

## GCSE CHEMISTRY EXAMINATION BOARD COVERAGE

TOPIC	SUB HEADING	KEYWORDS	AQA COMBINED SCIENCE (TRILOGY)	AQA COMBINED SCIENCE (SYNERGY)	AQA CHEMISTRY	EDEXCEL COMBINED SCIENCE	EDEXCEL CHEMISTRY	OCR GATEWAY COMBINED SCIENCE	OCR GATEWAY CHEMISTRY	OCR 2:1 COMBINED SCIENCE	OCR A 2:1 CHEMISTRY
Atoms, elements and compounds	Atoms, elements and compounds	atoms, elements, compounds, molecules, symbols, formula	5.1.1	4.5.2	4.1.1	Formulae, equations and hazards	Formulae, equations and hazards	Throughout	Throughout	Throughout	Throughout
Atoms, elements and compounds	Chemical concepts	chemical reactions, balanced symbol equations, hazards	5.1.1	4.5.2	4.1.1	Formulae, equations and hazards	Formulae, equations and hazards	C3.1	C3.1	C2.4	C2.4
Atoms, elements and compounds	Atomic structure	atomic structure, atomic number, mass number, electronic structure, energy level, electron shell	5.1.1	4.1.2	4.1.1	Topic 1: Key concepts in chemistry	Topic 1: Key concepts in chemistry	C1.2	C1.2	C2.1	C2.1
Atoms, elements and compounds	Isotopes	isotopes, atom, mass number	5.1.1	4.1.2	4.1.1	Topic 1: Key concepts in chemistry	Topic 1: Key concepts in chemistry	C1.2	C1.2	C2.1	C2.1
Periodic table	Development of the periodic table	Newlands, Mendeleev, Dobereiner	5.1.2	4.5.1	4.1.2	Topic 1: The periodic table	Topic 1: The periodic table	C2.2	C2.2	C2.2	C2.2
Periodic table	Atomic structure and the periodic table	metals, non-metals, groups, periods	5.1.2	4.5.1	4.1.2	Topic 1: Key concepts in chemistry	Topic 1: Key concepts in chemistry	C2.2	C2.2	C2.3	C2.3
Periodic table	Group 1 - alkali metals	properties, trends, density, melting point, reaction with water	5.1.2	4.5.1	4.1.2	Topic 6: Groups in the periodic table	Topic 6: Groups in the periodic table	C4.1	C4.1	C2.2 C2.3	C2.2 C2.3
Periodic table	Group 7 - halogens	properties, trends, displacement reactions	5.1.2	4.5.1	4.1.2	Topic 6: Groups in the periodic table	Topic 6: Groups in the periodic table	C4.1	C4.1	C2.2 C2.3	C2.2 C2.3
Periodic table	Group 0 - Noble gases	properties, boiling point, trends, unreactivity	5.1.2	4.5.1	4.1.2	Topic 6: Groups in the periodic table	Topic 6: Groups in the periodic table	C4.1	C4.1	C2.3	C2.3
Periodic table	Transition elements	properties, transition metals, conductor, ions, catalysts			4.1.3		Topic 5: Separate chemistry 1		C4.1		C2.5
Structure and bonding	Ionic and covalent bonding	ions, ionic, covalent, molecule, giant structure	5.2.1/2	4.6.2	4.2.1/2	Topic 1: Key concepts in chemistry	Topic 1: Key concepts in chemistry	C2.2/3	C2.2/3	C2.3 C3.4 C4.2	C2.3 C3.4 C4.3
Structure and bonding	Metal structure and properties	delocalised electrons, conductor, giant structure	5.2.1/2	4.6.2	4.2.1/2	Topic 1: Key concepts in chemistry	Topic 1: Key concepts in chemistry	C2.2/3	C2.2/3	C3.1 C4.2	C3.1 C4.3

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Structure and bonding	Ionic compounds	ions, ionic, giant structure, lattice	5.2.1/2	4.6.2	4.2.1/2	Topic 1: Key concepts in chemistry	Topic 1: Key concepts in chemistry	C2.2/3	C2.2/3	C2.3 C4.2	C2.3 C4.3
Structure and bonding	Simple covalent molecules	covalent, molecule	5.2.1/2	4.6.2	4.2.1/2	Topic 1: Key concepts in chemistry	Topic 1: Key concepts in chemistry	C2.2/3	C2.2/3	C3.4 C4.2	C3.4 C4.3
Structure and bonding	Giant covalent structures	giant structure, covalent, diamond, graphite, fullerene	5.2.3	4.8.1	4.2.3	Topic 1: Key concepts in chemistry	Topic 1: Key concepts in chemistry	C2.2/3	C2.2/3	C4.2	C4.3
Structure and bonding	Nanotechnology	nanotechnology, nanoparticles, carbon nanotubes			4.2.4		Topic 9: Separate chemistry 2	C2.3	C2.3	C4.3	C4.4
Quantitative chemistry	RAM	relative atomic mass, RAM	5.3.1	4.5.2	4.3.1	Topic 1: Key concepts in chemistry	Topic 1: Key concepts in chemistry	C2.1 C3.1	C2.1 C3.1 C5.1	C5.2	C5.3
Quantitative chemistry	Calculating formulae	empirical formula				Topic 1: Key concepts in chemistry	Topic 1: Key concepts in chemistry				
Quantitative chemistry	Moles	moles, molar mass	5.3.2(HT)	4.5.2(H)	4.3.2 (HT)	Topic 1: Key concepts in chemistry (HT)	Topic 1: Key concepts in chemistry (HT)	C3.1 (HT)	C3.1 (HT)	C5.2 (HT)	C5.3 (HT)
Quantitative chemistry	Gas volumes	molar volume			4.3.5 (HT)		Topic 5: Separate chemistry 1 (HT)		C5.1 (HT)		C5.3 (HT)
Quantitative chemistry	Atom economy	atom economy			4.3.3		Topic 5: Separate chemistry 1		C5.1		C6.4
Quantitative chemistry	Yield in reactions	yield, percentage yield, theoretical yield, actual yield			4.3.3		Topic 5: Separate chemistry 1		C5.1		C5.3
Obtaining and using metals	Extracting metals	reactivity series, reduction, carbon, electrolysis, oxidation	5.4.1 5.10.2	4.8.2	4.4.1 4.10.2	Topic 4: Extracting metals and equilibria	Topic 4: Extracting metals and equilibria	C6.1	C6.1	C3.2	C3.2
Obtaining and using metals	Extracting aluminium	reactivity, electrolysis	5.4.3	4.8.2	4.4.3	Topic 4: Extracting metals and equilibria	Topic 4: Extracting metals and equilibria	C6.1	C6.1	C3.2	C3.2
Obtaining and using metals	Extracting copper	bioleaching, phytomining, displacement	5.10.1 (HT)	4.8.2 (HT)	4.10.1 (HT)	Topic 4: Extracting metals and equilibria (HT)	Topic 4: Extracting metals and equilibria (HT)	C6.1 (HT)	C6.1 (HT)	C3.2 (HT)	C3.2 (HT)
Obtaining and using metals	Properties and uses of metals	conductors, alloys, smart materials, recycling			4.10.3		Topic 5: Separate chemistry 1		C6.1		C4.1
Obtaining and using metals	Reactions of metals	rusting, corrosion, galvanising, sacrificial protection, reactivity series, displacement reactions, thermal decomposition	5.4.1	4.7.5	4.10.3		Topic 5: Separate chemistry 1		C6.1		C4.5
Acids, bases and salts	Acids and bases	acid, alkali, base, hydrogen ion, neutralisation, pH	5.4.2	4.7.3	4.4.2	Topic 3: Chemical changes	Topic 3: Chemical changes	C3.3	C3.3	C6.1	C6.1

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Acids, bases and salts	Making salts	salt, hydroxide, carbonate, oxide, precipitate	5.4.2	4.7.3	4.4.2	Topic 3: Chemical changes	Topic 3: Chemical changes	C3.3	C3.3	C6.1	C6.1
Acids, bases and salts	Weak and strong acids		5.4.2 (HT)	4.7.3 (HT)	4.4.2 (HT) 4.7.2	Topic 3: Chemical changes (HT)	Topic 3: Chemical changes (HT) Topic 9 : Separate chemistry 2	C3.3 (HT)	C3.3 (HT) C6.2	C6.1 (HT)	C6.1 (HT) C3.4
Acids, bases and salts	Titrations	end-point, pH curve, indicator			4.4.2	Topic 3: Chemical changes	Topic 5: Separate chemistry 1		C5.1		C5.4
Electrolysis	Electrolysis	anode, cathode, electrolyte	5.4.3	4.7.5	4.4.3	Topic 3: Chemical changes	Topic 3: Chemical changes	C3.4	C3.4	C3.3	C3.3
Energy in reactions	Exothermic and endothermic reactions	endothermic, exothermic, reversible	5.5.1	4.7.3	4.5.1	Topic 7: Rates of reaction and energy changes	Topic 7: Rates of reaction and energy changes	C3.2	C3.2	C1.2	C1.2
Energy in reactions	Energy diagrams	activation energy, energy level diagram	5.5.1	4.7.4	4.5.1	Topic 7: Rates of reaction and energy changes	Topic 7: Rates of reaction and energy changes	C3.2	C3.2	C1.2	C1.2
Energy in reactions	Bond energy	bond making, bond breaking	5.5.1 (HT)	4.7.4 (HT)	4.5.1 (HT)	Topic 7: Rates of reaction and energy changes (HT)	Topic 7: Rates of reaction and energy changes (HT)	C3.2	C3.2	C1.2	C1.2
Energy in reactions	Fuel cells	hydrogen fuel cell, electrochemical cell, half equations			4.5.2		Topic 5: Separate chemistry 1		C6.2		C1.2
Rates of reaction	How fast?	rate	5.6.1	4.7.4	4.6.1	Topic 7: Rates of reaction and energy changes	Topic 7: Rates of reaction and energy changes	C5.1	C5.2	C6.2	C6.2
Rates of reaction	Collision theory	activation energy, collision, kinetic theory, limiting factor	5.6.1	4.7.4	4.6.1	Topic 7: Rates of reaction and energy changes	Topic 7: Rates of reaction and energy changes	C5.1	C5.2	C6.2	C6.2
Rates of reaction	Catalysts	activation energy	5.6.1	4.7.4	4.6.1	Topic 7: Rates of reaction and energy changes	Topic 7: Rates of reaction and energy changes	C5.1	C5.2	C6.2	C6.2
Dynamic equilibrium	Reversible reactions	Reversible reaction, dynamic equilibrium	5.6.2	4.7.4	4.6.2	Topic 4: Extracting metals and equilibria	Topic 4: Extracting metals and equilibria	C5.2	C5.3	C6.3	C6.3
Dynamic equilibrium	Making ammonia (Haber process)	equilibrium, reversible			4.10.4	Topic 4: Extracting metals and equilibria	Topic 4: Extracting metals and equilibria		C6.1 (HT)		C6.4
Dynamic equilibrium	The contact process	contact process, sulfur, sulfuric acid							C6.1 (HT)		
Organic chemistry	Crude oil	renewable, non-renewable, fossil fuels, hydrocarbons, alkanes	5.7.1	4.8.1	4.7.1	Topic 8: Fuels and earth science	Topic 8: Fuels and earth science	C6.1	C6.2	C3.4	C3.4
Organic chemistry	Fractional distillation of oil	fractions, viscosity, flammability, hydrocarbon	5.7.1	4.8.1	4.7.1	Topic 8: Fuels and earth science	Topic 8: Fuels and earth science	C6.1	C6.2	C3.4	C3.4
Organic chemistry	Burning fuels	combustion, particulates, fuel, methane, catalytic converter	5.7.1 5.9.3	4.8.1 4.4.1	4.7.1 4.9.3	Topic 8: Fuels and earth science	Topic 8: Fuels and earth science Topic 9 : Separate chemistry 2	C6.2	C6.2 C6.3	C1.1	C1.1

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Organic chemistry	Cracking hydrocarbons	alkanes, alkenes, addition reaction, bromine water, double bond, saturated, unsaturated, homologous series	5.7.1	4.8.1	4.7.1 4.7.2	Topic 8: Fuels and earth science	Topic 8: Fuels and earth science Topic 9: Separate chemistry 2	C6.1	C6.2	C3.4	C3.4
Organic chemistry	Polymers	monomer, double bond, bromine water, polymerisation, thermoset, thermo soft, biodegradable	5.2.2	4.8.1	4.2.2 4.7.3	Topic 1: Key concepts in chemistry	Topic 1: Key concepts in chemistry Topic 9: Separate chemistry 2	C2.2 C2.3	C2.2 C2.3 C6.2	C4.1 C4.2	C4.1 C4.2 C4.3
Organic chemistry	Alcohols	fuel, solvent, ethanol, combustion			4.7.2		Topic 9: Separate chemistry 2		C6.2		C3.4
Organic chemistry	Esters	alcohol, perfume, flavouring			4.7.2						
Chemical analysis	Chromatography	chromatography, food additives, R <sub>f</sub> value	5.8.1	4.2.2	4.8.1	Topic 2: States of matter and mixtures	Topic 2: States of matter and mixtures	C2.1	C2.1	C5.1	C5.1
Chemical analysis	Tests for ions	flame test, precipitate			4.8.3		Topic 9: Separate chemistry 2		C4.2		C5.2
Chemistry of the atmosphere	The atmosphere	oxygen, carbon cycle, carbon dioxide, deforestation, air, photosynthesis, fossil fuel	5.9.1	4.4.1	4.9.1	Topic 8: Fuels and earth science	Topic 8: Fuels and earth science	C6.2	C6.3	C1.1 C1.3	C1.1 C1.3
Chemistry of the atmosphere	Effects of human activities	acid rain, global warming, dimming, deforestation, greenhouse gases, fossil fuels	5.9.2 5.9.3	4.4.1	4.9.2 4.9.3	Topic 8: Fuels and earth science	Topic 8: Fuels and earth science	C6.2	C6.3	C1.1	C1.1
Using resources	Fertilisers and water pollution	fertilisers, eutrophication, ammonia, neutralisation, life cycle analysis	5.10.1 5.10.2	4.8.2	4.10.1 4.10.2 4.10.4	Topic 4: Extracting metals and equilibria	Topic 5: Separate chemistry 1	C6.1	C6.1	C4.4	C4.5 C6.4
Using resources	Purifying water	water treatment, distillation	5.10.1	4.4.1	4.10.1	Topic 2: States of matter and mixtures	Topic 2: States of matter and mixtures	C2.1 C6.2	C2.1 C6.3	C1.4	C1.4