

1. CELL BIOLOGY		Rate topics 1 to 5
a.	Eukaryotes & prokaryotes	
b.	Animal & plant cells	
c.	Cell specialisation	
d.	Microscopy	
e.	The cell cycle	
f.	Stem cells	
g.	Diffusion	
h.	Exchange surfaces	
i.	Osmosis	
j.	Active transport	

2. ORGANISATION		Rate topics 1 to 5
a.	Cells, tissues, organs & systems	
b.	Enzymes	
c.	Human digestive system	
d.	The lungs	
e.	The heart	
f.	Blood vessels	
g.	Blood	
h.	Coronary heart disease	
i.	Health & disease	
j.	Risk factors for non-communicable diseases	
k.	Cancer	
l.	Plant tissues	
m.	Transpiration & translocation	
n.	Adaptations of plant cells	
o.	Rate of transpiration	

3. INFECTION & RESPONSE		Rate topics 1 to 5
a.	Communicable diseases	
b.	Viral diseases	
c.	Bacterial diseases	
d.	Fungal diseases	
e.	Protist diseases	
f.	Human defence systems	
g.	Vaccination	
h.	Antibiotics & painkillers	
i.	Discovery of drugs	
j.	Drug tests & trials	

4. BIOENERGETICS		Rate topics 1 to 5
a.	Photosynthesis	
b.	Rate of photosynthesis	
c.	Uses of glucose	
d.	Aerobic & anaerobic respiration	
e.	Body's response to exercise	

f.	Metabolism	
----	------------	--

5. HOMEOSTASIS & RESPONSE		Rate topics 1 to 5
a.	Homeostasis	
b.	The reflex arc	
c.	The endocrine system	
d.	Blood glucose control	
e.	Diabetes	
f.	Hormones in reproduction	
g.	The menstrual cycle	
h.	Contraception	
i.	Treating infertility	
j.	Thyroxine & adrenaline	

6. INHERITANCE, VARIATION & EVOLUTION		Rate topics 1 to 5
a.	Sexual & asexual reproduction	
b.	Meiosis	
c.	DNA structure	
d.	The genome	
e.	Alleles & inheritance	
f.	Inherited disorders	
g.	Sex determination	
h.	Variation	
i.	Selective breeding	
j.	Genetic engineering	
k.	Cloning	
l.	The theory of evolution	
m.	Speciation	
n.	Fossils	
o.	Extinction	
p.	Antibiotic resistant bacteria	
q.	Classification of organisms	

7. ECOLOGY		Rate topics 1 to 5
a.	Communities & interdependence	
b.	Abiotic & biotic factors	
c.	Adaptations	
d.	Food chains & webs	
e.	Predator-prey cycles	
f.	Carbon & water cycle	
g.	Biodiversity	
h.	Waste management	
i.	Land use & deforestation	
j.	Global warming	
k.	Maintaining biodiversity	

8. ATOMIC STRUCTURE & THE PERIODIC TABLE		<u>Rate topics 1 to 5</u>
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	

e.	Reacting acids with metals	
f.	Neutralisation of acids & naming salts	
g.	pH	
h.	Strong & weak acids	
i.	Electrolysis of molten ionic compounds	
j.	Electrolysis of aqueous solutions	

12. ENERGY CHANGES		<u>Rate topics 1 to 5</u>
a.	Exothermic & endothermic reactions	
b.	Reaction profiles	
c.	Calculating energy change of reactions	

9. BONDING, STRUCTURE & THE PROPERTIES OF MATTER		<u>Rate topics 1 to 5</u>
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	

13. THE RATE & EXTENT OF CHEMICAL CHANGE		<u>Rate topics 1 to 5</u>
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	

14. 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	

10. QUANTITATIVE CHEMISTRY		<u>Rate topics 1 to 5</u>
a.	Balancing chemical equations	
b.	Conservation of mass	
c.	Relative formula mass	
d.	Percentage by mass	
e.	Estimating uncertainty	
f.	Moles	
g.	Using moles to calculate masses	
h.	Using moles to balance equations	
i.	Limiting reactants	
j.	Concentration	

15. CHEMICAL ANALYSIS		<u>Rate topics 1 to 5</u>
a.	Purity	
b.	Formulations	
c.	Paper chromatography	
d.	Tests for common gases	

16. 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	

11. CHEMICAL CHANGES		<u>Rate topics 1 to 5</u>
a.	The reactivity series	
b.	Reduction & oxidation	
c.	Extracting metals by reduction	
d.	Ionic & half equations	

18. ENERGY		<u>Rate topics 1 to 5</u>
a.	Energy stores	
b.	Changes in energy	
c.	Kinetic energy	
d.	Gravitational & elastic potential energy	
e.	Specific heat capacity	
f.	Power & work done	
g.	Conduction	
h.	Unwanted energy transfers	
i.	Efficiency	
j.	Energy resources (renewable & non-renewable)	
k.	Energy resources (environmental impact)	

19. ELECTRICITY		<u>Rate topics 1 to 5</u>
a.	Circuit diagram symbols	
b.	Charge & current	
c.	Current, resistance & potential difference	
d.	I-V characteristic curves	
e.	LDR & thermistor	
f.	Series & parallel circuits	
g.	D.C. & A.C.	
h.	Mains electricity	
i.	Power in circuits	
j.	Energy transfers in electrical appliances	
k.	The national grid	
l.	Role of transformers	

20. PARTICLE MODEL OF MATTER		<u>Rate topics 1 to 5</u>
a.	Density	
b.	Changes of state	
c.	Internal energy	
d.	Specific heat capacity (<i>again</i>)	
e.	Specific latent heat	
f.	Particle motion in gases	

21. ATOMIC STRUCTURE		<u>Rate topics 1 to 5</u>
a.	Structure of an atom	
b.	Mass number, atomic number & isotopes	
c.	Development of atomic model	
d.	Radioactive decay	
e.	Properties of nuclear radiation	
f.	Nuclear equations	
g.	Half life	
h.	Contamination & irradiation	

22. FORCES		<u>Rate topics 1 to 5</u>
a.	Scalars & vectors	
b.	Contact & non-contact forces	
c.	Gravity & weight	
d.	Resultant forces	
e.	Vector diagrams	
f.	Work done	
g.	Springs & elasticity	
h.	Distance & displacement	
i.	Speed & velocity	
j.	Distance-time graphs	
k.	Acceleration	
l.	Velocity-time graphs	
m.	Terminal velocity	
n.	Newton's first law	
o.	Newton's second law & inertia	
p.	Newton's third law	
q.	Stopping distance & reaction time	
r.	Factors affecting braking distance	
s.	Momentum	

23. WAVES		<u>Rate topics 1 to 5</u>
a.	Transverse & longitudinal waves	
b.	Properties of waves	
c.	Refraction	
d.	Ray diagrams (refraction)	
e.	Waves for detection & exploration	
f.	Electromagnetic (EM) spectrum	
g.	Radio waves	
h.	Risks of EM radiation	
i.	Uses of EM waves	

24. MAGNETISM & ELECTRO-MAGNETISM		<u>Rate topics 1 to 5</u>
a.	Bar magnets	
b.	Magnetic fields	
c.	Electromagnets	
d.	The motor effect & Fleming's left-hand rule	
e.	Electric motors	

PRACTICALS	<u>Rate topics 1 to 5</u>
RP 1: "Make use of a light microscope to observe, draw and label plant and animal cells."	
RP 2: "Investigate the effect of different concentrations of salt or sugar solutions on the mass of plant tissue."	
RP 3: "Make use of reagents to test for the presence of different carbohydrates, lipids and proteins."	
RP 4: "Investigate the effect of pH on the rate of reaction of amylase."	
RP 5: "Investigate the effect of light intensity on the rate of photosynthesis of an aquatic plant."	
RP 6: "Investigate the effect of a specific factor on human reaction time."	
RP 7: "Use sampling techniques to investigate the effect of a specific factor on the distribution of a species in a habitat."	
RP 8: "Prepare a pure, dry sample of a soluble salt from an insoluble oxide or carbonate."	
RP 9: "Investigate the electrolysis of aqueous solutions (a hypothesis must be formed and developed)."	
RP 10: "Investigate factors affecting temperature change when reacting solutions together."	
RP 11a: "Investigate how concentration affects the rate of reaction by measuring the volume of gas produced (a hypothesis must be formed and developed)."	
RP 11b: "Investigate how concentration affects the rate of reaction by observing a colour change (a hypothesis must be formed and developed)."	
RP 12: "Use paper chromatography to separate coloured substances and determine R _f values."	
RP 13: "Identify pH and amount of dissolved solids in water samples from different sources, and use distillation to purify them."	
RP 14: "An investigation to determine the specific heat capacity of one or more materials."	
RP 15a: "Investigate how the length of a wire at constant temperature affects the resistance of electrical circuits."	
RP 15b: "Investigate how combinations of resistors in series and parallel affect the resistance of electrical circuits."	

RP 16: "Use circuit diagrams to investigate the I-V characteristics of a filament lamp, a diode and a resistor at constant temperature."	
RP 17: "Determine the densities of regular and irregular solid objects and liquids."	
RP 18: "Investigate the relationship between force and extension of a spring."	
RP 19: "Investigate separately how varying the force and mass of an object affect its acceleration."	
RP 20: "Measure the frequency, wavelength and speed of waves in a ripple tank, and waves in a solid."	
RP 21: "Investigate how the amount of infrared radiation absorbed and radiated depends on the type of surface."	

ASSESSMENTS	<u>Duration</u>	<u>Marks</u>	<u>Topics</u>
Biology Paper 1 12/05/2026	1 hour 15 min	70 marks	Topics 1 – 4
Biology Paper 2 08/06/2026	1 hour 15 min	70 marks	Topics 5 - 7
Chemistry Paper 1 18/05/2026	1 hour 15 min	70 marks	Topics 8 – 12
Chemistry Paper 2 12/06/2026	1 hour 15 min	70 marks	Topics 13 - 17
Physics Paper 1 02/06/2026	1 hour 15 min	70 marks	Topics 18 – 21
Physics Paper 2 15/06/2026	1 hour 15 min	70 marks	Topics 22 - 24