



Department: Science

Curriculum Intent Statement

Our Curriculum Vision & Purpose

To inspire a love of learning and sense of wonder and curiosity about the World and the Universe in which we live. To develop questioning and a desire to explain the Universe, the relevance to their lives and find answers to our problems. To allow every pupil to become scientifically literate members of society, who can develop their own opinions and make informed choices based on sound evidence, leading to a healthy, happy life with a sense of responsibility to our planet, both as an environment and a community. To promote an ambition in our pupils to study further and become directly involved in the improvement of people's lives through Science.

Powerful Knowledge

Pupils will develop their use of substantive scientific vocabulary, including the use of scientific nomenclature and units and mathematical representations within the fundamental concepts of Cells, Organisms & Interdependence, Life processes & Chemical reactions, Matter/Particles, Energy and Forces.

A knowledge of the scientific method is essential. Pupils will develop an ability to evaluate claims through critical analysis of the scientific methodology, observations leading to evidence and conclusions through collaboration, with an understanding that theories can change.

Curriculum Features

Learning is coherent, sequenced throughout the years as shown on our academic planners. Our curriculum is a 5 year GCSE and topics are covered repeatedly over the 5 years. Inter-leaving key concepts regularly allows pupils to improve recall and develop more knowledge rich, complex and abstract understanding.

Topics and concepts are built up over these years. Prior knowledge enables understanding of new, more complex material. Ensuring this prior knowledge is secure is continuous throughout lessons and the 5 year journey, through questioning and carefully designed assessments. Opportunities are provided to extend their experiences of the powerful knowledge through STEM activities and cross curricular mapping.



Continuous Development Cycle

Curriculum Knowledge & Assessment Overview 2021-23

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	Term / Duration	Topic & Main Content Overview	Assessment Task/Focus & Objectives	Powerful Knowledge for Year 7 (referenced to topic as appropriate)
Year 7 Scheme Overview	Term 1 7 Weeks Max. No. Lessons: 19	<p>Working Scientifically:- We will learn how to use practical equipment safely to carry out investigations, recording our results in tables, representing data on graphs and how to analyse and draw conclusions from this data.</p> <p>Biology: Cells:- Using microscopy, we will study the differences between animal and plant cells and learn the name of their organelles. We will also be looking at specialised cells and how they are adapted to their specific functions. In addition to this we will be studying how substances move in and out of cells via diffusion and how particles behave differently in a solid, liquid and a gaseous state.</p>	<p>All pupils are expected to have their own calculator for use in Science lessons. Assessments will test:</p> <ul style="list-style-type: none"> Recall of this term's key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of Math skills to calculate and analyse data. 	<p>A knowledge of the scientific method, in particular how to carry out unbiased scientific investigations accurately and describe observations using scientific nomenclature.</p> <p>That Cells, both plant and animal, are the fundamental units of life and how we obtained this knowledge using microscopy.</p>
	Term 2 7 Weeks Max. No. Lessons: 20	<p>Chemistry: Particles:- We will study the structural differences and properties of the different states of matter and how changes of state can change the arrangement of particles in a substance and its properties.</p> <p>Physics: Forces:- We will learn about different ways that forces can manifest and influence an objects motion and form. In addition to this we will look at how an object behaves when multiple forces are acting upon it and what happens when the magnitude of these forces change.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> Recall of all previous term's key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of Math skills to calculate and analyse data. 	<p>That differences in properties of solids, liquids and gases are due to differences in arrangement of particles which arise due to changes in energy.</p> <p>Explaining how all changes in movement and form are due an imbalance of forces.</p> <p>That all matter is made up of atoms, which exist as many different types called elements,</p>

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		<p>Chemistry: Elements, Atoms and Compounds:- We will learn about how all matter is made of atoms of different elements, which are found in the periodic table. We will then move on to how these elements can join together to make compounds which have different properties to the elements which combine to make them. Subsequently, we cover how to read and write chemical formulae using chemical symbols for each element and write word equations.</p> <p>Biology: Body Systems:- We further our knowledge of cells by studying how cells of similar types join together to form tissues that perform a specific function and that in turn these tissues form organs which form organ systems. We will then move on to learn how the body exchanges gases by studying the anatomy and action of the respiratory system and how oxygen from gas exchange is used to provide energy for the body through aerobic respiration.</p>		<p>all with different properties. That we can denote which elements are present in a substance using chemical symbols.</p> <p>Describe how living beings are organised from cells to organism and describe the form and function of our respiratory system.</p>
	<p>Term 3 6 Weeks Max. No. Lessons: 18</p>	<p>Biology: Reproduction:- We will study sexual reproduction in plants and animals and learn about how the various structures of the human reproductive system and flowers are developed to carry out their functions. In addition to this we will look at the changes which occur in adolescents during Puberty, the menstrual cycle and the development of a foetus.</p> <p>Physics: Sound:- We study the properties of waves and how changing these properties effects sounds that we hear in terms of pitch and loudness. We also compare longitudinal and transverse</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> • Recall of all previous term's key words, terms and equations and • The ability to apply knowledge in unfamiliar situations • The use of Math skills to calculate and analyse data. 	<p>Describing the main features of mammalian, plant reproductive systems, and the stages of foetal development.</p> <p>The features of longitudinal and transverse waves. How changing wavelength and amplitude affects the sound produced.</p>

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		waves in terms of their properties and how they are transmitted.		
Term 4 6 Weeks Max. No. Lessons:18	<p>Chemistry: Chemical Reactions:- We further our previous study on Chemical formulae and reactions by looking at specific reaction types, including combustion and thermal decomposition, and how mass and energy is conserved in closed systems.</p> <p>Physics: Light:- We look at light waves and how they compare to what we previously learned about sound. We learn how light rays behave in reflection, refraction and how lenses and filters effect the properties of a ray of light.</p> <p>Chemistry: Acids & Alkalis:- We begin to study the characteristics of acids and alkalis and how we can compare each in terms of strength according to the pH scale.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> Recall of all previous term's key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of Math skills to calculate and analyse data. 	<p>That mass is conserved in all reactions and that reactions end in a net energy change.</p> <p>The differences between the transmission of light and sound waves. How to draw ray diagrams to represent reflection in a plane mirror and refraction.</p> <p>Explaining the differing properties of acids and alkalis and how they exist as opposites on the pH scale. The products of acid reactions with metals, alkalis and carbonates.</p>	
Term 5 6 Weeks Max. No. Lessons: 18	<p>We continue our study on acids and alkalis by looking at reactions between acids and metals, acids and carbonates and neutralisation reactions. We will also try to make our own indicator using red cabbage.</p> <p>Physics: Space:- We learn about different objects in the night sky and the properties and positions of planets in our solar system. After this we take a closer look at the structure of the Earth from the crust to the core.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> Recall of all previous term's key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of Math skills to calculate and analyse data. 	<p>Describing Earth's position in the solar system and explaining how observable phenomena such as day, night and the changing of seasons.</p>	

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	Term 6 6 Weeks Max. No. Lessons: 18	Physics: Electricity and Magnetism:- We begin by looking at the structure of the Atom, the subatomic particles from which they are made and the relative mass and charges of those particles. We then move on to study how the current of a circuit is the rate of flow of electrons and how current, voltage resistance are linked. Afterwards we study ferromagnetism before linking together all we have learned in this topic to examine the effects of current and voltage on electromagnetism and how electromagnets can be used.	Assessments will test: <ul style="list-style-type: none">• Recall of all previous term's key words, terms and equations and• The ability to apply knowledge in unfamiliar situations• The use of Math skills to calculate and analyse data.	That electrons are negatively charged particles which cause useful energy in bulbs and other components by moving around a circuit. Describe what current, voltage and resistance are in terms of electron movement. Explaining that magnetism is a useful non-contact force which, through electromagnetism, has been used in a wide array of modern electrical appliances to our benefit.

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Year 8 Scheme Overview	Term 1 7 Weeks Max. No. Lessons: 19	<p>Working Scientifically:- We will continue to develop use of practical equipment safely to carry out investigations, recording our results in tables, representing data on graphs and how to analyse and draw conclusions from this data.</p> <p>Physics: Electricity and Magnetism:- We begin by looking at the structure of the Atom, the subatomic particles from which they are made and the relative mass and charges of those particles. We then move on to study how the current of a circuit is the rate of flow of electrons and how current, voltage resistance are linked. Afterwards we study ferromagnetism before linking together all we have learned in this topic to examine the effects of current and voltage on electromagnetism and how electromagnets can be used.</p> <p>Biology: Nutrition, Health and Lifestyle</p> <p>We introduce Biomolecules through the study of Nutrients in foods and carry out food tests to identify these nutrients. We learn about what constitutes a healthy diet and how incorrect choices can cause an unhealthy diet which can lead to a number of health conditions including eating disorders and obesity. We then move onto the structure and function of the organs within the Digestive System, interleaving knowledge about Acids, Specialised Cells and Diffusion from Year 7, enzymes and bacteria in digestion are introduced. Finally we consider the health effects of some drugs (alcohol and tobacco) on our Body Systems.</p>	<p>Assessment 1 All pupils are expected to have their own calculator for use in Science lessons. Assessments will be in a GCSE style and will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations from all topics in Term 1 (and prior learning). • The ability to apply knowledge in unfamiliar situations • The use of Math skills to calculate and analyse data. 	<p>Describe the structure of the atom and the charge and location of electrons. To recognise how current and voltage change in series and parallel circuits. They will then extend their understanding of forces in relation to magnets and magnetism, using scientific investigations to underpin their new knowledge.</p> <p>Describe the role of the different nutrients in a healthy and balanced lifestyle using science appropriate vocabulary. Explain how organs function in a system and the important part that bacteria and enzymes play in maintaining a healthy gut biome, and the implications of this for the human.</p>

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	<p>Term 2 7 Weeks Max. No. Lessons: 20</p>	<p>Biology: Nutrition, Health and Lifestyle Continued We consider the health effects of some drugs (alcohol and tobacco) on our Body Systems.</p> <p>Chemistry: The Periodic Table We begin by reviewing States of Matter and Elements from Year 7. We then learn about the organisation and content of the Periodic table to include: Metals & non-metals, Groups & periods, The Elements of Group 1, Group 7 and Group 0.</p> <p>Physics: Energy Food and fuels are introduced as energy stores and then the Law of Conservation of Energy is explained by learning about energy transfers. Energy transfer is explained by interleaving Year 7 concepts of The Particle Model and Waves.</p>	<p>Assessment 2 Assessments will be in a GCSE style and will test:</p> <ul style="list-style-type: none">• Recall of all key words, terms and equations from all topics in Term 2 (and prior learning).• The ability to apply knowledge in unfamiliar situations• The use of Math skills to calculate and analyse data.	<p>Use knowledge of positive lifestyle choices to make healthy decisions regarding the use of drugs, alcohol and smoking.</p> <p>Consolidation of learning from Year 7, applying knowledge to new areas of chemistry becoming more familiar with the periodic table of the elements. Pupils will be more able to understand the material world around them in terms of particles and their interactions.</p> <p>Pupils will advance in their use of scientific nomenclature and use of equations and other mathematical expressions within Science this term as they develop their understanding of the abstract concept of Energy. They will evaluate claims through critical analysis of evidence regarding energy resources and the problems our future generations will face.</p>
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	<p>Term 3 6 Weeks Max. No. Lessons: 18</p>	<p>Physics: Energy Energy resources - Non-renewables & power station function and Renewables & alternatives are taught and quantitative Physics is introduced through the study of Energy & power and Work, energy & machines.</p> <p>Biology: Adaptation & Inheritance We will meet ideas about interdependence between organisms for the first time in learning about Competition & Adaptation in specific organisms, we consider Adapting to Change and how leads to Variation – interleaving knowledge of the Nucleus from Year7. We will record data and construct Graphs to learn about how to recognise Continuous and Discontinuous Variation. Finally we learn about the genetic code in Inheritance and the theory of Natural Selection including situations were species have not evolved successfully – Extinction.</p>	<p>Assessment 3 Assessments will be in a GCSE style and will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations from all topics in Term 3 (and prior learning). • The ability to apply knowledge in unfamiliar situations • The use of Math skills to calculate and analyse data. 	<p>As pupils progress through term 3 they will develop their use of practical skills within the scientific method. They will make observations and draw conclusions to start to develop a complex understanding of the interdependence and fragility that organisms have on each other.</p> <p>Pupils will also deepen their understanding of the biology ecosystems within our planet as they examine evidence underpinning Darwin’s theory of evolution and the way that theories have changed over time.</p> <p>We delve deeper in to the fundamental concept of ‘Organisms and Interdependence’ this term by examining variation within the human species and using evidence to conclude what happened to the Dinosaurs</p>

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				and what we can learn from their extinction.
Term 4 6 Weeks Max. No. Lessons:18	<p>Chemistry: Separation Techniques We learn about Mixtures, solutions and solubility – interleaving the Particle Model from Year 7. We use and observe the equipment for the processes of Filtration, Evaporation and Distillation and Chromatography. Uses & Analysis of these techniques are also reflected on.</p> <p>Chemistry: Metals & acids Formulae, word and symbol equations are recalled and the powerful knowledge of Acids and making salts from year 7 are revisited. Then the reactions of Metals with acids, oxygen and water are taught followed by Metal Displacement reactions and the environmental impact of Extracting Metals. Finally Polymers are introduced.</p>	<p>Assessment 4 Assessments will be in a GCSE style and will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations from all topics in Term 4 (and prior learning). • The ability to apply knowledge in unfamiliar situations • The use of Math skills to calculate and analyse data. 	<p>In Chemistry, pupils are introduced to the general reactions of metals with other substances. Helping them to explain changes in the world around them and to help make decisions on the use of materials for a purpose.</p>	
Term 5 6 Weeks Max. No. Lessons: 18	<p>Physics: Motion & pressure Speed as a quantity is taught and pupils learn how to convert units to standard international units and how to construct, calculate the gradient and analyse a distance -time graph. Pupils will the learn about Pressure in solids, liquids and gases, recalling power knowledge from Year 7 about Forces and states of matter.</p> <p>Biology: Ecosystem Processes Plants are taught about in detail, after reviewing specialised cells first met in year 7. The process of Photosynthesis is learnt involving the learning about</p>	<p>Assessment 5 Assessments will be in a GCSE style and will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations from all topics in Term 5 (and prior learning). 	<p>As pupils progress through term 5 they will develop their use of calculator skills within the scientific method. They will use formulae and draw graphs to derive numerical answers, using these alongside their developing knowledge of Physics.</p>	

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		<p>molecules in chemical reactions requiring energy transfer occurring in cell locations for the first time. The health of plants are considered and mineral content is linked to powerful knowledge earlier in the Year about the location of elements within the Periodic table. The processes of Aerobic Respiration and Anaerobic Respiration are then taught with the same complexity as described for Photosynthesis, linking Chemistry and Physics to Biology</p>	<ul style="list-style-type: none"> • The ability to apply knowledge in unfamiliar situations • The use of Math skills to calculate and analyse data. 	<p>As pupils progress through term 5 they will develop their use of practical skills within the scientific method. They will make observations and draw conclusions, using these alongside their developing interleaving knowledge of matter and particles to develop a complex understanding of the interdependence and fragility that organisms have on each other.</p>
<p>Term 6 6 Weeks Max. No. Lessons: 18</p>		<p>Review & Revision for End of Year Assessment (EOY 8) Biology: Ecosystem Processes Continued</p> <p>Interdependence is studied through the learning of Food chains & webs and what disrupts them. Powerful knowledge about energy transfer is revisited. Ecosystems – their constituents, fragility and importance for sustaining them is also taught.</p> <p>Chemistry 4: The Earth The planet Earth and it's atmosphere; composition and evidence for it is studied. The Carbon Cycle links the previously taught processes together. Climate Change is the considered for a number of lessons, it's causes, effects and solutions are considered. Finally at the end of this term there is review of any key misconceptions from Assessments 5 & 6 this Year, the content of this</p>	<p>Assessment 6 – EOY 8 Assessments will be in a GCSE style and will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations from all topics in Term 5 (and prior learning). • The ability to apply knowledge in unfamiliar situations 	<p>As pupils progress through final term 6 they will further develop a complex understanding of the interdependence and fragility that organisms have on each other.</p> <p>The year ends with an earth-science Chemistry topic, which aims to enable pupils to become more aware of the changing climate of our Earth, what is causing it and what can be done about it.</p>

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		will be specific to each class and may further address any gaps evident from the remote learning periods for these pupils when in year 7.	<ul style="list-style-type: none">•The use of Math skills to calculate and analyse data.	
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	Term / Duration	Topic & Main Content Overview	Assessment Task/Focus & Objectives	Powerful Knowledge for Year 9 (referenced to topic as appropriate)
Year 9 Scheme Overview	Term 1 7 Weeks Max. No. Lessons: 19	<p>Working Scientifically:- We will continue to develop and extend safe and confident use of practical equipment to carry out investigations, identifying variables, recording results in tables, representing and recognising data on a variety of graphs and analysing this data; we will also learn how to evaluate our conclusions.</p> <p>PUPILS WILL REQUIRE THEIR OWN SCIENTIFIC CALCULATOR.</p> <p>Biology: Ecosystem Processes Plants are taught about in detail, after reviewing Cell basics and then specialised cells first met in Year 7. The process of Photosynthesis is learnt involving the learning about molecules in chemical reactions requiring energy transfer occurring in cell locations for the first time. The health of plants are considered and mineral content is linked to powerful knowledge from Year 8 about the location of elements within the Periodic table. The processes of Aerobic and Anaerobic Respiration are then taught with the same complexity as described for Photosynthesis, linking Chemistry (word equations) and Physics (energy stores and transfers) to Biology.</p> <p>Chemistry: The Earth The composition of the Earth, it's atmosphere and evidence for this is taught, the Carbon cycle is introduced which revisits the Processes taught in the previous Biology module and Climate change is considered alongside the event of COP26 which takes place concurrently with this learning in October.</p>	<p>Assessment 1 Assessment will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations • The ability to apply knowledge in unfamiliar situations • The use of Math skills to calculate and analyse data. 	<p>Pupils will develop their use of substantive scientific vocabulary, including the use of scientific nomenclature, units and mathematical representations within the fundamental concepts of CELLS & MATTER/ PARTICLES.</p> <p>A knowledge of the scientific method is essential. Pupils will develop an ability to evaluate claims through critical analysis of the scientific methodology, observations leading to evidence and conclusions through collaboration, with an understanding that theories can change.</p>

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	<p>Term 2 7 Weeks Max. No. Lessons: 20</p>	<p>Physics: MOTION Speed, distance & time graphs are constructed and analysed, having already been met in Maths in year 8. Significant Maths content to include equation manipulation, substitution and gradient from a graph calculation. Forces are revisited as we learn about Pressure in different states of matter. PUPILS WILL REQUIRE THEIR OWN SCIENTIFIC CALCULATOR. Learning now uses Edexcel GCSE Science Resources Biology: Health Microorganisms, Pathogens, their transmission, prevention, barriers and the Immune System are learnt about in the context of named Disease examples including Covid-19.</p>	<p>Assessment 2 Assessment will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations • The ability to apply knowledge in unfamiliar situations • The use of Math skills to calculate and analyse data. 	<p>Pupils will develop their use of substantive scientific vocabulary, including the use of scientific nomenclature, units and mathematical representations within the fundamental concepts of PARTICLES & FORCES.</p> <p>Bacteria, viruses, fungi and protists as causes of communicable disease. How disease is spread and the bodies defence against infection. How the immune system responds to infection and how immunisation works. The uses and limits of antibiotics as a treatment against disease.</p>
	<p>Term 3 6 Weeks Max. No. Lessons: 18</p>	<p>Biology: Health This learning concludes this term with content about Antibiotics, Stem cell and Gene therapy. Chemistry: Crude Oil Compounds Pupils will learn about fuels as energy stores, how Fossil fuels were formed, their finite nature and their Combustion along with associated environmental concerns. They will begin to learn how to write balanced symbol equations from word equations and use molecular formulae correctly. They will learn more about compounds in the context of the fractional distillation of Crude Oil, the properties and uses of this, resulting in valuable fractions and how the process of cracking is used to increase yields of certain fractions. Plastics as examples of polymers are covered and their disposal problems are considered in detail.</p>	<p>Assessment 3 Assessment will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations • The ability to apply knowledge in unfamiliar situations • The use of Math skills to calculate and analyse data. 	<p>The uses and limits of Antibiotics as a treatment against disease. The limitations of our bodies to repair themselves and the possible treatments/cures that Science can offer, taking into account the ethical issues of embryonic stem cell research.</p> <p>To understand that Crude oil and natural gas fossil fuels give us the raw materials needed to make a huge range of products and fuels, but combustion of it produces carbon dioxide, which is thought to be changing our atmosphere and climate. Pupils should also</p>

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				understand the dangers of incomplete combustion and how this can occur in the home, knowing how to spot and prevent it and what we can do to reduce climate change and preserve our planet and its resources for future generations. Including the use of plastics, made from cracking crude oil to produce polymers.
Term 4 6 Weeks Max. No. Lessons:18	<p>Chemistry: Crude Oil Compounds This learning concludes with Microplastics and Bioaccumulation.</p> <p>Physics: Energy The National Grid is introduced and non-renewable and renewable energy resources are revised and considered in terms of their sustainability. Energy efficiency, nuclear power, nuclear reactions and the Life cycle of a Star are then taught.</p> <p>PUPILS WILL REQUIRE THEIR OWN SCIENTIFIC CALCULATOR.</p>		<p>Assessment 4 Assessment will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations • The ability to apply knowledge in unfamiliar situations • The use of Math skills to calculate and analyse data. 	To understand that Science has allowed the advancement of Human technology and quality of life, but that this can have negative effects for the future sustainability of the Planet..
Term 5 6 Weeks Max. No. Lessons: 18	<p>Biology: Cells PUPILS WILL REQUIRE THEIR OWN SCIENTIFIC CALCULATOR.</p> <p>Microscope Maths including the use of Standard form, the history and practical use of this piece of equipment are studied in detail. Then, animal, plant, bacteria and specialised cells are revised with gametes and microvilli structures being studied.</p> <p>Chemistry: Our planet and human effects</p>		<p>Assessment 5 Assessment will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations • The ability to apply knowledge in unfamiliar situations • The use of Math skills to calculate and analyse data. 	Describe how living organisms are organised and how we have gained this knowledge through Microscopy.

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		<p>The evolution of our planet Earth, it's atmosphere and the changing processes within it are covered as is Human Evolution and Natural Selection, revisited from Year 8.</p>		<p>To explain how the Earth's atmosphere has changed in the past, how it is changing now, the evidence for this and what we can do to reduce climate change and preserve our planet and its resources for future generations.</p>
	<p>Term 6 6 Weeks Max. No. Lessons: 18</p>	<p>Chemistry: Our planet and human effects Pupils will conclude this Chemistry by learning about the processes involved in and the impact of Global Warming, Climate Change and Acid Rain. After reviewing and correcting any key misconceptions arising from the end of Year Assessment (including a review of lockdown content topics from year 7 & year 8); this term pupils will continue their transition to GCSE by learning about: Chemistry: States of Matter and Separation techniques States of Matter, Mixtures, Filtration and Crystallisation, Paper Chromatography, Distillation (Time this term has been dedicated entirely to Chemistry as this subject has the most content at GCSE when compared to Biology and Physics.)</p>	<p>Assessment 6 (End of year) Assessment will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations • The ability to apply knowledge in unfamiliar situations • The use of Math skills to calculate and analyse data. 	<p>To explain the nature of matter, which makes up the Universe, which is central to understanding the properties of materials and the chemical reactions that form new substances.</p> <p>Describe how materials can be separated from one another using their properties. Explain how to choose a separation method based on the properties of the substances in a mixture.</p>

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	Term / Duration	Topic & Main Content Overview	Assessment Task/Focus & Objectives	Powerful Knowledge for Year 10 (referenced to topic as appropriate)
Year 10 Scheme Overview	Term 1 7 Weeks Max. No. Lessons: 14	<p>CB1 Overarching concepts in Biology</p> <p>The study of microscopy to explore the differences between plant animal and bacterial cells. We will look at specialised cells and their adaptations to their function.</p> <p>We look at the role of enzymes in cells and in nutrition and the chemical tests for different nutrients in foods.</p> <p>We will study the effects of different conditions on enzyme activity and the importance of this to living cells. Finally we study how cells rely on diffusion, osmosis and active transport to survive.</p>	<p>Biology Assessment 1</p> <p>Assessments will test:</p> <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of math skills to calculate and analyse data. 	<p>Describe how living organisms are organised and how we have gained this knowledge through microscopy. Explaining how living cells function and the differences between different kingdoms.</p>
	Term 2 8 Weeks Max. No. Lessons: 16	<p>CB2 Cells and control</p> <p>We will study the similarities and differences between how plants and animals grow, including mitosis and cell differentiation. We look at stem cells and their possible uses in medicine.</p> <p>We then go onto Human Biology, studying the nervous system; composed of different neurones, how neurotransmission speeds are affected.</p>	<p>Biology Assessment 2</p> <p>Assessments will test:</p> <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of math skills to calculate and analyse data. 	<p>Explaining how all cells reproduce to allow growth and repair. The limitations of our bodies to repair themselves and the possible treatments/cures that Science can offer, taking into account the ethical issues of embryonic stem cell research. The ability to explain how different neurones are arranged in our nervous system and the control of our bodies that this facilitates.</p>

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<p>Term 3 6 Weeks Max. No. Lessons: 12</p>	<p>CB3 Genetics Sexual and asexual reproduction producing variation and clones respectively and we look at gamete production through meiosis. We then study the structure of DNA and how this codes to allow protein synthesis within cells, including the effects of DNA mutations. We will then move on to the language and mechanism of inheritance and the work of Mendel, developing our understanding of genes and alleles.</p>	<p>Biology Assessment 3 Assessments will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations and • The ability to apply knowledge in unfamiliar situations • The use of math skills to calculate and analyse data. 	<p>How DNA is common to all life on Earth and how this causes of variation between and within species. How our understanding of genetics allows us to make predictions regarding inheritance and explain the reasons for some diseases/conditions.</p>
<p>Term 4 7 Weeks Max. No. Lessons: 14</p>	<p>CB4 Natural Selection and Genetic Modification In this unit we find out more about how organism are changed genetically by natural selection and by humans. Darwin's theory of natural selection is studied, pupils study methods, including genetic analysis which are being used to investigate evolution. Pupils look at how organisms are classified and about how organisms are changed by selective breeding and genetic engineering</p>	<p>Biology Assessment 4 Assessments will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations and • The ability to apply knowledge in unfamiliar situations • The use of math skills to calculate and analyse data. 	<p>How natural section drives evolution and the evidence for it. How artificial selection and genetic modification is carried out and the advantages and disadvantages of each method.</p>
<p>Term 5 4 Weeks Max. No. Lessons: 8</p>	<p>CB5 Health, Disease and the Development of Medicines Pupils learn about how we define health and about causes of disease. Pupils learn about effect of nutrition, genetics and lifestyle on disease. Diseases caused by microbes is studied, along with their spread. Finally we consider the body's defence against disease and the drugs that can be used to fight infection.</p>	<p>Biology Assessment 5 Assessments will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations and • The ability to apply knowledge in unfamiliar situations • The use of math skills to calculate and analyse data. 	<p>Bacteria, viruses, fungi and protists as causes of communicable disease. How disease is spread and the bodies defence against infection. How the immune system responds to infection and how immunisation works. The uses and limits of antibiotics as a treatment against disease.</p>

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	<p>Term 6 7 Weeks Max. No. Lessons: 14</p>	<p>CB5 Health, Disease and the Development of Medicines Pupils learn about how we define health and study the causes of disease. Pupils learn about effect of nutrition, genetics and lifestyle on disease. Diseases caused by microbes are studied, along with their spread. Finally we consider the body's defence against disease and the drugs that can be used to fight infection.</p>	<p>Mock: Year 10 Progress Test</p>	<p>Bacteria, viruses, fungi and protists as causes of communicable disease. How disease is spread and the bodies defence against infection. How the immune system responds to infection and how immunisation works. The uses and limits of antibiotics as a treatment against disease.</p>
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Year 11 Scheme Overview	Term / Duration	Topic & Main Content Overview	Assessment Task/Focus & Objectives	Powerful Knowledge for Year 11 (referenced to topic as appropriate)
	<p>Term 1 7 Weeks Max. No. Lessons: 14</p>	<p>CB6 Plant Structures and their Function Plants as organisms are studied focussing on photosynthesis and how different factors affect its rate. Pupils learn about how the rate of water uptake by a plant is affected by different factors. Throughout the unit the role of specialised plant cells is studied and how they allow the reactants for photosynthesis to be transported.</p>	<p>Biology Assessment 7 - Assessments will test:</p> <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of math skills to calculate and analyse data. 	<p>The photosynthesis reaction and how plant are adapted to increase its rate. How specialised plant cell facilitate plant photosynthesis and growth.</p>
	<p>Term 2 8 Weeks Max. No. Lessons: 16</p>	<p>CB7 Animal Coordination, Control and Homeostasis Pupils are introduced to the idea of hormonal control. They will study a range of human hormone, the glands which produce them and their action on target hormones. The biology of diabetes and the menstrual cycle is explored.</p>	<p>Biology assessment 8 - Mock exam Assessments will test:</p> <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of math skills to calculate and analyse data. 	<p>That endocrine glands release hormones. How hormones control female reproductive cycle, gluco-regulation and metabolism.</p>

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<p>Term 3 6 Weeks Max. No. Lessons: 12</p>	<p>CB8 Exchange and Transport in Animals In this unit we discover how gas exchange surfaces are adapted to bring about rapid exchange of substances. Pupils learn about the different types of respiration and about how the lungs, heart, blood vessels and the blood are adapted to facilitate this. Pupils learn how to calculate cardiac output.</p>	<p>Biology assessment 9 -</p>	<p>How the structures in the circulatory system of the circulatory system is adapted to bring about respiration. How cardiac output relate to activity and how to calculate it.</p>
<p>Term 4 7 Weeks Max. No. Lessons:14</p>	<p>CB9 Ecosystems and Materials Cycles In this units pupils discover how ecosystems are organised. They study the factors that affect the distribution of organisms and methods that can be used to measure this. Relationships between in organisms in ecosystems are studied and how humans can upset and impact on biodiversity. The importance of carbon, water and nitrogen cycle in recycling materials in an ecosystem.</p>	<p>Biology assessment 10 - Mock Paper 2 exam</p>	<p>Biotic and abiotic factors affecting the distribution of organisms in ecosystems. Cyclic, parasitic and mutualistic relationships. Sampling Techniques use to estimate population sizes. How humans impact on biodiversity. Describing carbon, nitrogen and water cycles.</p>
<p>Term 5 4 Weeks Max. No. Lessons: 8</p>	<p>Revision</p>	<p>GCSE Exams</p>	
<p>Term 6 7 Weeks Max. No. Lessons: 14</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>

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	Term / Duration	Topic & Main Content Overview	Assessment Task/Focus & Objectives	Powerful Knowledge for Year 10 (referenced to topic as appropriate)
Year 10 Scheme Overview	Term 1 7 Weeks Max. No. Lessons: 14	<p>CC1 States of Matter & changes of state CC2 Methods of Separating & Purifying Substances Mixtures & pure substances. Filtration and crystallisation. Paper chromatography. Distillation. Producing drinking water.</p> <p>CC3 Atomic Structure. Structure of an atom. Atomic mass and number. Isotopes.</p>	<p>All assessments will assess the same 3 assessment objectives: AO1 – Knowledge & understanding of scientific ideas, techniques and procedures AO2 – Application of Scientific ideas, techniques and procedures (including Maths) AO3 – Analyse information to interpret, evaluate, conclude; develop and improve procedures in a practical context</p> <p>Chemistry Assessment 1 – States of matter & separating Substances</p>	<p>Describe how materials can be separated from one another using their properties. Explain how to choose a separation method based on the properties of the substances in a mixture.</p>
	Term 2 8 Weeks Max. No. Lessons: 16	<p>CC4 The Periodic Table Elements and the periodic table. Atomic number and the periodic table. Electronic configurations and the periodic table.</p> <p>CC5 Ionic Bonding Ionic bonds. Ionic lattices. Properties of ionic compounds.</p> <p>CC6 Covalent Bonding CC7 Types of Substance Molecular compounds & their properties.</p>	<p>Chemistry Assessment 2 – States of matter & separating Substances & Atomic Structure</p>	<p>To explain the nature of matter, which is central to understanding the properties of materials and the chemical reactions that form new substances. Describe how ideas about atoms have changed and to understand the language and keywords of Atomic structure.</p>

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<p>Term 3 6 Weeks Max. No. Lessons: 12</p>	<p>CC7 Types of Substance Allotropes of carbon. Properties of metals. Bonding models. CC8 Acids Acids, indicators and pH.</p>	<p>Chemistry Assessment 3 – States of matter & separating Substances, Atomic Structure & Chemical Bonding</p>	<p>To compare how elements are arranged in the modern Periodic Table with Mendeleev’s original ideas. Thanks to the Periodic Table, chemists can make sense of patterns and trends, which lets them predict the properties of elements. To understand the language and keywords of ionic, covalent and metallic bonding. Describing and explaining how the physical properties of a substance are linked to its bonding and structure.</p>
<p>Term 4 7 Weeks Max. No. Lessons:14</p>	<p>CC8 Acids Looking at acids. Bases and salts. Alkalis and balancing equations. Alkalis and neutralisation. Reactions of acids with metals and carbonates.</p>	<p>Chemistry Assessment 4 – States of matter & separating Substances, Atomic Structure, Chemical Bonding & Properties of Substances</p>	<p>To understand ions in acids and alkalis, and how their concentrations are linked to indicators and pH. Exploring the nature of acidic, neutral and alkaline solutions, as are many household and industrial chemicals. To investigate how different soluble and insoluble salts can be prepared in the laboratory and their most important reactions, properties and uses.</p>
<p>Term 5 4 Weeks Max. No. Lessons: 8</p>	<p>CC8 Acids Solubility. CC9 Calculations involving Masses Masses and empirical formulae. Conservation of mass.</p>	<p>Chemistry Assessment 5 – States of matter & separating Substances, Atomic Structure, Chemical Bonding, Properties of Substances & Acids</p>	<p>Understanding how in most chemical reactions it is important to mix the reactants in the correct amounts to form the maximum amount of product and to avoid waste. Calculating Relative formula masses, empirical and molecular formulae of compounds.</p>

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Term 6 7 Weeks Max. No. Lessons: 14	CC9 Calculations involving Masses Moles. CC10 Electrolytic Processes Electrolysis. Products from electrolysis.	Chemistry Assessment 6 – Mock GCSE Exam paper 1	An understanding of how Chemists compare the same number of particles in substances which weigh different amounts. Introducing Electrolysis as an important chemical reaction with many useful applications in everyday life.
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	Term / Duration	Topic & Main Content Overview	Assessment Task/Focus & Objectives	Powerful Knowledge for Year 11 (referenced to topic as appropriate)
Year 11 Scheme Overview	Term 1 7 Weeks Max. No. Lessons: 14	CC11 Obtaining and Using Metals Reactivity. Ores. Oxidation and Reduction. Life cycle Assessment and recycling. CC12 Reversible reactions and Equilibria Dynamic Equilibrium.	All assessments will assess the same 3 assessment objectives: AO1 – Knowledge & understanding of scientific ideas, techniques and procedures AO2 – Application of Scientific ideas, techniques and procedures (including Maths) AO3 – Analyse information to interpret, evaluate, conclude; develop and improve procedures in a practical context Chemistry Assessment 7 – All of year 10 content (Paper 1 C1-C10 inclusive) and C11	Learn more about reactions, including some of the reactions involved in the extraction and purification of metals from their ores. Describe the advantages of recycling metals and the factors involved in a life cycle assessment of a product. To explain about equilibria in chemical reactions such as the Haber process.
	Term 2 8 Weeks Max. No. Lessons: 16	CC13 Groups 1 ,7 and 0 of the Periodic Table Group 1. Group 7 Halogen reactivity. Group 0. CC14 Rates of Reaction Rates of reaction. Factors affecting reaction rates.	Chemistry Assessment 8 – Mock exam (Paper 1 exams)	To describe the properties and reactions of the elements in groups 1,7, and 0. To describe how changes in conditions can affect the rates of reactions.

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<p>Term 3 6 Weeks Max. No. Lessons: 12</p>	<p>CC14 Rates of Reaction Catalysts and activation energy.</p> <p>CC15 Heat Energy Changes in Chemical Reactions Exothermic and endothermic reactions. Energy changes in reactions.</p> <p>CC16 Fuels Hydrocarbons in crude oil and natural gas. Fractional distillation of crude oil. Alkane homologous series.</p>	<p>Chemistry Assessment 9 – Paper 1 and C11,12,13,14 and 15</p>	<p>To explain the energy transfers that can occur during chemical reactions. Understanding how chemical reactions occur and the energy transfers involved is fundamental to understanding our material world and the processes of life.</p> <p>To describe how crude oil is a finite resource and the substances that we make from it are non-renewable and will run out if we continue to use them.</p>
<p>Term 4 7 Weeks Max. No. Lessons: 14</p>	<p>CC16 Fuels Complete and incomplete combustion. Fuels and pollution. Breaking down hydrocarbons.</p> <p>CC17 Earth and Atmospheric Science The early atmosphere. The changing atmosphere. The atmosphere today. Climate change.</p>	<p>Chemistry Assessment 10 – Mock Exam – Paper 2</p>	<p>To understand that Crude oil gives us the raw materials needed to make a huge range of products but combustion of it produces carbon dioxide, which is thought to be changing our atmosphere and climate.</p> <p>To explain how the Earth's atmosphere has changed in the past and how it is changing now.</p>
<p>Term 5 4 Weeks Max. No. Lessons: 8</p>	<p>Revision</p>	<p>GCSE Exams</p>	
<p>Term 6 7 Weeks Max. No. Lessons: 14</p>			

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Year 10 Scheme Overview	Term 1 7 Weeks Max. No. Lessons: 14	<p>CP1 Motion Reinforcing graph skills by plotting distance-time and velocity-time graphs, calculating acceleration and rearranging formulae.</p> <p>CP2 Forces and motion Calculating resultant forces and describing their effects using Newton's Laws of Motion.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of math skills to calculate and analyse data. 	<p>Develop mathematical skills in order to present scientific ideas and results.</p> <p>Learn how to interpret data and explain the results using Newton's Laws of Motion.</p>
	Term 2 8 Weeks Max. No. Lessons: 16	<p>CP2 Forces and motion (continued) Completing Newton's Laws of Motion with the third Law, followed by Momentum and how it is conserved in a collision. Road safety and factors affecting the stopping distance of moving objects, taking into account both thinking and braking distances. Enquiring about the crumple zones of vehicles and the science behind reducing the force of impact during a collision.</p> <p>CP3 Conservation of energy Understanding the Law of conservation of energy "energy can neither be created nor destroyed but transferred from one form into another" and describing in what form those transfers take place. Also, how energy can be used efficiently to prevent wasting resources.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations. The use of math skills to calculate and analyse data. 	<p>Explore how safety features in vehicles can be explained using Newton's 3rd Law. Understand how to manipulate data to calculate the velocity of an object, following a collision or explosion.</p> <p>In a world where technology is so heavily depended on, pupils learn how to efficiently use energy and preserve resources for future generations.</p>

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	<p>Term 3 6 Weeks Max. No. Lessons: 12</p>	<p>CP3 Conservation of energy (continued) Using the idea of preserving our fuel reserves for a sustainable future and the pros and cons of different methods of producing electricity.</p> <p>CP4 Waves Identifying the different types of waves and their characteristics, calculating wave velocity using the equation and rearranging the equation. We will investigate refraction in dense objects, recall the reasons refraction occurs and identify the difference between reflection and refraction.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations and • The ability to apply knowledge in unfamiliar situations • The use of math skills to calculate and analyse data. 	
	<p>Term 4 7 Weeks Max. No. Lessons: 14</p>	<p>CP5 Light and the electromagnetic spectrum Here we will discover all of the waves in the EM spectrum ranging from radio waves to gamma waves. We will learn how UV and Infra-red were discovered, the uses of all seven waves and how harmful some can be when exposed to them.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations and • The ability to apply knowledge in unfamiliar situations • The use of math skills to calculate and analyse data. 	<p>Develop an understanding of methods of communication, medical scanners/sterilisation and how harmful these useful waves can be.</p>
	<p>Term 5 4 Weeks Max. No. Lessons: 8</p>	<p>CP6 Radioactivity. In this topic we overlap with some key concepts in Chemistry, and take a tour of the journey of discovery of structure of the atom, and how Rutherford allowed us to have a more in depth knowledge of the subatomic particles.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations and • The ability to apply knowledge in unfamiliar situations • The use of math skills to calculate and analyse data. 	<p>Discover how Ernest Rutherford and JJ Thomson used various experiments to uncover the structure of the atom!</p>

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	<p>Term 6 7 Weeks Max. No. Lessons: 14</p>	<p>CP6 Radioactivity (Continued) We lead on to discuss the types of radiation, plus dangers and uses of radioactivity, which evokes interesting conversations regarding Chernobyl and Fukushima.</p> <p>CP7 Energy – forces doing work This topics relates back to the earlier topic on energy (P3 Conservation of Energy). Here we learn that when energy is transferred by a force, work is done on it and the rate at which energy is transferred is the Power.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations and • The ability to apply knowledge in unfamiliar situations • The use of math skills to calculate and analyse data. 	<p>Discover the devastation that a “clean” fuel can cause if not used correctly.</p> <p>What are watts? Explore how energy-saving devices have a much improved efficiency in comparison to their predecessors.</p>
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	Term / Duration	Topic & Main Content Overview	Assessment Task/Focus & Objectives	Powerful Knowledge for Year 11 (referenced to topic as appropriate)
<p>Year 11 Scheme Overview</p>	<p>Term 1 7 Weeks Max. No. Lessons: 14</p>	<p>CP8 Energy – Forces doing work Forces transfer energy which is known as the work done. The rate at which the energy is transferred is the Power. Continue to practice Maths skills by rearranging the equations that link both of these concepts.</p> <p>CP9 Forces and Their Effects Objects do not need to be in contact with each other for their forces to interact. Learn about contact and non-contact forces. A resultant force can be found using a scale diagram. Use a protractor and ruler to work out the magnitude and direction of the resultant force.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations and • The ability to apply knowledge in unfamiliar situations • The use of math skills to calculate and analyse data. 	<p>Continue to learn about the energy around us and how we can save as much as possible to sustain the resources on our Earth.</p>

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		Learn why levers and gears are force multipliers.		Explore how objects can interact with or without having physical contact with each other.
Term 2 8 Weeks Max. No. Lessons: 16	CP10 Electricity and Circuits Build parallel and series circuits and understand the change in voltage and current that occur in both. An electrical current is the flow of charged particles, find out how they transfer their energy into useful (and wasted!) forms. Have you ever wondered why lightbulbs get hot? Learn how resistance in various components affects the current flowing through them. Electricity can be fatal if misused, learn the safety features in appliances and our homes to keep us safe.	Assessments will test: <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of math skills to calculate and analyse data. 	Develop skills building electrical circuits safely and effectively. Use graph skills to show the relationship between Voltage and Current in various electrical components.	
Term 3 6 Weeks Max. No. Lessons: 12	CP12 Magnetism and the Motor Effect Revisit some year 8 work on magnetic fields and build on this by understanding that these fields can be created by an electric current and can induce an electric current. Learn how this property is exploited in motors, electromagnets, generators, speakers and microphones in the next topic. CP13 Electromagnetic Induction As previously stated electromagnetic induction has many uses, including generating electricity on a huge scale. Find out how the National Grid works, how voltage can be “stepped up” and “stepped down” and how this improves efficiency.	Assessments will test: <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of math skills to calculate and analyse data. 	Do you know how motors work? Knowing how everyday objects work is key here – from the small speakers in your earphones, microphones, to the electric motor in cars. The world around us depends on electricity, but how is it generated? What are the drawbacks and how are these overcome using Transformers.	

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	<p>Term 4 7 Weeks Max. No. Lessons:14</p>	<p>CP14 Particle Model Rediscover what you learned in Year 7 regarding the particle arrangement in various states of matter. Describe the arrangement using the Kinetic Theory. Learn why ice is less dense than liquid water, despite being a solid and how to calculate density. Use energy calculations to work out specific heat capacity and specific latent heat of substances. Furthermore, discover what is meant by absolute zero and use the kelvin temperature scale to explain the average kinetic energy of gas particles. Learn the link between gas temperature, pressure and volume.</p> <p>CP15 Forces and Matter Revisit Hooke's Law and calculate the energy transferred in stretching. Finally, complete the course learning about pressure in fluids, applying previous knowledge of density to calculate the upthrust on a floating object.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations and • The ability to apply knowledge in unfamiliar situations • The use of math skills to calculate and analyse data. 	<p>All matter is made from atoms but how are they arranged and why does this arrangement occur?</p> <p>Discover the unusual property of a solid being less dense than it is in a liquid state.</p> <p>Degrees Celsius, Degrees Fahrenheit and now kelvins! What are kelvins and how do they relate to Degrees Celsius?</p> <p>Explore how springs and elastic bands behave when stretched by an increasing force. Discover why the deepest oceans on Earth are difficult to reach without very expensive equipment that can withstand massive pressures!</p>
	<p>Term 5 4 Weeks Max. No. Lessons: 8</p>	<p>GCSE Exams</p>		

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	Term 6 7 Weeks Max. No. Lessons: 14	GCSE Exams		
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	Term 2 8 Weeks Max. No. Lessons: 16	<p>CP2 Forces and motion (continued) Completing Newton's Laws of Motion with the third Law, followed by Momentum and how it is conserved in a collision. Road safety and factors affecting the stopping distance of moving objects, taking into account both thinking and braking distances. Enquiring about the crumple zones of vehicles and the science behind reducing the force of impact during a collision.</p> <p>CP3 Conservation of energy Understanding the Law of conservation of energy "energy can neither be created nor destroyed but transferred from one form into another" and describing in what form those transfers take place. Also, how energy can be used efficiently to prevent wasting resources.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations. The use of math skills to calculate and analyse data. 	<p>Explore how safety features in vehicles can be explained using Newton's 3rd Law. Understand how to manipulate data to calculate the velocity of an object, following a collision or explosion.</p> <p>In a world where technology is so heavily depended on, pupils learn how to efficiently use energy and preserve resources for future generations.</p>

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	<p>Term 3 6 Weeks Max. No. Lessons: 12</p>	<p>CP3 Conservation of energy (continued) Using the idea of preserving our fuel reserves for a sustainable future and the pros and cons of different methods of producing electricity.</p> <p>CP4 Waves Identifying the different types of waves and their characteristics, calculating wave velocity using the equation and rearranging the equation. We will investigate refraction in dense objects, recall the reasons refraction occurs and identify the difference between reflection and refraction.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations and • The ability to apply knowledge in unfamiliar situations • The use of math skills to calculate and analyse data. 	
	<p>Term 4 7 Weeks Max. No. Lessons: 14</p>	<p>CP5 Light and the electromagnetic spectrum Here we will discover all of the waves in the EM spectrum ranging from radio waves to gamma waves. We will learn how UV and Infra-red were discovered, the uses of all seven waves and how harmful some can be when exposed to them.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations and • The ability to apply knowledge in unfamiliar situations • The use of math skills to calculate and analyse data. 	<p>Develop an understanding of methods of communication, medical scanners/sterilisation and how harmful these useful waves can be.</p>
	<p>Term 5 4 Weeks Max. No. Lessons: 8</p>	<p>CP6 Radioactivity. In this topic we overlap with some key concepts in Chemistry, and take a tour of the journey of discovery of structure of the atom, and how Rutherford allowed us to have a more in depth knowledge of the subatomic particles.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations and • The ability to apply knowledge in unfamiliar situations • The use of math skills to calculate and analyse data. 	<p>Discover how Ernest Rutherford and JJ Thomson used various experiments to uncover the structure of the atom!</p>

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	<p>Term 6 7 Weeks Max. No. Lessons: 14</p>	<p>CP6 Radioactivity (Continued) We lead on to discuss the types of radiation, plus dangers and uses of radioactivity, which evokes interesting conversations regarding Chernobyl and Fukushima.</p> <p>CP7 Energy – forces doing work This topics relates back to the earlier topic on energy (P3 Conservation of Energy). Here we learn that when energy is transferred by a force, work is done on it and the rate at which energy is transferred is the Power.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations and • The ability to apply knowledge in unfamiliar situations • The use of math skills to calculate and analyse data. 	<p>Discover the devastation that a “clean” fuel can cause if not used correctly.</p> <p>What are watts? Explore how energy-saving devices have a much improved efficiency in comparison to their predecessors.</p>
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	Term / Duration	Topic & Main Content Overview	Assessment Task/Focus & Objectives	Powerful Knowledge for Year 11 (referenced to topic as appropriate)
<p>Year 11 Scheme Overview</p>	<p>Term 1 7 Weeks Max. No. Lessons: 14</p>	<p>CP8 Energy – Forces doing work Forces transfer energy which is known as the work done. The rate at which the energy is transferred is the Power. Continue to practice Maths skills by rearranging the equations that link both of these concepts.</p> <p>CP9 Forces and Their Effects Objects do not need to be in contact with each other for their forces to interact. Learn about contact and non-contact forces. A resultant force can be found using a scale diagram. Use a protractor and ruler to work out the magnitude and direction of the resultant force.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations and • The ability to apply knowledge in unfamiliar situations • The use of math skills to calculate and analyse data. 	<p>Continue to learn about the energy around us and how we can save as much as possible to sustain the resources on our Earth.</p>

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		Learn why levers and gears are force multipliers.		Explore how objects can interact with or without having physical contact with each other.
Term 2 8 Weeks Max. No. Lessons: 16	CP10 Electricity and Circuits Build parallel and series circuits and understand the change in voltage and current that occur in both. An electrical current is the flow of charged particles, find out how they transfer their energy into useful (and wasted!) forms. Have you ever wondered why lightbulbs get hot? Learn how resistance in various components affects the current flowing through them. Electricity can be fatal if misused, learn the safety features in appliances and our homes to keep us safe.		Assessments will test: <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of math skills to calculate and analyse data. 	Develop skills building electrical circuits safely and effectively. Use graph skills to show the relationship between Voltage and Current in various electrical components.
Term 3 6 Weeks Max. No. Lessons: 12	CP12 Magnetism and the Motor Effect Revisit some year 8 work on magnetic fields and build on this by understanding that these fields can be created by an electric current and can induce an electric current. Learn how this property is exploited in motors, electromagnets, generators, speakers and microphones in the next topic. CP13 Electromagnetic Induction As previously stated electromagnetic induction has many uses, including generating electricity on a huge scale. Find out how the National Grid works, how voltage can be “stepped up” and “stepped down” and how this improves efficiency.		Assessments will test: <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of math skills to calculate and analyse data. 	Do you know how motors work? Knowing how everyday objects work is key here – from the small speakers in your earphones, microphones, to the electric motor in cars. The world around us depends on electricity, but how is it generated? What are the drawbacks and how are these overcome using Transformers.

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	<p>Term 4 7 Weeks Max. No. Lessons:14</p>	<p>CP14 Particle Model Rediscover what you learned in Year 7 regarding the particle arrangement in various states of matter. Describe the arrange using the Kinetic Theory. Learn why ice is less dense than liquid water, despite being a solid and how to calculate density. Use energy calculations to work out specific heat capacity and specific latent heat of substances. Furthermore, discover what is meant by absolute zero and use the kelvin temperature scale to explain the average kinetic energy of gas particles. Learn the link between gas temperature, pressure and volume.</p> <p>CP15 Forces and Matter Revisit Hooke’s Law and calculate the energy transferred in stretching. Finally, complete the course learning about pressure in fluids, applying previous knowledge of density to calculate the upthrust on a floating object.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> • Recall of all key words, terms and equations and • The ability to apply knowledge in unfamiliar situations • The use of math skills to calculate and analyse data. 	<p>All matter is made from atoms but how are they arranged and why does this arrangement occur?</p> <p>Discover the unusual property of a solid being less dense than it is in a liquid state.</p> <p>Degrees Celsius, Degrees Fahrenheit and now kelvins! What are kelvins and how do they relate to Degrees Celsius?</p> <p>Explore how springs and elastic bands behave when stretched by an increasing force. Discover why the deepest oceans on Earth are difficult to reach without very expensive equipment that can withstand massive pressures!</p>
	<p>Term 5 4 Weeks Max. No. Lessons: 8</p>	<p>GCSE Exams</p>		

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	Term 6 7 Weeks Max. No. Lessons: 14	GCSE Exams		
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	Term / Duration	Topic & Main Content Overview	Assessment Task/Focus & Objectives	Powerful Knowledge for Year 10 (referenced to topic as appropriate)
Year 10 Scheme Overview	Term 1 7 Weeks Max. No. Lessons: 16	<p>C1 States of Matter & changes of state C2 Methods of Separating & Purifying Substances Mixtures & pure substances. Filtration and crystallisation. Paper chromatography. Distillation. Producing drinking water.</p> <p>C3 Atomic Structure. Structure of an atom. Atomic mass and number. Isotopes.</p> <p>C4 The Periodic Table Elements and the periodic table. Atomic number and the periodic table. Electronic configurations and the periodic table.</p>	<p>All assessments will assess the same 3 assessment objectives: AO1 – Knowledge & understanding of scientific ideas, techniques and procedures AO2 – Application of Scientific ideas, techniques and procedures (including Maths) AO3 – Analyse information to interpret, evaluate, conclude; develop and improve procedures in a practical context</p> <p>Chemistry Assessment 1 – States of matter & separating Substances</p>	<p>Describe how materials can be separated from one another using their properties. Explain how to choose a separation method based on the properties of the substances in a mixture.</p> <p>To explain the nature of matter, which makes up the Universe, which is central to understanding the properties of materials and the chemical reactions that form new substances.</p> <p>Describe how ideas about atoms have changed and to understand the language and keywords of Atomic structure. To compare how elements are arranged in the modern Periodic Table with Mendeleev's original ideas. Thanks to the Periodic Table, chemists can make sense of patterns and trends, which lets them predict the properties of elements.</p>
	Term 2 8 Weeks Max. No. Lessons: 16	<p>C5 Ionic Bonding Ionic bonds. Ionic lattices. Properties of ionic compounds.</p> <p>C6 Covalent Bonding C7 Types of Substance Molecular compounds & their properties. Allotropes of carbon. Properties of metals.</p>	<p>Chemistry Assessment 2 – States of matter & separating Substances & Atomic Structure.</p>	<p>To understand the language and keywords of ionic, covalent and metallic bonding And understand that elements can combine together to make entirely new substances through the interaction of their electrons. These substances are what make up our entire World, including us and all of the things we use in our daily lives. How they</p>

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		Bonding models.		are bonded determines their properties and therefore uses.
Term 3 6 Weeks Max. No. Lessons: 13		C8 Acids Acids, indicators and pH. Looking at acids. Bases and salts. Alkalis and balancing equations. Alkalis and neutralisation. Reactions of acids with metals and carbonates. Solubility.	Chemistry Assessment 3 – States of matter & separating Substances, Atomic Structure & Chemical Bonding	To understand ions in acids and alkalis, and how their concentrations are linked to indicators and pH. Exploring the nature of acidic, neutral and alkaline solutions, as are many household and industrial chemicals. To investigate how different soluble and insoluble salts can be prepared in the laboratory and their most important reactions, properties and uses.
Term 4 7 Weeks Max. No. Lessons: 17		C9 Calculations involving Masses Masses and empirical formulae. Conservation of mass. Moles. C10 Electrolytic Processes Electrolysis. Products from electrolysis. C11 Obtaining and using metals Reactivity of different metals. Ores. Oxidation and reduction. Recycling.	Chemistry Assessment 4 – States of matter & separating Substances, Atomic Structure, Chemical Bonding & Properties of Substances & Acids	Understanding how in most chemical reactions it is important to mix the reactants in the correct amounts to form the maximum amount of product and to avoid waste. Calculating Relative formula masses, empirical and molecular formulae of compounds. An understanding of how Chemists compare the same number of particles in substances which weigh different amounts. Introducing Electrolysis as an important chemical reaction with many useful applications in everyday life, including the extraction of metals from their ores. The different methods of obtaining metals for our use from the Earth and the impact upon our planet that this has.

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	<p>Term 5 4 Weeks Max. No. Lessons: 9</p>	<p>C13 Transition metals, alloys and corrosion The Transition metals. Corrosion. Electroplating. Alloying. Uses of metals and their alloys.</p>	<p>Chemistry Assessment 5 – States of matter & separating Substances, Atomic Structure, Chemical Bonding, Properties of Substances, Acids, Calculations involving Masses, Electrolytic Processes & Obtaining and using metals.</p>	<p>An understanding of the uses of the Transition metals and how we rely so much on their properties for many of our technologies. The problems and expense caused by the corrosion of metals and how Science can provide answer to these problems to prevent corrosion. Science even allows us to change the properties of metals to suit our chosen applications by mixing the metals.</p>
	<p>Term 6 7 Weeks Max. No. Lessons: 1</p>	<p>Revision for Mock exams (No Chemistry content, but Biology content will be covered this term)</p>	<p>Chemistry Assessment 6 – Mock GCSE Exam paper 1</p>	

	Term / Duration	Topic & Main Content Overview	Assessment Task/Focus & Objectives	Powerful Knowledge for Year 11 (referenced to topic as appropriate)
Year 11 Scheme Overview	<p>Term 1 7 Weeks Max. No. Lessons: 14</p>	<p>C14 Quantitative analysis and calculations involving volumes of gases Yields & atom economy. Concentrations. Titrations and calculations. Molar volumes of gas C12 Reversible reactions and equilibria Dynamic equilibrium C15 Dynamic equilibria Fertilisers and the Haber process. Factors affecting equilibrium.</p>	<p>All assessments will assess the same 3 assessment objectives: AO1 – Knowledge & understanding of scientific ideas, techniques and procedures. AO2 – Application of Scientific ideas, techniques and procedures (including Maths). AO3 – Analyse information to interpret, evaluate, conclude; develop and improve procedures in a practical context. Chemistry Assessment 7 – All of year 10 content and C13.</p>	<p>To understand that Chemists must consider the most profitable way to produce chemical products and there may be factors which they can control to increase the amount they make. To be able to use scientific methods to analyse unknown substances using the idea of moles to determine the concentration of a solution. Pupils should be linking their prior knowledge of moles and acids/alkalis and rates of reaction.</p>

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<p>Term 2 8 Weeks Max. No. Lessons: 6</p>	<p>C17 Groups 1 , 7 and 0 of the Periodic Table Group 1. Group 7 Halogen reactivity. Group 0. C16 Chemical cells and fuel cells Chemical cells and fuel cells</p>	<p>Chemistry Assessment 8 – Mock exam (Paper 1 exam in the Hall)</p>	<p>To describe the properties and reactions of the elements in groups 1, 7, and 0. Linking these properties with the applications that we can use them for. Pupils should also be linking their knowledge of atomic structure, electronic configuration and reactivity. Pupils will also explain how Chemistry can produce electricity (batteries) and how in the future technology may be powered by fuel cells instead.</p>
<p>Term 3 6 Weeks Max. No. Lessons: 10</p>	<p>C18 Rates of reaction Rates of reaction. Factors affecting reaction rate. Catalysts and activation energy. C19 Heat energy changes in chemical reactions Exothermic and endothermic reactions. Energy changes in reactions. .</p>	<p>Chemistry Assessment 9 – C1 - C17</p>	<p>To explain the energy transfers that occur during chemical reactions. To Understand how chemical reactions occur and why the energy transfers involved is fundamental to understanding our material world and the processes of life.</p>
<p>Term 4 7 Weeks Max. No. Lessons:14</p>	<p>C20 Fuels Hydrocarbons in crude oil and natural gas. Fractional distillation of crude oil. The alkane homologous series. Complete and incomplete combustion. Combustible fuels and pollution. Breaking down hydrocarbons. C21 Earth and atmospheric science. The early atmosphere. A changing atmosphere.</p>	<p>Chemistry Assessment 10 – Mock Exam – Paper 2</p>	<p>To understand that Crude oil and natural gas fossil fuels give us the raw materials needed to make a huge range of products and fuels, but combustion of it produces carbon dioxide, which is thought to be changing our atmosphere and climate. Pupils should also understand the dangers of incomplete combustion and how this</p>

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	<p>The atmosphere. Climate change. C22 Qualitative analysis Flame tests and photometry. Tests for positive ions. Tests for negative ions. C23 Hydrocarbons Alkanes and alkenes. Reactions of alkanes and alkenes. C24 Polymers Addition polymerisation. Polymer properties and uses. Condensation polymerisation. Problems with polymers. C25 Alcohols and carboxylic acids Ethanol production. Alcohols. Carboxylic acids. C26 Bulk and surface properties of matter including nanoparticles Comparing properties of materials. Comparing uses of materials. Nanoparticles.</p>		<p>can occur in the home, knowing how to spot and prevent it. To explain how the Earth's atmosphere has changed in the past, how it is changing now, the evidence for this and what we can do to reduce climate change and preserve our planet and its resources for future generations. Including the use of plastics, made from cracking crude oil to produce polymers. To understand that Science has allowed the advancement of Human technology and quality of life, but that this can have negative effects for the future sustainability of the Planet. Pupils should then appreciate the alternatives to fossil fuels and link their knowledge to Biology and physics (the carbon cycle and renewable energy respectively) they should also understand the properties of alternatives to polymers and the future of materials science.</p>
<p>Term 5 4 Weeks Max. No. Lessons: 8</p>	<p>Revision</p>	<p>GCSE Exams</p>	

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	Term / Duration	Topic & Main Content Overview	Assessment Task/Focus & Objectives	Powerful Knowledge for Year 10 (referenced to topic as appropriate)
Year 10 Scheme Overview	Term 1 7 Weeks Max. No. Lessons: 14	<p>P1 Motion Reinforcing graph skills by plotting distance-time and velocity-time graphs, calculating acceleration and rearranging formulae.</p> <p>P2 Forces and motion Calculating resultant forces and describing their effects using Newton's Laws of Motion.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of math skills to calculate and analyse data. 	<p>Develop mathematical skills in order to present scientific ideas and results.</p> <p>Learn how to interpret data and explain the results using Newton's Laws of Motion.</p>
	Term 2 8 Weeks Max. No. Lessons: 16	<p>P2 Forces and motion (continued) Completing Newton's Laws of Motion with the third Law, followed by Momentum and how it is conserved in a collision. Road safety and factors affecting the stopping distance of moving objects, taking into account both thinking and braking distances. Enquiring about the crumple zones of vehicles and the science behind reducing the force of impact during a collision.</p> <p>P3 Conservation of energy Understanding the Law of conservation of energy "energy can neither be created nor destroyed but transferred from one form into another" and describing in what form those transfers take place. Also, how energy can be used efficiently to prevent wasting resources.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations. The use of math skills to calculate and analyse data. 	<p>Explore how safety features in vehicles can be explained using Newton's 3rd Law. Understand how to manipulate data to calculate the velocity of an object, following a collision or explosion.</p> <p>In a world where technology is so heavily depended on, pupils learn how to efficiently use energy and preserve resources for future generations.</p>

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Term 3 6 Weeks Max. No. Lessons: 12	<p>P3 Conservation of energy (continued) Using the idea of preserving our fuel reserves for a sustainable future and the pros and cons of different methods of producing electricity.</p> <p>P4 Waves Identifying the different types of waves and their characteristics, calculating wave velocity using the equation and rearranging the equation. We will investigate refraction in dense objects, recall the reasons refraction occurs and identify the difference between reflection and refraction.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of math skills to calculate and analyse data. 		
Term 4 7 Weeks Max. No. Lessons: 14	<p>P5 Light and the electromagnetic spectrum Here we will discover all of the waves in the EM spectrum ranging from radio waves to gamma waves. We will learn how UV and Infra-red were discovered, the uses of all seven waves and how harmful some can be when exposed to them.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of math skills to calculate and analyse data. 	Develop an understanding of methods of communication, medical scanners/sterilisation and how harmful these useful waves can be.	
Term 5 4 Weeks Max. No. Lessons: 8	<p>P6 Radioactivity. In this topic we overlap with some key concepts in Chemistry, and take a tour of the journey of discovery of structure of the atom, and how</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations 	Discover how Ernest Rutherford and JJ Thomson used various experiments to uncover the structure of the atom!	

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		Rutherford allowed us to have a more in depth knowledge of the subatomic particles.	<ul style="list-style-type: none"> The use of math skills to calculate and analyse data. 	
	Term 6 7 Weeks Max. No. Lessons: 14	<p>P6 Radioactivity (Continued) We lead on to discuss the types of radiation, plus dangers and uses of radioactivity, which evokes interesting conversations regarding Chernobyl and Fukushima.</p> <p>P7 Energy – forces doing work This topics relates back to the earlier topic on energy (P3 Conservation of Energy). Here we learn that when energy is transferred by a force, work is done on it and the rate at which energy is transferred is the Power.</p>	Assessments will test: <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of math skills to calculate and analyse data. 	Discover the devastation that a “clean” fuel can cause if not used correctly. What are watts? Explore how energy-saving devices have a much improved efficiency in comparison to their predecessors.

Year 11 Scheme Overview	Term / Duration	Topic & Main Content Overview	Assessment Task/Focus & Objectives	Powerful Knowledge for Year 11 (referenced to topic as appropriate)
	Term 1 7 Weeks Max. No. Lessons: 14	<p>P7 Astronomy So how do Scientists think the Universe began? What evidence is there to support the Big Bang Theory and the Steady State Theory? What is Red Shift and how does this support both theories? Study the contents of the Solar System and how the objects interact due to gravity.</p> <p>P8 Energy – Forces doing work</p>	Assessments will test: <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of math skills to calculate and analyse data. 	Explore the Solar System and find out more about the amazing world we’re privileged to live in.

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	<p>Forces transfer energy which is known as the work done. The rate at which the energy is transferred is the Power. Continue to practice Maths skills by rearranging the equations that link both of these concepts.</p> <p>P9 Forces and Their Effects Objects do not need to be in contact with each other for their forces to interact. Learn about contact and non-contact forces.</p> <p>H A resultant force can be found using a scale diagram. Use a protractor and ruler to work out the magnitude and direction of the resultant force. Learn why levers and gears are force multipliers.</p>		<p>Continue to learn about the energy around us and how we can save as much as possible to sustain the resources on our Earth.</p> <p>Explore how objects can interact without having physical contact with each other.</p>
<p>Term 2 8 Weeks Max. No. Lessons: 16</p>	<p>P10 Electricity and Circuits Build parallel and series circuits and understand the change in voltage and current that occur in both. An electrical current is the flow of charged particles, find out how they transfer their energy into useful (and wasted!) forms. Have you ever wondered why lightbulbs get hot? Learn how resistance in various components affects the current flowing through them. Electricity can be fatal if misused, learn the safety features in appliances and our homes to keep us safe.</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of math skills to calculate and analyse data. 	<p>Develop skills building electrical circuits safely and effectively. Use graph skills to show the relationship between Voltage and Current in various electrical components.</p>
<p>Term 3 6 Weeks Max. No. Lessons: 12</p>	<p>P11 Static Electricity Have you ever had a static shock? In this topic you will learn why this happens and how static electricity can be useful but also dangerous.</p> <p>P12 Magnetism and the Motor Effect</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations 	<p>Discover how you can induce a charge in flowing water, paper and a balloon!</p> <p>Do you know how motors work? Knowing how everyday objects work</p>

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		<p>Revisit some year 8 work on magnetic fields and build on this by understanding that these fields can be created by an electric current and can induce an electric current. Learn how this property is exploited in motors, electromagnets, generators, speakers and microphones in the next topic.</p> <p>P13 Electromagnetic Induction</p> <p>As previously stated electromagnetic induction has many uses, including generating electricity on a huge scale. Find out how the National Grid works, how voltage can be “stepped up” and “stepped down” and how this improves efficiency.</p>	<ul style="list-style-type: none"> The use of math skills to calculate and analyse data. 	<p>is key here – from the small speakers in your earphones, microphones, to the electric motor in cars.</p> <p>The world around us depends on electricity, but how is it generated? What are the drawbacks and how are these overcome using Transformers.</p>
	<p>Term 4 7 Weeks Max. No. Lessons:14</p>	<p>P14 Particle Model</p> <p>Rediscover what you learned in Year 7 regarding the particle arrangement in various states of matter. Describe the arrange using the Kinetic Theory. Learn why ice is less dense than liquid water, despite being a solid and how to calculate density. Use energy calculations to work out specific heat capacity and specific latent heat of substances.</p> <p>Furthermore, discover what is meant by absolute zero and use the kelvin temperature scale to explain the average kinetic energy of gas particles. Learn the link between gas temperature, pressure and volume.</p> <p>P15 Forces and Matter</p> <p>Revisit Hooke’s Law and calculate the energy transferred in stretching.</p> <p>Finally, complete the course learning about pressure in fluids, applying previous knowledge of</p>	<p>Assessments will test:</p> <ul style="list-style-type: none"> Recall of all key words, terms and equations and The ability to apply knowledge in unfamiliar situations The use of math skills to calculate and analyse data. 	<p>All matter is made from atoms but how are they arranged and why does this arrangement occur?</p> <p>Discover the unusual property of a solid being less dense than it is in a liquid state.</p> <p>Degrees Celsius, Degrees Fahrenheit and now kelvins! What are kelvins and how do they relate to Degrees Celsius?</p>

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Curriculum Knowledge & Assessment Overview 2021-23

Department: Science

		density to calculate the upthrust on a floating object.		Explore how springs and elastic bands behave when stretched by an increasing force. Discover why the deepest oceans on Earth are difficult to reach without very expensive equipment that can withstand massive pressures!
	Term 5 4 Weeks Max. No. Lessons: 8	GCSE Exams		
	Term 6 7 Weeks Max. No. Lessons: 14	GCSE Exams		

Powerful Knowledge includes key 'invaluable' and distinct knowledge concepts linked to this subject; it is distinct from common sense.
Assessment Format to follow whole-school expectations (MCQs for Content Knowledge & Understanding, GCSE-style Qs. for Application of Skills).