

Subject: A'level Chemistry

Year 12 (Modules, Topics)

Term 1	Term 2	Term 3
Atomic structure Amount of substance Bonding Periodic table Introduction to organic chemistry Alkanes Resources: Chemistry textbook Assessment: Weekly homework Summative assessment: Structure and bonding Summative assessment: Moles and molarity Required practical: Make up volumetric solution and carry out a titration	Energetics Kinetics Equilibria Redox Alkaline earths Halogens Halogenoalkanes Alkenes Resources: Chemistry textbook Assessment: Weekly homework Summative assessment: Organic chemistry Summative assessment: Halogenoalkanes Summative assessment: Energetics test Required practical: Measurement of an enthalpy change Required practical: Tests for organic functional groups Required practical: Test tube reactions for cations and anions Required practical: Rates of reaction with changing temperature	Alcohols Analytical techniques Rates Resources: Chemistry textbook Assessment: Weekly homework Required practical: Distillation Required practical: Measuring the rate of reaction by initial rate and continuous methods Summative assessment: Year 12 AS papers

Year 13
(Modules, Topics)

Term 1	Term 2	Term 3
<p>Thermodynamics Equilibrium constants Acids and bases Optical isomerism Aldehydes and ketones Carboxylic acids Aromatic chemistry Amines</p> <p>Resources: Chemistry textbook</p> <p>Assessment: Weekly homework Kinetics and equilibria test Thermodynamics test Aromatics and carbonyl test Required practical: Investigate pH changes with weak acid/strong base and strong acid/weak base Required practical :preparation of a pure organic solid and test its purity and preparation of a pure organic liquid Summative assessment: A level paper one mock exam</p>	<p>Polymers Amino acids, protein and DNA Organic synthesis NMR and chromatography Organic synthesis Electrochemical cell Period 3 elements and aqueous chemistry Transition metals</p> <p>Resources: Chemistry textbook</p> <p>Assessment: Weekly homework Summative test: Organic chemistry Summative test: Transition metals Required practical: thin layer chromatography Required practical: Measuring EMF of a cell Required practical: Test tube reactions to identify transition metals Summative assessment: A level paper one and paper two mock exam</p>	<p>Course finished by Easter. Revision and practising exam style questions</p> <p>Resources: Chemistry textbook</p> <p>Assessment: Practice past papers</p>

Subject: A'level Biology

Year 12 (Modules, Topics)

Term 1	Term 2	Term 3
Carbohydrates Lipids Proteins Enzymes Structure of DNA and RNA DNA replication Cell structure/function – eukaryotic and prokaryotic cells Virus structure and replication Microscopy Cell membranes and cell transport inc. osmosis, active transport and diffusion Resources: Biology textbook Assessment: Required practical: Enzymes Required practical: Permeability of Membranes Required practical: Water Potential	Cell division - mitosis Mutations & Cancer Transcription and Translation Cell division –meiosis Lifecycles Genetic diversity and natural selection; implications for antibiotic resistance Standard Deviation Digestion Immunity inc. cellular and humoral responses Antibody structure and vaccines Monoclonal antibodies and their applications. HIV Gas exchange – plant, animal, fish and insects Ventilation mechanisms and associated lung diseases Resources: Biology textbook Assessment: Required practical: Root tip squash Required practical: Antibiotic resistance Summative assessment: Cell division and DNA	Haemoglobin and oxygen transport Cardiac cycle and structural adaptations of the circulatory system Cardiovascular disease Transport in plants inc. cohesion tension theory and mass flow hypothesis Speciation and taxonomy Biodiversity Ecological techniques Photosynthesis part one Resources: Biology textbook Assessment: Required practical: Mammal Dissection Required practical: Environmental survey

Summative assessment: A level paper one mock exam		
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Subject: A'level Physics

Year 12 (Modules, Topics)

Term 1	Term 2	Term 3
Practical Skills Constituents of the atom Particles, antiparticles and photons The photoelectric effect Energy levels and photon emission Wave-Particle Duality Scalars and vectors Moments Motion along a straight line Projectile motion Momentum Work, energy and power Current–voltage characteristics Resistivity Potential divider Electromotive force and internal resistance Resources: CGP Textbook Assessment: Required practical: Determining g	Types of Wave Superposition Refraction, diffraction and interference Bulk properties of solids The Young modulus Resources: CGP Textbook Assessment: Required practical: Diffraction and Interference	Periodic motion Thermal physics Molecular kinetic theory model Gravitational fields Orbits of planets and satellites Resources: CGP Textbook Assessment: Required practical: Pendulum and Mass on a Spring

Assessment: Required practical: Pendulum and Mass on a Spring Required practical: Boyle's Law Required practical: Charles' Law Required practical: Capacitors Summative assessment: Circular Motion Test Summative assessment: SHM Test Summative assessment: Thermal Physics Test Summative assessment: Gravity Fields Test Summative assessment: Electric Fields Test Summative assessment: Capacitors Test	Assessment: Required practical: $F = BIL$ Required practical: Inverse Square Law of Gamma Radiation Summative assessment: Nuclear Physics Test Summative assessment: Turning Points in Physics Test Summative assessment: Magnetic Fields Test	Assessment: Exams
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Subject: Applied Science level 3

Year 12 (Modules, Topics)

Term 1	Term 2	Term 3
Unit 1 Key concepts in biology, chemistry and physics Cell structure The heart Homeostasis Atomic structure The periodic table Amount of a substance Useful energy and efficiency	Unit 1 Key concepts in science Breathing and cellular respiration Photosynthesis and food chain productivity Bonding and structure Enthalpy changes Dynamics Unit 2 Applied experimental techniques in chemistry (coursework element)	Unit 1 Key concepts in science revision for exam Unit 2 Applied experimental techniques in physics (coursework element) Unit 3 Science in the Modern World

<p>Electricity and circuits Unit 2 Applied experimental techniques in biology (coursework element)</p> <p>Resources: A level textbooks</p> <p>Assessment: 2x summative assessment On-going coursework assessment</p>	<p>Unit 3 Science in the Modern World</p> <p>Resources: A level textbooks</p> <p>Assessment: 2x summative assessment On-going coursework assessment</p>	<p>Resources: A level textbooks</p> <p>Assessment: External exam Coursework submission deadline Unit 2 and Unit 3</p>
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