## Long Term Plan: Chemistry Year 9



Half term	Unit title	Key knowledge/ Content to learn and retain	Essential skills to acquire (subject & generic)	Link to subject ethos and driver (rename)	Anticipated misconcepti ons	Links to previous KS	Links to future KS	Opportunity for stretch for high prior attainers	SMSC & British Values	Cultural Capital	Career Link
One	Atomic Structure and Periodic Table	The structure of the atom, including the mass and charge of subatomic particles. The history of the atom, including key moments in the development of the nuclear model Isotopes and atomic structure The arrangement	Using data to make predictions. The use of timelines Extended writing Reading for comprehensio n		Students often underestimate just how small atoms are, and how much of them is empty space. Students often mix up the names of the scientists responsible for each discovery.	In year 7 students studied the general arrangement of the periodic table and the dalton model of the atom	This unit directly feeds in the first Unit of GCSE Chemistry.	Considering why the results of the Gold Foil Experiment lead to the development of the nuclear model of the atom.	The contribution of British scientists to scientific understanding.	The historical importance of the various figures that have contributed to the development of the periodic table and the understanding of the atom.	As the central science, Chemistry opens doors to a wide number of STEM field careers.

		of the periodic table Trends in reactivity of groups one, seven and zero.								
Тwo	Atomic Structure and Periodic Table	The structure of the atom, including the mass and charge of subatomic particles. The history of the atom, including key moments in the development of the nuclear model Isotopes and atomic structure The arrangement of the periodic table, trends in reactivity of groups one, seven and zero.	Using data to make predictions. The use of timelines Extended writing Reading for comprehensio n	Students often underestimate just how small atoms are, and how much of them is empty space. Students often mix up the names of the scientists responsible for each discovery.	In year 7 students studied the general arrangement of the periodic table and the dalton model of the atom	This unit directly feeds in the first Unit of GCSE Chemistry.	Considering why the results of the Gold Foil Experiment lead to the development of the nuclear model of the atom.	The contribution of British scientists to scientific understanding.	The historical importance of the various figures that have contributed to the development of the periodic table and the understanding of the atom.	As the central science, Chemistry opens doors to a wide number of STEM field careers.

Three	Bonding	lonic bonds as	Using data to	Grapl	hite as a	Students will	This unit feeds	Considering	Working	The use of	As the central
		the transfer of	make	specia	al case, in	have	directly into	why graphite	safely in the	new	science,
		electrons and	predictions.	terms	s of its	previously	Unit 2 of	is able to	lab, and	nanotechnolo	Chemistry
		covalent		condu	uctivity.	looked at the	GCSE	conduct	respecting	gy, and its	opens doors
		bonds as the	Interpreting			common	Chemistry	electricity in	each other's	application in	to a wide
		sharing of	data presented	Stude	ents often	properties of		terms of its	workspace	a number of	range of
		electrons	in tabular and	confu	use	a number of		bonding.		fields.	STEM field
			graphical form	sharir	ng and	materials,					careers.
		Drawing dot		transf	ferring	though this		Calculating			
		and cross	Extended	electr	rons and	will be the		the size of			
		diagrams for	writing	this w	will need	first time that		nanoparticles.			
		ionic and		to be	9	students have					
		covalent	(HT Only)	practi	iced	explored					
		bonds	Working with	exten	nsively.	explanations					
			standard form			for those					
		The structure		The u	use of the	properties					
		and		terms	s						
		properties of		"Inter	rmolecul						
		ionic, simple		ar Fo	orces"						
		covalent, giant		and							
		covalent and		"Elect	trostatic						
		metallic		Force	es"						
		bonding.									
				The t	true size						
		Polymers and		of							
		fullerenes		nanop	particles						
		The size and									
		use of									
		nanoparticles									
Four	Bonding	lonic bonds as	Using data to	Grap	hite as a	Students will	This unit feeds	Considering	Working	The use of	As the central
		the transfer of	make			have	directly into	why graphite	safely in the	new	science,
		electrons and	predictions.			previously	Unit 2 of	is able to	lab, and	nanotechnolo	Chemistry
		covalent	[ <sup>*</sup> ]	condu	uctivity.	looked at the	GCSE	conduct	respecting	gy, and its	opens doors
		bonds as the	Interpreting		-	common	Chemistry	electricity in	each other's	application in	to a wide
		sharing of	data presented	Stude	ents often	properties of		terms of its	workspace	a number of	range of
		electrons	in tabular and	confu	use	a number of		bonding.		fields.	STEM field
			graphical form	sharir	ng and	materials,					careers.

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		Drawing dot			transferring	though this		Calculating			
		and cross	Extended		electrons and	will be the		the size of			
		diagrams for	writing		this will need	first time that		nanoparticles.			
		ionic and			to be	students have					
		covalent	(HT Only)		practiced	explored					
		bonds	Working with		extensively.	explanations					
			standard form			for those					
		The structure			The use of the	properties					
		and			terms						
		properties of			"Intermolecul						
		ionic, simple			ar Forces"						
		covalent, giant			and						
		covalent and			"Electrostatic						
		metallic			Forces"						
		bonding.									
					The true size						
		Polymers and			of						
		fullerenes			nanoparticles						
		The size and									
		use of									
		nanoparticles									
Five	Chemical	The reactivity	Writing ionic		Some	This unit	Builds directly	Writing half	Working	The social,	As the central
	Changes	series and	equations to		students may	follows	into Unit 4 of	equations for	safely in the	economic and	science,
		application of	show		refer to	directly on	Paper One at	redox	lab, and	environmental	Chemistry
		this to	oxidation and		neutralization	form the first	GCSE	reactions and	respecting	impact of the	opens doors
		displacement	reduction		as redox	two units of		electrolysis.	each other's	various	to a wide
		reactions.			reactions -	year 8,			workspace	methods of	range of
			Writing		but these are	extending				extracting	STEM field
		Reduction and	balanced		one of the few	students				metals.	careers.
		oxidation, in	chemical		reactions in	knowledge to					
		terms of	equations		this unit that	explore the					
		electrons			is not redox.	concepts of					
			Safely using			redox					
		Reactions of	laboratory		Students often	reactions in					
		metals, acids,	equipment and		confuse the	greater deprh					
		and bases in	glassware		terms	- '					
		terms of			"Cation"						

		oxidation and reduction. Electrolysis of molten and aqueous substances	Accurately recording data Presenting and interpreting data in tabular and graphical form.	"Anion" "Cathode" and "Anode"						
-	Chemical Changes	The reactivity series and application of this to displacement reactions. Reduction and oxidation, in terms of electrons Reactions of metals, acids, and bases in terms of oxidation and reduction. Electrolysis of molten and aqueous substances	Writing ionic equations to show oxidation and reduction Writing balanced chemical equations Safely using laboratory equipment and glassware Accurately recording data Presenting and interpreting data in tabular and graphical form.	Some students may refer to neutralization as redox reactions - but these are one of the few reactions in this unit that is not redox. Students often confuse the terms "Cation" "Anion" "Cathode" and "Anode"	This unit follows directly on form the first two units of year 8, extending students knowledge to explore the concepts of redox reactions in greater deprh	Builds directly into Unit 4 of Paper One at GCSE	Writing half equations for redox reactions and electrolysis.	Working safely in the lab, and respecting each other's workspace	The social, economic and environmental impact of the various methods of extracting metals.	As the central science, Chemistry opens doors to a wide range of STEM field careers.