Curriculum Overview 2025 2026

Science Department

Triple Science

Department	Science Department
Head of Department	Mr Rathje-Morris – Head of Science faculty Mrs Easton-White – Head of Chemistry Miss Spinola – Head of Biology Mrs Hewitt – Head of Physics
Department Members	Mr Taylor Mrs Martin Mr Lawore Mrs Thompson Miss Nwama Mr Abbott Mr Mason
Accommodation and Resources	The Science department is situated in G and R block and consists of a combination of 8 practical science labs and 2 classrooms as well as a small intervention room. We also have a dedicated preparation room which is staffed by our committed and experienced lab technicians who are responsible for the maintenance and preparation of our practical equipment. As a department we have a mobile IPAD facility allowing the use of ICT in any classroom.

Curriculum Intent	In Science our aim is to foster an environment of discovery and curiosity. Science is everything from how our own bodies work to the formation of the universe and everything in between. The Science curriculum is not only designed to give students a basic scientific literacy in the three specific disciplines of Biology, Chemistry and Physics but to also give students the tools to be able to answer the questions they have not even thought of yet. While we will of course prepare our students for external examinations, more importantly we want them to be able to understand the changing world around them so they are better prepared to look after themselves and their planet.

Curriculum Implementation

Key Stage 4:

What my child will learn in Year 10

<table>
<tr><td>Triple Biology</td><td colspan="2">Previous knowledge recalled</td><td colspan="2">New Knowledge</td></tr>
<tr><td rowspan="6">Term 1</td><td colspan="2">B4 Organising animals and plants</td><td colspan="2">B4 Organising animals and plants</td></tr>
<tr><td colspan="2">Students need to recall blood components and functions, types of blood vessels and their roles, basic heart anatomy and function, lung structure and gas exchange, types of plant tissues and their functions, and the processes of transpiration and transport in plants via xylem and phloem.</td><td colspan="2">Students will learn about blood components, blood clotting, blood vessel functions, the heart's structure and problems, breathing and gas exchange, plant tissues and organs, xylem and phloem functions, and factors affecting transpiration. They will also explore treatments for heart issues and the importance of the double circulatory system.</td></tr>
<tr><td colspan="2">Key Knowledge Assessment</td><td colspan="2">Links to literacy and numeracy</td></tr>
<tr><td colspan="2">B4 Organising animals and plants</td><td colspan="2">B4 Organising animals and plants</td></tr>
<tr><td colspan="2">All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 1 this will focus on the B4 unit but will also include content from B1-3.</td><td colspan="2">Students will enhance literacy skills through scientific terminology, explanations, and structured writing tasks. Numeracy skills will be developed by calculating heart rates, interpreting data, performing rate calculations for blood flow and transpiration, using microscopes for measurements, and analysing graphical data on transpiration and heart functions.</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td rowspan="6">Term 2</td><td colspan="2">Previous knowledge recalled</td><td colspan="2">New Knowledge</td></tr>
<tr><td>B5 communicable disease</td><td>B6 Preventing and treating disease</td><td>B5 communicable disease</td><td>B6 Preventing and treating disease</td></tr>
<tr><td>Students need to recall the basics of blood components, blood vessels, heart structure and function, lung structure and gas exchange, plant tissues and organs, and processes like transpiration and transport in plants.</td><td>Students need to recall how the immune system works, including the role of antigens and antibodies, the basics of how vaccines function, the concept of herd immunity, and prior knowledge of how drugs like painkillers and antibiotics treat diseases.</td><td>Students will learn about the causes and prevention of communicable diseases, the roles of bacteria, viruses, fungi, and protists in disease, human and plant defense mechanisms, methods to prevent disease spread, and the impact of vaccination. They'll also conduct practical investigations on the effects of disinfectants and antibiotics.</td><td>Students will learn about disease prevention through vaccination, the role of the immune system, how vaccines and herd immunity work, and the treatment of diseases using painkillers and antibiotics. They will also study the discovery and development of drugs, including clinical trials, and the challenges of antibiotic resistance.</td></tr>
<tr><td colspan="2">Key Knowledge Assessment</td><td colspan="2">Links to literacy and numeracy</td></tr>
<tr><td>B5 communicable disease</td><td>B6 Preventing and treating disease</td><td>B5 communicable disease</td><td>B6 Preventing and treating disease</td></tr>
<tr><td colspan="2">All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 2 this will focus on the B5/6 units but will also include content from B1-B4.</td><td>Students will develop literacy by using scientific terminology, explaining disease processes, and creating public health campaigns. Numeracy skills are reinforced through interpreting health data, constructing graphs, calculating rates of infection, and analysing patterns in disease spread,</td><td>Students will enhance literacy skills by interpreting scientific texts, explaining vaccination and drug processes, and engaging in ethical debates. Numeracy skills are developed through analysing data on drug efficacy, understanding graphs related to antibiotic resistance, and interpreting results from clinical trials</td></tr>
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<tr><td></td><td colspan="2"></td><td>helping them understand the relationships between variables and health outcomes.</td><td>and epidemiological studies.</td></tr>
<tr><td rowspan="6">Term 3</td><td colspan="2">Previous knowledge recalled</td><td colspan="2">New Knowledge</td></tr>
<tr><td>B7 Non-communicable diseases</td><td>B8 Photosynthesis</td><td>B7 Non-communicable diseases</td><td>B8 Photosynthesis</td></tr>
<tr><td>Students need to recall knowledge of the cell cycle and mitosis, the impact of smoking on health, including the roles of nicotine, carbon monoxide, and tar, the effects of alcohol on the brain and liver, and the basics of diet and exercise on health.</td><td>Students need to recall the basics of photosynthesis, including the word equation, the role of chlorophyll, and the general structure of plant cells. They should also remember concepts related to plant tissues, the importance of light, water, and carbon dioxide, and how plants use glucose for growth and energy storage.</td><td>Students will learn about non-communicable diseases, including cancer, the effects of smoking, diet, exercise, alcohol, and carcinogens on health. They'll understand risk factors, correlations, and causal mechanisms, explore the impact of lifestyle choices on disease, and analyse data to link behaviours with health outcomes, such as cancer and cardiovascular disease.</td><td>Students will learn about the process of photosynthesis, including the chemical and symbol equations, and how factors like light, temperature, and CO2 affect the rate. They will explore leaf adaptations, the concept of limiting factors, glucose usage in plants, and the economics of optimizing photosynthesis in greenhouses.</td></tr>
<tr><td colspan="2">Key Knowledge Assessment</td><td colspan="2">Links to literacy and numeracy</td></tr>
<tr><td>B7 Non-communicable diseases</td><td>B8 Photosynthesis</td><td>B7 Non-communicable diseases</td><td>B8 Photosynthesis</td></tr>
<tr><td colspan="2">All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 3 this will focus on the B7/8 units but will also include content from B1-B6.</td><td>Students will enhance literacy skills by interpreting scientific texts, explaining vaccination and drug processes, and engaging in ethical debates. Numeracy skills are developed through analysing data on drug efficacy, understanding graphs related to antibiotic resistance, and interpreting results from clinical trials and epidemiological studies.</td><td>Students will develop literacy skills by interpreting scientific texts, explaining the photosynthesis process, and analysing data on plant growth. Numeracy skills are enhanced through plotting and interpreting graphs of photosynthesis rates, calculating light intensity using the inverse square law, and evaluating the cost-effectiveness of greenhouse enhancements.</td></tr>
<tr><td rowspan="5">Term 4</td><td colspan="2">Previous knowledge recalled</td><td colspan="2">New Knowledge</td></tr>
<tr><td colspan="2">B9 Respiration</td><td colspan="2">B9 Respiration</td></tr>
<tr><td colspan="2">Students need to recall the basics of photosynthesis, including the equations and factors affecting the rate, plant cell structure, particularly mitochondria, and previous work on active transport and plant tissues. They should also remember the role of glucose in plants, linking it to processes like respiration and metabolism.</td><td colspan="2">Students will learn about aerobic and anaerobic respiration, including the word and symbol equations, and the role of mitochondria. They will explore the body's response to exercise, the concept of oxygen debt, and the economic importance of fermentation. Additionally, they'll study metabolism and the liver's role in processing lactic acid.</td></tr>
<tr><td colspan="2">Key Knowledge Assessment</td><td colspan="2">Links to literacy and numeracy</td></tr>
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	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 4 this will focus on the B9 unit but will also include content from B1-B8.	Students will enhance literacy by interpreting scientific texts, explaining complex processes like respiration and metabolism, and engaging in discussions on exercise effects. Numeracy skills are developed through plotting and analysing graphs of respiration rates, calculating oxygen debt, comparing energy outputs, and using equations to describe biochemical reactions.
Term 5	Previous knowledge recalled	New Knowledge
	B10 The human nervous system	B10 The human nervous system
	Students need to recall the principles of homeostasis, the structure and function of the human nervous system, the concept of reflex arcs, and synaptic transmission. They should understand how receptors detect stimuli and how electrical impulses travel through the nervous system, linking this with prior knowledge of enzymes and cell specialization.	Students will learn about the nervous system, including the structure and function of neurons, the pathway of nerve impulses, and how reflex actions protect the body. They'll explore the role of synapses, the importance of reaction times, and how homeostasis maintains internal conditions through nervous and hormonal responses.
	Key Knowledge Assessment	Links to literacy and numeracy
	B10 The human nervous system	B10 The human nervous system
	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 5 students will complete a PPE assessment that is a full paper 1 that will cover units B1-B9	Students will develop literacy skills by explaining nervous system processes, describing reflex actions, and interpreting scientific texts. Numeracy skills are enhanced through measuring and analysing reaction times, interpreting data from experiments, plotting graphs, and calculating averages to understand the precision and accuracy of their results in practical investigations.
Term 6	Previous knowledge recalled	New Knowledge
	B16 Adaptations	B16 Adaptations
	Students need to recall key ecological terms such as community, population, habitat, ecosystem, abiotic and biotic factors. They should remember how organisms adapt to their environments, the effects of abiotic and biotic factors on populations, and the concepts of competition and interdependence among species.	Students will learn about the importance of ecosystems, including levels of organization, interdependence, and competition. They'll explore how abiotic and biotic factors affect populations, study adaptations in animals and plants, understand the concept of extremophiles, and conduct practical investigations on species distribution and population size using quadrats and transects.
	Key Knowledge Assessment	Links to literacy and numeracy
	B16 Adaptations	B16 Adaptations
	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 6 this will focus on B16	Students will develop literacy skills by interpreting ecological texts, explaining complex relationships in ecosystems, and discussing adaptations and competition. Numeracy skills are reinforced through analysing data on species distribution, calculating population sizes, interpreting graphs related to abiotic and biotic factors, and using statistical methods to draw ecological conclusions.

Triple Chemistry	Previous knowledge recalled	New Knowledge

Term 1	C3 Structure and bonding	C3 Structure and bonding
	Students need to recall basic atomic structure, including protons, neutrons, and electrons, and how these relate to bonding. They should also remember concepts of ionic, covalent, and metallic bonds, and the general properties of solids, liquids, and gases. Prior understanding of the periodic table's organization is also essential.	Students will learn about different types of bonding—ionic, covalent, and metallic—how these bonds affect the properties of substances, and the structure of giant lattices, simple molecules, and polymers. They will explore the properties of metals, alloys, fullerenes, and graphene, and understand the impact of intermolecular forces on state changes.
	Key Knowledge Assessment	Links to literacy and numeracy
	C3 Structure and bonding	C3 Structure and bonding
	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 1 this will focus on the C3 unit but will also include content from C1 & C2.	Students will enhance literacy skills by explaining complex bonding concepts and comparing different types of materials. Numeracy skills will be developed through interpreting data on melting and boiling points, plotting cooling curves, drawing dot and cross diagrams, and predicting properties based on molecular models and bonding types.
Term 2	Previous knowledge recalled	New Knowledge
	C5 Chemical changes	C5 Chemical changes
	Students need to recall the basics of the reactivity series, the properties of metals and non-metals, and how acids and bases interact. They should also understand basic chemical equations, the concepts of oxidation and reduction, and prior knowledge of the pH scale and neutralization reactions.	Students will learn about the reactivity series in detail, including displacement reactions and metal extraction processes. They will explore how salts are formed, the difference between strong and weak acids, and how to prepare salts through various reactions. Additionally, they will study the pH scale and the concept of neutralization.
	Key Knowledge Assessment	Links to literacy and numeracy
	C5 Chemical changes	C5 Chemical changes
	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 2 this will focus on the C5 unit but will also include content from C1-C3	Students will enhance literacy by explaining chemical processes, writing balanced chemical equations, and discussing the implications of reactivity and acid strength. Numeracy skills will be developed through calculating pH, analysing experimental data on reactivity and displacement, and interpreting results from salt preparation and titration experiments.
Term 3	Previous knowledge recalled	New Knowledge
	C6 Electrolysis	C6 Electrolysis
	Students need to recall the basics of ionic bonding, how ions form and behave, and the properties of ionic compounds. They should also understand the principles of electricity, particularly how charged particles move in circuits, and have a foundational understanding of chemical reactions, including oxidation and reduction.	Students will learn about electrolysis, including the movement of ions in molten and aqueous solutions and the reactions occurring at electrodes. They will explore the extraction of metals, such as aluminium, through electrolysis, predict products of electrolysis, and higher-tier students will learn to write and balance half-equations for electrode reactions.
	Key Knowledge Assessment	Links to literacy and numeracy
	C6 Electrolysis	C6 Electrolysis
	All students will be receiving in class assessments including	Students will enhance literacy by explaining electrolysis

	retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term.	processes, writing balanced chemical equations, and using scientific terminology like oxidation and reduction. Numeracy skills will be developed through calculating quantities related to electrolysis, predicting electrode products based on reactivity, and analysing data from electrolysis experiments, including interpreting half-equations and charge movements.
Term 4	Previous knowledge recalled	New Knowledge
	C7 Energy changes	C7 Energy changes
	Students need to recall basic concepts of energy conservation, types of chemical reactions, and the principles of the reactivity series. They should also understand how energy is transferred in reactions and be familiar with concepts like exothermic and endothermic processes, having previously studied simple reactions and their effects on temperature.	Students will learn about energy changes in chemical reactions, distinguishing between exothermic and endothermic reactions. They will explore reaction profiles, calculate bond energies to determine overall energy changes, and apply this understanding to practical applications like chemical cells and fuel cells. Higher-tier students will also learn to evaluate energy changes quantitatively.
	Key Knowledge Assessment	Links to literacy and numeracy
	C7 Energy changes	C7 Energy changes
	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 4 this will focus on the C7 unit but will also include content from C1-C6	Students will enhance literacy by explaining energy transfers and reaction profiles and discussing practical uses of exothermic and endothermic reactions. Numeracy skills will be developed through calculating bond energies, interpreting reaction profiles, plotting and analysing temperature changes in experiments, and using data to classify and compare chemical reactions based on their energy changes.
Term 5 & 6	Previous knowledge recalled	New Knowledge
	C4 Chemical calculations	C4 Chemical calculations
	Students need to recall the structure of atoms, including protons, neutrons, and electrons, and the concept of relative atomic mass. They should understand how to use the periodic table to find atomic masses and have prior knowledge of chemical symbols, formulas, and simple chemical equations.	Students will learn about relative formula mass, the concept of the mole, and Avogadro's constant. They will explore how to calculate moles, balance chemical equations using moles, and determine reacting masses. Additionally, students will learn to calculate solution concentrations and understand the relationship between moles, mass, and volume.
	Key Knowledge Assessment	Links to literacy and numeracy
	C4 Chemical calculations	C4 Chemical calculations
	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 5 students will complete a PPE assessment that is a full paper 1 that will cover units C1-C7	Students will enhance literacy by explaining chemical calculations, interpreting equations, and describing the mole concept. Numeracy skills will be reinforced through calculating relative formula masses, performing mole conversions, balancing equations, and determining concentrations. They will also apply algebraic methods to solve problems involving chemical quantities and reacting masses.

Triple	Previous knowledge recalled	New Knowledge

<table>
<tr><td>Physics</td><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td rowspan="5">Term 1</td><td colspan="2">P4 Electrical circuits</td><td colspan="2">P4 Electrical circuits</td></tr>
<tr><td colspan="2">Students need to recall basic atomic structure, including the behaviour of charged particles and how electrons can be transferred to create ions. They should understand simple circuit components, the concept of electric current as charge flow, and have experience with basic circuit construction and symbols.</td><td colspan="2">Students will learn about electric fields, the behavior of charged particles in fields, and how friction can lead to static electricity. They will explore resistance, potential difference, and the relationships between current, voltage, and resistance in circuits. Additionally, they will investigate series and parallel circuits, and the characteristics of different components.</td></tr>
<tr><td colspan="2">Key Knowledge Assessment</td><td colspan="2">Links to literacy and numeracy</td></tr>
<tr><td colspan="2">P4 Electrical circuits</td><td colspan="2">P4 Electrical circuits</td></tr>
<tr><td colspan="2">All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 1 this will focus on the P4 unit but will also include content from P1-P3.</td><td colspan="2">Students will enhance literacy by describing electrical concepts, explaining experiments, and using correct circuit terminology. Numeracy skills will be reinforced through calculations involving Ohm's law, interpreting current-voltage graphs, analysing data from practical investigations, and solving problems related to series and parallel circuits, including resistance and current distribution.</td></tr>
<tr><td rowspan="5">Term 2</td><td colspan="2">Previous knowledge recalled</td><td colspan="2">New Knowledge</td></tr>
<tr><td>P5 Electricity in the Home</td><td>P6 Molecules and Matter</td><td>P5 Electricity in the Home</td><td>P6 Molecules and Matter</td></tr>
<tr><td>Students need to recall basic concepts of electric circuits, including current, potential difference, and resistance. They should understand how electricity flows in a circuit and be familiar with the function of basic circuit components. Prior knowledge of energy transfer and the power equation is also essential.</td><td>Students need to recall the basics of states of matter, including the properties of solids, liquids, and gases. They should understand concepts like density, temperature changes, and the conservation of mass during physical changes. Prior knowledge of particle theory and simple calculations involving mass, volume, and temperature is essential.</td><td>Students will learn about alternating and direct current, the structure and safety features of mains electricity, and how to calculate electrical power and energy transfer. They will explore the efficiency of electrical appliances, the role of fuses, and how to assess energy use and cost in household devices.</td><td>Students will learn about the concept of density, including measuring and calculating the density of different materials. They will explore the particle model in detail, understand internal energy, specific heat capacity, and specific latent heat, and investigate the relationships between temperature, pressure, and volume in gases, applying these concepts through practical experiments.</td></tr>
<tr><td colspan="2">Key Knowledge Assessment</td><td colspan="2">Links to literacy and numeracy</td></tr>
<tr><td colspan="2">P5 Electricity in the Home P6 Molecules and Matter</td><td>P5 Electricity in the Home</td><td>P6 Molecules and Matter</td></tr>
<tr><td colspan="2">All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 2 this will focus on the P5/6 unit but will also include content from P1-P4</td><td>Students will enhance literacy by explaining electrical concepts, describing the function of circuit components, and discussing safety in mains electricity. Numeracy skills will be developed through calculating power, energy transfer, and efficiency, analysing oscilloscope traces, and converting between units like kilowatts</td><td>Students will enhance literacy by explaining concepts like internal energy, changes of state, and gas behaviour using scientific terminology. Numeracy skills will be developed through calculating density, specific heat capacity, and latent heat, analysing temperature-time graphs, and interpreting data from</td></tr>
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<tr><td></td><td></td><td colspan="2">and joules for practical applications.</td><td>experiments on gas pressure and temperature relationships.</td></tr>
<tr><td rowspan="6">Term 3</td><td colspan="2">Previous knowledge recalled</td><td colspan="2">New Knowledge</td></tr>
<tr><td colspan="2">P7 Radiation</td><td colspan="2">P7 Radiation</td></tr>
<tr><td colspan="2">Students need to recall basic atomic structure, including protons, neutrons, and electrons, and understand the concept of isotopes. They should also remember prior knowledge of electromagnetic radiation and basic principles of energy transfer. A general understanding of safety around radioactive materials is also essential.</td><td colspan="2">Students will learn about the discovery of the nucleus, the development of atomic models, and the process of radioactive decay, including alpha, beta, and gamma radiation. They will explore half-life, nuclear equations, and the applications and safety measures related to radioactivity, including the use of radioisotopes in medicine and industry.</td></tr>
<tr><td colspan="2">Key Knowledge Assessment</td><td colspan="2">Links to literacy and numeracy</td></tr>
<tr><td colspan="2">P7 Radiation</td><td colspan="2">P7 Radiation</td></tr>
<tr><td colspan="2">All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 3 this will focus on the P7 unit but will also include content from P1-P6.</td><td colspan="2">Students will enhance literacy by explaining atomic models, describing nuclear decay processes, and discussing the risks and benefits of radioactivity. Numeracy skills will be developed through calculating half-lives, interpreting decay curves, balancing nuclear equations, and analysing data from experiments involving radioactive materials to understand patterns and predict outcomes.</td></tr>
<tr><td rowspan="6">Term 4</td><td colspan="2">Previous knowledge recalled</td><td colspan="2">New Knowledge</td></tr>
<tr><td>P8 Forces in Balance</td><td>P9 Motion</td><td>P8 Forces in Balance</td><td>P9 Motion</td></tr>
<tr><td>Students need to recall the basics of forces, including the difference between contact and non-contact forces, and how to represent forces as vectors. They should also understand the concepts of balanced and unbalanced forces and have a basic understanding of Newton’s laws of motion, particularly the first and third laws.</td><td>Students need to recall the basics of speed, distance, and time relationships, including the equation speed=distance/time. They should understand how to interpret simple distance-time graphs and have a basic understanding of velocity as speed with a direction, distinguishing it from scalar quantities like speed.</td><td>Students will learn about scalar and vector quantities, the concept of resultant forces, and how to represent forces using free-body diagrams. They will explore moments and the centre of mass, the parallelogram of forces, and how to resolve forces into components, applying these concepts to real-world situations and mechanical systems.</td><td>Students will learn how to analyse motion using distance-time and velocity-time graphs, calculate acceleration, and understand the concept of deceleration. They will explore the relationships between speed, velocity, and acceleration, including determining acceleration from velocity-time graphs and using equations of motion to solve problems involving changing velocities.</td></tr>
<tr><td colspan="2">Key Knowledge Assessment</td><td colspan="2">Links to literacy and numeracy</td></tr>
<tr><td>P8 Forces in Balance</td><td>P9 Motion</td><td>P8 Forces in Balance</td><td>P9 Motion</td></tr>
<tr><td colspan="2">All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 4 this will focus on the P8/9 unit but will also include content from P1-P7.</td><td>Students will develop literacy skills by describing forces, explaining vector diagrams, and discussing equilibrium and moments. Numeracy skills will be reinforced through calculating resultant forces,</td><td>Students will develop literacy skills by explaining motion graphs, describing changes in velocity and acceleration, and using correct scientific terminology. Numeracy skills will be enhanced</td></tr>
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		resolving forces into components, using scale diagrams, and applying mathematical equations to determine moments and the conditions for equilibrium in various systems.	through calculating speed, distance, time, and acceleration, analysing gradients and areas under graphs, and applying equations of motion to solve real-world problems involving moving objects.
Term 5	Previous knowledge recalled	New Knowledge	
	P10 Forces and motion	P10 Forces and motion	
	Students need to recall basic principles of forces, including Newton's laws of motion, and the relationship between mass, force, and acceleration. They should understand concepts of weight and gravitational force, the difference between mass and weight, and have prior experience with basic calculations involving speed and acceleration.	Students will learn about Newton's second law in detail, including calculating force, mass, and acceleration, and the concept of inertial mass. They will explore terminal velocity, stopping distances, and momentum, understanding the effects of forces during motion. Additionally, they will study Hooke's law and the elasticity of materials.	
	Key Knowledge Assessment	Links to literacy and numeracy	
	P10 Forces and motion	P10 Forces and motion	
	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 5 students will complete a PPE assessment that is a full paper 1 that will cover units P1-P7	Students will enhance literacy by explaining forces and motion, discussing real-world applications like car safety, and describing the principles of momentum and elasticity. Numeracy skills will be reinforced through calculations involving force, acceleration, and momentum, interpreting motion graphs, applying Hooke's law, and analysing data from practical investigations related to forces.	
Term 6	Previous knowledge recalled	New Knowledge	
	P11 - Force and pressure	P11 - Force and pressure	
	Students should have a foundational understanding of forces, including weight. They need familiarity with the particle model to explain the behaviour of liquids and gases. An understanding of the concepts of mass, volume, area, and density is also necessary for calculations involving pressure and flotation.	Students will learn to define pressure as the force acting on a certain area. They will explore how pressure in a liquid is affected by the depth and density of the liquid. The unit also covers the causes and effects of atmospheric pressure and uses the concept of upthrust to explain flotation and why objects sink or float.	
	Key Knowledge Assessment	Links to literacy and numeracy	
	P11 - Force and pressure	P11 - Force and pressure	
	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 6 this will focus on the P11 unit but will also include content from P8-P10	Numeracy skills are developed through calculating pressure, force, and area, which involves substituting values into formulae, rearranging equations, and converting units. Literacy is promoted by having students explain observations, describe the effects of pressure, plan investigations, and present scientific arguments for phenomena like flotation.	

What my child will learn in Year 11

Triple Biology	Previous knowledge recalled	New Knowledge

Term 1	B11 - Hormonal coordination	B12 - Homeostasis in action	B11 - Hormonal coordination	B12 - Homeostasis in action
	Students need to recall the basics of hormonal control and the endocrine system, including the role of key hormones like insulin, oestrogen, and testosterone. They should remember the processes involved in glucose regulation, the menstrual cycle, and the principles of negative feedback, as well as the causes and treatments of diabetes.	Students need knowledge of diffusion, osmosis, and active transport from their studies on cells. They should also recall concepts of gas exchange, negative feedback, and the body's defence responses related to organ rejection from previous biology topics.	Students will learn about the endocrine system, including the functions of various glands and hormones, blood glucose regulation, the role of insulin and glucagon, and diabetes management. They'll explore hormonal control of reproduction, fertility treatments, and the mechanisms of contraception, with a focus on hormonal interactions and negative feedback.	Students will learn how the brain's thermoregulatory centre controls body temperature through mechanisms like sweating and shivering. They'll study how the kidneys maintain water balance by filtering blood and selectively reabsorbing useful substances, a process controlled by ADH. Finally, they will evaluate dialysis and organ transplants as treatments for kidney failure.
	Key Knowledge Assessment	Links to literacy and numeracy		
	B11 - Hormonal coordination	B12 - Homeostasis in action	B11 - Hormonal coordination	B12 - Homeostasis in action
	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term.	Students will enhance literacy skills by interpreting scientific texts, explaining hormonal processes, and discussing ethical issues around fertility treatments. Numeracy skills are reinforced through analysing data on blood glucose levels, plotting hormone fluctuation graphs, calculating insulin dosage, and interpreting statistical data related to diabetes and reproductive health.	Numeracy involves interpreting data from charts and tables, calculating percentage changes, and analysing the economic costs of treatments. Literacy is developed through explaining control mechanisms, creating information leaflets, and constructing arguments to evaluate the advantages and disadvantages of different medical procedures.	
Term 2	Previous knowledge recalled	New Knowledge		
	B13 Reproduction	B13 Reproduction		
	Students need to recall the basics of cell division, including mitosis and meiosis, the role of chromosomes, and the structure and function of DNA. They should also	Students will learn about sexual and asexual reproduction, the processes of meiosis and fertilization, DNA structure and the human genome, and the principles of inheritance. They'll explore genetic disorders, genetic crosses, and the ethical considerations of genetic screening, enhancing their understanding of heredity and genetic variation.		

	remember concepts related to inheritance, such as genes, alleles, and Punnett squares, and have a foundational understanding of genetic variation and how traits are passed from parents to offspring.			
	Key Knowledge Assessment	Links to literacy and numeracy		
	B13 Reproduction	B13 Reproduction		
	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 2 students will sit a 2nd PPE. This again will replicate a full paper 1 covering units B1-B9.	Students will enhance literacy skills by explaining complex concepts like reproduction and inheritance, debating ethical issues in genetic screening, and interpreting scientific texts. Numeracy skills are developed through calculating probabilities in genetic crosses, using Punnett squares, analysing ratios, and interpreting data from genetic studies to predict inheritance patterns.		
Term 3	Previous knowledge recalled	New Knowledge		
	B14 Variation and evolution	B15 Genetics and evolution	B14 Variation and evolution	B15 Genetics and evolution
	Students need to recall the basics of genetic variation, the processes of meiosis and fertilization, and the role of mutations in creating variation. They should also remember the principles of natural selection and selective breeding, along with an understanding of DNA, genes, and the basics of inheritance from previous lessons on genetics.	Students need to recall evidence for evolution, such as the fossil record, the concept of natural selection, and antibiotic resistance in bacteria. They should also remember the classification systems developed by Linnaeus, the basics of binomial nomenclature, and prior knowledge of eukaryotic and prokaryotic cells.	Students will learn about the causes and types of variation, the process of evolution by natural selection, the principles of selective breeding, and genetic engineering. They'll explore how mutations contribute to evolution, the benefits and risks of genetic technologies, and the ethical implications of genetic modification and cloning.	Students will learn about the fossil record as evidence for evolution, the causes and consequences of extinction, and the development of antibiotic-resistant bacteria. They will explore the modern classification system, including the three-domain system, and learn how evolutionary trees show relationships among species based on genetic and fossil evidence.
	Key Knowledge Assessment	Links to literacy and numeracy		
	B14 Variation and evolution	B15 Genetics and evolution	B14 Variation and evolution	B15 Genetics and evolution

	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 3 this will focus on the B14/15 unit but will also include content from B10-B13.	Students will enhance literacy skills by discussing and debating ethical issues in genetic engineering, explaining the processes of evolution and variation, and interpreting scientific texts. Numeracy skills are developed through analysing data on genetic crosses, calculating probabilities of inherited traits, and interpreting graphs related to variation and natural selection.	Students will develop literacy skills by interpreting scientific texts, explaining evolutionary theories, and discussing the implications of antibiotic resistance. Numeracy skills are reinforced through analysing fossil timelines, calculating bacterial growth rates, interpreting evolutionary trees, and understanding classification systems and their changes over time through data analysis.
Term 4	Previous knowledge recalled	New Knowledge	
	B18 Biodiversity and ecosystems	B18 Biodiversity and ecosystems	
	Students need to recall the basics of biodiversity, including the importance of diverse species in ecosystems, the impact of human activities such as deforestation and pollution, and the carbon cycle. They should also understand how global warming and pollution affect ecosystems and the basic principles of food chains and trophic levels.	Students will learn about the impact of human activities on biodiversity, including pollution, deforestation, and global warming. They will explore concepts like the greenhouse effect, trophic levels, and sustainable practices to maintain ecosystems. Additionally, they will study the consequences of reduced biodiversity and the importance of conservation efforts.	
	Key Knowledge Assessment	Links to literacy and numeracy	
	B18 Biodiversity and ecosystems	B18 Biodiversity and ecosystems	
	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 4 students will sit a 3rd PPE and this will replicate a full paper 2	Students will enhance literacy skills by discussing the effects of human activities on ecosystems, explaining the importance of biodiversity, and engaging in debates on conservation strategies. Numeracy skills are reinforced through analysing data on pollution, calculating the impact of human activities on carbon emissions, and interpreting graphs related to biodiversity and climate change.	

	covering units B10 – B18.	
Term 5	**Revision for GCSEs covering content from all topics based on performance in EOTT and PPEs** **GCSEs begin**	
Term 6	**GCSEs finish**	

Triple Chemistry	Previous knowledge recalled		New Knowledge	
Term 1	C8 Rates of reactions		C8 Rates of reactions	
	Students need to recall basic concepts of chemical reactions, including reactants, products, and balancing equations. They should understand the impact of temperature and concentration on reaction rates, the idea of reversible reactions, and the concepts of exothermic and endothermic reactions from previous lessons.		Students will learn about factors affecting reaction rates, such as temperature, surface area, concentration, and catalysts, using collision theory. They will explore reversible reactions and dynamic equilibrium, applying Le Châtelier's principle to predict the effects of changing conditions like temperature and pressure on equilibrium systems.	
	Key Knowledge Assessment		Links to literacy and numeracy	
	C8 Rates of reactions		C8 Rates of reactions	
	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 1 students will sit a paper that covers C8.		Students will enhance literacy by explaining collision theory, describing factors influencing reaction rates, and discussing equilibrium concepts. Numeracy skills will be reinforced through calculating reaction rates, interpreting graphs, using algebraic expressions for rate equations, and applying mathematical principles to predict changes in equilibrium positions under varying conditions.	
Term 2	Previous knowledge recalled		New Knowledge	
	C9 Crude Oil and Fuels	**C10 Organic Reactions**	**C9 Crude Oil and Fuels**	**C10 Organic Reactions**
	Students need to recall the basics of hydrocarbons, the structure and naming of simple alkanes, and the principles of combustion reactions. They should also understand the concept of molecular formulas and the differences between complete and incomplete combustion, as well as having a basic understanding of crude oil and its uses.	Students should be familiar with the alkane homologous series, including how to name and draw their structures. A prior understanding of acids, particularly the concept of weak acids and partial ionisation from Chapter C5, is essential for understanding the properties of carboxylic acids.	Students will learn about the composition of crude oil, the process of fractional distillation, and how hydrocarbon properties like boiling point, viscosity, and flammability vary with molecular size. They will also explore the chemical processes of cracking hydrocarbons and how to balance equations for combustion and cracking reactions.	Students will learn to identify, name, and draw alkenes, alcohols, and carboxylic acids. They'll study the characteristic reactions of each group: addition reactions for alkenes, combustion and oxidation for alcohols, and the weak acidic nature of carboxylic acids, including their reaction with alcohols to form esters.
	Key Knowledge Assessment		Links to literacy and numeracy	
	C9 Crude Oil and Fuels	**C10 Organic Reactions**	**C9 Crude Oil and Fuels**	**C10 Organic Reactions**
	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 2 students will sit a 2nd PPE. This again will replicate a full paper 1 covering units C1-C7.		Students will enhance literacy by describing chromatography processes, explaining gas tests, and discussing the purity of	Numeracy is developed by drawing and interpreting various chemical formulae and by writing and balancing symbol equations

<table>
<tr><td></td><td colspan="2"></td><td>substances. Numeracy skills will be reinforced through calculating Rf values, interpreting chromatograms, analysing melting and boiling point data to assess purity, and using significant figures in quantitative analysis of experimental results.</td><td>for reactions. Literacy skills are built by comparing and contrasting chemical families, generating classification keys, writing conclusions and explanations, and creating risk assessments for practical work.</td></tr>
<tr><td rowspan="6">Term 3</td><td colspan="2">Previous knowledge recalled</td><td colspan="2">New Knowledge</td></tr>
<tr><td>C11 Polymers</td><td>C12 Chemical Analysis</td><td>C11 Polymers</td><td>C12 Chemical Analysis</td></tr>
<tr><td>Students need a solid understanding of organic functional groups. They should be able to name and draw alkenes, as this is crucial for additional polymerisation. Knowledge of alcohols, carboxylic acids, and the esterification reaction is also essential to understand condensation polymerisation.</td><td>Students need to recall the basic principles of mixtures and pure substances, including how to separate mixtures using methods like chromatography. They should also remember the concept of solubility and how to identify substances through simple chemical tests. Prior knowledge of states of matter and molecular structure is also essential.</td><td>Students will learn about two types of polymerisation. They'll study addition polymerisation using alkene monomers and condensation polymerisation, where monomers with two functional groups join together and a small molecule is lost. They'll also investigate important natural polymers, including proteins, starch, and DNA, describing DNA's double helix structure.</td><td>Students will learn about the differences between pure substances, mixtures, and formulations. They will explore chromatography in detail, including calculating Rf values, and learn about various gas tests for hydrogen, oxygen, carbon dioxide, and chlorine. Additionally, they will develop skills in analysing chromatograms both qualitatively and quantitatively.</td></tr>
<tr><td colspan="2">Key Knowledge Assessment</td><td colspan="2">Links to literacy and numeracy</td></tr>
<tr><td>C11 Polymers</td><td>C12 Chemical Analysis</td><td>C11 Polymers</td><td>C12 Chemical Analysis</td></tr>
<tr><td colspan="2">All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 3 this will focus on the C11/12 unit but will also include content from C8-10</td><td>Numeracy is developed through the spatial skills of drawing and interpreting 2D representations of monomers, polymers, and repeating units. Literacy skills are built by explaining and comparing polymerisation types, writing articles, delivering presentations, and summarising complex scientific information in a structured way.</td><td>Students will enhance literacy by describing chromatography processes, explaining gas tests, and discussing the purity of substances. Numeracy skills will be reinforced through calculating Rf values, interpreting chromatograms, analysing melting and boiling point data to assess purity, and using significant figures in quantitative analysis of experimental results.</td></tr>
<tr><td rowspan="3">Term 4</td><td colspan="2">Previous knowledge recalled</td><td colspan="2">New Knowledge</td></tr>
<tr><td>C13 & 14 Earth's Resources</td><td>C15 Using our Resources</td><td>C13 & 14 Earth's Resources</td><td>C15 Using our Resources</td></tr>
<tr><td>Students need to recall the basics of the Earth's structure, including the formation of rocks and the</td><td>Students need a strong understanding of dynamic equilibrium from Chapter C8 to analyse the Haber</td><td>Students will learn about the history and evolution of Earth's atmosphere, including the volcanic</td><td>Students will learn how rusting occurs and how to prevent it using barrier and sacrificial methods. They'll</td></tr>
</table>

	carbon cycle. They should understand basic concepts of chemical reactions, especially combustion, and have a foundational understanding of the role of carbon dioxide and oxygen in maintaining Earth's atmosphere.	process. Prior knowledge of alloys from C3 and polymers from C11 is also essential. An understanding of redox, the reactivity series, and practical titration methods is required for other topics in the unit.	activity theory. They will explore the impact of human activities on the atmosphere, such as global warming and pollution, understand the greenhouse effect, and study the causes and consequences of atmospheric pollutants like carbon monoxide and sulphur dioxide.	study the properties and uses of materials including alloys, polymers, ceramics, and composites. They'll also learn about the Haber process, explaining the compromise of conditions, and its importance in manufacturing NPK fertilisers.
	Key Knowledge Assessment		Links to literacy and numeracy	
	C13 & 14 Earth's Resources	**C15 Using our Resources**	**C13 & 14 Earth's Resources**	**C15 Using our Resources**
	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 4 students will sit a 3rd PPE and this will replicate a full paper 2 covering units C9-C15		Students will enhance literacy by explaining atmospheric changes, evaluating scientific theories, and discussing the environmental impact of pollution. Numeracy skills will be reinforced through interpreting data on gas compositions, analysing trends in climate change, calculating carbon footprints, and balancing chemical equations related to atmospheric reactions and pollutant formation.	Numeracy is developed by interpreting graphs of reaction rates, calculating percentages in alloys and fertilisers, and using titration results to find concentrations. Literacy is promoted through writing evaluations, justifying material choices, comparing lab and industrial processes, and developing persuasive arguments for industrial conditions.
Term 5	**Revision for GCSEs covering content from all topics based on performance in EOTT and PPEs** **GCSEs begin**			
Term 6	**GCSEs finish**			

Triple Physics	Previous knowledge recalled	New Knowledge
Term 1	P12 Wave Properties	P12 Wave Properties
	Speed Calculations: Simple speed calculations, including using correct units for speed, distance, and time. Properties of Light: Basic facts and properties of light. Reflection of Light: Simple light reflection experiments.	Students will learn about the properties of mechanical and electromagnetic waves, including their types (transverse and longitudinal) and how they transfer energy without transferring matter. They'll explore wave characteristics like wavelength, amplitude, period, and frequency, and the relationships between them, as well as investigate reflection and refraction of waves.
	Key Knowledge Assessment	Links to literacy and numeracy
	P12 Wave Properties	P12 Wave Properties
	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End	Literacy links involve describing wave phenomena like longitudinal and transverse waves, explaining concepts

<table>
<tr><td></td><td colspan="2">of topic tests covering both prior and new learning will be conducted each term. In term 1 this will focus on the P12 unit but will also include content from P1-P11</td><td colspan="2">such as reflection and refraction, and discussing experimental observations. Numeracy skills focus on calculations involving wave properties: period from frequency, wave speed from frequency and wavelength, and interpreting data from experiments.</td></tr>
<tr><td rowspan="6">Term 2</td><td colspan="2">Previous knowledge recalled</td><td colspan="2">New Knowledge</td></tr>
<tr><td colspan="2">P13 Electromagnetic waves</td><td colspan="2">P13 Electromagnetic waves</td></tr>
<tr><td colspan="2">Students need to recall the basics of wave properties, including wavelength, frequency, and the speed of waves, along with the wave equation v=fλ. They should also understand the nature of transverse waves and have a foundational understanding of how light and other electromagnetic waves behave.</td><td colspan="2">Students will learn about the electromagnetic spectrum, including the characteristics and uses of different types of electromagnetic waves. They will explore how electromagnetic waves interact with matter, the relationship between wavelength, frequency, and energy, and the practical applications and dangers of electromagnetic radiation, such as X-rays and gamma rays.</td></tr>
<tr><td colspan="2">Key Knowledge Assessment</td><td colspan="2">Links to literacy and numeracy</td></tr>
<tr><td colspan="2">P13 Electromagnetic waves</td><td colspan="2">P13 Electromagnetic waves</td></tr>
<tr><td colspan="2">All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 2 students will sit a 2nd PPE which will replicate a paper 1 covering units P1-P7</td><td colspan="2">Students will enhance literacy by explaining the electromagnetic spectrum, discussing the effects of radiation on health, and describing wave interactions with matter. Numeracy skills will be reinforced through calculations involving the wave equation, converting between wavelength and frequency, interpreting data related to radiation dose, and analysing wave properties using mathematical models.</td></tr>
<tr><td rowspan="6">Term 3</td><td colspan="2">Previous knowledge recalled</td><td colspan="2">New Knowledge</td></tr>
<tr><td>P14 - Light</td><td>P15 Electromagnetism</td><td>P14 - Light</td><td>P15 Electromagnetism</td></tr>
<tr><td>Students should have a foundational understanding of wave properties, particularly reflection and refraction, as covered in previous topics. They should also be familiar with the wave front model and understand that visible light is part of the broader electromagnetic spectrum.</td><td>Students need to recall the basics of magnetism, including the properties of magnets, magnetic fields, and the concept of magnetic poles. They should understand the idea of induced magnetism and have prior knowledge of how electric currents can create magnetic fields, particularly around a straight wire.</td><td>Students will study the reflection of light from different surfaces and the refraction of light at boundaries, distinguishing between real and virtual images. They will learn how colour is determined by the absorption and reflection of wavelengths. Finally, they'll use ray diagrams to describe image formation by lenses and calculate magnification.</td><td>Students will learn about the magnetic fields produced by electric currents, including the shape and strength of fields around wires and solenoids. They will explore the motor effect, using Fleming's left-hand rule to determine the direction of force, and investigate how electric motors operate using these principles.</td></tr>
<tr><td colspan="2">Key Knowledge Assessment</td><td colspan="2">Links to literacy and numeracy</td></tr>
<tr><td>P14 - Light</td><td>P15 Electromagnetism</td><td>P14 - Light</td><td>P15 Electromagnetism</td></tr>
<tr><td colspan="2">All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 3 this will focus on the P14/15 unit but will also include content from P8-P13</td><td>Numeracy is developed through geometric skills, including constructing accurate, scaled ray diagrams and measuring angles. It also involves</td><td>Students will enhance literacy by explaining the concepts of electromagnetism, describing the operation of electric motors, and using</td></tr>
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		algebraic skills, such as using and rearranging the magnification equation. Literacy focuses on using precise scientific language to explain phenomena and to describe image properties (e.g., real/virtual, magnified/diminished).	technical vocabulary like "magnetic flux density." Numeracy skills will be reinforced through calculating forces using F=Bil, applying Fleming's left-hand rule, and interpreting data from experiments on magnetic fields and motor effects.
Term 4	Previous knowledge recalled	New Knowledge	
	P16 - Space	**P16 - Space**	
	Students should understand gravity as an attractive force and know the basic structure of the Solar System. Knowledge of the electromagnetic spectrum, including wavelength, is needed for red-shift. Concepts like nuclear fusion, force, and acceleration are also essential for understanding stellar evolution and orbits.	Students will learn how stars form from nebulae and the different life cycles they follow based on mass. They will explore how gravity governs orbits and learn about the evidence for the expanding universe, including red-shift and Cosmic Microwave Background Radiation (CMBR), which supports the Big Bang theory.	
	Key Knowledge Assessment	Links to literacy and numeracy	
	P16 - Space	**P16 - Space**	
	All students will be receiving in class assessments including retrieval practice, low stakes testing and exam practice. End of topic tests covering both prior and new learning will be conducted each term. In term 4 students will sit a 3rd PPE and this will replicate a full paper 2 covering units P8-P16	Numeracy is developed by interpreting data from tables to compare planets and from graphs to understand the relationship between red-shift and distance. Literacy skills focus on describing complex sequences like stellar evolution and explaining concepts like orbital motion and the evidence supporting the Big Bang theory.	
Term 5	**Revision for GCSEs covering content from all topics based on performance in EOTT and PPEs** **GCSEs begin**		
Term 6	**GCSEs finish**		

Extra-Curricular opportunities	Online Activities 1. FutureLearn Courses Students can take free online courses that cover various science topics, enhancing their understanding of biology, chemistry, and physics. https://www.futurelearn.com/subjects/science-engineering-and-maths-courses 2. Royal Society of Chemistry's Interactive Experiments Online interactive experiments and activities to deepen understanding of chemical concepts. https://edu.rsc.org/resources Activities in Kent 1.Canterbury Christ Church University Science Outreach

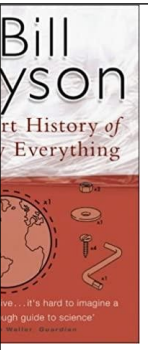
	Participate in workshops and science events aimed at secondary school students. https://www.canterbury.ac.uk/study-here/why-choose-us/outreach-and-widening-participation 2. Betteshanger Sustainable Parks Explore practical environmental science programs focusing on sustainability and ecological studies. Betteshanger Parks](https://betteshanger-park.co.uk/education/ Activities in London 1. Science Museum, London Engage with interactive exhibits and workshops that cover a wide range of scientific topics, from physics to chemistry and biology. https://www.sciencemuseum.org.uk/see-and-do/educators 2. The Royal Institution Participate in masterclasses and youth events that explore deep scientific topics and hands-on experiments. https://www.rigb.org/education/masterclasses 3. Linnean Society of London Workshops Workshops focusing on biology and evolution, providing students with a chance to learn about biological sciences outside the classroom. https://www.linnean.org/learning
Links to careers/ aspirations	1. Biomedical Scientist Working in healthcare to diagnose diseases and evaluate the effectiveness of treatments. https://www.healthcareers.nhs.uk/explore-roles/healthcare-science/roles-healthcare-science/biomedical-science/biomedical-scientist 2. Environmental Scientist Studying and resolving environmental problems to improve global health. https://www.prospects.ac.uk/job-profiles/environmental-scientist 3.Chemical Engineer Designing and developing chemical manufacturing processes. https://www.prospects.ac.uk/job-profiles/chemical-engineer 4. Forensic Scientist Analysing criminal evidence such as fibres, glass, and body fluids. https://www.prospects.ac.uk/job-profiles/forensic-scientist 5. Meteorologist Forecasting the weather and studying atmospheric conditions. https://www.metoffice.gov.uk/about-us/careers 6. Pharmacist Providing prescription medications and health advice to patients.

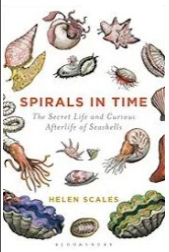
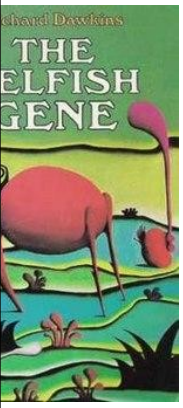
	https://www.healthcareers.nhs.uk/explore-roles/pharmacy 7.Science Teacher Educating the next generation of scientists in secondary schools. https://getintoteaching.education.gov.uk/explore-my-options/teacher-training-routes/school-led-training/school-direct 8.Renewable Energy Engineer Developing technologies to harness solar, wind, and other renewable energy sources. https://www.renewableuk.com/page/CareersInRenewables
Links to our Fulston FAMILY values	Fortitude Resilience in Learning: Science often presents challenging concepts and experiments. Students learn to persevere through these challenges, embodying fortitude as they tackle difficult topics and practical experiments. Adapting to Failure: Encouraging a scientific mindset where trial, error, and failure are seen as part of the learning process, helping students build resilience. Ambition Career Aspirations: The broad scope of science taught opens numerous career paths, inspiring students to aim high in various fields such as medicine, environmental science, and engineering. Pursuit of Excellence: By setting high academic standards and providing a comprehensive understanding of scientific principles, the curriculum encourages students to strive for excellence. Mindfulness Environmental Awareness: Teaching topics like ecology and the human impact on the environment fosters mindfulness about one's actions and their repercussions on the planet. Ethical Considerations: Discussions around the ethical implications of scientific developments, such as genetic modification and energy consumption, enhance students' thoughtful consideration of science and technology. Integrity Honest Scientific Practice: Students learn the importance of accurate data collection, honest analysis, and ethical reporting in experiments. Critical Thinking: The development of critical thinking skills encourages integrity in evaluating scientific information and claims. Leadership Group Projects and Presentations: Opportunities for students to lead projects, experiments, or group discussions cultivate leadership skills. Mentorship Roles: Older or more experienced students can take on mentorship roles, helping peers in laboratory settings or study groups. Young Citizens Community Engagement: Encouraging participation in community science projects and events, like local clean-up days

	or science fairs, fosters a sense of civic responsibility. Global Perspective: Learning about global challenges such as climate change, renewable energy, and conservation efforts prepares students to be informed global citizens, aware of worldwide issues and ready to contribute solutions.

Extended Learning Opportunities for Key Stage 4/5

	Listen	Watch	Explore and visit
panse (Novel Series). Science 	The Infinite Monkey Cage episode "Exoplanets" https://www.bbc.co.uk/programmes/p0dcn51y	(Completing an Egg Drop from Space – Mark Rober) https://www.youtube.com/watch?v=BYVZh5kqaFg Listen to this podcast on the mystery of gravity. https://www.brainson.org/episode/2015/01/09/the-mystery-of-gravity	Visit the mattress factory i apply your understanding
his journal about getting energy ur waste – can we create a greener nment to live in? /www.sciencejournalforkids.org/ s/waste-to-energy-how-can-we- e-most-from-our-waste/	Listen to the following podcast about heat transfer: Energy: Stop Faking It! Energy, Heat, and Heat Transfer: Thermal https://my.nsta.org/resource/11525/podcast-energy-stop-faking-it-energy-heat-and-heat-transfer-thermal-energy Watch The Fascinating Truth About Energy With Professor Jim Al-Khalili https://www.youtube.com/watch?v=aeaQpuYPsy8	(How Cell Service Actually Works – Wendover Productions) https://www.youtube.com/watch?v=0faCad2kKeg (British Plugs are Better than All Other Plugs, and Here's Why – Tom Scott) https://www.youtube.com/watch?v=UEfP1OKKz_Q (How Australia's Most Remote Phone Booths Work – Julian O'Shea) https://www.youtube.com/watch?v=dU7PBXYmyXg Shock and Awe – BBC Horizons https://www.youtube.com/watch?v=Gtp51eZkwoI	Investigate the kinetic and energy transferring in a sk https://phet.colorado.edu -skate-park/latest/energy-park_en.html
history of nearly everything	Listen to Melvyn Bragg and guests discuss the science of matter and the states in which it can exist on BBC4.	(World's Lightest Solid! – Veritasium) https://www.youtube.com/watch?v=AeJ9q45PfD0	The Science Museum – Lo Visit a Chemistry exhibitio

 e Physics – Brick by brick 	https://www.bbc.co.uk/programmes/b03zdbr4 Read this journal about how we can make water safe to drink. https://www.sciencejournalforkids.org/articles/heavy-metal-pollution-how-can-we-make-water-safe-to-drink/	(Let's Travel to the Most Extreme Place in the Universe – Kurzgesagt – In A Nutshell) https://www.youtube.com/watch?v=FfWtIaDtfYk (All About Mercury, the Liquid Metal – NileRed) https://www.youtube.com/watch?v=ZiWlthrtneU https://ed.ted.com/lessons/solid-liquid-gas-and-plasma-michael-murillo https://www.youtube.com/watch?v=q8Ent5CXhfY Watch this video that investigates the periodic table to life. https://www.youtube.com/watch?v=kqe9tEcZkno	Museum https://www.sciencemuseobjects-and-stories/chemi

in Time by Helen Scales (Speak to her to borrow)  	Small Screen Science https://podcasts.apple.com/gb/podcast/small-screen-science/id1511181067 Listen to 'The Science of Your Favourite Foods' with Rob Dunn https://radiopublic.com/tumble-science-podcast-for-kids-G4wko8/s1!ef666 The Poop Collector with Lawrence David https://radiopublic.com/tumble-science-podcast-for-kids-G4wko8/s1!02d02	Watch 'The Hidden Kingdom' The Story of the biological cell, where Adam Rutherford explores how centuries of scientific and religious dogma were overturned by the discovery of the cell. https://www.bbc.co.uk/programmes/b00m425d Watch a TedEd Talk about the brain https://www.ted.com/playlists/576/fascinating_ted_ed_lessons_about_the_brain	Find out what creatures ha in your local area using the https://records.nbnatlas.o area Use a dichotomous key to of insects you have seen/c https://www.amentsoc.or bug-is-this/adult-key.html The Sea Life Centre – Vari Take a visit to The Body W https://bodyworlds.com/
lfish Gene  	Unnatural selection - Netflix series about genetic engineering. https://www.netflix.com/title/80208910	(Why 90% of Asians are Lactose Intolerant – Half As Interesting) https://www.youtube.com/watch?v=jrhVfwPIB0A Unnatural selection - Netflix series about genetic engineering. https://www.netflix.com/title/80208910 Join DNA Dan on his Genetics and Genomics podcast https://www.scuhs.edu/announcements/introducing-dna-dan-a-genetics-and-genomics-podcast/	The Natural History Museu Visit the Science Museum epidemics https://www.sciencemuse objects-and-stories/epide