Subject: Science

Year 7	Autumn A + B			Spring A + B			Summer A + B		
Unit & length	Cells and Organisation	Particles	Energy	Reproduction	Separating Mixtures	Forces	Ecosystems	Chemical and Physical changes	Motion
Curriculum outline	Students will develop an understanding of key life processes and kingdoms of life. Students will study the ultrastructure of animal and plant cells and will develop key microscopy skills. They will learn about examples of specialised cells in animals and plants.	Students will investigate the properties of the three states of matter, developing their working scientifically skills. This unit encourages students to evaluate particle models and explore the structures of elements, compounds and mixtures.	Students will develop an understanding of energy as a quantity that makes things happen and the main energy stores and transfers. Students will explore the concepts of power and energy efficiency and relate this to real-life systems.	Students will learn about the structure and function of the male and female reproductive systems in humans, the menstrual cycle, fertilisation, gestation, and birth, to include the effect of maternal lifestyle on the foetus through the placenta. Then, we look at reproduction in plants and how this can be compared with animals.	Students will investigate the structures of elements, compounds and mixtures and the differences between them. They will also explore the concepts of solubility and saturation and will have the opportunity to further develop their practical skills.	Students will develop an understanding of contact and non-contact forces, such as friction, air resistance, and gravity. Students will improve their working scientifically skills by investigating the effects of different forces.	Students will investigate relationships between organisms in an ecosystem and food webs to demonstrate the concept of interdependence. Students will study adaptations of plants and animals in different ecosystems and the importance of conserving species.	Students will be introduced to the two different types of change in chemistry, building on the foundational knowledge of particles and making links to physics. This topic provides a seamless transition between particles and the broader world of chemical reactions studied in Y8.	This module builds on the Forces module from the Spring term. Students will gain an enhanced understanding of how things move, and they will explore the effects of levers and pulleys to improve their understanding of how simple machines work.
Assessment /s	End of Topic Assessment: 15 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 10 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 15 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 10 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 15 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 10 marks of short answer questions, based on golden questions and disciplinary knowledge. End of Term Assessment: 10 marks of multiple-choice questions and 15 marks of short answer questions about the topics covered for the term. These questions are based on the golden questions and disciplinary knowledge.	End of Topic Assessment: 15 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 10 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 15 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 10 marks of short answer questions, based on golden questions and disciplinary knowledge. End of Term Assessment: 10 marks of multiple-choice questions and 15 marks of short answer questions about the topics covered for the term. These questions are based on the golden questions and disciplinary knowledge.	End of Topic Assessment: 15 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 10 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 15 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 10 marks of short answer questions, based on golden questions and disciplinary knowledge. End of Term Assessment: 10 marks of multiple-choice questions and 15 marks of short answer questions about the topics covered for the term. These questions are based on the golden questions and disciplinary knowledge.	End of Topic Assessment: 15 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 10 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 15 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 10 marks of short answer questions, based on golden questions and disciplinary knowledge.

Year 8	Autumn A + B			Spring A + B			Summer A + B	
Unit & length	Digestion and nutrition	The Periodic Table	Space and Light	Movement and Breathing	Chemical Reactions	Electricity	Materials and the Earth	Magnets
Curriculum outline	Students will develop an understanding of the seven main food groups and their benefits for keeping our bodies healthy. They will then explore the digestive system which helps us to break down large, insoluble molecules into smaller, more soluble ones.	Students will explore the arrangement of the periodic table, developing their independent research skills to investigate different elements. They will gain an understanding of atomic structure and electron configuration and will explore the concept of atomic stability.	Students will investigate both light as the transfer of energy via waves. Students will develop their practical skills by demonstrating reflection and refraction, as well as the effects of lenses and their uses. The module then focuses on Space, with students learning about different aspects of the universe.	This module gives students an understanding of how several different bodily systems work. We begin by looking at the skeletal and muscular systems and then we move on to the respiratory system. The circulatory system is then introduced, and students will get the opportunity to see a real heart dissection.	In this topic, pupils will delve into the intricate steps of chemical reactions, looking at substances on an atomic level. They will gain a hands-on experience with reactions such as thermal decomposition and combustion of fuels, offering a chance to develop their disciplinary knowledge and practical skills.	In this module, students will develop an understanding of the properties of series and parallel circuits, circuit components, current, potential difference and resistance. Students will develop their practical skills as they construct functional circuits to investigate these concepts.	Pupils will first cover the three main rock types, with a transition into the rock cycle and the processes involved under our feet. The topic then extends to the Earth's atmosphere, with the key emphasis being on human impact on the climate and consequences of global warming and climate change by combining geological knowledge with environmental awareness.	This module explores the properties of magnetism, building on the forces module from Year 7. Students will develop an enhanced understanding of magnetism as a non-contact force and its applications in our modern world.
Assessment/s	End of Topic Assessment: 10 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 15 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 10 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 15 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 10 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 15 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 10 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 15 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 10 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 15 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 10 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 15 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 10 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 15 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 10 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 15 marks of short answer questions, based on golden questions and disciplinary knowledge.
	End of Term Assessment: 10 marks of multiple-choice questions and 15 marks of short answer questions about the topics covered for the term. These questions are based on the golden questions and disciplinary knowledge.			End of Term Assessment: 10 marks of multiple-choice questions and 15 marks of short answer questions about the topics covered for the term. These questions are based on the golden questions and disciplinary knowledge.			End of Term Assessment: 10 marks of multiple-choice questions and 15 marks of short answer questions about the topics covered for the term. These questions are based on the golden questions and disciplinary knowledge.	

Year 9	Autumn A + B			Spring A + B			Summer A + B	
Unit & length	Health and Disease	Patterns in Chemistry	Energy Transfers	Bioenergetics	Ions, Acids and Bases	Energy Transfers II	Inheritance	Sound Waves

Curriculum outline	This unit introduces students to the concept of 'health' as well and teaches them how to categorise diseases into communicable and non-communicable. It also introduces the concept of defence against disease and how vaccinations work. The module finishes by examining several lifestyle factors including the importance of diet and exercise, deficiency diseases, and the dangers of smoking and drugs.	This unit revisits atomic structure looking at mass and charge of subatomic particles. It then introduces students to patterns in the periodic table, linking physical properties to atomic structure and reactivity. Students then look at the reactivity of metals and apply them to displacement reaction.	The unit brings together several physics units from years 7 and 8 and coalesces them through the lens of transferring energy as a quantity. This is a new unit in 2023 and is designed as a response to the frequency of these types of questions appearing on the AQA GCSE papers since 2018. Students will revisit familiar topics, such as Energy Stores and Transfer Methods, before moving onto specific heat transfer vectors such as conduction, convection and radiation/waves.	This module covers two essential life processes: respiration and photosynthesis. We begin with an introduction to the two types of respiration: aerobic and anaerobic respiration, encouraging students to compare them. Students will then explore photosynthesis, the process which paved the way for complex life to evolve on planet Earth. Students will carry out a variety of practical tasks to investigate the production of starch in plant leaves and to view stomata.	Beginning with a recap of atomic structure, pupils will solidify their understanding of atoms before moving onto ions as charged particles and their roles in facilitating stability for atoms on the periodic table. They will then delve into acids, bases and neutralisation with a combination of theoretical concepts and hands on practical lessons.	Similar to *Energy Transfers*, this unit homes in on the quantitative aspects of Energy. Students will explore forces as a method of energy transfer, before moving onto electricity and associated power equations to prep for this level of work at GCSE. This is a challenging module that develops mathematical skills in science.	This module allows students to become familiar with the concept of genetics and the fact that genes are passed between generations and that natural selection acts on this process of inheritance, leading to evolution. We begin the module with an introduction to the structure and discovery of DNA and the importance of both asexual and sexual reproduction. Students will learn about the causes of variation within populations and how to represent the inheritance of traits using Punnet squares.	This very short topic to bring Y9 to a finish explores the concept of sound waves as a mechanical vibration. It includes the intricacies of the human ear and revisits some familiar concepts from Year 8's *light and space*.
Assessment/s	End of Topic Assessment: 10 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 15 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 10 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 15 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 10 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 15 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 10 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 15 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 10 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 15 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 10 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 15 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 10 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 15 marks of short answer questions, based on golden questions and disciplinary knowledge.	End of Topic Assessment: 10 marks of multiple-choice questions, based on golden questions and disciplinary knowledge. 15 marks of short answer questions, based on golden questions and disciplinary knowledge.
	End of Term Assessment: 25 marks of short answer questions about the topics covered for the term. These questions are based on the golden questions and disciplinary knowledge and are presented in an exam-style format.			End of Term Assessment: 25 marks of short answer questions about the topics covered for the term. These questions are based on the golden questions and disciplinary knowledge and are presented in an exam-style format.			End of Term Assessment: 25 marks of short answer questions about the topics covered for the term. These questions are based on the golden questions and disciplinary knowledge and are presented in an exam-style format.	

Year 10	Autumn A	Autumn B	Spring A	Spring B	Summer A	Summer B
Unit & length	*Cells in Animals and Plants (4.1.3)*	*Systems in the human body (4.2.1)*	*Plants and photosynthesis (4.2.2)*		*Preventing, Treating and Curing Diseases (3.3.3)*	
Curriculum outline	This module aids students to gain an understanding the structure of cells (the building blocks of all living things), and the transport of substances into and out of cells. Students will investigate cell division by mitosis and meiosis, and they will have the opportunity to compare their similarities and differences. This module lays the foundations for the	Systems in the human body can be studied at macroscopic, microscopic and molecular scales. The study of respiration helps to account for the need for exchange surfaces in multicellular organisms, illustrated by the human circulatory system. The study of the digestive system focuses on the chemical changes to the main nutrients in the diet. Finally, examples	The study of cells and transport into and out of cells is developed and exemplified here in the context of plant science. A key part is the study of photosynthesis because this underpins work on the carbon cycle and climate change in The Earth's atmosphere and the study of ecosystems in Ecosystems and biodiversity. Plants can be attacked by bacteria and viruses, so the successful growth of crops depends on methods to prevent or control infection. There are two required practicals: one to investigate plant pigments by paper chromatography, another to investigate the effect of light intensity on the rate of photosynthesis.		The human body has defence systems to protect it from the pathogens that cause communicable diseases. However, these defences can be breached. Vaccination helps to protect people from diseases that were once widespread. If the immune system fails, then antibiotics can be used to treat bacterial infections. The increasing problem of antibiotic resistance means that research to develop new medicines has to continue. Clinical trials of new drugs have to be carefully planned and the results published so that claims can be subject to peer review and checked by other scientists replicating the investigations. New technologies based on genetic modification and stem cells are making it possible to provide effective treatments for non-communicable diseases but, in many cases, these are still at an	

	study of systems in the human body, plant biology and inheritance.	of the way that body systems are controlled is illustrated with reference to the nervous system and the endocrine system.			early stage of development. The development and application of new technologies in medicine can raise ethical issues.	
Assessment/s	End of Topic Assessment: An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	End of Topic Assessment: An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	End of Topic Assessment: An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.		End of Topic Assessment: An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	
Unit & length	*Atomic Structure (4.1.2)*	*Periodic Table (4.5.1)*	*Bonding, Structure and Properties (Bonding) (4.6.2)*	*Bonding, Structure and Properties (Structure and Properties) (4.6.2)*	*Energy (4.7.3 and 4.7.4)*	*Acids and Alkalis (4.7.3)*
Curriculum outline	The study of atomic structure provides a good opportunity to show how scientific methods and theories develop over time. The model introduced in this topic describes atoms in terms of a central nucleus with protons and neutrons surrounded by electrons in a series of energy levels (shells). The ideas in this topic can account for the existence of isotopes and underpin the knowledge and understanding required for the rest of the chemistry course.	The model of atomic structure is further developed and applied here. The arrangement of elements in the periodic table can be explained in terms of atomic structure, which is evidence for the model of a nuclear atom with electrons in energy levels. The periodic table organises the known chemical elements in a way that helps to account for their physical and chemical properties. The focus is on the elements in groups 1, 7 and 0.	Chemists use theories of structure and bonding to explain the physical and chemical properties of materials. Analysis of structures shows that atoms can be arranged in a variety of ways, some of which are molecular while others are giant structures. Theories of bonding explain how atoms are held together in these structures. Scientists use this knowledge of structure and bonding to engineer new materials with desirable properties. The properties of these materials may offer new applications in a range of different technologies.	Chemists use theories of structure and bonding to explain the physical and chemical properties of materials. Analysis of structures shows that atoms can be arranged in a variety of ways, some of which are molecular while others are giant structures. Theories of bonding explain how atoms are held together in these structures. Scientists use this knowledge of structure and bonding to engineer new materials with desirable properties. The properties of these materials may offer new applications in a range of different technologies.	Energy changes are an important part of chemical reactions. The interaction of particles often involves transfers of energy due to the breaking and formation of bonds. Reactions in which energy is released to the surroundings are exothermic reactions, while those that take in thermal energy are endothermic. These interactions between particles can produce heating or cooling effects that are used in a range of everyday applications.	Some chemical substances can be classified as acids or bases, of which an alkali is an example. Characterising substances in this way helps to make sense of how chemicals react together, to establish patterns and to make predictions about chemical changes. This topic provides opportunities to write chemical formulae and equations and apply the quantitative methods from Chemical quantities. Practical content includes methods used to prepare and purify soluble salts.
Assessment/s	End of Topic Assessment: An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	End of Topic Assessment: An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	End of Topic Assessment: An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	End of Topic Assessment: An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	End of Topic Assessment: An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	End of Topic Assessment: An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.
Unit & length	*States of Matter – Energy (4.1.1)*	*Forces and Energy (4.6.1)*	*Waves (4.1.4)*		*Magnets (4.6.3)*	*Resources and Energy (4.8.2)*
Curriculum outline	The comprehension of particle motion assumes a pivotal role in elucidating facets of energy, encompassing states of matter, density variations, gas pressure, and alterations in state. Its application extends to expounding the conveyance of substances into and out of cells, as delineated in the context of Transport, and the dynamics of substances traversing exchange surfaces within the human body, detailed in the section on Systems This topic runs parallel to the chemistry topic Atomic structure.	Forces, represented as vectors, elucidate object interactions through diverse contact and non-contact forces. Work, a vital energy transfer mechanism, is introduced. In a gravitational field, forces acting on objects distinguish between mass and weight. Lifting an object imparts potential energy through work. Forces deform objects through elastic or inelastic processes. The work done in stretching computes the potential energy of a spring. The required practical explores the force-extension relationship in a spring.	Water and sound waves illustrate the distinction between transverse and longitudinal waves, conveying energy and information without transferring matter. This leads to the exploration of the continuous spectrum of electromagnetic waves. Hazards related to certain electromagnetic waves are addressed further in *Radiation and Risk* (Year 11). The curriculum includes two required practicals: one examining waves in a ripple tank and a metal rod, and another investigating infrared radiation from diverse surfaces. Understanding electromagnetic spectrum properties is crucial for explaining phenomena like the greenhouse effect in Chemistry.		The topic starts with an examination of magnetic fields surrounding permanent magnets and the Earth, with insights into Earth's internal structure derived from studying its magnetism. Magnetic fields are generated by electric currents, and the forces within these fields can induce motion, known as the motor effect (HT only). This phenomenon is employed in electric motors to generate movement.	Modern life necessitates a diverse array of renewable and non-renewable energy resources. To promote sustainability, scientists and engineers strive to minimize resource usage, decrease energy consumption, and mitigate environmental impacts. Efforts extend to waste reduction and exploring methods for responsible disposal, ensuring efficient utilization of materials and stored energy. Life cycle assessments offer a tool to compare the comprehensive impact of product production, use, and disposal.
Assessment/s	End of Topic Assessment:	End of Topic Assessment:	End of Topic Assessment:		End of Topic Assessment:	End of Topic Assessment:

	An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.		An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.

Year 11	Autumn A	Autumn B	Spring A	Spring B	Spring A	Spring B
Unit & length	*Homeostasis (4.3.1)*	*Preventing, Treating and Curing Disease (4.3.3)*	*Inheritance and Evolution (4.4.3 and 4.4.4)*	*Ecosystems and Biodiversity (4.4.2)*	*Exam revision (carousel) and GCSE examinations (May-June)*	
Curriculum outline	This unit mostly involves content from Unit 4.3.1: Lifestyle and Health. It begins with an introduction to the endocrine system and an overview of homeostasis, including the three main factors that need to be maintained within our bodies (water levels, sugar levels and body temperature). Then we look at the roles of insulin and glucagon (HT only) in controlling blood glucose levels and at what happens when this regulation goes wrong, leading to diabetes. The module finishes with male and female reproductive hormones, contraception, and treatments which are available for treating infertility (HT only).	The human body has defence systems to protect it from the pathogens that cause communicable diseases. However, these defences can be breached. Vaccination helps to protect people from diseases that were once widespread. If the immune system fails, then antibiotics can be used to treat bacterial infections. The increasing problem of antibiotic resistance means that research to develop new medicines has to continue. Clinical trials of new drugs have to be carefully planned and the results published so that claims can be subject to peer review and checked by other scientists replicating the investigations. New technologies based on genetic modification and stem cells are making it possible to provide	**4.4.3:** This topic builds on the study of cell to explore the relationships from the molecular level upwards between genes, chromosomes and phenotypic features. Content covered includes sex determination in humans and single gene inheritance of particular characteristics. Included is the understanding that most phenotypic features are the result of multiple genes rather than single gene inheritance. **4.4.4:** An understanding of the interplay between evidence and theory in the development of scientific thinking about evolution by natural selection and the classification of living organisms has enabled scientists to develop technologies to make	Ecosystems with high levels of biodiversity help to provide the resources needed to sustain life on Earth, including human life. This makes it very important that scientists understand the relationships within and between communities of organisms. The science helps to evaluate the negative and positive human impacts on biodiversity of human activities both locally and globally. The required practical is an investigation of factors affecting population size of a common species in a habitat.		

		effective treatments for non-communicable diseases but, in many cases, these are still at an early stage of development. The development and application of new technologies in medicine can raise ethical issues.	agriculture more productive by means of selective breeding and genetic engineering. These technologies raise ethical issues.			
Assessment/s	**End of Topic Assessment:** An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	**End of Topic Assessment:** An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	**End of Topic Assessment:** An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	**End of Topic Assessment:** An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.		
Unit & length	*Chemical Quantities (4.5.2)*	*Carbon Chemistry (4.8.1)*	*Rate and Extent of Chemical Change (4.7.4)*	*Atoms into Ions (4.7.5) and Resources of Materials (Chemistry side) (4.8.2)*		
Curriculum outline	Pupils delve into fundamental concepts like the conservation of mass, moles, Avogadro's constant, and concentration. This exploration not only enhances their understanding of chemical reactions but also hones essential numeracy skills. Students tackle percentage calculations, work with ratios to comprehend stoichiometry, and utilize equations to grasp the intricacies of chemical transformations. As they progress, students learn to calculate concentrations and employ mathematical skills to analyse and interpret chemical data.	After mastering the foundational knowledge in Structure and bonding, pupils will be able to apply this knowledge to the cultivation and processing of fuels used in everyday life. Ideas from Structure and bonding are applied to explain how new chemicals and materials are made from the hydrocarbons in crude oil. Featured processes include fractional distillation, cracking and polymerisation.	Pupils will learn that chemical reactions can occur at very different rates. Pupils will look at chemical reactions on an atomic level and discover the various ways in which the rate of a chemical reaction can be altered. Catalysts, including enzymes, can have a very significant effect on reaction rates. Chemical reactions may also be reversible and therefore the effect of different variables needs to be established in order to identify how to maximise the yield of desired product.	Repeated content offers a perfect opportunity to combine topics to develop a deeper understanding here. Pupils will look at the example of metal extraction to show how the Earth's natural resources are used to manufacture useful products. Metals can be arranged in an activity series in terms of the ability of their atoms to turn into positive ions. Electrolysis is a process that reverses such changes by turning ions back into atoms. Gain or loss of electrons can be used to classify electrode reactions as reduction or oxidation processes.		
Assessment/s	**End of Topic Assessment:** An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	**End of Topic Assessment:** An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	**End of Topic Assessment:** An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	**End of Topic Assessment:** An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.		
Unit & length	Forces and Motion (4.7.1)	Newtons Laws and Stopping Distances	Electricity and Circuits	Mains Electricity and the National Grid	Radiation and Risk	
Curriculum outline	Forces play a role in altering the motion of objects, which can manifest as constant speed, acceleration, or deceleration in a straight line or change of direction. This topic explores how the principles of motion, can explain observations of moving objects. Graphs, including distance–time or velocity–time graphs, assist in describing object movement. Changes in speed correlate with changes in kinetic energy, influenced by forces doing work.	This topic applies Newton's laws of motion to explain forces governing object motion, with a focus on road safety. Newton's First Law states objects remain at rest or in uniform motion unless acted upon by external forces. Graphs, like distance–time or velocity–time graphs, describe object movement. Changes in speed, linked to kinetic energy variations, are influenced by forces performing work (Newton's Second Law). Newton's Third Law, emphasizing equal and opposite reactions, underlines force interplay. Students use formulas for distance, time, speed, uniform and	In this topic, students must apply equations involving potential difference, current, quantity of charge, resistance, power, energy, and time. They are required to solve problems related to circuits with resistors in series. Two required practicals are included—one investigating I–V characteristics of circuit elements at constant temperature, and another examining factor influencing the resistance of an electrical component.	This topic is a more comprehensive examination of electric currents in real applications. It begins with an exploration of alternating currents employed in the mains electricity supply. Students learn the physics behind wiring a UK plug and discover how The National Grid facilitates the distribution of electricity to consumers, with the rate of energy transfer contingent upon the power of the connected appliances.	In this topic, students learn ionizing radiation encompasses specific electromagnetic radiation and particles emitted by radioactive atoms. The perceived risks of ionizing radiation exposure can vary, sometimes being overestimated and other times underestimated. This is significant because ionizing radiation has the potential to harm living cells, potentially resulting in the formation of malignant tumors – linking to our Biology curriculum. There is significant focus on case studies and longer answers at GCSE level, for instance demonstrating how understanding of the distinct properties of various ionizing radiations aids individuals in safeguarding against unnecessary risks and minimizing exposure.	

		accelerated motion, calculating average speed for nonuniform motion.			
Assessment/s	**End of Topic Assessment:** An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	**End of Topic Assessment:** An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	**End of Topic Assessment:** An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	**End of Topic Assessment:** An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.	**End of Topic Assessment:** An assessment based on a combination of short- and longer-answer examination-style questions, worth 45 marks in total. There will be a separate test for Foundation-tier and Higher-tier classes.