Curriculum Overview
Science

Subject Intent
Our curriculum allows children to understand the world around them through biology, chemistry, and physics. It will prioritize equity and inclusion, ensuring every child, regardless of background or socio-economic status, has equal access to high quality science education. We create an inclusive learning environment that will address the unique needs and circumstances of our students. We will foster a supportive environment that connects science education to real world experiences and meets the challenges our children face. We aim to bridge gaps and provide a level playing field for all children. To meet the needs of all children, our curriculum's powerful knowledge is delivered in a spiral curriculum, and we use the progression model of teaching 10 'big ideas' that interleaves key concepts to ensure that it is 'knowledge connected'. It is built to ensure engagement, there are clear links between topics, and has opportunities to boost aspirations; the curriculum showcases the diverse range of career opportunities available in scientific field and promotes positive role models from similar backgrounds. Our science curriculum fosters curiosity, engagement, and academic achievement amongst all children. The curriculum incorporates hands on activities that stimulate curiosity and foster a sense of wonder. Practical experiments, field trips and real-life applications of scientific concepts spark interest and make science more relatable and accessible to children**.**

Year 7						
	HT1	**HT2**	**HT3**	**HT4**	**HT5**	**HT6**
Enquiry Question	How do scientists work safely and effectively? What are living organisms made of? What is matter made of, and how does this explain how substances behave? How do forces affect the movement of objects, and how can we measure and describe motion?	How do humans move? How can we separate mixtures? How does electricity flow around a circuit?	How do living things rely on each other in an ecosystem? How do plants reproduce? How do acids and alkalis behave and why are they useful? How can we use energy wisely to save money and protect the environment?	Why do individuals of the same species look and behave differently? How do acids and alkalis behave and why are they useful? How is sound made and how does it travel?	How do humans reproduce and how does a new life develop? How do metals and non-metals react and what are their properties? How does light travel & help us to see?	Performing an investigation How do humans reproduce and how does a new life develop? How is the Earth structured? What is out there in space and how does it affect us on Earth?
Subject Content	Equipment & Safety in science Biology: Organisms- Cells Chemistry: Matter- The particle model Physics: Forces – Speed & gravity	Biology: Organisms- Movement Chemistry: Matter- Separating mixtures Physics: Electromagnets – potential difference, resistance & current	Biology: Ecosystems- Interdependence & plant reproduction Chemistry: Reactions-acids & alkalis Physics: Energy- Energy costs	Biology: Genes - Variation Chemistry: Reactions-acids & alkalis Physics: Waves- Sound	Biology: Genes – Human reproduction Chemistry: Reactions- Metals & nonmetals Physics: Waves- Light	Biology: Genes – Human reproduction Chemistry: Earth – Earth Structure Physics: Earth- the universe
Disciplinary Knowledge/Skills	Naming equipment Using a Bunsen burner safely Lab safety and risk awareness Use a microscope safely and accurately Observe and draw cells using scientific conventions Understand hazards, risks, and safety rules Learn Bunsen burner use: Parts and setup Lighting safely Safety vs heating flame Use basic equipment safely Observe and describe simple phenomena	Identifying variables (independent, dependent, control) Choosing appropriate methods Making predictions Plan simple investigations Make predictions Select appropriate separation methods Predict outcomes Measure using simple equipment	Drawing tables correctly Using headings and units Applying practical skills independently Record observations clearly Carry out reactions safely (including heating where needed) Record changes (colour, gas, temperature)	Drawing bar charts and line graphs Presenting data clearly Identifying trends Record and interpret pH data Use simple equations (e.g. speed) Apply knowledge to new contexts	Drawing evidence-based conclusions Explaining using scientific ideas Linking data to theory Explain relationships between variables Draw conclusions from evidence Explain patterns in results Link observations to theory Use simple equations (e.g. speed)	Evaluating methods and suggesting improvements Understanding accuracy, reliability, and error Applying math's in science Evaluate environmental impact Apply knowledge to new contexts Plan and carry out a complete scientific investigation Select appropriate equipment and methods Collect and present data Analyse results and draw conclusions Evaluating methods and suggesting improvements
Theme (if applicable)						
SMSC	Moral - Lab safety and responsibility Developing social skills through group and practical work. Cultural- How ideas have changed over time- History of the atom. Social-Safety- Safety in the lab Spiritual - awe of the scale of living things from the smallest microorganism to the largest tree	Moral – safety and responsibility when using equipment and electricity; sustainable use of resources Social – teamwork and communication through practical work Cultural – impact of scientific developments (e.g. electricity, materials) on society over time Spiritual – awe at how the body moves, how materials behave, and invisible forces like electricity	Moral – responsibility for environmental impact, sustainability, and energy use Social – teamwork and communication through practical investigations Cultural – how scientific understanding (e.g. ecosystems, acids, energy use) affects societies and lifestyles Spiritual – awe at the complexity and interdependence of living organisms and natural systems	Lab safety and responsibility Developing social skills through group and practical work Cultural – how scientific ideas (e.g. variation, acids and alkalis, sound) impact society and everyday life Social – safe and cooperative working during practical investigations Spiritual – awe at human diversity, chemical changes, and how sound travels and allows communication	Lab safety and responsibility Developing social skills through group and practical work Cultural – how scientific ideas (e.g. reproduction, metals & non-metals, light) impact society and technological development Social – safe and cooperative working during practical investigations Spiritual – awe at human development, chemical reactions of materials, and the behaviour of light	Lab safety and responsibility Developing social skills through group and practical work Cultural – how scientific ideas (e.g. reproduction, Earth structure, the universe) shape our understanding of the world and society Social – safe and cooperative working in practical investigations Spiritual – awe at human development, the structure of the Earth, and the vastness of the universe

Careers	Laboratory technician, forensic scientist, health & safety officer Biomedical scientist, materials scientist, mechanical engineer	Chromatography to solve crime (forensics) Physiotherapist, chemical engineer, electrician	Ecology Importance of conservation work Ecologist, environmental scientist, energy consultant	Geneticist, industrial chemist, sound engineer	Midwife/doctor, industrial chemist	Midwife/doctor, geologist, astronomer

Year 8						
	HT1	**HT2**	**HT3**	**HT4**	**HT5**	**HT6**
Enquiry Question	How does your body get the food and oxygen it needs to give you energy? How can the periodic table help us understand what different elements are like? How do forces and pressure change what happens to objects around us? Performing an investigation: How does the amount of liquid affect how long it takes to boil, and how can we make it a fair test?	How do organisms break down and absorb food to obtain energy and nutrients essential for life? How does the structure of the periodic table help us understand and predict the properties of elements? How do contact forces and pressure affect the movement and interactions of objects in everyday life?	How do respiration and photosynthesis work together to transfer energy through ecosystems? How can we identify and explain different types of chemical reactions and the changes they produce? How do magnets and electromagnets work, and how are they used to generate and control forces in technology?	How do genes influence evolution, and how do species change over time through natural selection? How is chemical energy stored and transferred during reactions, and how can it be measured and used? How does energy move through work, heating and cooling, and how does this change around us?	How do living things change over time? How are characteristics passed from parents to offspring? How do chemical processes in the atmosphere influence Earth's climate and environmental change? How do waves move energy, and what effects do they have when they travel?	How are characteristics passed from parents to offspring? What resources does Earth give us, and how can we use them carefully? What are waves like, and how do their features affect how they move?
Subject Content	Biology: Organisms – Breathing Chemistry: Matter- Elements Physics: Forces - contact forces	Biology: Organisms – Digestion Chemistry: Matter- The periodic table Physics: Forces contact forces & pressure	Biology: Ecosystems – Respiration & Photosynthesis Chemistry: Reactions – types of reactions Physics: Electromagnets – magnetism and electromagnetism	Biology: Genes - Evolution Chemistry: Reactions - chemical energy Physics: Energy – Work and heating and cooling	Biology: Genes – Evolution / Inheritance Chemistry: Earth - Climate Physics: Waves – Wave effects	Biology: Genes – Evolution Chemistry: Earth – Resources Physics: Waves – Properties
Disciplinary Knowledge/Skills	Identify variables → fair testing → basic data Identify independent, dependent and control variables in context Explain how to control variables to make a fair test Choose appropriate methods (diffusion, energy changes, separation) Make simple predictions using scientific ideas (particles, energy) Use basic equipment (thermometers, timers, measuring cylinders) Record results in tables with headings and units	Identify variables → fair testing → basic data Identify and control variables in more complex contexts (digestion processes, element groups, pressure) Choose and justify appropriate methods (food tests, periodic table patterns, pressure investigations) Make reasoned predictions using scientific knowledge (enzymes, periodic trends, forces) Describe patterns and trends in data (e.g. reactivity, pressure changes)	Methods, graphs, data use Identify and control variables (rates, energy, magnet strength) Choose and justify methods (gas production, reactions, electromagnets) Make predictions using scientific knowledge Draw and use graphs to show results Explain patterns and relationships	Evaluation (anomalies, improvements) Make predictions using scientific knowledge (energy, evolution ideas) Draw and use graphs to show results Explain patterns and relationships Identify anomalies and suggest improvements	Relationships and correlations Make predictions using scientific knowledge (inheritance, climate change, energy) Draw and use graphs to show results Describe relationships and correlations in data Explain patterns and trends Identify anomalies and suggest improvements	Independence – be able to carry out a simple investigation independently to achieve valid results
Theme (if applicable)						
SMSC	Moral – Responsibility for health (breathing), safe use of materials (elements), and safe forces in everyday life. Social – Teamwork and communication through practical investigations in all three sciences. Cultural – How scientific ideas (elements, forces, human health) have developed and are used in society. Spiritual – Awe and curiosity about the body, the materials that make up the world, and the forces that affect how things move.	Moral – Responsibility for healthy choices (digestion), safe use of materials (periodic table), and understanding pressure and safety in everyday forces. Social – Teamwork and communication through practical investigations across all topics. Cultural – How ideas like the periodic table and understanding of forces have developed and are used in society. Spiritual – Curiosity and awe about how the body processes food, how elements build the world, and how forces and pressure affect everyday life.	Moral – Understanding responsibility for health (respiration), environmental impact (photosynthesis and ecosystems), and safe use of electrical devices (electromagnets). Social – Teamwork and communication through practical investigations and collaborative learning. Cultural – How scientific ideas about reactions, energy in ecosystems, and electromagnetism have developed and are used in society. Spiritual – Curiosity and awe about how living things use energy, how reactions change substances, and how unseen magnetic forces work.	Moral – Understanding responsibility for health and genetic decisions (evolution), safe use of energy in reactions, and efficient energy use in everyday systems. Social – Teamwork and communication through practical investigations and discussions. Cultural – How ideas about evolution and energy have developed and are used in modern society. Spiritual – Curiosity and awe about how living things change over time and how energy is transferred and stored in the world around us.	Moral – Understanding responsibility for biodiversity, genetic technologies, and environmental sustainability. Social – Collaboration and communication through practical work and discussion of scientific and environmental issues. Cultural – How ideas about evolution, climate and wave technologies have developed and shape modern society. Spiritual – Awe and curiosity about evolution, Earth's systems, and the transfer of energy through waves.	Moral – Understanding responsibility for biodiversity, genetic technologies, and environmental sustainability. Social – Collaboration and communication through practical work and discussion of scientific and environmental issues. Cultural – How ideas about evolution, climate and wave technologies have developed and shape modern society. Spiritual – Awe and curiosity about evolution, Earth's systems, and the transfer of energy through waves.
Careers	Breathing (Biology): Links to careers in healthcare and sport, such as doctors, nurses, and coaches. Elements (Chemistry): Useful for careers like chemists,	Digestion (Biology): Links to careers in healthcare and nutrition, such as doctors, dietitians, and nurses. Periodic Table (Chemistry): Important for jobs like	Respiration & Photosynthesis (Biology): Links to careers in environmental science, ecology, and healthcare. Types of Reactions (Chemistry): Useful for jobs	Evolution (Biology): Links to careers in wildlife conservation, research, and medicine. Chemical Energy (Chemistry): Useful for jobs in energy, chemical	Evolution & Inheritance (Biology): Links to careers in genetics, medicine, and conservation. Climate (Chemistry): Useful for jobs in environmental	Evolution (Biology): Links to careers in conservation, research, and medicine. Earth Resources (Chemistry): Useful for jobs in geology, environmental science, and sustainability.

	pharmacists, and materials scientists. Contact Forces (Physics): Important for jobs in engineering, construction, and design.	chemists, pharmacists, and laboratory technicians. Forces & Pressure (Physics): Useful for careers in engineering, construction, and environmental science.	like chemists, pharmacists, and chemical engineers. Magnetism & Electromagnetism (Physics): Important for careers in electrical engineering, electronics, and renewable energy.	engineering, and sustainability. Work, Heating & Cooling (Physics): Important for careers in engineering, construction, and renewable energy.	science, climate research, and sustainability. Wave Effects (Physics): Important for careers in sound engineering, telecommunications, and medicine (e.g. ultrasound).	Wave Properties (Physics): Important for careers in communications, engineering, and medical imaging

Year 9						
	HT1	**HT2**	**HT3**	**HT4**	**HT5**	**HT6**
Enquiry Question	How do cells, enzymes, and osmosis help living things survive and function? Why do solids, liquids, and gases behave differently? How can we separate mixtures to get pure substances? How do things move and how can we measure it?	How do cells, enzymes, and osmosis help living things survive and function? What are atoms made of and how are they arranged? How do forces change how things move?	How do cells divide, specialise, and communicate through the nervous system to control the body? How are elements organised and what patterns can we see? Where does energy go and why can't it be lost?	How do cells divide, specialise, and communicate through the nervous system to control the body? How do atoms join to form ionic compounds with different properties? How is energy transferred and why is it always conserved?	How do genes and DNA control inherited characteristics? How do atoms bond and how does this affect the properties of different materials? How do waves transfer energy and information?	How do genes and DNA control inherited characteristics? How do different types of substances have different properties and uses? How do different types of electromagnetic waves affect our lives?
Subject Content	CB1 Key Concepts in Biology CC1 States of matter CC2 Methods of separating & purifying CP1 Motion	CB1 Key Concepts in Biology CC3 Atomic Structure CP2 Forces & Motion	CB2 Cells and control CC4 The periodic table CP3 Conservation of Energy	CB2 Cells and control CC5 Ionic Bonding CP3 Conservation of Energy	CB3 Genetics CC6 Covalent Bonding / CC7 Types of substance CP4 Waves	CB3 Genetics CC7 Types of substance CP5 EM spectrum
Disciplinary Knowledge/Skills	CB1 Key Concepts in Biology: Observing cells, using microscopes, and analysing biological data (e.g. slide preparation). CC1 States of Matter: Measuring temperature changes, recording data, and interpreting heating/cooling graphs. CC2 Separation & Purification: Applying techniques like filtration and chromatography and evaluating results (core practicals included). CP1 Motion: Measuring speed and time, drawing graphs, and analysing motion data through practical investigations.	CB1 Key Concepts in Biology: Using microscopes, observing cells, and interpreting biological data. CC3 Atomic Structure: Understanding models, interpreting diagrams, and analysing patterns in atomic structure. CP2 Forces & Motion: Measuring forces and movement, collecting data, and interpreting graphs through practical work.	CB2 Cells and Control: Using microscopes, interpreting cell processes, and analysing results from practical investigations (e.g. osmosis). CC4 The Periodic Table: Identifying patterns, interpreting data, and using models to explain trends. CP3 Conservation of Energy: Measuring energy changes, analysing data, and interpreting results from practical experiments.	CB2 Cells and Control: Using microscopes, interpreting cell processes, and analysing results from practicals (e.g. osmosis). CC5 Ionic Bonding: Using models and diagrams to understand bonding and explaining properties of substances. CP3 Conservation of Energy: Measuring energy changes and interpreting data from practical investigations.	CB3 Genetics: Interpreting genetic information, analysing data, and understanding inheritance patterns. CC6 Covalent Bonding / CC7 Types of Substance: Using models and diagrams to explain bonding and linking structure to properties. CP4 Waves: Measuring wave properties, analysing data, and interpreting wave behaviour from practicals	CB3 Genetics: Analysing genetic data and interpreting inheritance patterns. CC7 Types of Substance: Linking structure to properties and using models to explain materials. CP5 EM Spectrum: Interpreting data on waves and applying knowledge of electromagnetic radiation.
Theme (if applicable)						
SMSC	Moral – Safe use of materials, methods, and forces in practical science. Social – Teamwork and communication in experiments. Cultural – Use of materials, separation, and motion in industry and everyday life. Spiritual – Curiosity about matter, movement, and how the physical world works.	Moral – Safe and responsible use of knowledge about atoms, forces, and motion in practical contexts. Social – Teamwork and communication in investigations of particles and forces. Cultural – Impact of atomic theory and forces on technology, transport, and modern science. Spiritual – Wonder at the unseen structure of matter and the forces that shape how objects move.	Moral – Responsibility for healthy living (cells), and safe use of scientific knowledge about elements and energy. Social – Teamwork and discussion in practicals on cells, elements, and energy changes. Cultural – Importance of cells, the periodic table, and energy in medicine, industry, and everyday life. Spiritual – Wonder at living systems, the organisation of elements, and how energy is transferred in the universe.	Moral – Responsibility for understanding health (cells), safe use of substances (ionic bonding), and energy use. Social – Teamwork and collaboration in practical investigations. Cultural – Role of cells, compounds, and energy in medicine, materials, and everyday life. Spiritual – Wonder at living systems, chemical bonding, and how energy is conserved.	Moral – Responsibility for health and genetics, safe use of substances, and awareness of wave impacts (e.g. radiation). Social – Teamwork and communication in practical investigations. Cultural – Role of genetics, materials, and waves in medicine, technology, and society. Spiritual – Wonder at inheritance, bonding, and how waves transfer energy.	Moral – Responsibility in understanding genetics, safe use of materials, and awareness of EM waves. Social – Teamwork and communication in practical work. Cultural – Impact of genetics, material types, and EM waves in medicine, technology, and everyday life. Spiritual – Wonder at inheritance, material properties, and how waves behave.
Careers	Key Concepts in Biology (Biology): Supports careers in healthcare, research, and environmental science, such as doctors, biologists, and laboratory technicians. States of Matter (Chemistry): Useful for careers in chemistry, engineering, and materials science, including chemists and industrial technicians. Separating & Purifying (Chemistry): Links to jobs in pharmaceuticals, food science, and forensic science. Motion (Physics): Important for careers in engineering,	Key Concepts in Biology (Biology): Supports careers in healthcare, research, and environmental science, such as doctors, nurses, and biologists. Atomic Structure (Chemistry): Important for careers in chemistry, physics, and materials science, including chemists and lab technicians. Forces & Motion (Physics): Links to jobs in engineering, transport, sport science, and mechanical design.	Cells and Control (Biology): Supports careers in healthcare, medicine, and biotechnology, such as doctors, nurses, and biomedical scientists. The Periodic Table (Chemistry): Useful for careers in chemistry, materials science, and engineering, including chemists and chemical engineers. Conservation of Energy (Physics): Important for jobs in engineering, energy production, and environmental science,	Cells and Control (Biology): Supports careers in healthcare, medicine, and biotechnology, such as doctors, nurses, and biomedical scientists. Ionic Bonding (Chemistry): Useful for careers in chemistry, pharmacy, and materials science, including chemists and lab technicians. Conservation of Energy (Physics): Important for jobs in engineering, energy, and environmental science, such as engineers and sustainability specialists.	Genetics (Biology): Supports careers in healthcare, genetics, and research, such as geneticists, doctors, and biomedical scientists. Covalent Bonding / Types of Substance (Chemistry): Useful for careers in chemistry, materials science, and pharmaceuticals, including chemists and product developers. Waves (Physics): Important for jobs in communications, medicine, and engineering, such as sound engineers,	Genetics (Biology): Supports careers in healthcare, genetics, and research, such as geneticists, doctors, and biomedical scientists. Types of Substance (Chemistry): Useful for careers in materials science, chemistry, and engineering, including chemists and product designers. EM Spectrum (Physics): Important for jobs in medicine, communications, and technology, such as radiographers, telecoms

	transport, sport science, and design.		such as engineers and sustainability specialists.		radiographers, and telecommunications specialists.	engineers, and satellite specialists.

Year 10						
	HT1	**HT2**	**HT3**	**HT4**	**HT5**	**HT6**
Enquiry Question	How do living things change over time and can we change their genes? How do diseases spread and how do medicines help us get better? What makes something an acid or an alkali? What is radioactivity and how is it used safely?	How do diseases spread and how do medicines help us get better? How do plants get the water and nutrients they need What makes something an acid or an alkali? How can we work out how much of each substance is in a reaction? How do forces transfer energy to make things move?	How do plants get the water and nutrients they need? How does the body keep everything balanced and working properly? How can electricity be used to break down substances? How do we extract metals and why are they useful? How do circuits work to power electrical devices?	How does the body keep everything balanced and working properly? Can chemical reactions go forwards and backwards? How do circuits work to power electrical devices?	How do living things depend on each other in an ecosystem? What patterns are there in the periodic table groups? How do circuits work to power electrical devices?	How do living things depend on each other in an ecosystem? What makes chemical reactions happen faster or slower? How do circuits work to power electrical devices?
Subject Content	CB4 Natural Selection and Genetic Modification CB5 Health, Disease and Development of Medicines CC8 Acids & alkalis CP6 Radioactivity	CB5 Health, Disease and Development of Medicines CB6 Plants structures & their functions CC8 Acids & alkalis CC9 Calculations involving mass CP6 Radioactivity P7 Energy - Forces Doing Work	CB6 Plants structures & their functions CB7 Animal coordination, Control and Homeostasis CC10 Electrolytic processes CC11 Obtaining & using metals CP9 Electricity and Circuits	CB7 Animal coordination, Control and Homeostasis CC12 Reversible reactions & equilibria CP9 Electricity and Circuits	CB9 Ecosystems CC13 Groups in the Periodic Table CP9 Electricity and Circuits Paper 1 revision	CB9 Ecosystems CC14 Rates of Reaction CP9 Electricity and Circuits Paper 1 revision
Disciplinary Knowledge/Skills	CB4 Natural Selection and Genetic Modification: Using data to track variation and inheritance, modelling natural selection, and evaluating evidence for evolution and genetic technologies. CB5 Health, Disease and Development of Medicines: Analysing data from clinical trials, culturing microorganisms safely, and evaluating the effectiveness and risks of treatments. CC8 Acids & Alkalis: Measuring pH using indicators and probes, carrying out neutralisation reactions, and interpreting results (core practicals included). CP6 Radioactivity: Recording and analysing decay data, interpreting graphs (e.g. half-life), and applying models to explain radioactive processes.	CB5 Health, Disease and Development of Medicines: Analysing data from clinical trials, culturing microorganisms safely, and evaluating treatments. CB6 Plant Structures & Their Functions: Observing plant tissues, measuring rates (e.g. photosynthesis/transpiration), and interpreting biological data. CC8 Acids & Alkalis: Measuring pH, carrying out neutralisation reactions, and interpreting results (core practicals included). CC9 Calculations Involving Mass: Using equations to calculate mass, moles, and concentrations, and interpreting quantitative data. CP6 Radioactivity: Recording decay data, interpreting graphs (e.g. half-life), and applying models of radiation. CP7 Energy – Forces Doing Work: Measuring work done and energy transferred, using equations, and analysing results from practical investigations.	CB6 Plant Structures & Their Functions: Observing plant tissues, measuring rates (e.g. transpiration/photosynthesis), and interpreting data from practical investigations. CB7 Animal Coordination, Control and Homeostasis: Investigating response times, analysing data on hormones and the nervous system, and evaluating control mechanisms in the body. CC10 Electrolytic Processes: Using electrolysis equipment, recording results, and explaining chemical changes in reactions (core practicals included). CC11 Obtaining & Using Metals: Analysing extraction methods, comparing data, and evaluating environmental and economic impacts. CP9 Electricity and Circuits: Building circuits, measuring current and voltage, and interpreting data from circuit investigations (core practicals included).	CB7 Animal Coordination, Control and Homeostasis: Investigating response times, analysing data on the nervous and hormonal systems, and evaluating how the body maintains balance. CC12 Reversible Reactions & Equilibria: Observing reversible reactions, recording colour/temperature changes, and interpreting equilibrium shifts in practical work. CP9 Electricity and Circuits: Building circuits, measuring current and voltage, and analysing data from circuit investigations (core practicals included).	CB9 Ecosystems: Investigating ecosystems through fieldwork, collecting and analysing data on organisms, and evaluating environmental impact. CC13 Groups in the Periodic Table: Identifying patterns in groups, recording observations from reactions, and interpreting trends in properties. CP9 Electricity and Circuits: Building circuits, measuring current and voltage, and analysing data from circuit investigations (core practicals included).	CB9 Ecosystems: Investigating ecosystems through fieldwork, collecting and analysing data on organisms, and evaluating environmental impact. CC14 Rates of Reaction: Measuring reaction rates, recording data, and interpreting graphs to compare how reactions change under different conditions (core practicals included). CP9 Electricity and Circuits: Building circuits, measuring current and voltage, and analysing data from circuit investigations (core practicals included).
Theme (if applicable)						
SMSC	Moral – Responsibility for ethical decisions in genetics and medicine, safe use of chemicals, and understanding risks of radiation. Social – Teamwork and communication in practical investigations and discussing impacts of disease and treatments. Cultural – Impact of medical advances, genetic technologies, acids, and nuclear science on society and industry. Spiritual – Awe and curiosity about evolution, human health, chemical reactions, and the unseen processes of radioactivity.	Moral – Responsibility for health and treatment choices, safe use of chemicals and energy, and understanding risks of radiation. Social – Teamwork and communication in practical work and discussions about health, plants, and energy use. Cultural – Impact of medicine, plant science, chemical use, and energy on society, industry, and sustainability. Spiritual – Curiosity about living systems, how substances change, and how energy and radiation affect the world.	Moral – Responsibility for understanding health and body systems, safe use of chemicals and electrolysis, and safe use of electricity. Social – Teamwork and communication in practical work and discussions about living systems, materials, and circuits. Cultural – Impact of plant science, human biology, metals, and electricity on society, industry, and technology. Spiritual – Curiosity about how living organisms function, how materials are produced, and how electricity powers the modern world.	Moral – Responsibility for healthy functioning of the body, safe use of chemicals in reversible reactions, and safe handling of electrical equipment. Social – Teamwork and communication in practical work and discussions about body systems, reactions, and circuits. Cultural – Impact of understanding human control systems, chemical changes, and electricity on technology and everyday life. Spiritual – Curiosity about how the body maintains balance, how reactions can reverse, and how electricity powers the world.	Moral – Responsibility for protecting the environment, safe use of chemicals, and safe handling of electrical equipment. Social – Teamwork and communication in practical work and discussions about ecosystems, materials, and circuits. Cultural – Impact of ecosystems, chemical group patterns, and electricity on society, sustainability, and technology. Spiritual – Curiosity about the natural world, patterns in elements, and how electricity powers everyday life.	Moral – Responsibility for protecting ecosystems, safe investigation of reaction rates, and safe use of electrical equipment. Social – Teamwork and communication in practical work and discussions about ecosystems, reactions, and circuits. Cultural – Impact of ecosystems, chemical reactions, and electricity on society, industry, and sustainability. Spiritual – Curiosity about the natural world, how quickly reactions happen, and how electricity powers modern life.

Careers	Natural Selection & Genetic Modification (Biology): Supports careers in genetics, medicine, biotechnology, and research, such as geneticists and biomedical scientists. Health, Disease & Development of Medicines (Biology): Links to careers in healthcare, pharmacy, and medical research, including doctors, nurses, and pharmacists. Acids & Alkalis (Chemistry): Useful for careers in chemistry, manufacturing, and environmental science, such as chemists and laboratory technicians. Radioactivity (Physics): Important for careers in medicine, energy, and engineering, including radiographers, nuclear engineers, and physicists.	Health, Disease & Development of Medicines (Biology): Links to careers in healthcare, pharmacy, and medical research, including doctors, nurses, and pharmacists. Plant Structures & Their Functions (Biology): Supports careers in agriculture, environmental science, and botany, such as agronomists and ecologists. Acids & Alkalis (Chemistry): Useful for careers in chemistry, manufacturing, and environmental science, including chemists and lab technicians. Calculations Involving Mass (Chemistry): Important for careers requiring precision and analysis, such as chemical engineering and pharmaceuticals. Radioactivity (Physics): Links to careers in medicine, energy, and engineering, including radiographers and nuclear engineers. Energy – Forces Doing Work (Physics): Supports careers in engineering, construction, and design, such as mechanical engineers and architects.	Plant Structures & Their Functions (Biology): Supports careers in agriculture, environmental science, and botany, such as agronomists and ecologists. Animal Coordination, Control & Homeostasis (Biology): Links to careers in healthcare and sports science, including doctors, physiotherapists, and neuroscientists. Electrolytic Processes (Chemistry): Useful for careers in chemical engineering, manufacturing, and materials production. Obtaining & Using Metals (Chemistry): Important for careers in engineering, construction, and industrial chemistry, such as metallurgists. Electricity & Circuits (Physics): Supports careers in electrical engineering, electronics, and technology, including electricians and circuit designers	Animal Coordination, Control & Homeostasis (Biology): Links to careers in healthcare and neuroscience, including doctors, physiotherapists, and neurologists. Reversible Reactions & Equilibria (Chemistry): Useful for careers in chemical engineering, pharmaceuticals, and industrial chemistry. Electricity & Circuits (Physics): Supports careers in electrical engineering, electronics, and technology, such as electricians and circuit designers.	Ecosystems (Biology): Links to careers in environmental science, conservation, and ecology, such as ecologists and wildlife conservationists. Groups in the Periodic Table (Chemistry): Supports careers in chemistry, teaching, and materials science, including chemists and laboratory technicians. Electricity & Circuits (Physics): Important for careers in electrical engineering, electronics, and technology, such as electricians and circuit designers.	Ecosystems (Biology): Links to careers in environmental science, conservation, and ecology, such as ecologists and wildlife conservationists. Rates of Reaction (Chemistry): Supports careers in chemical engineering, pharmaceuticals, and industrial chemistry, including chemists. Electricity & Circuits (Physics): Important for careers in electrical engineering, electronics, and technology, such as electricians and circuit designers.

Year 11						
	HT1	**HT2**	**HT3**	**HT4**	**HT5**	**HT6**
Enquiry Question	How does my body move oxygen and nutrients around? How do chemical reactions give off or take in heat? Which fuels are best and how do they affect the planet? How do magnets help make motors work? How can movement make electricity?	How does my body move oxygen and nutrients around? How do living things depend on each other and recycle materials? Which fuels are best and how do they affect the planet? How has Earth and its atmosphere changed over time? How can movement make electricity? How do particles behave in solids, liquids, and gases? How do forces and pressure affect materials?	Mock Exam Revision: How can I improve my answers in science exams? How do living things depend on each other and recycle materials? How has Earth and its atmosphere changed over time? How do forces and pressure affect materials? How can I use everything I've learned to succeed in my GCSEs?	How can I use everything I've learned to succeed in my GCSEs?	How can I use everything I've learned to succeed in my GCSEs?	
Subject Content	CB8 Exchange and Transport in Animals CC15 Heat Energy Changes in Chemical Reactions CC16 Fuels CP10 Magnetism and the Motor Effect CP11 Electromagnetic Induction	CB8 Exchange and Transport in Animals CB9 Ecosystems and Material Cycles CC16 Fuels CC17 Earth and Atmospheric Science CP11 Electromagnetic Induction CP12 Particle Model CP13 Forces and Matter	Mock exam revision CB9 Ecosystems and Material Cycles CC17 Earth and Atmospheric Science CP13 Forces and Matter CC17 Earth and Atmospheric Science GCSE Exam revision	GCSE Exam revision	GCSE Exam revision	
Disciplinary Knowledge/Skills	CB8 Exchange and Transport in Animals: Interpreting data on gas exchange and circulation, analysing the effects of exercise, and using models to explain transport systems. CC15 Heat Energy Changes in Chemical Reactions: Measuring temperature changes, calculating energy transfer, and evaluating methods (core practicals included). CC16 Fuels: Analysing data on energy content and emissions, comparing fuels, and evaluating environmental impacts. CP10 Magnetism and the Motor Effect: Investigating magnetic fields, interpreting patterns, and	CB8 Exchange and Transport in Animals: Interpreting data on circulation and gas exchange, analysing factors affecting transport, and using models of the heart and lungs. CB9 Ecosystems and Material Cycles: Analysing data on ecosystems, interpreting cycles (e.g. carbon cycle), and evaluating human impacts on the environment. CC16 Fuels: Comparing data on energy output and emissions and evaluating environmental impacts of different fuels.	Mock Exam Revision: Practicing exam techniques, applying knowledge across topics, and analysing past paper questions to improve responses. CB9 Ecosystems and Material Cycles: Analysing data on ecosystems, interpreting cycles, and evaluating human impact on the environment. CC17 Earth and Atmospheric Science: Interpreting evidence about Earth's structure and climate and analysing data on environmental change. CP13 Forces and Matter: Investigating forces and pressure, analysing data,	GCSE Exam Revision: Consolidating knowledge, practicing extended answers, and refining data analysis and scientific reasoning skills.	GCSE Exam Revision: Consolidating knowledge, practicing extended answers, and refining data analysis and scientific reasoning skills.	

	applying models to explain motor effects. CP11 Electromagnetic Induction: Observing and measuring induced currents, analysing patterns, and explaining how generators and transformers work.	CC17 Earth and Atmospheric Science: Interpreting evidence about Earth's structure and atmosphere, and analysing data on climate and human impact. CP11 Electromagnetic Induction: Measuring induced currents, identifying patterns, and applying models to generators and transformers. CP12 Particle Model: Using models to explain changes of state, interpreting graphs, and analysing particle behaviour. CP13 Forces and Matter: Investigating forces in fluids, analysing motion and pressure data, and applying force models.	and applying models to explain behaviour of materials. GCSE Exam Revision: Consolidating knowledge, practising extended answers, and refining data analysis and scientific reasoning skills.			
Theme (if applicable)						
SMSC	Moral – Responsibility for understanding health (transport systems), safe use of chemicals and fuels, and safe use of electrical and magnetic equipment. Social – Teamwork and communication in practical investigations involving reactions, fuels, and electromagnetic systems. Cultural – Impact of transport in animals, energy from fuels, and electromagnetism on society, technology, and industry. Spiritual – Awe and curiosity about how the body transports substances, how energy is released in reactions and fuels, and how magnetism and electricity interact.	Moral – Responsibility for maintaining health (exchange systems), protecting ecosystems, and safe use of fuels and electrical systems. Social – Teamwork and communication in practical investigations and discussions about environmental and scientific issues. Cultural – Impact of transport in animals, ecosystems, fuels, Earth science, and physics on society, sustainability, and technology. Spiritual – Awe and curiosity about how living systems function, how Earth and the atmosphere work, and how forces, particles, and energy shape the world.	Moral – Responsibility for protecting the environment, understanding human impact on Earth systems, and using forces and materials safely. Social – Teamwork and communication in revision, collaborative learning, and problem-solving across topics. Cultural – Importance of ecosystems, Earth science, and physics in shaping society, sustainability, and global challenges. Spiritual – Curiosity about the natural world, Earth's processes, and the forces and materials that shape our universe.	Moral – Responsibility for independent revision, identifying gaps in knowledge, and applying science safely and accurately. Social – Collaboration, peer support, and discussion to strengthen understanding across topics. Cultural – Appreciation of how scientific knowledge from all topics applies to real-world issues and global challenges. Spiritual – Reflection on learning, building confidence, and curiosity about the scientific concepts that explain the world.	Moral – Responsibility for independent revision, identifying gaps in knowledge, and applying science safely and accurately. Social – Collaboration, peer support, and discussion to strengthen understanding across topics. Cultural – Appreciation of how scientific knowledge from all topics applies to real-world issues and global challenges. Spiritual – Reflection on learning, building confidence, and curiosity about the scientific concepts that explain the world.	
Careers	Exchange & Transport in Animals (Biology): Supports careers in healthcare, sports science, and medicine, such as doctors, nurses, and physiologists. Heat Energy Changes in Chemical Reactions (Chemistry): Links to careers in chemical engineering, energy production, and laboratory science, including chemists. Fuels (Chemistry): Important for careers in energy, environmental science, and sustainability, such as energy engineers and environmental scientists. Magnetism & the Motor Effect (Physics): Useful for careers in engineering, electronics, and transport, including electrical engineers and technicians. Electromagnetic Induction (Physics): Supports careers in power generation, renewable energy, and electrical engineering, such as engineers and energy specialists.	Exchange & Transport (Biology): Supports careers in healthcare and sport, such as doctors and nurses. Ecosystems (Biology): Links to conservation and environmental science careers. Fuels (Chemistry): Useful for jobs in energy and sustainability. Earth & Atmosphere (Chemistry): Supports careers in climate science and environmental research. Electromagnetic Induction (Physics): Important for electrical engineering and energy jobs. Particle Model (Physics): Links to materials science and engineering. Forces & Matter (Physics): Useful for careers in engineering	Mock Exam Revision: Builds skills for all science careers, including problem-solving and exam techniques. Ecosystems & Material Cycles (Biology): Links to environmental science and conservation careers. Earth & Atmospheric Science (Chemistry): Supports careers in climate science and environmental research. Forces & Matter (Physics): Useful for careers in engineering and construction. GCSE Exam Revision: Prepares for further study and a wide range of science-based careers.	GCSE Exam Revision: Prepares for further study and a wide range of science-based careers.	GCSE Exam Revision: Prepares for further study and a wide range of science-based careers.	