

Subject: Chemistry and Trilogy

Stage: KS4

NB:

-Bold indicates separate science Chemistry content only

-Topics vary in length and may be delivered over multiple half terms, please see curriculum maps.

-'Bonding' has been delivered to year 10 last year

- Future year groups will begin Energy in year 10

KS4:	Unit 1-	Unit 2 -	Unit 3 –	Unit 4 –	Unit 5 –	Unit 6 –	Unit 7 -	Unit 8 -	Unit 9 -	Unit 10 -
Yr 10 &	Atomic	Bonding,	Quantitativ	Chemical	Energy	The rate	Organic	Chemical	Chemistr	Using
11	structure and the periodic table	structure, and the properties of matter	e chemistry	changes	changes	and extent of chemical change	chemistry	analysis	y of the atmosphe re	resources
	Year 9 half term 5									
Yr 10			Yr 10 unit 1	<i>Yr 10 unit 2</i>	Yr 10 unit 3	<i>Yr 10 unit</i> 4	Yr 10 Unit 5			
Yr 11						Yr 11 Unit 1	Yr 11 unit 2	Yr 11 unit 3	<i>Yr 11 unit</i> 4	<i>Yr 11 unit</i> 5

Aim of	The aim of	The aim of	The aim of	The aim of	The aim of	The aim of	The aim of	The aim of	The aim of	The aim of
Unit	this topic	this topic	this topic is	this topic is	this topic is	this topic	this topic is to	this topic is	this topic	this topic
	is to build	is to build	to build on	to build on	to build on	is to build	build on the	to build on	is to build	is to build
	on the	on the	the	the	the	on the	types of	the reactions	on the	on the
	Matter	Reactions	mathematical	chemical	quantitative	chemical	reactions topic	topic from	Earth	Earth
	topic from	topic from	aspects from	changes	topic from	changes	from KS3 and	KS3 and	topic from	topic from
	KS3 and	KS3 and	the reactions	topic from	KS4 and	topic from	further	further	KS3 and	KS3 and
	further	further	topic from	KS3 and	further	KS4 and	develop the	develop the	further	further
	develop	develop	KS3 and	further	develop the	further	knowledge	knowledge	develop	develop
	the	the	further	develop the	knowledge	develop	and	and	the	the
	knowledge	knowledge	develop the	knowledge	and	the	understanding	understandin	knowledge	knowledge
	and	and	knowledge	and	understandin	knowledge	around	g around	and	and
	understand	understand	and	understandi	g around	and	chemical	how	understand	understand
	ing around	ing around	understandin	ng around	different	understand	structure,	chemical	ing around	ing around
	the	elements	g around	reactions	types of	ing around	application	reactions can	climate	climate
	periodic	and	types of	and the	chemical	how	and reactions.	be used to	and the	and
	table and	molecules	reactions and	role they	reactions	reactions	It will also	infer	earth's	earth's
	the role it	and the	the role they	play in our	present in	can be	prepare pupils	information	history. It	current
	plays in	role it	plays in our	lives. It	our lives. It	utilised in	for the	about certain	will also	resources
	our lives.	plays in	lives. It will	will also	will also	industry	required	substances,	prepare	and the
	It will also	our lives.	also prepare	prepare	prepare	for profit	disciplinary	which has	pupils for	role it
	prepare	It will also	pupils for the	pupils for	pupils for	and	knowledge	applications	the	plays in
	pupils for	prepare	required	the	the required	efficiency.	through the	in a wide	required	our lives
	the	pupils for	disciplinary	required	disciplinary	It will also	required	array of	disciplinar	and in our
	required	the	knowledge	disciplinar	knowledge	prepare	practical	fields. It will	У	future. It
	disciplinar	required	through the	У	through the	pupils for	activities.	also prepare	knowledge	will also
	У	disciplinar	required	knowledge	required	the		pupils for	through	prepare
	knowledge	У	practical	through the	practical	required		the required	the	pupils for
	through	knowledge	activities.	required	activities.	disciplinar		disciplinary	required	the
	the	through		practical		у		knowledge	practical	required
	required	the		activities.		knowledge		through the	activities.	disciplinar
	practical	required				through		required		У
	activities.	practical				the		practical		knowledge
		activities.				required		activities.		through
										the

Composit e Knowled ge (a task that requires several building blocks or compone nts)	Pupils will extend their understand ing of key points and applicatio ns o relating to atomic structure.	Pupils will extend their understand ing of key points and application s relating to chemical bonding.	Pupils will extend their understandin g of key points and applications relating to quantitative chemistry.	Pupils will extend their understandi ng of key points and application s relating to chemical changes.	Pupils will extend their understandin g of key points and applications relating to energy changes in reactions.	practical activities. Pupils will extend their understand ing of key points and applicatio ns relating to reaction rates.	Pupils will extend their understanding of key points and applications relating to carbon-based chemistry.	Pupils will extend their understandin g of key points and applications relating to the analysis of chemical reactions.	Pupils will extend their understand ing of key points and applicatio ns relating to the chemistry of the earth's early and present atmospher e.	required practical activities. Pupils will extend their understand ing of key points and applicatio ns relating to the use of natural resources.
Compon ent	4.1.1.1 Atoms,	4.2.2.1 The three	4.3.1.1 Conservation	4.4.1.1 Metal	4.5.1.1 Energy	4.6.1.1 Calculatin	4.7.1.1 Crude oil,	4.8.1.1 Pure substances	4.9.1.1 The	4.10.1.1 Using the
ent Knowled	elements	states of	of mass and	oxides	transfer	g rates of	hydrocarbons	4.8.1.2	proportion	Earth's
ge	and	matter	balanced	4.4.1.2 The	during	reactions	and alkanes	Formulation	s of	resources
8-	compound	4.2.2.2	chemical	reactivity	exothermic	4.6.1.2	4.7.1.2	S	different	and
(the	S	State	equations	series	and	Factors	Fractional	4.8.1.3	gases in	sustainabl
building	4.1.1.2	symbols	4.3.1.2	4.4.1.3	endothermic	which	distillation	Chromatogra	the	e
blocks	Mixtures	4.2.2.3	Relative	Extraction	reactions	affect the	and	phy	atmospher	developm
that	4.1.1.3	Properties	formula	of metals	4.5.1.1	rate of	petrochemical	4.8.1.3	e	ent
together,	Developm	of ionic	mass	and	Required	chemical	s	Required	4.9.1.2	4.10.1.2
when	ent of the	compound	4.3.1.3 Mass	reduction	practical 4:	reactions	4.7.1.3	practical 6:	The	Potable
known,	model of	S	changes	4.4.1.4	Temperature	4.6.1.2	Properties of	Chromatogra	Earth's	water
allow	the atom	4.2.2.4	when a	Oxidation	changes	Required	hydrocarbons	phy	early	4.10.1.2
successfu	(common	Properties	reactant or	and	4.5.1.2	practical	4.7.1.4	4.8.2.1 Test	atmospher	Required
1	content	of small	product is a	reduction	Reaction	5: Rates of	Cracking and	for hydrogen	e	practical
performa	physics)	molecules	gas	in terms of	profiles	reaction	alkenes			8: Water

nce of a	4.1.1.4	4.2.2.5	4.3.1.4	electrons	4.5.1.3 The	4.6.1.3	4.7.2.1	4.8.2.2 Test	4.9.1.3	purificati
complex	Relative	Polymers	Chemical	(HT only)	energy	Collision	Structure	for oxygen	How	on
task)	electrical	4.2.2.6	measurement	4.4.2.1	change	theory and	and formulae	4.8.2.3 Test	oxygen	4.10.1.3
ŕ	charges of	Giant	S	Reactions	reactions	activation	of alkenes	for carbon	increased	Waste
	subatomic	covalent	4.3.2.1	of acids	(HT only)	energy	4.7.2.2	dioxide	4.9.1.4	water
	particles	structures	Moles (HT	with metals	4.5.2.1 Cells	4.6.1.4	Reactions of	4.8.2.4 Test	How	treatment
	4.1.1.5	4.2.2.7	only)	4.4.2.2	and	Catalysts	alkenes	for chlorine	carbon	4.10.1.4
	Size and	Properties	4.3.2.2	Neutralisati	batteries	4.6.2.1	4.7.2.3	4.8.3.1	dioxide	Alternativ
	mass of	of metals	Amounts of	on of acids	4.5.2.2 Fuel	Reversible	Alcohols	Flame tests	decreased	e methods
	atoms	and alloys	substances in	and salt	cells	reactions	4.7.2.4	4.8.3.2	4.9.2.1	of
	4.1.1.6	4.2.2.8	equations	production		4.6.2.2	Carboxylic	Metal	Greenhous	extracting
	Relative	Metals as	(HT only)	4.4.2.3		Energy	acids	hydroxides	e gases	metals
	atomic	conductors	4.3.2.3	Soluble		changes	4.7.3.1	4.8.3.3	4.9.2.2	(HT only)
	mass	4.2.3.1	Using moles	salts		and	Addition	Carbonates	Human	4.10.2.1
	4.1.1.7	Diamond	to balance	4.4.2.3		reversible	polymerisatio	4.8.3.4	activities	Life cycle
	Electronic	4.2.3.2	equations	Required		reactions	n	Halides	which	assessmen
	structure	Graphite	(HT only)	practical 1:		4.6.2.3	4.7.3.2	4.8.3.5	contribute	t
	4.1.2.1	4.2.3.3	4.3.2.4	Making		Equilibriu	Condensation	Sulphates	to an	4.10.2.2
	The	Graphene	Limiting	salts		m	polymerisatio	4.8.3.5	increase in	Ways of
	periodic	and	reactants	4.4.2.4 The		4.6.2.4	n (HT only)	Required	greenhous	reducing
	table	fullerenes	(HT only)	pH scale		The effect	4.7.3.3 Amino	practical 7:	e gases	the use of
	4.1.2.2	4.2.4.1	4.3.2.5	and		of	acids (HT	Identifying	4.9.2.3	resources
	Developm	Sizes of	Concentratio	neutralisati		changing	only)	ions	Global	4.10.3.1
	ent of the	particles	n of	on		conditions	4.7.3.4 DNA	4.8.3.6	climate	Corrosion
	periodic	and their	solutions	4.4.2.5		on	(deoxyribonu	Instrument	change	and its
	table	properties	(HT only)	Titrations		equilibriu	cleic acid)	al methods	4.9.2.4	preventio
	4.1.2.3	4.2.4.2	4.3.3.1	(chemistry		m (HT	and other	4.8.3.7	The	n
	Metals	Uses of	Percentage	only)		only)	naturally	Flame	carbon	4.10.3.2
	and non-	nanoparti	yield	4.4.2.5		4.6.2.5	occurring	emissions	footprint	Alloys as
	metals	cles	4.3.3.2	Required		The effect	polymers	spectroscop	and its	useful
	4.1.2.4		Atom	practical 2:		of		У	reduction	materials
	Group 0		economy	Neutralisati		changing			4.9.3.1	4.10.3.3
	4.1.2.5		4.3.4Using	on		concentrat			Atmosphe	Ceramics,
	Group 1		Concentrati	4.4.2.6		ion (HT			ric	polymers
			ons to	Strong and		only)				and

	4.1.2.6		solutions in	weak acids		4.6.2.6			pollutants	composite
	Group 7		mol/dm3	(HT only)		The effect			from fuels	s
	4.1.3.1		4.3.5 Use of	4.4.3.1 The		of			4.9.3.2	4.10.4.1
	Compariso		amount of	process of		temperatur			Properties	The
	n with		substance in	electrolysis		e on			and the	Haber
	Group 1		relation to	4.4.3.2		equilibriu			effects of	process
	elements		gasses	Electrolysi		m (HT			atmospher	4.10.4.2
	4.1.3.2		4.3.3.1	s of molten		only)			ic	Productio
	Typical		Percentage	ionic		4.6.2.7			pollutants	n and
	properties		yield	compounds		The effect			-	uses of
			·	4.4.3.3		of				NPK
				Using		pressure				fertilizers
				electrolysis		changes				
				to extract		on				
				metals		equilibriu				
				4.4.3.4		m (HT				
				Electrolysi		only)				
				s of						
				aqueous						
				solutions						
				4.4.3.4						
				Required						
				practical 3:						
				Electrolysi						
				s						
				4.4.3.5						
				Representa						
				tion of						
				reactions at						
				electrodes						
				as half						
				equations						
				(HT only)						
Rational	This unit	This unit	This unit	This unit	This unit	This unit	This unit	This unit	This unit	This unit
e (why?):	prepares	prepares	prepares	prepares	prepares	prepares	prepares	prepares	prepares	offers

Links to	pupils for	pupils for	pupils for	pupils for	pupils for	pupils for	pupils for	pupils for	pupils for	opportunit
prior & future	continuing chemistry	continuing chemistry	continuing chemistry at	continuing chemistry	continuing chemistry at	continuing chemistry	continuing chemistry at	continuing chemistry at	continuing chemistry	ies to explore
learning	at KS5 in	at KS5 in	KS5 in A	at KS5 in	KS5 in A	at KS5 in	KS5 in A	KS5 in A	at KS5 in	Stem
icaimig	A level	A level	level units	A level	level units	A level	level units	level units	A level	careers
	units such	units such	such as	units such	such as	units such	such as	such as	units such	such as in
	as atomic	as	thermodyna	as	thermodyna	as rate	inorganic and	chemical	as	resource
	structure.	bonding. It	mics.	equilibria.	mics and	equations.	advanced	testing. It	chemical	allocation
	It offers	offers	mics.	It offers	energetics. It	It offers	organic	offers	compositi	involving
	opportunit	opportuniti		opportuniti	offers	opportunit	chemistry. It	opportunitie	of the	renewable
	ies to	es to		es to	opportunitie	ies to	offers	s to explore	earth. It	resources,
	explore	explore		explore	s to explore	explore	opportunities	Stem careers	offers	as in unit
	Stem	other areas		Stem	Stem careers	Stem	to explore	such as	opportunit	9, with
	careers	of physical		careers	with a large	careers	Stem careers	forensics.	ies to	further
	such as in	chemistry		such as in	cross over	such as in	such as in	1010101000	explore	applicatio
	research	such as		research	with	research	research and		Stem	ns to
	and	material		and in	physics.	and	manufacture.		careers	climate
	nuclear	science.		organic	1 5	chemical			such as in	science.
	sectors.			chemistry.		production			renewable	
				2					and non-	
									renewable	
									energy	
									resources.	
Assessm	Atomic	Bonding	Quantitative	Chemical	Energy	Rates	Organic topic	Chemical	Chemistry	Using
ent Task	topic	topic	chemistry	changes	changes	topic	assessment	analysis	of the	resources
	assessmen	assessment	topic	topic	topic	assessmen	(Foundation	topic	atmospher	topic
	t	(Foundatio	assessment	assessment	assessment.	t	or Higher).	assessment	e topic	assessmen
	(Foundatio	n or	(Foundation	(Foundatio	(Foundation	(Foundatio	H/W quiz on	(Foundation	assessmen	t
	n or	Higher).	or Higher).	n or	or Higher).	n or	SMH every	or Higher).	t	(Foundatio
	Higher).	H/W quiz	H/W quiz on	Higher).	H/W quiz on	Higher).	week to retain	H/W quiz on	(Foundatio	n or
	H/W quiz	on SMH	SMH every	H/W quiz	SMH every	H/W quiz	knowledge	SMH every	n or	Higher).
	on SMH	every	week to	on SMH	week to	on SMH	(Interrupt the	week to	Higher).	H/W quiz
	every	week to	retain	every week	retain	every	forgetting	retain	H/W quiz	on SMH
	week to	retain	knowledge	to retain	knowledge	week to	curve).	knowledge	on SMH	every
	retain	knowledge	(Interrupt the	knowledge	(Interrupt	retain	Formative	(Interrupt	every	week to

	knowledge (Interrupt the forgetting curve). Formative assessmen t through recall questionin g and formative assessmen t tasks.	(Interrupt the forgetting curve). Formative assessment through recall questionin g and formative assessment tasks.	forgetting curve). Formative assessment through recall questioning and formative assessment tasks.	(Interrupt the forgetting curve). Formative assessment through recall questioning and formative assessment tasks.	the forgetting curve). Formative assessment through recall questioning and formative assessment tasks.	knowledge (Interrupt the forgetting curve). Formative assessmen t through recall questionin g and formative assessmen t tasks.	assessment through recall questioning and formative assessment tasks.	the forgetting curve). Formative assessment through recall questioning and formative assessment tasks.	week to retain knowledge (Interrupt the forgetting curve). Formative assessmen t through recall questionin g and formative assessmen t tasks.	retain knowledge (Interrupt the forgetting curve). Formative assessmen t through recall questionin g and formative assessmen t tasks.
Enrichm ent	Practical lessons applied to everyday scenarios. Utilising GCSE POD or other online providers to facilitate enrichme nt.	Practical lessons applied to everyday scenarios. Utilising GCSE POD or other online providers to facilitate enrichme nt.	Practical lessons applied to everyday scenarios. Utilising GCSE POD or other online providers to facilitate enrichment.	Practical lessons applied to everyday scenarios. Utilising GCSE POD or other online providers to facilitate enrichmen t.	Practical lessons applied to everyday scenarios. Utilising GCSE POD or other online providers to facilitate enrichment.	Practical lessons applied to everyday scenarios. Utilising GCSE POD or other online providers to facilitate enrichme nt.	Practical lessons applied to everyday scenarios. Utilising GCSE POD or other online providers to facilitate enrichment.	Practical lessons applied to everyday scenarios. Utilising GCSE POD or other online providers to facilitate enrichment.	Practical lessons applied to everyday scenarios. Utilising GCSE POD or other online providers to facilitate enrichme nt.	Practical lessons applied to everyday scenarios. Utilising GCSE POD or other online providers to facilitate enrichme nt.