

Kerboodle units	Atomic Structure and the Periodic Table	Combined	
		Foundation	Higher
C1, C2	1.1.1 Atoms, elements and compounds		
	1.1.2 Mixtures		
	1.1.3 The development of the model of the atom (common content with physics)		
	1.1.4 Relative electrical charges of subatomic particles		
	1.1.5 Size and mass of atoms		
	1.1.6 Relative atomic mass		
	1.1.7 Electronic structure		
	1.2.1 The periodic table		
	1.2.2 Development of the periodic table		
	1.2.3 Metals and non-metals		
	1.2.4 Group 0		
	1.2.5 Group 1		
	1.2.6 Group 7		
	XX Transition metals - Comparison with Group 1 elements CHEM		
	XX Typical properties CHEM		
C3	Bonding, Structure and the Properties of Matter		
	2.1.1 Chemical bonds		
	2.1.2 Ionic bonding		
	2.1.3 Ionic compounds		
	2.1.4 Covalent bonding		
	2.1.5 Metallic bonding		
	2.2.1 The three states of matter		
	2.2.2 State symbols		
	2.2.3 Properties of ionic compounds		
	2.2.4 Properties of small molecules		
	2.2.5 Polymers		
	2.2.6 Giant covalent structures		
	2.2.7 Properties of metals and alloys		
	2.2.8 Metals as conductors		
	2.3.1 Diamond		
	2.3.2 Graphite		
	2.3.3 Graphene and fullerenes		
	XX Sizes of particles and their properties CHEM		
XX Uses of nanoparticles CHEM			
C4	Quantitative Chemistry		
	3.1.1 Conservation of mass and balanced chemical equations		
	3.1.2 Relative formula mass		
	3.1.3 Mass changes when a reactant or product is a gas		
	3.1.4 Chemical measurements		
	3.2.1 Moles (HT only)		
	3.2.2 Amounts of substances in equations (HT only)		
	3.2.3 Using moles to balance equations (HT only)		
	3.2.4 Limiting reactants (HT only)		
	3.2.5 Concentration of solutions		
	XX Percentage yield CHEM		
	XX Atom economy CHEM		
	XX Using concentrations of solutions in mol/dm ³ CHEM (HT only)		
XX Use of amount of substance in relation to volumes of gases CHEM (HT only)			
C5, C6	Chemical Changes		
	4.1.1 Metal oxides		
	4.1.2 The reactivity series		
	4.1.3 Extraction of metals and reduction		
	4.1.4 Oxidation and reduction in terms of electrons (HT only)		
	4.2.1 Reactions of acids with metals		
	4.2.2 Neutralisation of acids and salt production		
	4.2.3 Soluble salts		
	4.2.4 The pH scale and neutralisation		
	XX Titrations CHEM		
	4.2.5 Strong and weak acids (HT only)		
	4.3.1 The process of electrolysis		
	4.3.2 Electrolysis of molten ionic compounds		
	4.3.3 Using electrolysis to extract metals		
	4.3.4 Electrolysis of aqueous solutions		
	4.3.5 Representation of reactions at electrodes as half equations (HT only)		
C7	Energy Changes		
	5.1.1 Energy transfer during exothermic and endothermic reactions		
	5.1.2 Reaction profiles		
	5.1.3 The energy change of reactions (HT only)		
	XX Cells and batteries CHEM		
XX Fuel cells CHEM			
	The Rate and Extent of Chemical Change		
	6.1.1 Calculating rates of reactions		

C8	6.1.2 Factors which affect the rates of chemical reactions		
	6.1.3 Collision theory and activation energy		
	6.1.4 Catalysts		
	6.2.1 Reversible reactions		
	6.2.2 Energy changes and reversible reactions		
	6.2.3 Equilibrium		
	6.2.4 The effect of changing conditions on equilibrium (HT only)		
	6.2.5 The effect of changing concentration (HT only)		
	6.2.6 The effect of temperature changes on equilibrium (HT only)		
	6.2.7 The effect of pressure changes on equilibrium (HT only)		
C9, C10, C11	Organic Chemistry		
	7.1.1 Crude oil, hydrocarbons and alkanes		
	7.1.2 Fractional distillation and petrochemicals		
	7.1.3 Properties of hydrocarbons		
	7.1.4 Cracking and alkenes		
	XX Structure and function of alkenes CHEM		
	XX Reactions of alkenes CHEM		
	XX Alcohols CHEM		
	XX Carboxylic acids CHEM		
	XX Addition polymerisation CHEM		
XX Condensation polymerisation CHEM (HT only)			
XX Amino acids CHEM (HT only)			
XX DNA and other naturally occurring polymers CHEM (HT only)			
C12	Chemical Analysis		
	8.1.1 Pure substances		
	8.1.2 Formulations		
	8.1.3 Chromatography		
	8.2.1 Test for hydrogen		
	8.2.2 Test for oxygen		
	8.2.3 Test for carbon dioxide		
	8.2.4 Test for chlorine		
	XX Flame tests CHEM		
	XX Metal hydroxides CHEM		
	XX Carbonates CHEM		
	XX Halides CHEM		
	XX Sulfates CHEM		
	XX Instrumental methods CHEM		
XX Flame emission spectroscopy CHEM			
C13	Chemistry of the Atmosphere		
	9.1.1 The proportions of different gases in the atmosphere		
	9.1.2 The Earth's early atmosphere		
	9.1.3 How oxygen increased		
	9.1.4 How carbon dioxide decreased		
	9.2.1 Greenhouse gases		
	9.2.2 Human activities which contribute to an increase in greenhouse gases in the atmosphere		
	9.2.3 Global climate change		
	9.2.4 The carbon footprint and its reduction		
	9.3.1 Atmospheric pollutants from fuels		
9.3.2 Properties and effects of atmospheric pollutants			
C14, C15	Using Resources		
	10.1.1 Using the Earth's resources and sustainable development		
	10.1.2 Potable water		
	10.1.3 Waste water treatment		
	10.1.4 Alternative methods of extracting metals (HT only)		
	10.2.1 Life cycle assessment		
	10.2.2 Ways of reducing the use of resources		
	XX Corrosion and its prevention CHEM		
	XX Alloys as useful materials CHEM		
	XX Ceramics, polymers and composites CHEM		
XX The Haber process CHEM			
XX Production and uses of NPK fertilisers CHEM			

