



2020/21

CURRICULUM MAP

Science KS4 – Chemistry

Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
Year 9	C1 - Atomic structure and the periodic table 1	C1 - Atomic structure and the periodic table 2	C2 - Bonding, structure, and the properties of matter 1	C2 - Bonding, structure, and the properties of matter 2	C3 - Quantitative chemistry 1	C3 - Quantitative chemistry 2	C4 - Chemical changes 1
	<ul style="list-style-type: none"> •Elements, symbols compounds, mixtures •Filtration, evaporation and crystallisation •Distillation and chromatography •The structure of the atom •Atomic model development •Relative atomic mass and isotopes. •Electronic structure 	<ul style="list-style-type: none"> •Development of the periodic table •The modern Periodic Table •Reactions of the alkali metals •Reactions of the halogens •The noble gases •The Transition Elements & Ions 	<ul style="list-style-type: none"> •States of matter •Ions •Ionic bonding •Ionic compounds •Metallic bonding 	<ul style="list-style-type: none"> •Covalent bonding •Simple covalent molecules •Giant covalent structures and allotropes of carbon •Polymers •Nanoparticles •Bonding review 	<ul style="list-style-type: none"> •Formulae and Equations •Conservation of Mass •Relative formula masses •Mass and Moles •Reacting Masses 	<ul style="list-style-type: none"> •Limiting reactants •Concentration •Volume of gases •Percentage yield •Atom economy 	<ul style="list-style-type: none"> •pH scale and neutralisation •Reactions with acids •Required practical 1: Making a salt •Required practical 2: Titration

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
Year 10	C4 - Chemical changes 2	C5 – Energy changes	C6 – The rate and extent of chemical change 1	C6 – The rate and extent of chemical change 2	C7 – Organic chemistry 1	C7 – Organic chemistry 2	C8 – Chemical analysis
	<ul style="list-style-type: none"> •The reactivity series •Extracting metals by reduction •Redox reactions •Electrolysis •Electrolysis of aqueous solutions •Required practical 3: Electrolysis •Extraction of aluminium 	<ul style="list-style-type: none"> •Exothermic and endothermic reactions •Required practical 4: Temperature change in reactions •Bond energies •Chemical cells •Fuel cells 	<ul style="list-style-type: none"> •Chemical Reactions •Rate of reaction and the effect of concentration •Rate of reaction - surface area •Rate of reaction - temperature •Rate of reaction - catalysts •Required practical 5: Measuring rate of reaction 	<ul style="list-style-type: none"> •Reversible reactions •Equilibrium •Le Chatelier's principle - concentration •Le Chatelier's principle - temperature •Le Chatelier's principle - pressure 	<ul style="list-style-type: none"> •Crude oil formation and uses •Fractional distillation •Alkanes •Alkenes and cracking •Reactions of alkenes •Addition polymerisation 	<ul style="list-style-type: none"> •Alcohols •Reactions of alcohols •Carboxylic acids •Interleaved acids •Condensation polymerisation •Amino acids and DNA 	<ul style="list-style-type: none"> •Purity and formulations •Required practical: Testing for gases •Required practical 6: Paper chromatography •Testing for cations •Tests for anions •Required practical 7: Use of chemical tests to identify the ions in unknown single ionic compounds



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Year 11	C9 – Chemistry of the atmosphere	Paper 1 Revision	C10 – Using resources 1	C10 – Using resources 2	Paper 2 Revision	Exam Preparation		
	<ul style="list-style-type: none"> •Evolution of Earth's atmosphere •The greenhouse effect •Climate change and carbon footprint •Air pollution 	Paper 1 Assessment Units C1- C5 October/ November	<ul style="list-style-type: none"> •Sustainable development and data analysis •Potable water •Required practical 8: Determination of dissolved solids in water •Waste water treatment •Metal extraction •Life cycle assessment •Reducing use of resources 	<ul style="list-style-type: none"> •Corrosion and alloys •Ceramics, polymers and composites •The Haber process •Fertilisers 	Paper 2 Assessment Units C6- C10 January / February	<ul style="list-style-type: none"> •Paper 1 C1-C5 (1.45) •Paper 2 C6-C10 (1.45) 		

Supporting at home

Homework is set weekly on Educake to provide on going retrieval practice of key information. If you want to support further, our learning checklists can be found [here](#) and practice Q and A [here](#).

Our curriculum is supported by [work booklets](#) that can be used in cases of absence and you can access the most relevant links to BBC bitesize and Oak Academy videos here.

BBC Bitesize	C1 - Atomic structure and the periodic table	C2 - Bonding, structure, and the properties of matter	C3 - Quantitative chemistry	C4 - Chemical changes	C5 - Energy changes	C6 - The rate and extent of chemical change	C7 - Organic chemistry	C8 - Chemical analysis	C9 - Chemistry of the atmosphere	C10 - Using resources
Oak Academy	C1 - Atomic structure and the periodic table	C2 - Bonding, structure, and the properties of matter	C3 - Quantitative chemistry	C4 - Chemical changes	C5 - Energy changes	C6 - The rate and extent of chemical change	C7 - Organic chemistry	C8 - Chemical analysis	C9 - Chemistry of the atmosphere	C10 - Using resources