

1. ATOMIC STRUCTURE & THE PERIODIC TABLE		Rate topics 1 to 5
a.	Elements, compounds & mixtures	
b.	Separating mixtures	
c.	Development of atomic model	
d.	Mass & atomic number	
e.	Relative atomic mass	
f.	Electronic structure	
g.	Groups & periods	
h.	Development of periodic table	
i.	Metals & non-metals	
j.	Group 0 elements	
k.	Group 1 elements	
l.	Group 7 elements	
m.	Transition metals	

2. BONDING, STRUCTURE, & THE PROPERTIES OF MATTER		Rate topics 1 to 5
a.	Ionic bonding	
b.	Covalent bonding	
c.	Dot & cross diagrams	
d.	Metallic bonding	
e.	States of matter	
f.	Properties of ionic compounds	
g.	Properties of small molecules	
h.	Polymers & giant covalent structures	
i.	Properties of metals	
j.	Alloys	
k.	Diamond & graphite	
l.	Graphene & fullerenes	
m.	Nanoparticles	

3. QUANTITATIVE CHEMISTRY		Rate topics 1 to 5
a.	Balancing chemical equations	
b.	Conservation of mass	
c.	Relative formula mass	
d.	Estimating uncertainty	
e.	Moles	
f.	Using moles to calculate masses	
g.	Using moles to balance equations	
h.	Limiting reactants	
i.	Concentration	
j.	Percentage yield	
k.	Atom economy	
l.	Moles & volumes of gases	

4. CHEMICAL CHANGES		Rate topics 1 to 5
a.	The reactivity series	
b.	Reduction & oxidation	
c.	Extracting metals by reduction	
d.	Ionic & half equations	
e.	Reacting acids with metals	
f.	Neutralisation of acids & naming salts	
g.	pH	
h.	Titrations	
i.	Strong & weak acids	
j.	Electrolysis of molten ionic compounds	
k.	Electrolysis of aqueous solutions	

5. ENERGY CHANGES		Rate topics 1 to 5
a.	Exothermic & endothermic reactions	
b.	Reaction profiles	
c.	Calculating energy change of reactions	
d.	Cells & batteries	
e.	Hydrogen fuel cell	

6. THE RATE & EXTENT OF CHEMICAL CHANGE		Rate topics 1 to 5
a.	Calculating rate of reaction	
b.	Factors affecting rate of reaction	
c.	Collision theory & activation energy	
d.	Catalysts	
e.	Reversible reactions	
f.	Le Chatelier's principle	
g.	Factors which affect equilibrium	

7. ORGANIC CHEMISTRY		<u>Rate topics 1 to 5</u>
a.	Crude oil	
b.	Alkanes	
c.	Fractional distillation	
d.	Properties of hydrocarbons	
e.	Combustion reactions	
f.	Alkenes	
g.	Addition reactions	
h.	Cracking	
i.	Alcohols	
j.	Carboxylic acids	
k.	Addition polymerisation	
l.	Condensation polymerisation	
m.	Naturally occurring polymers	

8. CHEMICAL ANALYSIS		<u>Rate topics 1 to 5</u>
a.	Purity	
b.	Formulations	
c.	Paper chromatography	
d.	Tests for common gases	
e.	Flame tests	
f.	Identifying metal hydroxides	
g.	Tests for carbonates, halides & sulphates	
h.	Flame emission spectroscopy	
i.	Instrumental methods	

9. CHEMISTRY OF THE ATMOSPHERE		<u>Rate topics 1 to 5</u>
a.	Composition of Earth's atmosphere	
b.	Evolution of Earth's atmosphere	
c.	The greenhouse effect	
d.	Human activity & greenhouse gases	
e.	Global climate change	
f.	The carbon footprint	
g.	Atmospheric pollutants	

10. USING RESOURCES		<u>Rate topics 1 to 5</u>
a.	Using Earth's resources	
b.	Potable water	
c.	Waste water treatment	
d.	Low-grade copper ores	
e.	Life cycle assessment	
f.	Recycling	
g.	Preventing corrosion	
h.	Uses of alloys	
i.	Ceramics, polymers & composites	
j.	The Haber process	
k.	NPK fertilisers	

PRACTICALS		<u>Rate topics 1 to 5</u>
RP 1: "Prepare a pure, dry sample of a soluble salt from an insoluble oxide or carbonate."		
RP 2: "Determine the concentration of one of the solutions when reacting a strong acid and a strong alkali by titration (when the concentration of the other solution is known)."		
RP 3: "Investigate the electrolysis of aqueous solutions (a hypothesis must be formed and developed)."		
RP 4: "Investigate factors affecting temperature change when reacting solutions together."		
RP 5a: "Investigate how concentration affects the rate of reaction by measuring the volume of gas produced (a hypothesis must be formed and developed)."		
RP 5b: "Investigate how concentration affects the rate of reaction by observing a colour change (a hypothesis must be formed and developed)."		
RP 6: "Use paper chromatography to separate coloured substances and determine R _f values."		
RP 7: "Use appropriate chemical tests to identify unknown ionic substances (all ions covered in sections 8e, 8f and 8g)."		
RP 8: "Identify pH and amount of dissolved solids in water samples from different sources, and use distillation to purify them."		

ASSESSMENTS	<u>Duration</u>	<u>Marks</u>	<u>Topics</u>
Paper 1 18/05/2026	1 hour 45 minutes	100 marks	Topics 1 – 5
Paper 2 12/06/2026	1 hour 45 minutes	100 marks	Topics 6 - 10

The Periodic Table of Elements

1		2												3		4		5		6		7		0											
7 Li lithium		9 Be beryllium												11 B boron		12 C carbon		14 N nitrogen		16 O oxygen		19 F fluorine		20 Ne neon											
23 Na sodium		24 Mg magnesium												27 Al aluminium		28 Si silicon		31 P phosphorus		32 S sulphur		35.5 Cl chlorine		40 Ar argon											
39 K potassium		40 Ca calcium		45 Sc scandium		48 Ti titanium		51 V vanadium		52 Cr chromium		55 Mn manganese		56 Fe iron		59 Co cobalt		63.5 Cu copper		65 Zn zinc		70 Ga gallium		73 Ge germanium		75 As arsenic		79 Se selenium		80 Br bromine		84 Kr krypton			
85 Rb rubidium		86 Sr strontium		89 Y yttrium		91 Zr zirconium		93 Nb niobium		96 Mo molybdenum		[97] Tc technetium		101 Ru ruthenium		103 Rh rhodium		106 Pd palladium		108 Ag silver		112 Cd cadmium		115 In indium		119 Sn tin		122 Sb antimony		127 Te tellurium		131 I iodine			
133 Cs caesium		137 Ba barium		139 La* lanthanum		178 Hf hafnium		181 Ta tantalum		184 W tungsten		186 Re rhenium		190 Os osmium		192 Ir iridium		195 Pt platinum		197 Au gold		201 Hg mercury		204 Tl thallium		207 Pb lead		209 Bi bismuth		210 Po polonium		212 At astatine		222 Rn radon	
[223] Fr francium		[226] Ra radium		[227] Ac* actinium		[267] Rf rutherfordium		[270] Db dubnium		[269] Sg seaborgium		[270] Bh bohrium		[270] Hs hassium		[278] Mt meitnerium		[281] Ds darmstadtium		[285] Cn copernicium		[286] Nh nihonium		[289] Fl flerovium		[289] Mc moscovium		[293] Lv livermorium		[293] Ts tennessine		[294] Og oganeson			
87		88		89		104		105		106		107		108		109		110		111		112		113		114		115		116		117		118	

* The Lanthanides (atomic numbers 58 – 71) and the Actinides (atomic numbers 90 – 103) have been omitted. Relative atomic masses for Cu and Cl have not been rounded to the nearest whole number.