GCSE Chemistry

Unit 1 – Chemical substances, reactions and essential resources

GCSE Chemistry Sub-topic	NEW The sciences (double award) Sub-topic	Points to note
1.1 The nature of substances and chemical reactions	2.1 Matter: What are materials made from? 2.2 Electronic Structure and Periodicity: Can we predict how elements behave?	Most content the same but arranged differently. Details relating to chemical reactions, including chemical equations and conservation of mass, appear in 2.3.1. States of matter and the particle model added. No reference to properties and uses of chlorine and iodine, displacement reactions of halogens or uses of helium, neon and argon.
1.2 Atomic structure and the Periodic Table		
1.3 Water	2.4.2 Sustainable water supply	Most content not included in The Sciences – no reference to fluoridation, solubility curves, hard water. Less detail required on the treatment of the water supply with greater emphasis on factors affecting the availability of clean water.
	2.4.3 Separation techniques involving water	Similar requirements to those in 1.1 of GCSE Chemistry.
1.4 The ever-changing Earth	2.4.4 The composition of the atmosphere	Structure of the Earth and plate tectonics does not appear in The Sciences. Less recall required about the formation and evolution of the original atmosphere.
	2.4.5 Greenhouse gases and climate change	Broader and deeper study required for The Sciences, including concepts such as carbon footprint, 'net zero', carbon off-setting and positive feedback loops.
1.5 Rate of chemical change	2.3 Rates of Reaction: Can we control the speed of a reaction?	No reference to activation energy or energy profiles in The Sciences so no requirement to explain how catalysts work. No reference to enzymes.
1.6 Limestone	N/A	N/A

Unit 2 – Chemical bonding, application of chemical reactions and organic chemistry

GCSE Chemistry Sub-topic	NEW The sciences (double award) Sub-topic	Points to note
2.1 Bonding, structure and properties	5.1 Chemical Bonding and Structure: Why do materials behave so differently?	Similar requirements to those of GCSE Chemistry, excluding detail about giant covalent substances. No recall of properties or uses of nanomaterials or smart materials required for The Sciences.
2.2 Acids, bases and salts	5.2 Acid reactions: How can we make and identify salts?	Similar requirements to those of GCSE Chemistry, excluding reference to strong/weak acids, volumetric calculations and the preparation of insoluble salts. Identification of transition metal ions by reaction with hydroxide ions required for The Sciences.
2.3 Metals and their extraction	5.3 Metals and their extraction: How do we get the chemical resources needed to drive new technologies?	Change in emphasis for The Sciences with no need to recall details of iron or aluminium extraction; focus is on the principles of reduction by carbon and electrolysis. The Sciences also looks at the sustainability of metal extraction and use. Simplest formula and reacting mass calculations (Unit 1 in GCSE Chemistry) are included in 5.3.3 in The Sciences. No reference to electrolysis of aqueous solutions or electroplating.
2.4 Chemical reactions and energy	5.4.5 Energy changes during a chemical reaction	No reference to activation energy or energy profiles in The Sciences.
2.5 Crude oil, fuels and organic chemistry	5.4 Crude oil: Why is it still an essential resource?	Largely the same content on crude oil with focus on alkanes and alkenes but less on alcohols/carboxylic acids in The Sciences. More emphasis on sustainability of plastic use and various fuels in The Sciences.
2.6 Reversible reactions, industrial processes and important chemicals	N/A	N/A