

Year 7 Scheme of Learning

Autumn	Spring	Summer
<p>Lab Safety and Bunsen Burners</p> <p>Cells</p> <ul style="list-style-type: none"> - Cell structure - Plant and animal cells - Microscopy - Specialisation/differentiation - Stem cells - Organisation - organs <p>Particles</p> <ul style="list-style-type: none"> - Atomic structure and states of matter - Physical changes and state symbols - Separating mixtures: filtration and decanting - Separating mixtures: chromatography <p>Solubility Distillation Immiscible liquids</p> <p>Energy</p> <ul style="list-style-type: none"> - Energy stores and systems - Energy transfers - Conservation/dissipation - Heat transfer and temperature - Renewable and non-renewable resources - Sankey Diagrams 	<p>The human body</p> <ul style="list-style-type: none"> - Diffusion - Digestion - Digestive enzymes - The heart - Blood vessels <p>Atoms</p> <ul style="list-style-type: none"> - Atoms, elements, compounds and mixtures - Masses and charges of atoms - Development of the atomic model - The periodic table - The development of the periodic table - Electronic structure - Groups 1/7/0 <p>Forces</p> <ul style="list-style-type: none"> - Contact/non-contact - Gravity - Resultant forces - Forces and elasticity - Speed - Newton's first law: motion 	<p>Ecology</p> <ul style="list-style-type: none"> - Communities - Biotic/abiotic factors - Food chains - Trophic levels - Biomass <p>Acids and alkalis</p> <ul style="list-style-type: none"> - Conservation of mass and chemical equations - Acids and bases - Salts - Neutralisation - Strong and weak acids <p>Waves</p> <ul style="list-style-type: none"> - The nature of waves and their properties - The reflection of light - The refraction of light - Sound waves - Using waves for detection and exploration - Electromagnetic waves

Year 8 Scheme of Learning

Autumn	Spring	Summer
<p>Health and disease</p> <ul style="list-style-type: none"> - Cell recap - Prokaryotes and eukaryotes - Culturing/preventing microorganism growth - Review above experiment - Communicable and non communicable - milk experiment - Lifestyle and disease - Coronary heart disease and Cancer - Human defence systems - Vaccination & antibiotics <p>Metals</p> <ul style="list-style-type: none"> - Periodic table - Metals/non-metals - sorting exercise - Secret agent properties of metals - Group 1 - Metal reactivity - water reaction experiment - The reactions of metals and acids - Rates of reaction <p>Motion</p> <ul style="list-style-type: none"> - Energy transfer (Sankey diagrams) (2 lessons) - Recap and further resultant forces - Scalar and vector quantities - Work done - Mass and weight - Recap and further Speed - Acceleration - Forces and motion (mass and acceleration) 	<p>Reproduction</p> <ul style="list-style-type: none"> - Mitosis - Human reproduction - Hormones in reproduction - Meiosis - Sexual and asexual reproduction - Advantages and disadvantages of sexual and asexual reproduction <p>Non-metals</p> <ul style="list-style-type: none"> - Chemical bonding - Covalent bonding - Properties of small molecules and giant covalent structures - Structure and bonding in carbon molecules <p>Energy and matter</p> <ul style="list-style-type: none"> - Energy changes in systems - Particle model and changes in state - Internal energy and energy transfers - Particle model and pressure - Pressure 	<p>Genetics/inheritance</p> <ul style="list-style-type: none"> - Chromosomes and DNA - Inheritance - Inherited disorders - Sex determination - Variation - Genetics <p>Organic chemistry</p> <ul style="list-style-type: none"> - Fuels - Carbon compounds as fuels - Alkanes and alkenes - The reactions of alkenes and alcohols - Polymers <p>Space</p> <ul style="list-style-type: none"> - The solar system - Planets, orbits and satellites - The life cycle of a star - Red shift

Year 9 Scheme of Learning

Autumn	Spring	Summer
<p>Atomic Structure and the Periodic table</p> <ul style="list-style-type: none"> - Atoms elements and compounds - Mixtures - Development of the model of the atom - Subatomic particles - Size and mass of atoms - Relative atomic mass - Electronic structure - Development of the periodic table - Metals and Non-metals - Groups 0, 1 and 7 <p>Cell Biology</p> <ul style="list-style-type: none"> - Eukaryotes and Prokaryotes - Animal and plant cells - Cell specialisation - Cell differentiation - Microscopy <p>Energy</p> <ul style="list-style-type: none"> - Energy stores and systems - Changes in energy - Energy changes in systems - Power - Energy transfers in a system - Efficiency - National and global energy resources 	<p>Chemical bonding</p> <ul style="list-style-type: none"> - Chemical bonds - Ionic bonding - Ionic compounds - Covalent bonding - Metallic bonding - The three states of matter - State symbols - Properties of ionic compounds - Properties of small molecules - Polymers - Giant covalent structures - Properties of metals and alloys - Metals as conductors - Structure and bonding of carbon <p>Cell Division</p> <ul style="list-style-type: none"> - Chromosomes - Mitosis and the cell cycle - Stem cells - Diffusion - Osmosis - Active transport 	<p>Electricity</p> <ul style="list-style-type: none"> - Current, potential difference and resistance - Electrical charge and current - Current, resistance and potential difference - Resistors - Series and parallel circuits - Domestic uses and safety - Power - Energy transfers in everyday appliances - The National Grid <p>Organisation</p> <ul style="list-style-type: none"> - The human digestive system - The heart and blood vessels - Blood - Coronary heart disease: a non-communicable disease - Health issues - The effect of lifestyle on some non-communicable diseases - Cancer - Plant tissues - Plant organ system

<p>YEAR 10 <i>AQA Trilogy</i></p>	<p>BIOLOGY</p> <p>Infection and Response</p> <ul style="list-style-type: none"> - Communicable (infectious) diseases - Viral, bacterial, protist and fungal diseases - Human defence systems - Vaccination - Antibiotics and painkillers - Discovery and development of drugs <p>Bioenergetics</p> <ul style="list-style-type: none"> - Photosynthesis - Aerobic and anaerobic respiration - Response to exercise - Metabolism <p>Homeostasis and response</p> <ul style="list-style-type: none"> - Homeostasis - The human nervous system - Hormonal coordination in humans - Contraception - The use of hormones to treat infertility - Feedback systems 	<p>Inheritance, variation and evolution</p> <ul style="list-style-type: none"> - Reproduction - Meiosis - DNA and the genome - Genetic inheritance - Inherited disorders - Sex determination <p>Variation and evolution</p> <ul style="list-style-type: none"> - Variation - Evolution - Selective breeding - Genetic engineering - The development of understanding of genetics and evolution - Fossils - Extinction - Resistant bacteria - Classification of living organisms 	
	<p>CHEMISTRY</p> <p>Quantitative Chemistry</p> <ul style="list-style-type: none"> - Chemical measurements, conservation of mass and the quantitative interpretation of chemical equations - Use of amount of substance in relation to masses of pure substances - Concentration of solutions <p>Chemical changes</p> <ul style="list-style-type: none"> - Reactivity of metals - The reactivity series - Extraction of metals and reduction - Reactions of acids with metals - Neutralisation of acids and salt production - Soluble salts - The pH scale and neutralisation 	<p>Electrolysis</p> <ul style="list-style-type: none"> - The process of electrolysis - Electrolysis of molten ionic compounds - Using electrolysis to extract metals - Electrolysis of aqueous solutions - Representation of reactions at electrodes as half equations <p>Energy changes</p> <ul style="list-style-type: none"> - Exothermic and endothermic reactions - Reaction profiles - The energy change of reactions 	<p>The rate and extent of chemical change</p> <ul style="list-style-type: none"> - Rate of reaction - Calculating rates of reactions - Factors which affect the rates of chemical reactions - Collision theory and activation energy - Catalysts <p>Reversible reactions and dynamic equilibrium</p> <ul style="list-style-type: none"> - Reversible reactions - Energy changes and reversible reactions - Equilibrium - The effect of changing conditions on equilibrium - The effect of changing concentration - The effect of temperature changes on equilibrium - The effect of pressure changes on equilibrium
	<p>PHYSICS</p> <p>Particle model of matter</p> <ul style="list-style-type: none"> - Changes of state and the particle model - Internal energy and energy transfers - Particle model and pressure <p>Atomic structure</p> <ul style="list-style-type: none"> - Atoms and isotopes - Mass number, atomic number and isotopes - The development of the model of the atom - Atoms and nuclear radiation - Nuclear equations - Half-lives and the random nature of radioactive decay - Radioactive contamination 	<p>Forces</p> <ul style="list-style-type: none"> - Scalar and vector quantities - Contact and non-contact forces - Gravity - Resultant forces - Work done and energy transfer - Forces and elasticity <p>Forces and Motion</p> <ul style="list-style-type: none"> - Describing motion along a line - Distance and displacement - Speed and velocity - The distance–time relationship - Acceleration - Forces, accelerations and Newton's Laws of motion - Stopping distance and reaction time - Momentum 	<p>Waves</p> <ul style="list-style-type: none"> - Waves in air, fluids and solids - Properties of waves - Types of electromagnetic waves - Properties of electromagnetic waves - Uses and applications of electromagnetic waves <p>Magnetism and electromagnetism</p> <ul style="list-style-type: none"> - Permanent and induced magnetism, magnetic forces and fields - The motor effect - Fleming's left-hand rule - Electric motors

Key Stage Four Science Curriculum Overview: Year 11 Combined Science

		Autumn	Spring	Summer
YEAR 11 COMBINED SCIENCE <i>AQA Trilogy</i>	BIOLOGY	Ecology <ul style="list-style-type: none"> - Adaptations, interdependence and competition - Abiotic factors - Biotic factors - Adaptations - Organisation of an ecosystem - Biodiversity and the effect of human interaction on ecosystems - Waste management - Land use and Deforestation - Global warming - Maintaining biodiversity 	Cell biology revisit Organisation revisit Infection and response revisit Bioenergetics revisit	<i>Targeted revision</i>
	CHEMISTRY	Organic chemistry <ul style="list-style-type: none"> - Carbon compounds as fuels and feedstock - Fractional distillation and petrochemicals - Properties of hydrocarbons - Cracking and alkenes Chemical analysis <ul style="list-style-type: none"> - Purity, formulations and chromatography - Identification of common gases Chemistry of the atmosphere <ul style="list-style-type: none"> - The proportions of different gases in the atmosphere - The Earth's early atmosphere - How oxygen increased - Carbon dioxide and methane as greenhouse gases - Global climate change - Common atmospheric pollutants and their sources Using resources <ul style="list-style-type: none"> - Using the Earth's resources and obtaining potable water - Waste water treatment - Alternative methods of extracting metals - Life cycle assessment and recycling 	Energy changes revisit Chemistry of the atmosphere revisit Bonding structure and properties of matter revisit Quantitative chemistry revisit Chemical changes revisit	<i>Targeted revision</i>

	PHYSICS	Forces revisit Electromagnetism Particle model of matter - Changing state - Specific heat capacity - Latent heat - Energy transfers - Energy resources - Generating electricity	Energy revisit Electricity revisit Particle model of matter revisit Atomic structure revisit	<i>Targeted revision</i>
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Key Stage Four Science Curriculum Overview: Year 11 Separate Sciences

		Autumn	Spring	Summer
YEAR 11 SEPARATE SCIENCES AQA	BIOLOGY	Ecology - Exploring how humans are threatening biodiversity as well as the natural systems that support it - Considering and that need to be taken to ensure our future health, prosperity and well-being and the health of the world's environment Inheritance and evolution - Explain the process of fertilisation and how the genes give rise to the features of individuals - Explaining the symptoms prognosis and treatments of some inherited health conditions - Describing and explaining the process of evolution - Describing and explaining the process of selective breeding, and genetic engineering	Inheritance and evolution (continued) - Explain the process of fertilisation and how the genes give rise to the features of individuals - Explaining the symptoms prognosis and treatments of some inherited health conditions - Describing and explaining the process of evolution - Describing and explaining the process of selective breeding, and genetic engineering	<i>Targeted revision</i>

	CHEMISTRY	<p>Energy changes revisit</p> <p>Chemistry of the atmosphere - Describing and explaining the development of the atmosphere over time</p> <p>Bonding structure and properties of matter revisit</p> <p>Quantitative chemistry revisit</p> <p>Chemical changes revisit</p> <p>Chemical analysis - Describing the chemical tests that can be used to identify the components present</p> <p>Organic chemistry - The chemistry and patterns of carbon chemistry, of a range of organic compounds including alkanes, alkenes - Fractional distillation and the uses of the products of oil</p>	<p>Using resources - Describing and explaining the uses of the earth's finite resources</p> <p>The rate and extent of chemical reactions - Describing and explaining the factors that affect the rate of a chemical reaction and explaining the effects that are seen - Explaining the applications of the science in industry</p>	<i>Targeted revision</i>
	PHYSICS	<p>Magnets and electromagnets - Describing and explaining how magnets act, and their uses in everyday life - Explaining the magnetic effects of an electric current and the uses of electromagnets</p> <p>Waves - Describing the characteristics of longitudinal and transverse waves - Naming the waves in the electromagnetic spectrum and explaining the uses and hazards of each of the waves</p> <p>Space - Describing the origins and structure of the universe and our solar system - Explaining the life of a star - Describing and explaining the Red Shift phenomena</p>	<p>Space (continued) - Describing the origins and structure of the universe and our solar system. - Explaining the life of a star. - Describing and explaining the Red Shift phenomena.</p>	<i>Targeted revision</i>

Key Stage Five Chemistry Curriculum Overview

	Autumn	Spring	Summer
YEAR 12 OCR A	Foundations in chemistry Atoms and reactions Compounds, formulae and equations Amount of substance Acids Redox Electron structure Bonding and structure	Periodic table and energy Periodicity Group 2 The halogens Qualitative analysis Enthalpy changes Reaction rates Chemical equilibrium	Core organic chemistry Basic concepts of organic chemistry Alkanes Alkenes Alcohols Haloalkanes Organic synthesis Analytical techniques
YEAR 13 OCR A	Physical chemistry and transition elements How fast? How far? Acids, bases and buffers Lattice enthalpy Enthalpy and entropy Organic chemistry and analysis Aromatic compounds Carbonyl compounds Carboxylic acids and esters Amines Amino acids, amides and chirality	Organic chemistry and analysis Polyesters and polyamides Carbon-carbon bond formation Organic synthesis Chromatography and qualitative analysis Spectroscopy Physical chemistry and transition elements Redox and electrode potentials Transition metals Qualitative analysis	<i>Targeted revision</i>