

Programme of Learning – Overview

Key Stage 4 Biology			
Year title / big question: Paper 1 Biology		Year group:	10 Biology
Autumn Term 1 title: Respiration	Spring Term 1 title: Enzymes	Summer Term 1 title: Disease Part 1	
Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	
To explore the role of aerobic and anaerobic respiration in animals and plants.	To explore the role of enzymes in digestion and the factors which affect the rate at which they work.	To explore the different types of pathogen and the diseases that they each cause. Explain how the human body defends itself against pathogens.	
Summative assessment:	Summative assessment:	Summative assessment:	
Synoptic half termly assessment	Synoptic half termly assessment	Mid-Course PPE	
Autumn Term 2 title: Cells and Transport	Spring Term 2 title: Organisation in animals	Summer Term 2 title: Disease Part 2	
Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	
To explore the ways in which substances can be transported across cell membranes.	To explore the role of the heart and blood vessels in transporting nutrients around the body. Describe some of the issues that may arise with the heart and explain how we are able to overcome these.	To explore the role of medical advances in the treatment and prevention of diseases. To explore the impact of cancer, smoking, diet and alcohol on individuals' health.	
Summative assessment:	Summative assessment:	Summative assessment:	
Synoptic half termly assessment	Synoptic half termly assessment	Synoptic half termly assessment	



Programme of Learning – Overview

Key Stage 4 Biology			
Year title / big question: Paper 2 Biology		Year group:	11 Biology
Autumn Term 1 title: The Nervous System	Spring Term 1 title: Reproduction & Inheritance	Summer Term 1 title:	
Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	
To explore the role of the nervous system in enabling organisms to respond to their environment.	To explore the different types of reproduction and inheritance in organisms. To explore variation, evolution and classification of organisms.	Revision for external exams	
Summative assessment:	Summative assessment:	Summative assessment:	
Synoptic half termly assessment	Synoptic half termly assessment	External exams - GCSE	
Autumn Term 2 title: The Endocrine System	Spring Term 2 title: Ecology	Summer Term 2 title:	
Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	
To explore the role of the endocrine system to enable organisms to maintain a constant internal environment.	To explore biodiversity in ecosystems and the ways in which we can effectively sample the distribution and abundance of organisms.		
Summative assessment:	Summative assessment:	Summative assessment:	
PPE	Synoptic half termly assessment		

Programme of Learning – Overview

Key Stage 4 Chemistry			
Year title / big question: Chemistry Paper 1		Year group:	10 Chemistry
Autumn Term 1 title: Atoms and Bonding	Spring Term 1 title: Chemical Calculations	Summer Term 1 title: Making Salts	
Intent and composite knowledge (overview): To explore the development of the model of the atom and the periodic table. To explore isotopes and their use in RAM. To identify the different types of bonding that may occur between atoms and use models to explain how these bonds are formed.	Intent and composite knowledge (overview): To calculate relative formula mass, and to use this to calculate percentage composition by mass and moles. To balance chemical equations.	Intent and composite knowledge (overview): To explore acids and alkalis. This will include looking at strong and weak acids, acids and bases, neutralisation, making salts from reactions of acids with metals, bases and carbonates.	
Summative assessment:	Summative assessment:	Summative assessment:	
Synoptic half termly assessment	Synoptic half termly assessment	PPE	
Autumn Term 2 title: Bonding & Groups of the Periodic Table	Spring Term 2 title: Reactivity	Summer Term 2 title: Extracting Metals	
Intent and composite knowledge (overview): To explore the properties of simple molecular, and giant covalent and metallic structures. Use molecular models to predict and explain the physical properties. To explore fullerenes and graphene. To explore the properties and reactivity of group 1 and 7 elements (and Transition elements for Triple).	Intent and composite knowledge (overview): To use balanced equations and moles, to calculate reacting masses and masses of limiting reactants. To calculate concentration. For Triple Science: To calculate unknown quantities in titrations. To calculate reacting volumes. To calculate atom economy and percentage yield.	Intent and composite knowledge (overview): To explore the reactivity series and how the knowledge of displacement reactions can assist with extracting metals. To explore the role of electrolysis in extracting metals.	
Summative assessment:	Summative assessment:	Summative assessment:	
Synoptic half termly assessment	Synoptic half termly assessment	Synoptic half termly assessment	

Programme of Learning – Overview

Key Stage 4 Chemistry			
Year title / big question: Chemistry Paper 2		Year group:	11Chemistry
Autumn Term 1 title: Energy changes	Spring Term 1 title: Equilibrium	Summer Term 1 title: Chemical Analysis	
Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	
To explain the difference between exothermic and endothermic reactions. To be able to use reaction profiles to identify different types of reaction. To calculate bond energy calculations. To explore chemical cells, and fuel cells.	To explore reversible reactions and how a dynamic equilibrium can be set up. To explore La Chatelier's principle and how this can be applied to explain the effect of changes in temperature, concentration, and pressure on the position of equilibrium.	To explore rusting as an oxidation reaction. To explore the properties and uses of a range of materials including glass, ceramics, and composites. To explore the reactions to produce both addition and condensation polymers. To explore natural polymers including DNA. To explore instrumental analysis.	
Summative assessment:	Summative assessment:	Summative assessment:	
Synoptic half termly assessment	Synoptic half termly assessment	External GCSE examinations	
Autumn Term 2 title: Rates	Spring Term 2 title: Organic Chemistry & Earth's Atmosphere	Summer Term 2 title: Disease Part 2	
Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	
To explore rates of reaction by looking at collision theory and applying this to explain why changing the following affects the rate of reaction – temperature, concentration, pressure, surface area and catalysts. To calculate the rate of a reaction over the course of a reaction or at a specific time.	To explore the alkane family of hydrocarbons. To explore burning of hydrocarbons and cracking of alkanes. To explore the structure and reactions of alkenes, alcohols, and carboxylic acids. To explore the history of the Earth's atmosphere. To explore greenhouse gases and global climate change. To explore atmospheric pollutants and the problems they cause. To explore how water is treated to ensure it is safe to drink.		
Summative assessment:	Summative assessment:	Summative assessment:	

PPE	Synoptic half termly assessment	
-----	---------------------------------	--

Programme of Learning – Overview

Key Stage 4 Physics			
Year title / big question: Physics Paper 1		Year group:	10 Physics
Autumn Term 1 title: Energy Calculations		Spring Term 1 title: Electricity	
Summer Term 1 title: Radioactivity			
Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	
To explore energy conservation, stores and transfers. To explore gravitational potential energy, kinetic energy and elastic potential energy. To calculate power.	To explore charge and current. To explain potential difference and resistance. To explore component characteristics and the required practicals associated with it. To explore thermistors and LDRs. To explain the difference between series and parallel circuits.	To explore the history of the atom. To explain uses of alpha, beta and gamma radiation. To explore half-life, contamination and irradiation.	
Summative assessment:	Summative assessment:	Summative assessment:	
Synoptic half term assessment	Synoptic half term assessment	PPE	
Autumn Term 2 title: Heating Processes		Spring Term 2 title: Electricity in the Home	
Summer Term 2 title: Waves			
Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	
To explore conduction and how we can use insulation to conserve heat. To explore ways to reduce heat loss. To explore states of matter and changes of state. To calculate specific heat capacity. Explore the ideas of specific latent heat, pressure and temperature.	To identify the difference between AC and DC. To identify the components of a plug. Calculate electrical power. To calculate electrical efficiency.	To explore the nature of waves and explore the properties of waves.	
Summative assessment:	Summative assessment:	Summative assessment:	
Synoptic half term assessment	Synoptic half term assessment	Synoptic half term assessment	

Programme of Learning – Overview

Key Stage 4 Physics			
Year title / big question: Physics Paper 2		Year group:	11 Physics
Autumn Term 1 title: Waves	Spring Term 1 title: Motion	Summer Term 1 title: Revision	
Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	
To carry out wave calculations and the waves required practical. To explore the speed of waves. To explore the EM spectrum and its uses. To carry out the infrared radiation practical.	To explore distance time and velocity time graphs. To analyse motion graphs. To explore acceleration, weight and terminal velocity. To explore forces and braking.	To review and revise content for the external GCSE exams.	
Summative assessment:	Summative assessment:	Summative assessment:	
Synoptic half term assessment	Synoptic half term assessment	External GCSE examinations	
Autumn Term 2 title: Forces	Spring Term 2 title: Electromagnetism	Summer Term 2 title: GCSE Exams	
Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	Intent and composite knowledge (overview):	
To explore vectors and scalars. To calculate work done. To interpret resultant forces. To explore elastics and Hooke's Law.	To explore magnetic fields, electromagnets and the motor effect.		
Summative assessment:	Summative assessment:	Summative assessment:	
PPE	Synoptic half term assessment		