

	YEAR 10		YEAR 11
CHEMISTRY 1	<p>Atomic Structure – atoms, history of the atom, structure of the atom, electronic structures and isotopes.</p> <p>The periodic table – Group 1 and 7, electronic structures and explaining trends.</p> <p>Structure and bonding – states of matter, ionic bonding and properties, covalent bonding and properties. Metallic bonding, fullerenes and graphene.</p> <p>Chemical calculations – Relative masses, moles, equations, balanced equations, expressing concentration.</p> <p>Chemical Changes – Reactivity series, Displacement reactions, extraction of metals, making salts, neutralisation and the pH scale.</p> <p>Electrolysis – Changes at electrodes, extraction of aluminum, electrolysis of aqueous solution.</p> <p>Energy Changes – Endothermic and exothermic reactions, reaction profiles and Bond energy calculations</p> <p>2 x Topic Written Assessments 1 x Unit Exam</p>	PHYSICS 2	<p>Forces in balance– Vectors, scalars, resultant forces, center of mass, parallelogram of forces, resolution of forces.</p> <p>Motion– Speed- distance time graphs, Velocity- time graphs and analysing motion graphs.</p> <p>Force and motion – Forces, acceleration, terminal velocity, momentum and elasticity.</p> <p>Wave properties – Nature of waves, properties of waves, reflection and refraction.</p> <p>Electromagnetic waves– The electromagnetic spectrum and communication.</p> <p>Electromagnetism – Magnetic fields, electric currents, the motor effect.</p> <p>2 x Topic Written Assessments 1 x Unit Exam</p>
PHYSICS 1	<p>Energy – Conservation of energy, work done, GPE and KE, energy, power and efficiency.</p> <p>Energy transfer – Conduction, specific heat capacity, heating and insulating buildings.</p> <p>Energy resources – Renewable energy, environment and issues.</p> <p>Electric circuits – Current, charge, voltage, series and parallel circuits.</p> <p>Electricity in the home – Alternating current, cables, wires, plugs and appliances.</p> <p>Molecules and matter – Density, States of matter, internal energy, specific latent heat, gas pressure and temperature.</p> <p>Radioactivity – Atoms, radiation, discovery of the nucleus, alpha, beta, gamma and half life.</p> <p>2 x Topic Written Assessments 1 x Unit Exam</p>	CHEMISTRY 2	<p>Rates and equilibrium – Collision theory, effect of temperature, concentration, pressure, and catalysts. Equilibrium, and reversible reactions.</p> <p>Crude oil – Hydrocarbons, burning and cracking.</p> <p>Chemical Analysis – Pure substances, mixtures, chromatography and testing gases.</p> <p>The Earth's atmosphere – History of the atmosphere, greenhouse gases, climate change and pollutants.</p> <p>The Earth's resources – Finite and renewable resources, water treatment, extraction of metals, life cycle assessment and recycling.</p> <p>2 x Topic Written Assessments 1 x Unit Exam</p>
BIOLOGY 1	<p>Cell structure – Microscopes, cells and specialized cells. Diffusion, osmosis, and active transport.</p> <p>Cell Division – Mitosis and stem cells.</p> <p>Organisation – Tissues, digestive system, enzymes, factors affecting enzymes,</p> <p>Organisation of animals and plants – Blood, vessels, heart, breathing and transport systems in plants.</p> <p>Communicable diseases – Health, pathogens, bacteria, virus, fungi and human defence response.</p> <p>Preventing diseases – Vaccination, antibiotics and painkillers, discovering and developing drugs.</p> <p>Photosynthesis – Rate of photosynthesis, use of glucose, limiting factors.</p> <p>Respirations – Aerobic, anaerobic respiration and metabolism.</p> <p>2 x Topic Written Assessment 1 x Unit Exam</p>	BIOLOGY 2	<p>The nervous system – Homeostasis and reflex actions</p> <p>Hormonal coordination – Blood glucose, diabetes, negative feedback, menstrual cycle and fertility.</p> <p>Reproduction– Cell division, meiosis, DNA, inheritance, genetics and disorders.</p> <p>Variation & Evolution –Variation, natural selection, selective breeding, genetic engineering and ethics.</p> <p>Genetics and Evolution–Extinction and fossils, antibiotic resistance bacteria, classification systems.</p> <p>Interdependence–Competition between animal, plants, adaptation, and survival.</p> <p>Ecosystem – Feeding relationships and the carbon cycle.</p> <p>Biodiversity – Human population, pollution, deforestation, global warming and maintaining biodiversity.</p> <p>2 x Topic Written Assessments 1 x Unit Exam</p>