

Teaching Order						
Year 10 Triple						
AUT	Cell Biology (B1, 3, 4)	Atomic structure and periodic table (C1,2)	Conservation and dissipation of energy (P1)	Inheritance and the genome (B13)	Structure and bonding (C3)	Energy transfer by heating (P2)
SPI	Classification and subcellular evidence (B16)	Crude oil and fuel (C9)	Energy Resources (P3)	Coordination and control (B10,11, 12)	Chemical changes (C5)	Electric circuits (P4) Electricity in the home (P5) Electromagnetism (P15)
SUM	Human lifestyles and health (B5, 6, 7)	Electrolysis (C6)	Molecules and matter (P6)	Growth and development (B2)	Chemical calculations (C4)	Radioactivity (P7)
Year 11						
AUT	Biochemistry (B8,9)	Energy changes (C7)	Forces in balance (P8) Motion (P9) Force and motion (P10)	Reproduction (B13)	Rates and equilibrium (C8)	Wave properties (P12) Light (P14)
SPR	Biodiversity and human impacts (B18)	Organic reactions (C10)	Electromagnetic Waves (P13) Space (P16)	Evolution (B14, 15)	Polymers (C11) Chemical analysis (C12)	Our atmosphere (C13) The Earth's resources (C14) Using our resources (C15)
SUM	Revision					

Biology			
Topic	Big Idea	Key Concepts	Required Practicals
Cell Biology (B1, 3, 4)	Cellular Basis of Life	Eukaryotic and prokaryotic cells, diffusion, osmosis and active transport, supplying cells – exchange surfaces and transport systems in humans, supplying cells – exchange surfaces and transport systems in plants	<ol style="list-style-type: none"> 1. Use a light microscope to observe, draw and label a selection of plant and animal cells. 2. Investigate the effect of a range of concentrations of salt or sugar solutions on the mass of plant tissue. 3. Use qualitative reagents to test for a range of carbohydrates, lipids and proteins. 4. Investigate the effect of pH on the rate of reaction of amylase enzymes. 5. Investigate the effect of temperature on the rate of decay of fresh milk by measuring pH change
Inheritance and the genome (B13)	Hereditary and life cycles	DNA and the genetic code, Inheritance, genotype and phenotype	
Organisation of an ecosystem (B17)	Organisms and their environments	Trophic levels and biomass transfers, cycling of materials through ecosystems	6. Investigate the effect of light or gravity on the growth of newly germinated seedlings.
Classification and subcellular evidence (B16)	Variation, adaptation and evolution	Kingdoms, domains and subcellular evidence	7. Measure the population size of a common species in a habitat
Coordination and control (B10,11, 12)	The cellular basis of life	The human nervous system, the human endocrine system, homeostasis	8. Plan and carry out an investigation into the effect of a factor on human reaction

			time
Human lifestyles and health (B5, 6, 7)	Health and disease	Promoting good health, interacting factors and risk, defences against disease in plants and humans, promoting good health, reducing the spread of infections, use and development of drugs and medicines	9. Investigate the effect of antiseptics or antibiotics on bacterial growth using agar plates and measuring zones of inhibition.
Growth and development (B2)	Hereditary and life cycles	Cell division, stem cells and differentiation, plant hormones	
Biochemistry (B8,9)	The cellular basis of life	Biological molecules and enzymes, photosynthesis and limiting factors, cellular respiration and ATP	10. Investigate the effect of light intensity on the rate of photosynthesis using an aquatic organism such as pondweed
Reproduction (B13)	Hereditary and life cycles	Hormones and human reproduction	
Biodiversity and human impacts (B18)	Organisms and their environment	Measuring biodiversity, human interactions with ecosystems: negative and positive	
Evolution (B14, 15)	Variation, adaptation and evolution	Natural selection at the genetic level	

Chemistry			
Topic	Big Idea	Key Concepts	Required Practicals
Atomic structure and periodic table (C1,2)	Particles and structure	Structure of a atom, chemical equations, ions and isotopes History of the atom , trends, group 1, group 7	
Structure and bonding (C3)		States of matter , atoms into ions, bonding	
Crude oil and fuel (C9)	Substances and properties	Hydrocarbons, Fractional distillation,	
Chemical changes (C5)	Chemical reactions	Reactivity series, displacement reactions, extracting metals, extracting salts , acids	1.Preparation of a pure, dry sample of a soluble salt from an insoluble oxide or carbonate 2. Investigate the variables that affect temperature changes in reacting solutions 3.Investigate how changes in concentration affect the rates of reactions
Electrolysis (C6)	Chemical reactions	Electrolysis of molten compounds , Electrolysis of solutions	4. Investigate what happens when aqueous solutions are electrolysed using inert electrodes
Chemical calculations (C4)	Substances and properties	Relative masses and moles, masses to balanced equations, atom economy, titrations	5. Determination of the reacting volumes of solutions of a strong acid and a strong alkali by titration
Energy changes (C7)	Chemical reactions	Exothermic and Endothermic, Bond calculations	

Rates and equilibrium (C8)		Rate of reaction, collision theory, catalysts	
Organic reactions (C10)		Alkenes, alcohols, carboxylic acids and esters	
Polymers (C11)		Polymerisation	
Chemical analysis (C12)	Substances and properties	Pure substance and mixtures, analysing chromatograms, testing for gases, testing for ions	6.. Investigate how paper chromatography can be used to separate and tell the difference between coloured substances 7. Use of chemical tests to identify the ions in unknown single ionic compounds
Our atmosphere (C13) The Earth's resources (C14) Using our resources (C15)	Earth Chemistry	Atmospheric gases, climate change , pollutants Waste Water, Recycling Alloys, glass ceramics and composites, Haber process, making fertilisers	8. Analysis and purification of water samples from different sources, including pH, dissolved solids and distillation.

Physics			
Topic	Big Idea	Key Concepts	Required Practicals
Conservation and dissipation of energy (P1)	Matter	Energy, work, GPE, KE, Energy efficiency	1. Investigate the relationship between force and extension for a spring
Energy transfer by heating (P2)		Infrared, specific heat capacity	2. An investigation to determine the specific heat capacity of one or more materials.
Energy Resources (P3)		Energy demands, energy from wind and water, power from the sun, energy issues	3. Investigate the effectiveness of different materials as thermal insulators and the factors that may affect the thermal insulation properties of a material.
Electric circuits (P4) Electricity in the home (P5) Electromagnetism (P15)	Electricity and magnetism	Analysing series circuits, Analysing parallel circuits, Components with changing resistance, Sensing circuits, Motor effect, Generator effect, Electrical safety Paying for electricity, Transmitting electricity,	4. Use circuit diagrams to set up and check appropriate circuits to investigate the factors affecting the resistance of electrical circuits. 5. Use circuit diagrams to construct appropriate circuits to investigate the I–V characteristics of a variety of circuit elements
Molecules and matter (P6)	Matter	Changes of state, specific latent heat, gas pressure	6. Use appropriate apparatus to make and record the measurements needed to determine the densities of regular and irregular solid objects and liquids
Radioactivity (P7)		Atomic nuclei, Radioactive decay, Ionising radiation, Radioactive half-life	

Forces in balance (P8)	Forces and motion	Vectors and scalars, resultant forces, levers and gears, centre of mass, moment and equilibrium	
Motion (P9) Force and motion (P10)		Speed, distance time , Velocity, Acceleration, Velocity – time graphs	7. Investigate the effect of varying the force on the acceleration of an object of constant mass
Force and pressure (P11)		Pressure, upthrust and flotation	
Wave properties (P12)	Sound, light and waves	Properties of waves, reflection and refraction, sound, seismic waves	8. Make observations to identify the suitability of apparatus to measure the frequency, wavelength and speed of waves
Electromagnetic waves (P13)		Electromagnetic Spectrum	9. Investigate how the amount of infrared radiation absorbed or radiated by a surface depends on the nature of that surface.
Light (P14)		Light, colour and lenses	10. Investigate the reflection of light by different types of surface and the refraction of light by different substances.
Space (P16)	Earth in space	Formation of the solar system, life cycle of stars, expanding universe	