

Topic	Sub-heading	Keywords	Specification Statements (2017 spec)	Specification Statements (modular)
Principals of Chemistry	States of Matter	states of matter, diffusion, solvent, solute, solution, saturated solution, solubility, solubility curve	1.1-1.7	1.1-1.7
Principals of Chemistry	Atoms, elements and compounds	atoms, elements, compounds, molecules, mixtures	1.8, 1.14	1.8, 1.14
Principals of Chemistry	Chromatography	chromatography, chromatogram, R _f value	1.9, 1.10 (chromatography); 1.11-1.13	1.9, 1.10 (chromatography); 1.11-1.13
Principals of Chemistry	Atomic structure	atomic structure, energy levels, atomic number, mass number, electronic structure	1.15-1.16, 1.19, 1.22	1.15-1.16, 1.19, 1.22
Principals of Chemistry	Isotopes	isotopes, atom, mass number	1.17	1.17
Principals of Chemistry	Atomic structure and the periodic table	metals, non-metals, transition metals, groups, periods	1.18, 1.21	1.18, 1.21
Principals of Chemistry	Chemistry concepts	chemical reactions, balancing equations	1.25	1.25
Principals of Chemistry	RAM	relative atomic mass, relative formula mass	1.26, 1.28, 1.29	1.26, 1.28, 1.29
Principals of Chemistry	Moles	Avogadro number, mole calculations	1.27	1.27
Principals of Chemistry	Yield in reactions	% yield	1.30	1.30
Principals of Chemistry	Calculating formulae	empirical formulae	1.31-1.33, 1.36	1.31-1.33, 1.36
Principals of Chemistry	Gas volumes	molar volume of a gas	1.35C	1.35C
Principals of Chemistry	Ionic and covalent bonding	ions, ionic, covalent, molecule, giant structure	1.37-1.41, 1.44-1.46	5.1-5.5, 5.8-5.10
Principals of Chemistry	Ionic compounds	ions, ionic, giant structure, lattice	1.42-1.43	1.42-1.43
Principals of Chemistry	Simple covalent molecules	covalent, molecule	1.47-1.48, 1.51	5.11-5.12, 5.15
Principals of Chemistry	Giant covalent structures	giant structure, covalent, diamond, graphite, fullerene	1.49-1.50	5.13-5.14
Principals of Chemistry	Metal structure and properties	delocalised electrons, conductor, giant structure	1.52-1.54C, 2.27C	5.16-5.18C, 2.13C
Principals of Chemistry	Electrolysis	anode, cathode, electrolyte	1.20 (part), 1.55-1.60C, 2.44 (tests for oxygen, hydrogen and chlorine)	1.20 (part), 5.19-5.24C, 6.15 (tests for oxygen, hydrogen and chlorine)
Inorganic Chemistry	Group 1 - alkali metals	properties	1.23, 2.1-2.4C	1.23, 6.1-6.4C
Inorganic Chemistry	Group 7 - halogens	properties, displacement reactions	2.5-2.8C	6.5-6.8C
Inorganic Chemistry	Group 0 - Noble gases	properties	1.24	1.24
Inorganic Chemistry	The Earth's atmosphere	gases in the air, carbon dioxide, greenhouse gases, climate change, acid rain	2.9-2.10, 2.13-2.14, 4.14-4.16	6.9-6.10, 6.13-6.14, 4.14-4.16
Inorganic Chemistry	Reactions of metals	Rusting, galvanising, sacrificial protection, reactivity series, displacement reactions, thermal decomposition	2.15-2.21	2.1-2.7
Inorganic Chemistry	Extracting metals	reactivity series, reduction, carbon, electrolysis, oxidation	2.22C-2.24C	2.8C-2.10C
Inorganic Chemistry	Properties and uses of metals	steel, alloy	2.25C-2.26C	2.10C-2.12C
Inorganic Chemistry	Acids and bases	acid, alkali, base, hydrogen ion, indicators, neutralisation, pH	1.20(part), 2.28-2.32, 2.35-2.36, 2.38	1.20(part), 2.14-2.18, 2.21-2.22, 2.24
Inorganic Chemistry	Titration	end-point, pH curve, indicator	1.34C, 2.33	1.34C, 2.19C,
Inorganic Chemistry	Making salts	salt, hydroxide, carbonate, oxide, precipitate, filtration, crystallisation	1.10 (filtration, crystallisation); 2.34, 2.37, 2.39-2.42	1.10 (filtration, crystallisation); 2.20, 2.23, 2.25-2.28
Inorganic Chemistry	Tests for ions	flame test, precipitate, tests for anions	2.44 (test for ammonia), 2.45-2.48	2.44 (test for ammonia), 2.45-2.48

Physical Chemistry	Exothermic and endothermic reactions	endothermic, exothermic, reversible	3.1-3.2, 3.8	3.1-3.2, 3.8
Physical Chemistry	Calculating energy changes in reactions	joule	3.3-3.4, 3.8	3.3-3.4, 3.8
Physical Chemistry	Energy diagrams	activation energy, energy level diagram	3.5C	3.5C
Physical Chemistry	Bond energies	bond making, bond breaking	3.6C-3.7C	3.6C-3.7C
Physical Chemistry	How fast?	rate of reaction, experiments	3.9, 3.15	7.1, 7.7
Physical Chemistry	Collision theory	activation energy, collision, kinetic theory, limiting factor	3.10-3.11	7.2-7.3
Physical Chemistry	Catalysts	hydrogen peroxide, activation energy	3.12-3.14C, 3.16	7.4-7.6C, 7.8
Physical Chemistry	Reversible reactions	Reversible reaction, dynamic equilibrium	3.17-3.22	7.9-7.14C
Organic Chemistry	Crude oil	renewable, non-renewable, fossil fuels, hydrocarbons, alkanes	4.1-4.5, 4.6 (substitution), 4.7, 4.19-4.22	4.1-4.5, 4.6 (substitution), 4.7, 4.19-4.22
Organic Chemistry	Fractional distillation of oil	fractions, viscosity, flammability, hydrocarbon	1.10 (fractional distillation), 4.8-4.10	1.10 (fractional distillation), 4.8-4.10
Organic Chemistry	Burning fuels	combustion, particulates, fuel, methane, catalytic converter	2.44 (test for carbon dioxide), 2.49, 4.11-4.13	6.15 (test for carbon dioxide), 6.20, 4.11-4.13
Organic Chemistry	Cracking hydrocarbons	alkanes, alkenes, addition reaction, bromine water, double bond, saturated, unsaturated, homologous series	4.23-4.28	4.23-4.28
Organic Chemistry	Alcohols	ethanol, manufacture, fermentation, dehydration	4.29C-4.33C	8.1C - 8.5C
Organic Chemistry	Weak and Strong acids	strong, weak, pH	4.34C-4.37C	8.6C-8.9C
Organic Chemistry	Esters	ethyl ethanoate	4.38C-4.43C	8.10C-8.15C
Organic Chemistry	Polymers	monomer, polymer, addition polymerisation, condensation polymerisation, biodegradable	4.44-4.50C	8.16-8.22C