

Curriculum Overview 2025-26 Science

Curriculum overview for Year 7

TERM	Autumn HT 1	Autumn HT 2	Spring HT 1	Spring HT 2	Summer HT 1	Summer HT 2
Curriculum Content: Priority Essential knowledge and skills that will be taught.	Prior learning: KS2 using tables and graphs. Identifying variables and simple trends.	Prior learning: KS2 MRS GREN characteristics of life. The purpose of bones and muscles.	Prior learning: HT1 using tables and graphs. Identifying variables and simple trends. KS2 the importance of eating the right amounts of different foods. Function of the basic parts of the digestive system. Drawing labelled diagrams. Grouping materials into solids, liquids and gasses. Some materials change state at certain temperatures. Some materials dissolve, which is a physical change and how some mixtures can be separated.	Prior learning: HT1 using tables and graphs. Identifying variables and simple trends. KS2 naming carnivore, omnivore, herbivore, producer, prey, predator. An organism's suitability to the environment. Simple classification (mammal etc). Simple food chains. How environmental changes can affect survival of a species. Life cycle of flowering plants. Life cycle of humans, changes in puberty.	Prior learning: KS2 how forces can change the shape of things. Contact (air/water resistance and friction) and non-contact forces (gravity and magnetism). Simple mechanisms inc levers, pulleys and gears. Magnets can attract /repel depending on the poles.	Prior learning: Naming the planets in the solar system. The movement of the earth in relation to the sun and the movement of the moon in relation to the earth. The earth's rotation and day/night and the apparent movement of the sun across the sky.



	Key Knowledge: <u>Introduction to Science</u> • Safety rules in a science lab. • Hazard symbols. • Writing a scientific method. • Variables. <u>Energy</u> • Types of energy. • Energy transfers. • Work done. • Springs and spring energy. • Insulation and preventing energy loss. • Processes that transfer heat energy. Skills: • Simple unit conversions. • Reading data in tables and graphs. • Interpreting models. • Drawing graphs and results tables. • Planning and evaluating an experiment. • Using equations.	Key Knowledge: <u>Living things</u> • Structure of cells. • Using a microscope. • Skeleton, muscles, and joints. • Diffusion in cells. <u>Particles</u> • Atoms, elements, compounds, and mixtures. • States of matter. • Naming compounds • How to separate different mixtures by different techniques. (Chromatography, distillation and filtration). Skills: • Making biological drawings. • Calculating an average. • Using equations. • Reading data in tables and graphs. • Planning and evaluating an experiment. • Interpreting models.	Key Knowledge: <u>Digestion</u> • Parts of the digestive system. • Enzymes and how they work. • Testing food for nutrients. <u>Acids and alkalis</u> • Identifying acids and alkalis by pH. • Neutralisation. • Reactions of acids. • Reactivity series of metals Skills: • Using equations. • Reading data in tables and graphs. • Planning and evaluating an experiment. • Interpreting models. • Drawing graphs and results tables. • Constructing Venn diagrams and bar charts.	Key Knowledge: <u>Forces</u> • Measuring forces. • Spring forces. • Distance-time graphs. • Calculating speed. <u>Ecology</u> • Habitats and ecosystems. • Adaptations of plants and animals. • Food chains and webs. • Pyramids of numbers. • Biodiversity and human impact on the environment. Skills: • Planning and evaluating an experiment. • Recording information in a table. • Drawing graphs and results tables. • Constructing Venn diagrams and bar charts. • Interpreting models. • Constructing food webs and simple pyramids of numbers	Key Knowledge: <u>Reproduction</u> • Variation. • Parts of the male and female reproductive systems. • Menstrual cycle. • Fertilisation. • Pregnancy. • Contraception. • IVF • Reproduction in plants. Skills: • Recording information in a table. • Interpreting models. • Using equations. • Reading data in tables and graphs. • Planning and evaluating an experiment. • Using equations. • Reading data in tables and graphs. • Drawing graphs and results tables.	Key Knowledge: <u>Space</u> • Planets • Gravity • Eclipses • Seasons and day/night. • Light year. Skills: • Interpreting models. • Using equations. • Reading data in tables and graphs. • Planning and evaluating an experiment. • Using equations. • Reading data in tables and graphs. • Drawing graphs and results tables. • Planning and evaluating an experiment. • Labelling biological diagrams.
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	Future Links: GCSE required practicals. Energy stores and transfers, energy equations, energy and power, power equations, specific heat capacity, insulation in the home, efficiency equations, energy resources.	Future Links: GCSE plant, animal and bacterial cell structure, microscopes, plant cell organisation magnification equation. Diffusion, osmosis, active transport. Atomic structure with subatomic particles. Bonding to form compounds. Separation techniques to include RF value in chromatography, States of matter and changing state, specific latent heat.	Future Links: Digestion, enzymes to include lock and key and induced fit hypothesis, food tests, CHD. Acids and bases reactions (word and symbol). The reactivity series, REDOX reactions, separating metals including electrolysis.	Future Links: Relationships of organisms within their habitat, adaptations, predator prey cycles, sampling techniques. Effect of humans on the ecosystem including waste management, global warming, deforestation, maintaining ecosystems. Newton's laws, springs and extension, momentum and forces in motion.	Future Links: Menstrual cycle to include hormone control, homeostasis, and nervous pathways. Contraception and IVF.	Future Links: Star cycle, formation of stars, satellites and orbital motion.
Spiritual, Moral, Social and Cultural (SMSC) development	Pollution and other chemical effects on the environment. Keeping myself and others safe.	Organ transplants – religious views Learning about the body – systems, organs, cells.	Diet – discussion around food choices due to culture/religion. Cost of healthy eating.	Climate change and the human impact on the world. Pollution and other chemical effects on the environment.	Fertilisation and the beginning of life. Contraception in comparison to abstinence including religious views. Fertility treatments – religious views.	Our place in the universe

Curriculum overview for Year 8

TERM	Autumn HT 1	Autumn HT 2	Spring HT 1	Spring HT 2	Summer HT 1	Summer HT 2
Curriculum Content: Priority Essential knowledge and skills that will be taught.	Prior learning: Using tables to record data.	Prior learning: KS2 parts of the circulatory system. The impact of diet and exercise on the way the body works. Use symbols to draw circuits. Constructing a simple circuit and identify whether the light will be on based on it being a complete circuit. Associate voltage to bulb brightness/ buzzer volume. Recognise that some materials are electrical conductors (metals) or insulators.	Prior learning: Using tables and graphs to show data, identifying simple trends and saying how the evidence supports or refutes it. KS2 what plants need to grow and be healthy.	Prior learning: Using tables to record data and stating simple trends. KS2 light is needed to see things, dark is the absence of light. Light travels in straight lines. Reflection is light bouncing off things. Opaque objects and shadows. Sound comes from vibrations. Some work on pitch and volume.	Prior learning: KS2 How environmental changes can affect survival of a species. KS2 how fossils are formed (trapped in rock). Basic inheritance and how offspring are not identical to parents. Natural selection leading to evolution.	Prior learning: KS2 How environmental changes can affect survival of a species. KS2 what plants need to grow and be healthy. Using tables to record data and stating simple trends. KS2 naming carnivore, omnivore, herbivore, producer, prey, predator. An organism's suitability to the environment. Simple classification (mammal etc). Simple food chains. How environmental changes can affect survival of a species. Life cycle of flowering plants. Life cycle of humans, changes in puberty.



	Key Knowledge: <u>Disease and immunity</u> • Types of contagious and non-contagious diseases and their effects on the body. • The body's defences against disease. • Vaccinations and how they work. • The difference between a medicine and a painkiller. • How new drugs are discovered. <u>Atmosphere</u> • Changes to the atmosphere over time. • Global warming and climate change. • Carbon cycle. • Pollutants and acid rain.	Key Knowledge: <u>Electricity and magnets</u> • Building and drawing series and parallel circuits. • Describing and measuring/calculating potential difference, current and resistance. • Drawing magnetic field lines. • Making electromagnets. <u>Respiration</u> • Structure and adaptations of the lungs. • Aerobic respiration and its uses. • Anaerobic respiration and its uses. • Structure and adaptations of the heart. • Changes to the body during exercise.	Key Knowledge: <u>Exothermic and endothermic reactions</u> • Conservation of mass. • Combustion. • Measuring the energy released by fuels. • Exothermic and endothermic reactions. <u>Photosynthesis</u> • Photosynthesis equation. • Measuring photosynthesis. • Structure and adaptations of leaves.	Key Knowledge: <u>Sound and Light</u> • Construct and label diagrams that represent waves. • Label the parts of the ear. • Describe some uses of sound waves. • Label the parts of the EM spectrum. • Label the parts of the eye. • Observe and draw diagrams of reflection and refraction.	Key Knowledge: <u>Inheritance</u> • The variation between living things. • Natural selection. • How fossils are formed. • Benefits and risks of selective breeding. • Cloning plants and animals.	Key Knowledge: <u>Eco project</u> • Renewable energy • Properties of materials.
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	Skills: • Calculating averages. • Using equations. • Labelling biological diagrams. • Evaluating data. • Reading data in tables. • Constructing circuit diagrams. • Identifying and testing a hypothesis. • Identifying a trend in data. Future Learning: Communicable diseases spread, symptoms and prevention. Vaccination and immunity, drug development and peer review. Symbol circuits, using the equation $V=IR$, IV characteristics, circuit devices. V I and R in series and parallel circuits. Wiring a plug and the national grid. Using tables and graphs to display information and to extract information from.	Skills: • Calculating averages. • Using equations. • Reading data in tables. • Identifying and testing a hypothesis. • Identifying a trend in data. Future Learning: Aerobic and anaerobic respiration and metabolism including word and symbol equations. The short- and long-term effects of exercise. Evolution of the atmosphere, global warming, carbon footprint, air pollution.	Skills: • Calculating an average. • Reading data in tables and graphs. • Drawing graphs and results tables. • Planning and evaluating an experiment. • Labelling biological diagrams. Future Learning: Constructing labelled diagrams of transverse and longitudinal waves, Using and calculating wave speed, wavelength, frequency, period. Electromagnetic waves and their uses, dangers of EM waves.	Skills: • Using equations. • Recording data in a table • Identifying trends in data. • Construct diagrams to show reflection and refraction of light waves. • Comparing angles of incidence to reflection/refraction. Future Learning: Relative formula mass and conservation of mass calculations (inc moles H). Energy changes in reactions including bond energies. Plant cell organisation, leaf structure, photosynthesis (inc word and symbol equations) and factors affecting photosynthesis.	Skills: • Labelling biological diagrams • Drawing Punnett squares. • Calculating ratios and probability. Future Learning: Constructing and using tables and graphs. DNA structure, reproduction, mitosis and meiosis, constructing punnet squares and genetic diagrams, calculating probability, inherited diseases, variation leading to evolution, selective breeding and genetic modification.	Skills: • Research • Comparing the properties of two materials • Reading data in tables and graphs. Future Learning: Ecological relationships, interdependence of species, adaptation and evolution.
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Spiritual, Moral, Social and Cultural (SMSC) development	Climate change and the human impact on the world. Pollution and other chemical effects on the environment. Use of needles and its effect on transmittance of disease – different people's viewpoints on the solutions to this. Ethics of testing new medicines on animals, humans or sick people. Medical trials and their effects on different groups of people.	Climate change, use of fossil fuels vs. renewable energy. Diet – discussion around food choices due to culture/religion.	Plants as the source of all food through photosynthesis. Climate change and the human impact on the world. Deforestation and the effect on food supply.	Our place in the universe Understanding those who are deaf and/or blind.	Embryonic stem cells and the ethical debate over their use in scientific research. Embryo screening for genetic defects and other characteristics. Why we are unique. Genetic differences between people including as the basis for disease or disability.	Interdependence of humans on animals, plants and the environment. Climate change and the human impact on the world. Pollution and other chemical effects on the environment.
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Curriculum overview for Year 9

TERM	Autumn HT 1	Autumn HT 2	Spring HT 1	Spring HT 2	Summer HT 1	Summer HT 2
Curriculum Content: Priority Essential knowledge and skills that will be taught.	Prior learning: KS3 cell structure and using a microscope. Stem cells, diffusion. Elements, compounds and mixtures. Separating mixtures. KS3 Types of energy. Energy transfers. Work done. Springs and spring energy. Insulation and preventing energy loss. Processes that transfer heat energy. Key Knowledge: <u>Cells</u> • Structure and function of cells. • Adaptations of specialised cells. • How to use microscopes. • Calculating magnification. • Function and uses of stem cells. • Stages in cell division. (mitosis) • How substances move in and out of cells. (Diffusion,	Prior learning: Elements, compounds and mixtures. Separating mixtures. Key Knowledge: <u>Atoms and the periodic table</u> • Structure of an atom. • History of the atom. • Structure of elements, compounds and mixtures. • Separation techniques. (Chromatography, distillation and filtration). • Structure of the periodic table. • Reactions of elements in different	Prior learning: KS3 Parts of the digestive system. Enzymes and how they work. Testing food for nutrients. Heart and circulation. Lungs and breathing. The effect of exercise. KS3 atoms, elements, compounds, mixtures. Grouping materials into solids, liquids and gasses. Some materials change state at certain temperatures. Key Knowledge: <u>Organisation</u> • Structure and adaptations of the digestive system. • Digestive enzymes and their functions. • Testing for different nutrients in food. • Structure and adaptations of the lungs. • Structure and adaptations of the heart, blood and blood vessels.	Prior learning: KS3 Aerobic respiration and its uses. Anaerobic respiration and its uses. Changes to the body during exercise. Structure and parts of cells for respiration and photosynthesis, lungs and digestive system. Key Knowledge: <u>Bioenergetics</u> • Aerobic respiration and its uses. • Anaerobic respiration and its uses. • Changes to the body during exercise. • Metabolism • Photosynthesis and factors affecting it. • Measuring photosynthesis.	Prior learning: Types of contagious and non-contagious diseases and their effects on the body. The body's defences against disease. Vaccinations and how they work. The difference between a medicine and a painkiller. How new drugs are discovered. KS3 Gases in the atmosphere. KS3 atoms, elements, compounds, mixtures. Key Knowledge: <u>Infection and response</u> • Contagious diseases. • Bacterial, viral and fungal diseases. • The bodies defence against disease. • Painkillers and antibiotics. • Vaccines and vaccinations. • How new drugs are developed. <u>Atmosphere</u>	Prior learning: KS3 Food chains and webs. Adaptations of animals. Habitats and interdependence. GCSE Pollutants and their effect on the environment. Key Knowledge: <u>Ecology</u> • Biotic and abiotic factors. • Adaptations. • Food chains. • Environmental sampling. • Water and carbon cycles. • Biodiversity. • Waste management. • Global warming.

	osmosis and active transport) <u>Energy</u> • Types of energy. • Energy transfers and calculating efficiency. • Calculating gravitational, kinetic and elastic potential energy. • Calculating specific heat capacity. • Work done. • Power. • Springs and spring constant. • Conduction, convection and radiation. • Renewable and non-renewable energy resources.	groups in the periodic table.	• Coronary heart disease, cancer and the effect of lifestyle on health. • Structure and adaptations of a plant leaf and stem. • How water moves around a plant. (Transpiration, translocation and stomata) <u>Particle model</u> • Particle arrangement in solids, liquids and gases. • States of matter and particle arrangement during changes of state. • Calculating density, specific heat capacity and specific latent heat. • Brownian motion and how gases and liquids cause pressure. • Calculating pressure.		• Changes to the atmosphere over time. • Global warming and climate change. • Carbon cycle. • Pollutants and acid rain.	
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	Skills: • Unit conversions. • Using equations. • Calculating ratios and probability. • Using standard form • Making biological drawings. • Reading data in tables and graphs. • Interpreting models. • Drawing graphs and results tables. • Planning and evaluating an experiment.	Skills: • Unit conversions. • Using equations. • Calculating ratios and probability. • Using standard form • Making biological drawings. • Reading data in tables and graphs. • Interpreting models. • Drawing graphs and results tables. • Planning and evaluating an experiment.	Skills: • Drawing and using models to represent atoms and sub-atomic particles. • Reading data in tables and graphs. • Interpreting models. • Drawing graphs and results tables. • Planning and evaluating an experiment.	Skills: • Calculating averages • Using equations. • Unit conversions. • Recording and reading data in tables and graphs. • Interpreting models. • Drawing graphs and results tables. • Planning and evaluating an experiment.	Skills: • Drawing and using models to represent atoms and sub-atomic particles. • Calculating averages. • Using equations. • Unit conversions. • Recording and reading data in tables and graphs. • Interpreting models. • Drawing graphs and results tables. • Planning and evaluating an experiment. • Making and labelling biological drawings. • Reading data in tables and graphs. • Drawing graphs and results tables. • Planning and evaluating an experiment.	Skills: • Recording data. • Calculating mean. • Identifying anomalous results. • Reading and evaluating data in tables and graphs.
	Future Learning: Bioenergetics and the use of mitochondria in respiration. Photosynthesis in plant cells. Infection and response, types of cells in the immune system. Organisation, types of cells in the human	Future Learning: Particle model of matter, specific heat capacity and specific latent heat. Energy changes, increase and decreases in energy during chemical reactions and types of energy.	Future Learning: Thermal energy and how energy is transferred. Conservation of energy. Bonding, structure and properties of materials. <u>A-level Physics</u> Bulk properties of materials,	Future Learning: Electrolysis <u>A-level Physics</u> Further investigation of circuits, electromotive force and resistivity. Transistors and diodes. <u>A-level Biology</u> Transport of substances in organisms and mass transport.	Future Learning: Electrolysis <u>A-level Physics</u> Further investigation of circuits, electromotive force and resistivity. <u>A-level Chemistry</u> Organic synthesis and the reactions of functional groups in chemical reactions.	Future Learning: Anaerobic respiration and its role in homeostasis. <u>A-level Chemistry</u> Mass spectrometry, NMR and analytical chromatography. Reactions of ions in solution. Electrode potentials and



	body and structure of organs. Inheritance, specialised cells in reproduction. Thermal energy and how energy is transferred. Conservation of energy. Bonding, structure and properties of materials. <u>A-level Physics</u> Structure of the atom, particles and anti-particles and their interactions. <u>A-level Biology</u> Eukaryotic and Prokaryotic cell structure, biological molecules. Energy transfers in and between organisms. <u>A-level Chemistry</u> Atomic structure, electron configuration and investigation of specific functional groups in chemistry, Periodicity, group 2 elements, transition metals, NMR and analytical chromatography.	Electricity, how energy is transferred by electrical currents. Waves, how energy is transferred by waves. Bonding, how atomic structure influences atoms bonding. Organic chemistry, structure of hydrocarbons, combustion and fractional distillation. Radiation, structure of the atom leading to nuclear decay. Quantitative chemistry, use of atomic mass in chemical calculations. Chemical analysis, separation of substances for identification, Rf values. Chemistry of the atmosphere, renewable and non-renewable sources of energy. <u>A-level Physics</u> Structure of the atom, particles and anti-particles and their interactions. Conservation of energy, measurement of energy in thermal and simple harmonic systems, power and electricity. Calculating energy from	density and young's modulus.		Types of bonding and electron configuration.	electrochemical cells. Energetics and enthalpy. <u>A-level Biology</u> Energy transfers in and between organisms. Photosynthesis, respiration and energy in ecosystems.
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		radioactive emissions. Thermodynamics. <u>A-level Chemistry</u> Atomic structure and investigation of specific functional groups in chemistry, Periodicity, group 2 elements, transition metals, NMR and analytical chromatography. Thermodynamics and chemical kinetics. <u>A-level Biology</u> Energy transfers in and between organisms.				
Spiritual, Moral, Social and Cultural (SMSC) development	Climate change and the human impact on the world. Pollution and other chemical effects on the environment. Climate change, use of fossil fuels vs. renewable energy. Origins of life. Embryonic stem cells and the ethical debate	Our place in the universe				



	over their use in scientific research.					
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Curriculum overview for Year 10

TERM	Autumn HT 1	Autumn HT 2	Spring HT 1	Spring HT 2	Summer HT 1	Summer HT 2
Curriculum Content: Priority Essential knowledge and skills that will be taught.	Prior learning: KS3 Aerobic respiration and its uses. Anaerobic respiration and its uses. Changes to the body during exercise. KS3 Atoms, elements, compounds, and mixtures. <u>GCSE</u> Structure and parts of cells for respiration and photosynthesis, lungs and digestive system. <u>GCSE</u> Structure of the atom Key Knowledge: <u>Bioenergetics</u> • Aerobic respiration and its uses. • Anaerobic respiration and its uses.	Prior learning: KS3 Atoms, elements, compounds, and mixtures. Combustion. Exothermic and endothermic reactions. Types of energy. Energy transfers. Types of contagious and non-contagious diseases and their effects on the body. The body's defences against disease. Vaccinations and how they work. The difference between a medicine and a painkiller. How new drugs are discovered. <u>GCSE</u> Types and energy and energy transfers. Renewable and non-renewable sources of energy. Key Knowledge: <u>Infection and response</u> • Contagious diseases. • Bacterial, viral and fungal diseases.	Prior learning: KS3 Construct and label diagrams that represent waves. Describe some uses of sound waves. Label the parts of the EM spectrum. Observe and draw diagrams of reflection and refraction. Combustion. Exothermic and endothermic reactions. Types of energy. Energy transfers. Processes that transfer heat energy. Key Knowledge: <u>Chemical analysis</u> • Purity and formulations. • Paper chromatography and use a	Prior learning: KS3 Measuring forces. Spring forces. Distance-time graphs. Calculating speed. Key Knowledge: <u>Forces</u> • Scalar and vector quantities. • Types of forces. • Force diagrams and resultant forces. • Work done.	Prior learning: KS3 Acids, alkalis and pH scale. Neutralisation and reactions of acids with metals. Reactivity series. KS3 Word and symbol equations. Key Knowledge: <u>Chemical changes</u> • Acids and bases. • Strong and weak acids and bases. • Reactions of acids. • Making salts. • Reactivity series.	Prior learning: KS3 Food chains and webs. Adaptations of animals. Habitats and interdependence. GCSE Pollutants and their effect on the environment. Key Knowledge: <u>Ecology</u> • Biotic and abiotic factors. • Adaptations. • Food chains. • Environmental sampling.

	• Changes to the body during exercise. • Metabolism • Photosynthesis and factors affecting it. • Measuring photosynthesis. <u>Atomic structure and radiation</u> • Structure of the atom. • Types of radiation. • Properties of radiation. • Radiation safety. • Changes to atoms during radioactive decay.	• The bodies defence against disease. • Painkillers and antibiotics. • Vaccines and vaccinations. • How new drugs are developed. <u>Energy changes</u> • Exothermic and endothermic reactions. • Measuring energy changes in reactions. • Calculating energy changes. <u>Using resources</u> • Finite and renewable resources. • Making resources more sustainable and the importance of recycling. • Life cycle assessments and comparing two similar products. • Potable water and how sewage is processed.	chromatogram to calculate RF values. • Tests for common gases. <u>Waves</u> • Labelled diagrams of transverse and longitudinal waves. • Calculating wave speed, wavelength, frequency and period. • Refraction ad wave speed. • Wave front diagrams. • Electromagnetic waves and their uses and dangers. • Experiments to show radiation.	• Forces acting on a spring. • Hooke's law. • Calculating speed and acceleration. • Speed-time and velocity-time graphs. • Newton's laws. • Momentum and inertia. • Thinking, braking and stopping distances.	• Separating metals from metal oxides. • Oxidation and reduction. • Electrolysis.	• Water and carbon cycles. • Biodiversity. • Waste management. • Global warming.
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	Skills: • Calculating averages. • Using equations. • Unit conversions. • Making and labelling biological drawings. • Reading data in tables and graphs. • Drawing graphs and results tables. • Planning and evaluating an experiment. Future Learning: Anaerobic respiration and its role in homeostasis. <u>A-level Biology</u> Energy transfers in and between organisms. Photosynthesis, respiration and energy in ecosystems. <u>A-level Physics</u> Nuclear physics, radioactive decay, fission and fusion.	Skills: • Calculating averages. • Making and labelling biological drawings. • Using equations. • Making and labelling biological drawings. • Using equations. • Unit conversions. • Reading data in tables and graphs. • Interpreting models. • Drawing graphs and results tables. • Planning and evaluating an experiment. Future Learning: <u>A-level Chemistry</u> Mass spectrometry, NMR and analytical chromatography. Reactions of ions in solution. Electrode potentials and electrochemical cells. Energetics and enthalpy. <u>A-level Biology</u> Factors affecting ecosystems and populations of organisms.	Skills: • Calculating averages. • Using equations. • Unit conversions. • Reading data in tables and graphs. • Interpreting models. • Drawing graphs and results tables. • Planning and evaluating an experiment. Future Learning: Chemistry of the atmosphere, how hydrocarbons influence the environment and global warming/pollutants. <u>A-level Chemistry</u> investigation of specific functional groups in chemistry, alkanes, alkenes, alkynes and aromatic chemistry. <u>A-level Physics</u> Dynamics, thermodynamics,	Skills: • Calculating averages. • Using equations. • Unit conversions. • Reading data in tables and graphs. • Interpreting models. • Drawing graphs and results tables. • Planning and evaluating an experiment. • Evaluating scientific theories. Future Learning: <u>A-level Physics</u> Dynamics, thermodynamics, inertia and momentum. Moments, newtons laws of motion, motion and projectile motion.	Skills: • Calculating averages. • Unit conversions. • Using equations. • Using standard form • Reading data in tables and graphs. • Interpreting models. • Drawing graphs and results tables. • Planning and evaluating an experiment. Future Learning: <u>A-level Chemistry</u> Reactions of ions in solution. Electrode potentials and electrochemical cells.	Skills: • Recording data. • Calculating mean. • Identifying anomalous results. • Reading and evaluating data in tables and graphs. Future Learning: <u>A-level Biology</u> Ecological relationships, interdependence of species, adaptation and evolution.
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			inertia and momentum. Moments, newtons laws of motion, motion and projectile motion.			
Spiritual, Moral, Social and Cultural (SMSC) development						

Curriculum overview for Year 11

TERM	Autumn HT 1	Autumn HT 2	Spring HT 1	Spring HT 2	Summer HT 1	Summer HT 2
Curriculum Content: Priority Essential knowledge and skills that will be taught.	Prior learning: KS3 Atoms, elements, compounds, and mixtures. KS3 Structure of the atom. Word and symbol equations. KS3 Gametes, types of reproduction and inheritance of characteristics. Key Knowledge: <u>Quantitative chemistry</u> • Relative formula mass. • Percentage composition. • Calculating moles. • Balancing symbol equations. • Conservation of mass. • Calculating masses from moles. • Calculating concentration. <u>Inheritance</u> • Structure of DNA. • Types of reproduction. • Meiosis. • X & Y chromosomes. • Genetic diagrams.	Prior learning: KS3 Atoms, elements, compounds, and mixtures. KS3 Structure of the atom. Word and symbol equations. Key Knowledge: <u>Organic chemistry</u> • Structure of alkanes and alkenes. • Properties of hydrocarbons. • Combustion. • Fractional distillation. • Cracking.	Prior learning: KS3 Parts of the body, hormones, digestive system organs and their functions. Key Knowledge: <u>Homeostasis</u> • Structure of the nervous system. • Reflexes. • Reaction time. • Endocrine system & hormones. • Controlling blood glucose level. • Menstrual cycle. • Contraception. • IVF	Prior learning: KS3 Atoms, elements, compounds, and mixtures. KS3 Structure of the atom. Word and symbol equations. KS3 particles. Key Knowledge: <u>Rates of reaction</u> • Collision theory. • Catalysts. • Measuring reactions. • Reversible reactions. • Le Chatelier's principle.	Prior learning: Magnets, magnetic fields and electromagnets. Key Knowledge: <u>Magnetism</u> • Permanent and induced magnets. • Magnetic fields. • Current and magnetism in wires. • Electric motors. • Fleming's left-hand rule.	GCSE revision and exams

	• Inherited disorders. • Mutations and variation. • Evolution. • Selective breeding. • Genetic engineering. • Types of fossils. • Extinction. • Antibiotic resistant bacteria. • Classification. Skills: • Drawing and using models to represent atoms and sub-atomic particles. • Calculating averages. • Using equations. • Unit conversions. • Recording and reading data in tables and graphs. • Interpreting models. • Drawing graphs and results tables. • Planning and evaluating an experiment.					
		Skills: • Recording data. • Calculating mean. • Identifying anomalous results. • Reading data in tables and graphs. • Interpreting models. • Drawing graphs and results tables. • Planning and evaluating an experiment.	Skills: • Reading data in tables and graphs. • Interpreting models. • Drawing graphs and results tables.	Skills: • Recording data. • Calculating mean. • Identifying anomalous results. • Reading and evaluating data in tables and graphs. • Using models		

	Future Learning: <u>A-level Physics</u> Further investigation of circuits, electromotive force and resistivity. <u>A-level Chemistry</u> Reactions of ions in solution. Electrode potentials and electrochemical cells.	Future Learning: <u>A-level Physics</u> Magnetic resonance imaging.	Future Learning: <u>A-level Biology</u> DNA, genes, chromosomes, protein synthesis, RNA, mutations during meiosis, genetic diversity, adaptations and taxonomy.	Future Learning: <u>A-level Biology</u> Chemical reactions. Haber process. Reaction thermodynamics.		
Spiritual, Moral, Social and Cultural (SMSC) development						