

**INTENT-**

- To develop knowledge and understanding of key Biology, Chemistry and Physics topics
- Students to apply this knowledge and explain key ideas within Science, applying them to a range of typical and frequent assessment points.
- To develop basic practical skills and data analysis.

**The bigger picture:**

The year 8 curriculum continues to develop an understanding of key scientific concepts needed throughout the curriculum and creating a building block for later years. The curriculum is also designed to start developing an enquiring mind through key practical's that will allow for skills needed for Required practical's at GCSE to be built on.

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

**IMPLEMENTATION**

	Term 1 Energy Resources, Earth & Atmosphere, Space Project								Term 2 Space Project, Food & Digestion, Compounds & Mixtures								Term 3 Compounds & Mixtures, Photosynthesis & Respiration,								Term 4 Combustion, Forces								Term 5 Forces, Movement, Exercise Investigation								Term 6 Exercise Investigation, Motion							
KS3	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	03/01/2025	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			
<b>Year 8</b>	TTD x 2, Energy Resources L1, 2 Energy Resources L3,4, 4.5 (Review) Energy Resources L5, 6, 7RP Energy Resources 8RP, 9 (Revision), <b>ETT</b> Earth & Atmosphere L1, 2, 3 Earth & Atmosphere L4, 4.5 (Mid Review), 5 Earth & Atmosphere L6, 7RP, 8RP, 9 (Revision) Earth & Atmosphere L9 (Revision) Space Project L1, L2								Space Project L3, 4, 5 Space Project L6, 7 (Review), Food & Digestion L1 Food & Digestion L2, 3, 4 Food & Digestions L4.5 (Mid Review), 5, 6 Food & Digestion 7RP, 8RP, 9 (Revision) <b>ETT</b> , Compounds & Mixtures L1, 2 Compounds & Mixtures L3, 4, 4.5 (Mid Review)								Compounds & Mixtures L5, 6, 7RP Compounds & Mixtures L8RP, 9 (Revision), Photo & Resp L1 Photosynthesis & Respiration L2, 3, 4 Photosynthesis & Respiration L4.5 (Mid Review), 5, 6 Photosynthesis & Respiration L7RP, 8RP, 9 (Revision) Comps & Mix/Bioenergetics Revision, Combustion L1, 2								Combustion L3, 4, 4.5 (Mid Review) Combustion L 5, 6, 7RP <b>Science Week Lesson</b> , Combustion L8RP, 9 (Revision) <b>ETT</b> Forces L1, 2 Forces L3, 4, 4.5 (Mid Review) Forces L5, 6, 7RP Forces L8RP, 9 (Revision)								Movement L1, 2, 3 Movement L4, 4.5 (Mid Review), 5 EOY Revision x3 EOY Revision x3								<b>EOY Assessment</b> , Movement L6, L7RP Movement L8RP, L9 (review), Exercise investigation L1 Exercise Investigation L2, 3 <b>EOY Assessment Review/FAR</b> Exercise Investigation L4, 5, Motion L1 Motion L2, 3, 4, Motion L4.5 (Mid Review), 5, 6 Motion L7RP, 8RP, 9 (Revision)							
<b>Progress and assessment</b>	End of topic test (ETT) Follow on questions to test previous knowledge through the Unit. FAR completed approximately every 6 lessons.								End of topic test (ETT) Follow on questions to test previous knowledge through the Unit. FAR completed approximately every 6 lessons.								End of topic test (ETT) Follow on questions to test previous knowledge through the Unit. FAR completed approximately every 6 lessons.								End of topic test (ETT) Follow on questions to test previous knowledge through the Unit. FAR completed approximately every 6 lessons.								End of topic test (ETT) Follow on questions to test previous knowledge through the Unit. FAR completed approximately every 6 lessons.															
<b>Required Practical (RP)</b>	Energy Resources: Skills Graphs Earth and Atmosphere: Mass and Gravity Conclusions								Food and Digestion: Food Tests Following a Method Compounds and Mixtures: Purifying Rock Salt Writing a Method								Compounds and Mixtures: Purifying Rock Salt Writing a Method Photosynthesis and Respiration: Role of light in photosynthesis. Graph								Combustion: Energy in Fuels Making and recording observations. Forces: Investigating Moments Writing a method.								Movement: Skills Variables Exercise Investigation.								Motion: Car/Ramp Investigation. Planning an Investigation.							
<b>Homework</b> <i>(ensure that this is NOT stand alone, but clearly advances or embeds knowledge and understanding)</i>	Educake Homework								Educake Homework								Educake Homework								Educake Homework								Educake Homework															
<b>Key Vocabulary/literacy opportunities</b>	Energy Resources: Energy resource, Food, Fuel, Fossil Fuel, Non-Renewable, Renewable, National Grid, Electricity, Nuclear Power. Earth and the Atmosphere: Earth, Atmosphere, Carbon Cycle, Respiration, Combustion, Photosynthesis, Climate Change, Recycling, Planet, Moon, Star, Mass, Weight, Gravity. <b>Guided Reading Activity:</b> Evaluation of the advantages and disadvantages of nuclear fuel as a source of energy.								Food and Digestion: Balanced Diet, Nutrients, Malnutrition, Deficiency Diseases, Digestion, Digestive System, Bacteria, Enzymes, Drugs, Alcohol, Smoking, Cancer Compounds and Mixtures: Atom, Element, Compound, Mixture, Solute, Solvent, Soluble, Insoluble, Solution, Filtration, Separation, Evaporation, Distillation, Chromatography.								Compounds and Mixtures: Atom, Element, Compound, Mixture, Solute, Solvent, Soluble, Insoluble, Solution, Filtration, Separation, Evaporation, Distillation, Chromatography. Photosynthesis and Respiration: Respiration, Photosynthesis, Cell, Mitochondria, Chloroplast, Energy, Aerobic Respiration, Anaerobic Respiration, Lactic Acid, Oxygen Debt. Combustion: Combustion, Fuel, Incomplete Combustion, Complete Combustion, Oxidation, Air Pollution, Global Warming, Greenhouse Effect, Igneous Rock, Metamorphic Rock, Sedimentary Rock.								Combustion: Combustion, Fuel, Incomplete Combustion, Complete Combustion, Oxidation, Air Pollution, Global Warming, Greenhouse Effect, Igneous Rock, Metamorphic Rock, Sedimentary Rock. Forces: Force, Newtons, Weight, Mass, Moment, Lever, Balanced Forces, Unbalanced Forces. <b>Guided Reading Activity:</b> Evaluation of the advantages and disadvantages of recycling.								Movement: Skeleton, Bone, Muscle, Antagonistic Pair, Joint. <b>Guided Reading Activity:</b> Evaluation of the importance of keeping bones healthy and how this can be done.								Motion: Speed, Distance-Time Graph, Gradient, Moment, Lever, Stationary, Relative Motion.							

<p><b>National Curriculum Links</b></p>	<p><b>Energy Resources:</b></p> <ul style="list-style-type: none"> <li>fuels and energy resources.</li> </ul> <p><b>Earth and its Atmosphere:</b></p> <ul style="list-style-type: none"> <li>the composition of the Earth</li> <li>the structure of the Earth</li> <li>the rock cycle and the formation of igneous, sedimentary and metamorphic rocks</li> <li>Earth as a source of limited resources and the efficacy of recycling the carbon cycle</li> <li>the composition of the atmosphere</li> <li>the production of carbon dioxide by human activity and the impact on climate.</li> </ul>	<p><b>Food and Digestion:</b></p> <ul style="list-style-type: none"> <li>content of a healthy human diet: carbohydrates, lipids (fats and oils), proteins, vitamins, minerals, dietary fibre and water, and why each is needed</li> <li>calculations of energy requirements in a healthy daily diet</li> <li>the consequences of imbalances in the diet, including obesity, starvation and deficiency diseases</li> <li>the tissues and organs of the human digestive system, including adaptations to function and how the digestive system digests food (enzymes simply as biological catalysts)</li> </ul> <p><b>Compounds and Mixtures:</b></p> <p>differences between atoms, elements and compounds mixtures, including dissolving simple techniques for separating mixtures: filtration, evaporation, distillation and chromatography</p>	<p><b>Photosynthesis and Respiration:</b></p> <ul style="list-style-type: none"> <li>the structure and functions of the gas exchange system in humans, including adaptations to function</li> <li>the mechanism of breathing to move air in and out of the lungs, using a pressure model to explain the movement of gases, including simple measurements of lung volume</li> <li>the impact of exercise, asthma and smoking on the human gas exchange system</li> <li>the role of leaf stomata in gas exchange in plants.</li> <li>aerobic and anaerobic respiration in living organisms, including the breakdown of organic molecules to enable all the other chemical processes necessary for life</li> <li>a word summary for aerobic respiration</li> <li>the process of anaerobic respiration in humans and micro-organisms, including fermentation, and a word summary for anaerobic respiration</li> <li>the differences between aerobic and anaerobic respiration in terms of the reactants, the products formed and the implications for the organism.</li> <li>the reactants in, and products of, photosynthesis, and a word summary for photosynthesis</li> <li>the dependence of almost all life on Earth on the ability of photosynthetic organisms, such as plants and algae, to use sunlight in photosynthesis to build organic molecules that are an essential energy store and to maintain levels of oxygen and carbon dioxide in the atmosphere the adaptations of leaves for photosynthesis.</li> </ul> <p><b>Combustion:</b></p> <ul style="list-style-type: none"> <li>combustion, thermal decomposition, oxidation and displacement reactions</li> <li>the rock cycle and the formation of igneous, sedimentary and metamorphic rocks</li> </ul>	<p><b>Combustion:</b></p> <ul style="list-style-type: none"> <li>combustion, thermal decomposition, oxidation and displacement reactions</li> <li>the rock cycle and the formation of igneous, sedimentary and metamorphic rocks</li> </ul> <p><b>Forces:</b></p> <ul style="list-style-type: none"> <li>forces as pushes or pulls, arising from the interaction between two objects</li> <li>using force arrows in diagrams, adding forces in one dimension, balanced and unbalanced forces</li> <li>moment as the turning effect of a force</li> <li>forces: associated with deforming objects; stretching and squashing – springs; with rubbing and friction between surfaces, with pushing things out of the way; resistance to motion of air and water</li> <li>forces measured in newtons, measurements of stretch or compression as force is changed</li> <li>force-extension linear relation; Hooke's Law as a special case</li> <li>work done and energy changes on deformation</li> <li>non-contact forces: gravity forces acting at a distance on Earth and in space, forces between magnets and forces due to static electricity.</li> </ul>	<p><b>Movement:</b></p> <ul style="list-style-type: none"> <li>the structure and functions of the human skeleton, to include support, protection, movement and making blood cells</li> <li>biomechanics – the interaction between skeleton and muscles, including the measurement of force exerted by different muscles</li> <li>the function of muscles and examples of antagonistic muscles.</li> </ul>	<p><b>Motion:</b></p> <ul style="list-style-type: none"> <li>speed and the quantitative relationship between average speed, distance and time (speed = distance ÷ time)</li> <li>the representation of a journey on a distance-time graph</li> <li>relative motion: trains and cars passing one another.</li> <li>forces being needed to cause objects to stop or start moving, or to change their speed or direction of motion (qualitative only)</li> <li>change depending on direction of force and its size.</li> </ul>
<p><b>Connected knowledge</b></p>	<p><b>Maths</b> To interpret and draw bar charts To understand and draw line graphs</p> <p><b>Geography</b> Structure of the Earth Types of rock and rock formation Carbon Cycle</p> <p><b>KS4 Links</b> Links to Chemistry of the atmosphere</p>	<p><b>Maths</b> To interpret and draw bar charts and pictograms</p> <p><b>Geography</b> Seasons of the Earth</p> <p><b>KS4 Links</b> Links to Organisation Links to chemical changes</p>	<p><b>KS3 Links</b> Links to Exercise topic Links to Cells (Year 7)</p> <p><b>KS4 Links</b> Links to Bioenergetics Links to Types of Reaction</p>	<p><b>Maths</b> To use mental methods to multiply and divide decimals To use written methods of multiplying decimals To use written methods of dividing decimals To interpreting a calculator display of decimals To find compound measures - speed, pressure and density Links to Speed/distance/time graphs</p> <p><b>KS4 Links</b> Links to Forces and motion</p>	<p><b>PE</b> Links to structure of the body and function of the skeleton and different muscles</p> <p><b>KS4</b> Cells – Red blood cells</p>	<p><b>Maths</b> To use mental methods to multiply and divide decimals To use written methods of multiplying decimals To use written methods of dividing decimals To interpreting a calculator display of decimals To find compound measures - speed, pressure and density Links to Speed/distance/time graphs</p> <p><b>KS4 links</b> Forces and motion – Stopping distances</p>
<p><b>Spiritual, Moral, Social and cultural.</b></p>	<p>Understand the impact that humans are having on the Earth's resources and the impact of the pollution that we create.</p> <p>Understand the ethical issues surrounding space travel e.g should we spend so much money on space travel?</p> <p>Understanding the collaboration between countries in the development of space travel and research.</p>	<p>Understand the ethical issues surrounding space travel e.g should we spend so much money on space travel?</p> <p>Understanding the collaboration between countries in the development of space travel and research.</p> <p>Understanding how health, diet and fitness have an effect on them.</p>		<p>Understand the impact that humans are having on the Earth's atmosphere and the pollution that we create.</p>	<p>Understanding how health, diet and fitness have an effect on them.</p>	<p>Understanding how health, diet and fitness have an effect on them.</p>

<b>British Values</b>	<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>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>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>
<b>Cultural Capital</b>	<p>Science - Careers display on W side corridor.</p> <p>Understand the impact that we are having on our planet.</p> <p>Understand the future of space travel through the topic and the trip to the National Space Centre.</p> <p>Understand the advances in space technology and how these also link into everyday life through the topic and the trip to the National Space Centre.</p>	<p>Science - Careers display on W side corridor.</p> <p>Understand the future of space travel through the topic and the trip to the National Space Centre.</p> <p>Understand the advances in space technology and how these also link into everyday life through the topic and the trip to the National Space Centre.</p> <p>Food and Digestion Balanced Diet and deficiency diseases.</p>	<p>Science - Careers display on W side corridor.</p> <p>Respiration and Exercise.</p>	<p>Science - Careers display on W side corridor.</p> <p>Science Week.</p> <p>Understand the impact that we are having on our planet.</p>	<p>Science - Careers display on W side corridor.</p> <p>Understanding how health, diet and fitness have an effect on them.</p>	<p>Science - Careers display on W side corridor.</p> <p>Understanding how health, diet and fitness have an effect on them.</p>