

## Chemistry Year 8 Curriculum Overview

	Autumn		Spring		Summer
	Learning Cycle 1	Learning Cycle 1	Learning Cycle 2	Learning Cycle 2	Learning Cycle 3
<b>Topic</b>	Elements	Periodic Table	Reactions	Chemical Energy	Climate and Earth's resources
<b>Critical Prior Knowledge</b>	Atomic Structure Y7: Particle model.	Atomic Structure Y7: Particle model. Y8 Elements	Y7: acids and alkalis, particle model Y8: metals and non-metals	Y8: metals and non-metals	Environmental chemistry
<b>Overall Intent (Big ideas and key concepts)</b>	The simple (Dalton) atomic model. Differences between atoms, elements and Chemical symbols and formulae for elements and compounds. The varying physical and chemical properties compounds. of different elements.	The Periodic Table: periods and groups; metals and non-metals. The principles underpinning the Mendeleev Periodic Table. How patterns in reactions can be predicted with reference to the Periodic Table. The properties of metals and non-metals. The varying physical and chemical properties of different elements.	Combustion, thermal decomposition, oxidation and displacement reactions. The properties of metals and non -metals. The chemical properties of metal and non -metal oxides with respect to acidity. The properties of metals and non -metals. Conservation of mass changes of state and chemical reactions. Reactions of acids with metals to produce a salt plus hydrogen	Energy changes occur when reactions take place. Bonds are broken and made. Energy is either taken in or released.	The carbon cycle. Composition of the atmosphere. The production of carbon dioxide by human activity and the impact on climate.
<b>Essential Knowledge milestones</b>	Students should know the difference between and atom, element and compound.	They should be aware of the patterns within the periodic table with particular focus on the reactivity and	Students can identify evidence that a chemical reaction has taken place. Students know the products of	Students can describe exothermic and endo thermic changes and use experimental observations to	Students can describe the carbon cycle, greenhouse effect, effects of climate change and how acid rain is formed. Students analyse

(What students must master)		properties of elements within groups 1, 7 and 0. Students have the ability to name and interpret formulae of simple compounds.	complete and incomplete combustion and the conditions leading to incomplete combustion. That mass is conserved in chemical reactions. How to represent chemical reactions with word and balanced symbol equations.	distinguish between the two.  Students can identify whether an energy level diagram is endo or exothermic and use the diagrams to explain energy changes in changing state and chemical reactions.  Students can use ideas about bond energies to explain changes in chemical reactions	how their choice of diet and use of transport impacts on climate change. Students can state why some natural resources will run out and why recycling materials is important
Cultural Capital	-Communication of Science ideas and concepts		-Communication of Science ideas and concepts		- Environmental impacts of fossils fuels and problems of renewables
Assessment Points	Regular Afl embedded into lessons.  <u>Knowledge assessments</u>  Elements , Periodic table  Term 1 – Application Assessment		Regular Afl embedded into lessons.  <u>Knowledge assessments</u>  Reactions, Chemical Energy  Term 2 – Application Assessment		Regular Afl embedded into lessons.  <u>Knowledge assessments</u>  Climate, Earth’s resources  Term 3 – Application Assessment
ECC Student Characteristics	Through these units we will encourage students to work hard and be <b>resilient individuals</b> who <b>embrace challenge</b> and through their <b>creativity</b> and endeavours become <b>reflective learners</b> . Mastering the key concepts of each topic before being able to build on these ideas as they are interleaved through other units later in the course.				

<b>Connection to future learning (When is this developed / revisited)?</b>	Periodic table	Bonding	Extraction of Metals	All future chemical reactions	Y9: materials
	Bonding	Carbon Chemistry	Y9: energy and rates	Y10: energy and rates	Y10 using resources
	Carbon Chemistry	Reactivity series of Metals			
		Reactivity of acids			