

Topic	Sub-heading	Keywords	AQA Combined science (trilogy)	AQA Combined science (synergy)	AQA Chemistry
Atoms, elements and compounds	Atoms, elements and compounds	atoms, elements, compounds, molecules, symbols, formula	5.1.1	4.5.2	4.1.1
Atoms, elements and compounds	Chemical concepts	chemical reactions, balanced symbol equations, hazards	5.1.1	4.5.2	4.1.1
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
Atoms, elements and compounds	Isotopes	isotopes, atom, mass number	5.1.1	4.1.2	4.1.1
Periodic table	Development of the periodic table	Newlands, Mendeleev, Dobereiner	5.1.2	4.5.1	4.1.2
Periodic table	Atomic structure and the periodic table	metals, non-metals, groups, periods	5.1.2	4.5.1	4.1.2
Periodic table	Group 1 - alkali metals	properties, trends, density, melting point, reaction with water	5.1.2	4.5.1	4.1.2
Periodic table	Group 7 - halogens	properties, trends, displacement reactions	5.1.2	4.5.1	4.1.2
Periodic table	Group 0 - Noble gases	properties, boiling point, trends, unreactivity	5.1.2	4.5.1	4.1.2
Periodic table	Transition elements	properties, transition metals, conductor, ions, catalysts			4.1.3
Structure and bonding	Ionic and covalent bonding	ions, ionic, covalent, molecule, giant structure	5.2.1/2	4.6.2	4.2.1/2
Structure and bonding	Metal structure and properties	delocalised electrons, conductor, giant structure	5.2.1/2	4.6.2	4.2.1/2
Structure and bonding	Ionic compounds	ions, ionic, giant structure, lattice	5.2.1/2	4.6.2	4.2.1/2
Structure and bonding	Simple covalent molecules	covalent, molecule	5.2.1/2	4.6.2	4.2.1/2
Structure and bonding	Giant covalent structures	giant structure, covalent, diamond, graphite, fullerene	5.2.3	4.8.1	4.2.3
Structure and bonding	Nanotechnology	nanotechnology, nanoparticles, carbon nanotubes			4.2.4
Quantitative chemistry	RAM	relative atomic mass, RAM	5.3.1	4.5.2	4.3.1
Quantitative chemistry	Calculating formulae	empirical formula			
Quantitative chemistry	Moles	moles, molar mass	5.3.2(HT)	4.5.2(H)	4.3.2 (HT)
Quantitative chemistry	Gas volumes	molar volume			4.3.5 (HT)
Quantitative chemistry	Atom economy	atom economy			4.3.3
Quantitative chemistry	Yield in reactions	yield, percentage yield, theoretical yield, actual yield			4.3.3
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
Obtaining and using metals	Extracting aluminium	reactivity, electrolysis	5.4.3	4.8.2	4.4.3
Obtaining and using metals	Extracting copper	bioleaching, phytomining, displacement	5.10.1 (HT)	4.8.2 (HT)	4.10.1 (HT)
Obtaining and using metals	Properties and uses of metals	conductors, alloys, smart materials, recycling			4.10.3
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
Acids, bases and salts	Acids and bases	acid, alkali, base, hydrogen ion, neutralisation, pH	5.4.2	4.7.3	4.4.2
Acids, bases and salts	Making salts	salt, hydroxide, carbonate, oxide, precipitate	5.4.2	4.7.3	4.4.2
Acids, bases and salts	Weak and strong acids		5.4.2 (HT)	4.7.3 (HT)	4.4.2 (HT) 4.7.2
Acids, bases and salts	Titration	end-point, pH curve, indicator			4.4.2

Electrolysis	Electrolysis	anode, cathode, electrolyte	5.4.3	4.7.5	4.4.3
Energy in reactions	Exothermic and endothermic reactions	endothermic, exothermic, reversible	5.5.1	4.7.3	4.5.1
Energy in reactions	Energy diagrams	activation energy, energy level diagram	5.5.1	4.7.4	4.5.1
Energy in reactions	Bond energy	bond making, bond breaking	5.5.1 (HT)	4.7.4 (HT)	4.5.1 (HT)
Energy in reactions	Fuel cells	hydrogen fuel cell, electrochemical cell, half equations			4.5.2
Rates of reaction	How fast?	rate	5.6.1	4.7.4	4.6.1
Rates of reaction	Collision theory	activation energy, collision, kinetic theory, limiting factor	5.6.1	4.7.4	4.6.1
Rates of reaction	Catalysts	activation energy	5.6.1	4.7.4	4.6.1
Dynamic equilibrium	Reversible reactions	Reversible reaction, dynamic equilibrium	5.6.2	4.7.4	4.6.2
Dynamic equilibrium	Making ammonia (Haber process)	equilibrium, reversible			4.10.4
Dynamic equilibrium	The contact process	contact process, sulfur, sulfuric acid			
Organic chemistry	Crude oil	renewable, non-renewable, fossil fuels, hydrocarbons, alkanes	5.7.1	4.8.1	4.7.1
Organic chemistry	Fractional distillation of oil	fractions, viscosity, flammability, hydrocarbon	5.7.1	4.8.1	4.7.1
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
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
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
Organic chemistry	Alcohols	fuel, solvent, ethanol, combustion			4.7.2
Organic chemistry	Carboxylic acids	carboxylic acid, methanoic acid, ethanoic acid, propanoic acid, butanoic acid, weak acid			4.7.2
Organic chemistry	Esters	alcohol, perfume, flavouring			4.7.2
Chemical analysis	Chromatography	chromatography, food additives, R _f value	5.8.1	4.2.2	4.8.1
Chemical analysis	Tests for ions	flame test, precipitate			4.8.3
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
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
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
Using resources	Purifying water	water treatment, distillation	5.10.1	4.4.1	4.10.1