KS4 Combined Science curriculum overview 2025-2026

Year	HT 1	HT2	HT3	HT4	HT5	HT6
10	**Biology** **B1** **Transport across cells**	**Biology** **B2 Organisation-** **The digestive system**	**Biology** **B2 Organisation-** **Cardiovascular system, non communicable disease, Plants**	**Biology** **B3 Infection and response**	**Biology** **B4 Bioenergetics**	**Biology** **B7 Ecology**
	Animal and plant cells Types of microscope Microscopes Required Practical Eukaryotic/Prokaryotic Specialised cells Cell cycle Stem cells Diffusion Diffusion adaptations Osmosis Osmosis Required Practical Active transport	Organisation Digestive system Food tests Required Practical Enzymes Enzymes Required Practical Blood and blood vessels	Heart Lungs Heart disease Non-communicable disease Cancer Plant organisation Plant transport Factors affecting plant transport	Communicable disease Preventing disease Virus/Bacteria Fungus/Malaria Specific immune system Vaccines Drug testing	Photosynthesis Factors affecting photosynthesis Photosynthesis RP Uses of glucose Inverse square law Aerobic respiration Anaerobic respiration Effect of exercise Metabolism	Sampling Quadrats Required Practical Transects Required Practical
	Chemistry **C2- Bonding, Structure and Properties**	**Chemistry** **C3 - Quantitative Chemistry**	**Chemistry** **C4 - Chemical Changes**	**Chemistry** **C4 - Chemical Changes**	**Chemistry** **C5 - Energy Changes**	**Chemistry** **C5 - Energy Changes**
	Ionic Compounds Ionic Bonding Properties of small molecules Covalent bonding Giant covalent structures Graphene and Fullerenes Polymers	Conservation of mass Balancing equations Mass changes in reactions Uncertainty Relative formula mass % Mass of an element Moles Reacting masses Limiting Reactant	Metal Oxides Reactivity series Displacement Redox Ionic equations Acid Base Reaction Observing Reaction Making a Salt Required Practical pH & neutralisation	Strong & weak acids Applying acids, alkalis & pH Intro to Electrolysis Molten Electrolysis Aluminium Extraction Aqueous Electrolysis Electrolysis Required Practical Apply electrolysis	Endo and Exothermic Energy Changes Neutralisation Energy Changes Metals	Reaction Profiles Apply Energy Change Reactions

	Properties of metals and alloys Metallic Bonding Three states of matter Applying States and bonding	Using moles to balance equations Concentration of solutions Applying calculations		Aqueous Electrolysis Half Equations		
	Physics **P1 Energy**	**Physics** **P1 Energy** **P2 Electricity**	**Physics** **P2 Electricity**	**Physics** **P3 Particle model**	**Physics** **P4 Atomic structure**	**Physics** **P5 Forces**
	Changes in energy stores Conservation of energy Work done GPE KE Efficiency Energy and power Thermal energy transfers Specific heat capacity Specific heat capacity	Thermal insulation Energy demands Non - renewable resources Renewable resources Current and charge Potential difference Resistance Resistance of a wire	I-V component characteristics Series circuits Parallel circuits AC/DC Cables and plugs Power and p.d. Current, Energy transfers Fuses and Earthing Appliances and Efficiency	Density Density States of matter Changes of state Internal energy Specific latent heat Gas pressure	History of the atom Atomic structure and isotopes Types/properties of radiation Uses of radiation Decay equations Activity and half-life	Scalar and vector Displacement Forces Newton's 1st/3rd Law Resultant forces *Resolution of forces (Higher)* Centre of mass

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11	**Biology** **B5 Homeostasis and response**	**Biology** **B6 Inheritance and selection**	**Biology** **B6 Inheritance and selection**	**Biology** **B7 Ecology**	**Biology** **Revision and preparation for GCSE exam**	
	Homeostasis Nervous system Reflex arc Reaction time Required Practical Endocrine system Controlling glucose Diabetes Reproductive hormones Contraception IVF Negative feedback	Sexual/Asexual reproduction Mitosis Meiosis DNA Inheritance Punnett squares Inherited disorders Variation Selective breeding	Genetic engineering Evolution Fossils Resistant bacteria Extinction	Classification Community/Food webs Abiotic/Biotic factors Adaptations Carbon cycle Quadrats Biodiversity Conservation Climate Peat Deforestation	Students will be retaught key knowledge identified as priority areas from assessments. Students will recover the required practicals for paper 1. There will be a focus on exam skills	
	Chemistry **C6 - Rate and Extent of Reactions**	**Chemistry** **C7 - Hydrocarbons**	**Chemistry** **C8 - Chemical Analysis** **C9 Earth and Atmosphere**	**Chemistry** **C10 - Using Resources**	**Chemistry** **Revision and preparation for GCSE exam**	
	Measuring & Calculating Rates of Reaction Rate graphs and Tangents Collision Theory Colour Change required practical	Crude Oil and Hydrocarbons Properties of Hydrocarbons Fractional Distillation Combustion Cracking and Alkenes	Pure substances Formulations Chromatography Chromatography Testing for Gases The Earth's Atmosphere	Finite Resources Life Cycle Assessments Importance of Recycling Phytomining and Bioleaching Water Safe to Drink	Students will be retaught key knowledge identified as priority areas from assessments. Students will recover the required practicals	

	Using Volume required practical Catalysts Reversible Reactions Equilibrium Changing Concentration Equilibrium Changing Pressure, Changing Temperature, and Catalysts Applying Equilibrium		Development of Earth's Atmosphere Greenhouse gases and Carbon footprint Climate Change and Pollutants	Potable Water Water Treatment	for paper 1. There will be a focus on exam skills.	
	Physics **P5 Forces and Motion**	**Physics** **P6 Waves**	**Physics** **P7 Electromagnetism**	**Physics** **Revision and preparation for GCSE exam**	**Physics** **Revision and preparation for GCSE exam**	
	What is speed Distance-time Graphs Velocity and acceleration Velocity-time Graphs Force and acceleration Newton's 2nd Law Force and acceleration Weight and terminal velocity Forces and braking *Momentum (Higher)* Force and Elasticity	Wave properties Required practical - Ripple tank and standing wave *Reflection and refraction (higher)* The Electromagnetic spectrum Non-ionising radiation Communications Required practical - IR absorption and emission Ionising radiation X-rays in medicine	Magnets Magnetic fields Solenoids and electromagnets *The motor effect (higher)*	Students will be retaught key knowledge identified as priority areas from assessments. Students will recover the required practicals for paper 1 and paper 2 There will be a focus on exam skills.	Students will be retaught key knowledge identified as priority areas from assessments. Students will recover the required practicals for paper 1 and paper 2 There will be a focus on exam skills.	