draw and interpret reaction	
7-Jul	В	38				profiles	
14-Jul	А	39	 3. QC - Moles to balance equations & limiting reactants (1 lesson) 4. QC - Yield (1 lesson) 5. QC - Atom economy (1 lesson) 6. QC - Volumes of gases (1 lesson) 7. QC - Titration & titration calculations (2-3 lessons) 8. Reaction profiles (1 lesson) 9 & 10. Bond energies (2 lessons) 		 Understand how to calculate atom economy Understand how to calculate yield Understand how to calculate volume of gases Understand how to carry out a titration Understand how to complete titration calculations Understand how to draw a reaction profile Understand how to explain a reaction in terms of bond making and breaking 	Understand how to calculate bond energies Understand how to calculate atom economy Understand how to calculate yield Understand how to calculate volume of gases Understand how to carry out a titration Understand how to complete titration calculations Understand how to draw a reaction profile Understand how to explain a reaction in terms of bond making and breaking	
Prior			Current Next		Understand how to calculate bond energies		

Veer 7 Aside 8 Alkelie		Veer 11 wield stem			
Year 7 – Acids & Alkalis	adarctand have to	Year 11 – yield, atom			
Voar 8 – Chomical	rry out a range of	economy, titration	Tier 2/3 Vocabulary		
reactions cha	mical calculations	Calculations	Glossaries, quick quizzes, within exam questions,		
		Vear 12 - moles &	PowerPoints.		
Vear 9 – reactions of	derstand how to				
metals and balancing	draw a reaction	quantities	KW: moles, concentration, volume, mass, titration,		
equations	nrofile	Vear 12 – enthalov	economy, exothermic, endothermic, bond		
equations	profile	changes & bond			
Year 9 & 10 exothermic &		energies	Links to root words (etymology):		
endothermic reactions		chergies	Atom - Latin atomus "indivisible narticle " from Greek		
			atomos "uncut indivisible "		
	I				
GW: Calculate relative formula	a mass & Draw a rea	ction profile	Careers: Analytical Chemist, Chemical Engineer, Chemistry		
Bl: Boarrange an equation to a	change the subject of	f the calculation and draw	Teacher Forensis Scientist, Coochemist, Hazardous Waste		
• BI. Realitange all equation to (change the subject of		reacher, Forensic Scientist, Geochemist, Hazardous Waste		
and label a reaction profile			Chemist, Materials Scientist, Pharmacologist		
• EW : Complete multi-step calc	ulations and explain	a reaction profile in terms			
of bond making and breaking			History:		
Recall of knowledge, application of carry out practical procedures, write	knowledge, interprete practical methods,	et data, analyse results, , recall equations,	 The name mole is an 1897 translation of the German unit Mol, coined by the chemist Wilhelm Ostwald in 1894 from the German word Molekül (molecule). However, the related concept of equivalent mass had 		
rearrange equations, complete mu	iti-step calculations		been in use at least a century earlier.		
Assessment:			In 1865 Loschmidt used kinetic molecular theory to		
Quick quiz			estimate the number of particles in one cubic		
 Exam style questions 			centimeter of gas at standard conditions		
• Q&A					
Interleaving			EDI:		
Quantitative skills			Scientists from different nationalities		
			 Sofia Kovalenskava (1850 – 1891) first woman to 		
			receive a doctorate in mathematics		
			Misconceptions:		
			Energy is released when bonds are broken		
		(Total: 189 Days)			

Prompt Questions

Now that the revised curriculum has been taught, please consider the Implementation and Impact of the curriculum you taught. What changes might need to be made to the Curriculum Intent (See Curriculum Map and Overviews) in light of this year's experiences?

Please revisit the prompts from last year:

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- What are the Key concepts for this unit?
- How will it link to wider disciplinary knowledge/cultural capital: history, culture, authentic artefacts, music, art, literature?
- How does it build on prior knowledge and link to other units, concepts, years, GCSE?
- What is it intended students will have learned?
 - For each Unit? By the end of the Year?
 - GW: ; BI: ; EW
- Is it worth summarising in a knowledge organiser?
- Assessment: how do you know they have learned the foundational concepts, curriculum and wider disciplinary knowledge? Does assessment look like GCSE light? Should it?
- Skills used/learned
- Tier 2/3 vocabulary ((Etymology e.g. of Greek/Latin)