



Key Stage 4 Science: Combined Science Curriculum Plan

KS4 Curriculum Intent - Students will have the knowledge, skills and desire to understand and question the world around them

Year 10 LTP

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit covered	<p>Biology: Cells Cell specialisation Cell differentiation Microscopy Magnification Chromosomes and mitosis Stem cells Diffusion</p> <p>Chemistry: The Periodic Table Metals and Non-metals Development of the Periodic Table Ionic Bonding Chemical Bonds Ionic Compounds</p> <p>Physics: Circuit symbols and introduction Electric charge & current Current, resistance and pd Resistors Resistance of a wire IV characteristics</p>	<p>Biology: Osmosis Enzyme Theory Tissues & organs. The digestive system.</p> <p>Chemistry: Properties of Ionic Compounds Covalent Bonding Properties of Simple Molecules Polymers" Giant Covalent Structures Metallic Bonding Properties of Metals and Alloys Metals as Conductors" States of Matter</p> <p>Physics: Series and parallel circuits AC/DC & mains electricity Electrical power & energy transfers The National grid</p>	<p>Biology: Structure and function of the lungs. Structure and function of the heart. Blood vessels The blood. Heart disease.</p> <p>Chemistry: Conservation of Mass and Balanced Chemical Equations Mass Changes Relative Formula Mass Moles Using Moles to Balance Equations Limiting Reactants Chemical Measurements The Reactivity Series Metal Oxides Extraction of Metals and Reduction</p> <p>Physics: The structure of an atom Mass number, atomic number and isotopes The development of the model of the atom Radioactive decay and nuclear radiation Nuclear equations Half-lives and the random nature of decay Contamination & irradiation</p>	<p>Biology: Health issues. Effects of life-style. Cancer. Plant tissues, organs & systems Transpiration. Photosynthesis. Uses of glucose. Factors affecting rate of photosynthesis. Limiting factors</p> <p>Chemistry: The pH Scale and Neutralisation Strong and Weak Acids" Reaction of Acids with Metals Making Salts from Bases Neutralisation of Acids and Salt Production Soluble Salts"</p> <p>Physics: Density of materials Change of state and internal energy Temperature changes in a system and specific heat capacity Changes of heat and specific latent heat</p>	<p>Biology: Aerobic and anaerobic respiration. Metabolism. Response to exercise. Communicable (infectious) diseases Viral diseases, Bacterial disease, Fungal diseases, Protist diseases. Human defence systems.</p> <p>Chemistry: The Process of Electrolysis Representation of Reactions at Electrodes as Half Equations Electrolysis of Molten Ionic Compounds Using Electrolysis to Extract Metals" Electrolysis of Aqueous Solutions Energy Transfer During Exothermic and Endothermic Reactions</p> <p>Physics: Scalar and vector quantities Contact and non-contact forces Gravity Work done and energy transfer Forces and elasticity</p>	<p>Biology: Vaccinations. Antibiotics & painkillers. Development of drugs Revision</p> <p>Chemistry: Reaction Profiles The Energy Change of Reactions"</p> <p>Physics: Revision</p>
Assessment	1 KLT per half term 1 KAT per term	1 KLT per half term 1 KAT per term	1 KLT per half term 1 KAT per term	1 KLT per half term 1 KAT per term	1 KLT per half term 1 KAT per term - Mock exam	1 KLT per half term 1 KAT per term



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Interleaving	KS3 threshold concepts recap where applicable	Content from Autumn 1	Content from Autumn 1/2	Content from Autumn 1/2/Spring 1	Content from Autumn 1/2/Spring 1/2	Whole year 10 content
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Year 11 LTP

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit covered	<p>Biology: Communities. Abiotic factors. Biotic factors. Distribution of organisms. Adaptations Levels of organisation- Feeding Relationships How materials are cycled. Human effects on the environment</p> <p>Chemistry: Calculating Rates of Reactions Factors that Affect the Rates of Chemical Reactions Collision Theory and Activation Energy Catalysts Reversible Reactions Energy Changes and Reversible Reactions Equilibrium The Effect of Changing Conditions on Equilibrium Crude Oil, Hydrocarbons and Alkanes Properties of Hydrocarbons" Fractional Distillation and Petrochemicals Cracking and Alkenes</p> <p>Physics: Distance and displacement Speed and velocity Distance time relationship Acceleration Newton's Laws of Motion</p>	<p>Biology: Maintaining diversity Homeostasis. The human nervous system. Endocrine system. Adrenaline and thyroxine</p> <p>Chemistry: Pure Substances Formulations Identification of Common Gases Chromatography Composition and Evolution of the Earth's Atmosphere" Carbon Dioxide and Methane as Greenhouse Gases</p> <p>Physics: Momentum Conservation of momentum Transverse & longitudinal waves Properties of waves Types of EM wave</p>	<p>Biology: Control of glucose concentration. Hormones in human reproduction. Contraception. Use of hormones to treat infertility. DNA and the genome. Protein synthesis. Sexual & Asexual Reproduction. Meiosis Genetic inheritance.</p> <p>Chemistry: Atmospheric Pollutants from Fuels Properties and Effects of Atmospheric Pollutants" Using the Earth's Resources & Sustainable Potable Water WasteWater Treatment" Alternative Methods of Extracting Metals" Life Cycle Assessment Ways of Reducing the Use of Resources"</p> <p>Physics: Properties of EM waves Uses of EM waves Poles of a magnet Magnetic fields Electromagnetism Fleming's left-hand rule</p>	<p>Biology: Genetic inheritance. Sex determination Inherited disorders. Variation Evolution & evidence. Fossils. Bacterial resistance, Extinction.</p> <p>Chemistry: Working Scientifically Revision of Required Practicals</p> <p>Physics: Electric motors Forces Energy Electricity</p>	<p>Biology: Selective breeding. Genetic engineering Classification Working Scientifically</p> <p>Chemistry: Practice papers Combined Paper 1 Combined Paper 2</p> <p>Physics: Waves Magnetism and electromagnetism Forces Atomic structure Particle model of matter</p>	N/A



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	I-V Characteristics of Components Stopping distances					
Assessment	1 KLT per half term 1 KAT per term	1 KLT per half term 1 KAT per term Mock exam	1 KLT per half term 1 KAT per term	1 KLT per half term 1 KAT per term Mock exam	1 KLT per half term 1 KAT per term	1 KLT per half term 1 KAT per term
Interleaving	Year 10 content	Content from Autumn 1	Content from Autumn 1/2	Content from Autumn 1/2/Spring 1	Content from Autumn 1/2/Spring 1/2	Whole year 10/11 content