

INTENT-

- To develop knowledge and understanding of key scientific principles within Biology, Chemistry and Physics.
- Students to apply this knowledge and explain key ideas within Science, applying them to a range of typical and frequent assessment points.
- Students will be able to analyse scientific data and will be able to evaluate scientific discoveries in order to approach enquiry questions based on

The bigger picture:

The year 10 curriculum revisits key ideas from year 7,8 and 9, developing ideas further and developing them to allow access to GCSE style questions. Topics are introduced throughout the year to allow concepts to build up and is designed to allow for the revisit of key misconceptions before moving forward.

Bilton School Planning for Progress over Time Programme of Study 2024/25

- WS1** – Development of Scientific Thinking
- WS2** – Experimental skills and strategies
- WS3** – Analysis and evaluation
- WS4** – Scientific vocabulary, quantities, units, symbols and nomenclature

IMPLEMENTATION

	Term 1 Cell Biology, Atomic Structure and the Periodic Table, Particle Model	Term 2 Organisation, Structure, Bonding and the Properties of Matter, Bioenergetics	Term 3 Bioenergetics, Chemical Changes, Inheritance, Variation & Evolution	Term 4 Forces and Motion, The Rate and Extent of Chemical Change	Term 5 The Rate and Extent of Chemical Change, Homeostasis and Response, Quantitative Chemistry, Using Resources	Term 6 Using Resources C&C Finite and Renewable Resources, Magnets and Electromagnets, Chemistry of the Atmosphere C&C Greenhouse Effect, Ecology Link to Geography
KS4	02/09/2024 09/09/2024 16/09/2024 23/09/2024 30/09/2024 07/10/2024 14/10/2024 21/10/2024 HOLIDAY: 1 WEEK	04/11/2024 11/11/2024 18/11/2024 25/11/2024 02/12/2024 09/12/2024 16/12/2024 HOLIDAY: 2 WEEKS	06/01/2025 13/01/2025 20/01/2025 27/01/2025 03/02/2025 10/02/2025 HOLIDAY: 1 WEEK	24/02/2025 03/03/2025 10/03/2025 17/03/2025 24/03/2025 31/03/2025 07/04/2025 HOLIDAY: 2 WEEKS	28/04/2025 05/05/2025 12/05/2025 19/05/2025 HOLIDAY: 1 WEEK	02/06/2025 09/06/2025 16/06/2025 23/06/2025 30/06/2025 07/07/2025 14/07/2025
Year 10	(TTD x2) Cell Biology L1 review Cell Biology L2, 3, 4, 5 ROP Cell Biology L6, 7 ROP, Atomic Structure and the Periodic Table L1 review, 2, Atomic Structure and the Periodic Table L3, 4, 5, 6 Atomic Structure and the Periodic Table L7, Revision, Cell Biology and Atomic Structure ETT Particle Model L1,2,3,4 Particle Model L5,6,7 Organisation L1 review, 2, 3 ROP, 4	Organisation L5, 6 ROP, 7, 8 Organisation L9, Structure and the Properties of Matter L1 review Structure and the Properties of Matter L2, 3, 4, 5 Structure and the Properties of Matter L6, 7, Revision Organisation and Structures and Bonding and the Properties of Matter ETT, Review/ Reteach Bioenergetics L1 Bioenergetics L2,3,4,5 Bioenergetics L6,7 Chemical Change L1,2	Chemical change L3, 4 ROP Bioenergetics ETT Inheritance, Variation and Evolution L1,2,3,4 Inheritance, Variation and Evolution L5,6,7,8 Inheritance, Variation and Evolution Review, Forces and Motion L1,2 Forces and Motion L3,4,5,6 ROP Forces and Motion L7,8,9,10 ROP	Forces and Motion L11,12, Review Inheritance, Variation and Evolution and Forces and Motion ETT The Rate and Extent of Chemical Change L1,2,3,4 The Rate and Extent of Chemical Change L5,6,7,8 ROP The Rate and Extent of Chemical Change, Homeostasis and Response L1,2,3 ROP Homeostasis and Response L4,5,6,7 Homeostasis and Response L8, The Rate and Extent of Chemical Change and Homeostasis and Response Review, ETT Quantitative Chemistry L1,2,3,4	Quantitative Chemistry L5,6,7,8 Using Resources L1,2,3,4 Using Resources L5 ROP, 6,7,8 Magnets and Electromagnets L1,2, 3	Magnets and Electromagnets L4, EOY Assessment Revision EOY Assessment Revision EOY Assessment EOY Review Chemistry of the Atmosphere L1, 2, 3, 4 Ecology L1,2, 3, 4 Ecology L5, 6 Trip to Brandon Marsh to cover Sampling ROP
Progress and assessment	End of topic test (ETT)	End of topic test (ETT)	End of topic test (ETT)	End of topic test (ETT)	End of topic test (ETT)	End of Year Assessment (EOY)
Required Practical (RP)	<ul style="list-style-type: none"> Microscopy – Focus on conversion of units and calculations Osmosis – Focus on hypothesis Density – Focus on method for both regular and irregular shaped objects 	<ul style="list-style-type: none"> Food Tests – Focus on methods and positive results Enzymes – Focus on variables 	<ul style="list-style-type: none"> Making Salts – Focus on methods/ equipment for measuring Photosynthesis – Focus on hypothesis and how to link conclusion back to the rate of photosynthesis 	<ul style="list-style-type: none"> Rates of Reaction. Extension of a Spring Acceleration 	<ul style="list-style-type: none"> Reaction Time Water Purification 	<ul style="list-style-type: none"> Sampling
Homework <i>(ensure that this is NOT stand alone, but clearly advances or embeds knowledge and understanding)</i>	Use of Educake.	Use of Educake.	Use of Educake.	Use of Educake.	Use of Educake.	Use of Educake.
Key Vocabulary/literacy opportunities	<p><u>Cell Biology</u> Osmosis, Diffusion, Active transport, Mitosis, Differentiation</p> <p><u>Atomic Structure and the Periodic Table</u> Atomic number, Atomic Mass</p> <p><u>Particle Model</u> Density, Specific Heat Capacity, Specific Latent Heat</p>	<p><u>Organisation</u> Enzymes, Biological catalyst, communicable, Non-communicable, Tissue, Organ</p> <p><u>Bonding, Structure and the Properties of Matter</u> Ionic Bonding, Covalent Bonding, Metallic Bonding, Ions, Polymers, Molecule, Intermolecular forces, alloy</p> <p><u>Bioenergetics</u> Photosynthesis, Limiting factor, Aerobic respiration, Anaerobic Respiration</p>	<p><u>Chemical Changes</u> Reactant, Products, Neutralisation, Electrolysis, Cathode, Anode, Half-Equation (HT)</p> <p><u>Inheritance, Variation and Evolution</u> Asexual Reproduction, Selective Breeding, Meiosis, Genome, Alleles, DNA, Chromosomes, Gene, Phenotype, Genotype</p>	<p><u>Forces and Motion</u> Scalar, Vector, Mass, Weight, Elastic Deformation, Inelastic Deformation, Limit of Proportionality</p> <p><u>The Rate and Extent of Chemical Change</u> Activation Energy, Collision Theory, Catalyst, Closed System, Dynamic Equilibrium</p>	<p><u>Homeostasis and Response</u> Homeostasis, Reflex, Endocrine System, Hormone, Gland, Receptor, Neurone, Negative Feedback Loop (HT)</p> <p><u>Quantitative Chemistry</u> Relative Atomic Mass, Relative Formula Mass, Moles, Concentration, Empirical Formula, Conservation of mass</p>	<p><u>Magnetism and Electromagnetism</u> North pole, South pole, Magnetic field, Solenoid, Electromagnet, Motor Effect, Fleming's Left-hand rule</p> <p><u>Using Resources</u> Finite Resource, Renewable Resource, Sustainable Development, Life Cycle Assessment, Potable Water, Desalination</p> <p><u>Chemistry of the Atmosphere</u> Greenhouse Gas, Peer-Reviewed, Global Warming, Carbon Footprint, Carbon Neutral</p> <p><u>Ecology</u> Abiotic, Biotic, Trophic level, Biodiversity, Adaptation</p>

<p>National Curriculum Links</p>	<p>Cells: WS1: Understand how microscopy techniques have changed overtime by comparing light and electron microscopes and explain how electron microscopy has increased understanding of sub-cellular structures by showing an understanding of the detail seen. Use models and analogies to explain how cells divide. Evaluate the practical risks and benefits, as well as social and ethical issues, of the use of stem cells in medical research and treatments. Recognise, draw and interpret diagrams that model diffusion and osmosis. Evaluate the risks associated with isotonic and high energy drinks. WS4: carry out calculations involving magnification, real size and image size using the formula: $\text{magnification} = \frac{\text{size of image}}{\text{size of real object}}$ and express answers in standard form if appropriate.</p> <p>Atomic Structure and the Periodic Table: WS1: Give examples of how the model of the atom has changed overtime and recognise the importance of peer review when new ideas are put forward. Link the evidence of the scattering experiment to the changes in the atomic model and be able to compare the plum pudding model and the atomic model. Represent the electronic structures of atoms using the accepted model 2,8,8 rule. Explain how the position of an element in the periodic table is related to the arrangement of electrons in its atoms and hence to its atomic number and predict possible reactions and probable reactivity of elements from their positions in the periodic table (Group 1,7 & 0). Understand how the periodic table has changed overtime and explain how testing a prediction can support or refute a new scientific idea. WS2: describe, explain and give examples of the specified processes of separation and suggest suitable separation and purification techniques for mixtures when given appropriate information. WS4: Use SI units and the prefix nano when discussing the size of atoms.</p> <p>Particle Model: WS1: recognise/draw simple diagrams to model the difference between solids, liquids and gases and explain the differences in density between the different states of matter in terms of the arrangement of atoms or molecules. Explain how the motion of the molecules in a gas is related to both its temperature and its pressure and explain qualitatively the relation between the temperature of a gas and its pressure at constant volume.</p>	<p>Organisation: WS1: Use 'lock and key theory' as a simplified method to explain enzyme action. evaluate the advantages and disadvantages of treating cardiovascular diseases by drugs, mechanical devices or transplant and appreciate the limitations of Science and consider ethical issues linked with this. Evaluate the personal and economic implications. Interpret data about risk factors linked to associated diseases. WS3: recognise different types of blood cells in a photograph or diagram, and explain how they are adapted to their functions.</p> <p>Bonding, Structure and the Properties of Matter: WS1: Use dot and cross diagrams as a method to represent ionic and covalent bonding and deduce the type of bonding when shown dot and cross diagrams. Appreciate the limitations of dot and cross diagrams. Work out the empirical formula of an ionic compound from a given model or diagram. Recognise small molecules, polymers or giant structures, metallic bonding from diagrams showing their bonding/ structures. Use data to predict and discuss and explain the state of matter of a particular substance. Recognise that atoms do not share the properties of the overall substance. HT - Explain the limitations of the particle theory in relation to changes of state when particles are represented by solid inelastic spheres which have no forces between them. Link the properties of matter to the type of bonding that they exhibit when given data about melting and boiling point, electrical conductivity, solubility etc.</p> <p>Bioenergetics: WS1: Use data to relate limiting factors to the cost effectiveness of adding heat, light or carbon dioxide to greenhouses.</p>	<p>Chemical Changes: WS1: Predict the products of the electrolysis of aqueous solutions containing a single ionic compound.</p> <p>Inheritance, Evolution and Evolution: WS1: Modelling behaviour of chromosomes during meiosis. Discuss the importance of understanding the human genome. This is limited to the:</p> <ul style="list-style-type: none"> search for genes linked to different types of disease understanding and treatment of inherited disorders use in tracing human migration patterns from the past. <p>Appreciate that embryo screening and gene therapy may alleviate suffering but consider the ethical issues which arise. Use the theory of evolution by natural selection in an explanation to show how horses have evolved over time. Explain the benefits and risks of selective breeding given appropriate information and consider related ethical issues. Explain the potential benefits and risks of genetic engineering in agriculture and in medicine and that some people have objections. HT - Interpret information about genetic engineering techniques and to make informed judgements about issues concerning cloning and genetic engineering, including GM crops. Describe the evidence (data) for evolution including fossils and antibiotic resistance in bacteria. Describe and explain how theories have changed overtime and describe and explain why the fossil record is incomplete. Describe and explain how classification has changed overtime. Interpret evolutionary trees.</p>	<p>Forces and Motion: WS1: HT - use free body diagrams to describe qualitatively examples where several forces lead to a resultant force on an object, including balanced forces when the resultant force is zero. Know whenever two objects interact, the forces they exert on each other are equal and opposite. Evaluate the effect of various factors on thinking distance based on given data. Explain the dangers caused by large accelerations. Recall and apply the momentum calculation. WS2: Investigate factors that can affect thinking distance (reaction time). WS3: Interpret data collected from an investigation of the relationship between force and extension. draw distance-time graphs from measurements and extract and interpret lines and slopes of distance-time graphs, translating information between graphical and numerical form. Determine speed from a distance-time graph. Draw velocity-time graphs from measurements and interpret lines and slopes to determine acceleration. HT - interpret enclosed areas in velocity-time graphs to determine distance travelled (or displacement). HT- measure, when appropriate, the area under a velocity-time graph by counting squares. WS4: Interconvert units when looking at work done and energy transfer calculations.</p> <p>The Rate and Extent of Chemical Change: WS1: predict and explain using collision theory the effects of changing conditions of concentration, pressure and temperature on the rate of a reaction. State and identify that when a reversible reaction occurs in apparatus which prevents the escape of reactants and products, equilibrium is reached when the forward and reverse reactions occur at exactly the same rate.</p>	<p>The Rate and Extent of Chemical Change: WS1: predict and explain using collision theory the effects of changing conditions of concentration, pressure and temperature on the rate of a reaction. State and identify that when a reversible reaction occurs in apparatus which prevents the escape of reactants and products, equilibrium is reached when the forward and reverse reactions occur at exactly the same rate. Homeostasis and Response: WS1: Evaluate information around the relationship between obesity and diabetes, and make recommendations taking into account social and ethical issues. Evaluate the use of different contraception methods when given data about each and understand that Science alone can not answer the issues around contraception. HT - State that developments in microscopy techniques have enabled the developments in IVF treatment. Describe and explain the ethical issues linked with IVF treatment and give the pros and the cons. Evaluate the methods of treating infertility. HT - Interpret and explain negative feedback loops for control.</p> <p>Quantitative Chemistry: WS1: State the law of conservation of mass states that no atoms are lost or made during a chemical reaction so the mass of the products equals the mass of the reactants and use balanced symbol equations to prove this. WS3: Identify that whenever a measurement is made there is always some uncertainty about the result obtained and represent the distribution of results and make estimations of uncertainty using calculations and use the range of a set of measurements about the mean as a measure of uncertainty. WS4: HT - Define what a mole is and be able to recognise its importance of it for calculations. Carry out calculations to work out the number of moles using the correct units. State Avogadro's constant and be able to relate this to moles. Use the correct number of significant figures. Define limiting reactant and know its effects on the amount of product.</p> <p>Using Resources: WS3: Extract and interpret information about resources from charts, graphs and tables. carry out simple comparative LCAs for shopping bags made from plastic and paper understanding the limitations and comparing the impact on the environment and quantified when linked to energy, water resources and waste.</p>	<p>Using Resources: WS3: Extract and interpret information about resources from charts, graphs and tables. carry out simple comparative LCAs for shopping bags made from plastic and paper understanding the limitations and comparing the impact on the environment and quantified when linked to energy, water resources and waste.</p> <p>Magnetism and Electromagnetism: WS2: Plan investigations to observe the magnetic field around a magnet. Describe how the magnetic effect of a current can be demonstrated. Draw the magnetic field pattern for a straight wire carrying a current and for a solenoid (showing the direction of the field). Explain how a solenoid arrangement can increase the magnetic effect of the current.</p> <p>Chemistry of the Atmosphere: WS1: Describe and explain the theories for how the atmosphere has changed overtime and state the evidence for the changes, appreciating that the evidence is limited. Test the production of oxygen by aquatic plants using the pondweed investigation. Describe and explain the formation of deposits of limestone, coal, crude oil and natural gas. Describe the greenhouse effect in terms of the interaction of short and long wavelength radiation with matter. Evaluate the quality of evidence in a report about global climate change given appropriate information and describe uncertainties in the evidence base and recognise the importance of peer review of results and of communicating results to a wide range of audiences. Describe briefly four potential effects of global climate change and discuss the scale, risk and environmental implications of global climate change. Describe and explain the carbon footprint and actions that can be taken to reduce it. Predict the products of combustion of a fuel given appropriate information about the composition of the fuel and the conditions in which it is used. Describe and explain the problems caused by increased amounts of these pollutants in the air. WS3: Interpret data linked to the evolution of the atmosphere and present reasoned explanations. WS4: Use scientific terminology when discussing the atmosphere and how it has changed overtime.</p> <p>Ecology: WS1: Explain how a change in an abiotic factor would affect a given community given appropriate data or context. Explain how a change in a biotic factor might affect a given community given appropriate data or context. Interpret graphs used to represent predator-prey cycles. Interpret and explain the processes in diagrams of the carbon cycle, the water cycle. Explain how waste, deforestation and global warming have an impact on biodiversity. Evaluate the conflict between the need for cheap available compost to increase food production and the need to conserve peat bogs and peatlands as habitats for biodiversity and to reduce carbon dioxide emissions. Evaluate the environmental implications of deforestation. Recognise that the scientific consensus about global warming and climate change is based on systematic reviews of thousands of peer reviewed publications and explain why evidence is uncertain or incomplete in a complex context. Evaluate given information about methods that can be used to tackle problems caused by human impacts on the environment and explain and evaluate the conflicting pressures on maintaining biodiversity given appropriate information. WS2: Record first hand observation on organisms using sampling techniques.</p>
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<p>Connected knowledge</p>	<p><u>Cell Biology -</u> KS3 – Cells, Reproduction, Unicellular Organisms, Genetics and Variation.</p> <p>KS4 – Organisation, Bioenergetics, Inheritance, Variation and Evolution.</p> <p>KS5 – Cells, Biological molecules, Organisms exchange substances with their environment.</p> <p>Maths – Apply knowledge of substituting numbers into calculations and how to rearrange equations when calculating magnification.</p> <p><u>Atomic Structure and the Periodic Table –</u> KS3 – Particles, Solubility, Atoms and Elements, Compounds and Mixtures</p> <p>KS4 – Structure and Bonding and the Properties of Matter, Chemical Change, Energy Change, The Rate and Extent of Chemical Change.</p> <p>KS5 – Atomic Structure, Periodicity, Group 2, the alkaline earth metals, Group 7, the halogens, Properties of period 3 elements and their oxides.</p> <p>Maths – See links with the symbols on the periodic table and algebra in Maths and look at patterns and trends when looking at electronic structures and the periodic table.</p> <p><u>Particle Model–</u> KS3 – Particles, Pressure</p> <p>KS4 – Atomic Structure and the Periodic Table.</p> <p>KS5 – Particles and Radiation.</p> <p>I Media – Evaluate your work and experiments in both science and I Media.</p>	<p><u>Organisation -</u> KS3 – Cells, Food and Digestion, Photosynthesis and Respiration, Movement and Exercise Investigation, Enzyme Project.</p> <p>KS4 – Cell Biology, Bioenergetics.</p> <p>KS5 – Cells, Biological molecules, Organisms exchange substances with their environment. DNA.</p> <p>PE – Links to the respiratory and circulatory systems covered in GCSE PE.</p> <p><u>Structure, Bonding and the Properties of Matter –</u> KS3 – Particles, Atoms and Elements, Compounds and Mixtures.</p> <p>KS4 – Atomic Structure and the Periodic Table, Atomic Structure (P1).</p> <p>KS5 – Bonding, Properties of period 3 elements and their oxides, Polymers, amino acids, proteins and DNA.</p> <p>Maths – Apply knowledge of graphs from maths to be able to interpret data relating to the properties of matter.</p> <p>See links with Handling data in Maths and Science.</p> <p><u>Bioenergetics –</u> KS3 – Photosynthesis and Respiration.</p> <p>KS4 – Cells, Organisation.</p> <p>KS5 –</p>	<p><u>Bioenergetics –</u> KS3 – Photosynthesis and Respiration.</p> <p>KS4 – Cells, Organisation.</p> <p>KS5 – Cells, Biological molecules, Organisms exchange substances with their environment.</p> <p>PE – Look at how the process of aerobic and anaerobic respiration links to the respiratory system in Term 2 of PE.</p> <p>Food Tech - See the links with food made using Yeast and the fermentation process.</p> <p>Maths – See links with Handling data in Maths and Science.</p> <p><u>Chemical Changes –</u> KS3 – Acids and Alkalis, Metals and Reactivity, Types of Reaction, Electrolysis Project.</p> <p>KS4 – Atomic Structure and the Periodic Table, Structure and Bonding and the Properties of Matter, The Rate and Extent of Chemical Change.</p> <p>KS5 – Acids and bases, Oxidation, reduction and redox equations.</p> <p>Maths - See the links between algebra in Maths and symbol equations.</p> <p>I Media- Evaluate your work and experiments in both Science and I Media.</p>	<p><u>Forces and Motion –</u> KS3 – Forces, Motion, Acceleration Project.</p> <p>KS4 – Energy, Magnetism and Electromagnetism.</p> <p>KS5 – Mechanics and materials, Further mechanics and thermal physics.</p> <p>Maths – See links to equations and graphs in maths.</p> <p><u>The Rate and Extent of Chemical Change -</u> KS3 – Acids and Alkalis, Types of Reaction, Metals and Reactivity.</p> <p>KS4 – Atomic Structure and the Periodic Table, Chemical Change, Energy Changes.</p> <p>KS5 – Kinetics, Chemical equilibria, Le Chatelier’s principle and Kc, Rate equations, Equilibrium constant Kp for homogeneous systems.</p> <p>Maths – See links to interpreting and plotting graphs in Maths.</p>	<p><u>The Rate and Extent of Chemical Change -</u> KS3 – Acids and Alkalis, Types of Reaction, Metals and Reactivity.</p> <p>KS4 – Atomic Structure and the Periodic Table, Chemical Change, Energy Changes.</p> <p>KS5 – Kinetics, Chemical equilibria, Le Chatelier’s principle and Kc, Rate equations, Equilibrium constant Kp for homogeneous systems.</p> <p>Maths – See links to interpreting and plotting graphs in Maths.</p> <p><u>Homeostasis and Response -</u> KS3 – Cells, Reproduction, Movement.</p> <p>KS4 – Cells, Organisation.</p> <p>KS5 – Organisms respond to changes in their internal and external environments.</p> <p>Maths – See links with handling data in Maths and interpreting graphs.</p> <p><u>Quantitative Chemistry –</u> KS3 – Atoms and Elements, Compounds and Mixtures.</p> <p>KS4 – Atomic Structure and the Periodic Table.</p> <p>KS5 – Amount of Substance.</p>	<p><u>Using Resources –</u> KS3 – Energy Resources, Earth and Atmosphere, Combustion.</p> <p>KS4 – Chemical Changes, Chemistry of the Atmosphere.</p> <p>Geography – See links to climate change in Geography.</p> <p><u>Magnetism and Electromagnetism –</u> KS3 – Magnetism and Electromagnetism.</p> <p>KS4 – Forces and Motion.</p> <p>KS5 – Fields and their consequences.</p> <p>Maths- See links to interpreting and plotting graphs in Maths.</p> <p><u>Chemistry of the Atmosphere –</u> KS3 – Energy Resources, Earth and Atmosphere, Combustion.</p> <p>KS4 – Chemical Changes, Using Resources.</p> <p>Maths- See links to interpreting and plotting graphs in Maths.</p> <p>Geography – See links to climate change in Geography.</p> <p><u>Ecology –</u> KS3 – Photosynthesis and Respiration, Ecosystems and Ecosystem Project.</p> <p>KS4 – Organisation, Bioenergetics.</p> <p>KS5 – Organisms exchange substances with their environment, Energy transfers in and between organisms, Genetics, populations, evolution and ecosystems.</p>
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		<p>Cells, Biological molecules, Organisms exchange substances with their environment.</p> <p>PE – Look at how the process of aerobic and anaerobic respiration links to the respiratory system in Term 2 of PE.</p> <p>Food Tech - See the links with food made using Yeast and the fermentation process.</p> <p>Maths – See links with Handling data in Maths and Science.</p>	<p>English – An Inspector Calls – See how the Inspector is a catalyst for showing how all the characters are linked in a plot.</p> <p><u>Inheritance, Variation and Evolution –</u> KS3 – Cells, Reproduction, Genetics and Variation.</p> <p>KS4 – Cell Biology.</p> <p>KS5 – Cells, Biological Molecules, Genetic information, variation and relationships between organisms, Genetics, populations, evolution and ecosystems, The control of gene expression.</p>		<p>Maths - See the links between algebra in Maths and symbol equations.</p> <p><u>Using Resources –</u> KS3 – Energy Resources, Earth and Atmosphere, Combustion.</p> <p>KS4 – Chemical Changes, Chemistry of the Atmosphere.</p> <p>Geography – See links to climate change in Geography.</p>	<p>Maths- See links to interpreting and plotting graphs in Maths.</p> <p>Geography – See links to climate change and human impact in Geography.</p>
Spiritual, Moral, Social and cultural.	Understanding the collaboration between countries in the development of the periodic table and the structure of the atom.	<p>Understanding how health, diet and fitness have an effect on them throughout the Organisation topic e.g. Cancer/ CHD.</p> <p>Building self-knowledge and self- confidence to be able to make choices in everyday life linked to lifestyle choices.</p>	<p>Appreciating the influence of famous scientists and the impact they have had on life, society and culture e.g Variation and Evolution - Darwin/ Lamark, Selective breeding and work of farmers and gardeners.</p> <p>Understanding the moral and ethical issues that can arise when considering variation and evolution and its potential impact on everyday life.</p>	<p>Linking their understanding to the chemicals around them in everyday life.</p> <p>Understand the impact that humans are having on the Earth's resources through the extraction of metals and the process of electrolysis and its large energy usage.</p>	<p>Understand Diabetes and Contraception methods and be able to link this to the choices that they make.</p> <p>Understanding the different methods of Contraception and the ethical and moral issues surrounding these.</p> <p>Building self-knowledge and self- confidence to be able to make choices in everyday life linked to life style choices.</p>	Understand the impact that humans are having on the Earth's resources and the impact of the pollution that we create.

<p>British Values</p>	<p>Respect and tolerance, collaboration during experiments and group work.</p> <p>Following the laboratory rules when conducting practical work.</p>	<p>Respect and tolerance, collaboration during experiments and group work.</p> <p>Following the laboratory rules when conducting practical work.</p>	<p>Respect and tolerance, collaboration during experiments and group work.</p> <p>Following the laboratory rules when conducting practical work.</p> <p>Recognise how their actions can have an impact on others and the wider world.</p> <p>Appreciate individual liberty of own views, tolerance and mutual respect of others views throughout the variation and evolution topic.</p>	<p>Respect and tolerance, collaboration during experiments and group work.</p> <p>Following the laboratory rules when conducting practical work.</p>	<p>Respect and tolerance, collaboration during experiments and group work.</p> <p>Following the laboratory rules when conducting practical work.</p>	<p>Respect and tolerance, collaboration during experiments and group work.</p> <p>Following the laboratory rules when conducting practical work.</p> <p>Recognise how their actions can have an impact on others and the wider world.</p>
<p>Cultural Capital</p>	<p>Science - Careers display on W side corridor.</p> <p>Understanding how Scientists work to develop ideas and how they have contributed to the development of the periodic table and ideas of the structure of the atom throughout history.</p>	<p>Science - Careers display on W side corridor.</p> <p>Understand how scientific advancements lead to the development of new materials/ technologies.</p>	<p>Science - Careers display on W side corridor.</p> <p>Understand the impact that we are having on our planet.</p> <p>Appreciate the work of Darwin/ Lamark in the theory of evolution and appreciate the different viewpoints in everyday life.</p> <p>Understand the importance of Selective breeding and work of farmers and gardeners whilst also appreciating the impact this has in the world around us.</p>	<p>Science - Careers display on W side corridor.</p> <p>Link rates of reaction to how scientists choose the best reaction and careers that these ideas links to.</p> <p>Understand the impact that we are having on our planet through the extraction of metals.</p>	<p>Science - Careers display on W side corridor.</p> <p>Link rates of reaction to how scientists choose the best reaction and careers that these ideas links to.</p> <p>Understand how scientists are involved in everyday processes such as how water is treated, extraction of metals, choice of materials to produce products.</p>	<p>Science - Careers display on W side corridor.</p> <p>Understand the impact that we are having on our planet.</p> <p>Understand how scientists are involved in everyday processes such as how water is treated, extraction of metals, choice of materials to produce products.</p>