

**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 7 curriculum starts 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 2021/22**

**IMPLEMENTATION**

	Term 1 Intro to Science, Acids and Alkalis, Cells								Term 2 Cells, Energy						Term 3 Particles, Reproduction						Term 4 Solubility Investigation, Electricity					Term 5 Atoms and Elements, Ecosystems.					Term 6 Ecosystems Project									
KS3	2/9/21	6/9/21	13/9/21	20/9/21	27/9/21	4/10/21	11/10/21	18/10/21	1/11/21	8/11/21	15/11/21	22/11/21	29/11/21	6/12/21	13/12/21	4/1/22	10/1/22	17/1/22	24/1/22	31/1/22	7/2/22	14/2/22	28/2/22	7/3/22	14/3/22	21/3/22	28/3/22	4/4/22	25/4/22	2/5/22	9/5/22	16/5/22	23/5/22	6/6/22	13/6/22	20/6/22	27/6/22	4/7/22	11/7/22	18/7/22
Year 7	(TTD x2)	Intro to Science L1, L2, L3	Intro to Science L4, L5, L6	Acids and Alkalis L1, L2, L3	Acids and Alkalis L4, L5, L6	Acids and Alkalis L7RP, L8RP, L9 Revision	Acids and Alkalis ETT. Review Lesson. Cells L1	Cells L2, L3, L4	HOLIDAY: 1 WEEK								HOLIDAY: 2 WEEKS						HOLIDAY: 1 WEEK					HOLIDAY: 2 WEEKS						HOLIDAY: 1 WEEK						
Progress and assessment	End of topic test (ETT) Follow on questions to test previous knowledge through the Unit. 6/9/21 – FAR 1 20/9/21 – FAR 2 4/10/21 – FAR 3 18/10/21 – FAR 4								End of topic test (ETT) Follow on questions to test previous knowledge through the Unit. 8/11/21 – FAR 1 22/11/21 – FAR 2 6/12/21 – FAR 3						End of topic test (ETT) Follow on questions to test previous knowledge through the Unit. 4/1/22 – FAR 1 17/1/22 – FAR 2 31/1/22 – FAR 3 14/2/22 – FAR 4						End of topic test (ETT) Follow on questions to test previous knowledge through the Unit. 7/3/22 – FAR 1 21/3/22 – FAR 2 4/4/22 – FAR 3					Follow on questions to test previous knowledge through the Unit. 2/5/22 – FAR 1 16/5/22 – FAR 2					End of topic test (ETT) 13/6/22 - FAR 1 27/6/22 - FAR 2 11/7/22 - FAR 3									
Required Practical (RP)	Introduction to Science: Skills throughout Topic Diagrams/Units/Graphs Acids and Alkalis: Testing Substances with UI Making and recording observations.								Cells: Studying Cells Using a Microscope Writing a method Energy: Testing Energy in Food Graph						Particles: Making Crystals Writing a risk assessment. Reproduction: Skills Converting Units						Solubility Investigation Electricity: Voltage/Current Investigation Graph					Atoms and Elements: Skills Variables					Ecosystems: Quadrat Sampling Planning an Investigation									
Homework <small>(ensure that this is NOT stand alone, but clearly advances or embeds knowledge and understanding)</small>	Seneca 6/9/2021 – Safety Posters 13/9/2021 - Safety Posters 20/9/2021 - 2.2.2 27/9/2021 – 2.2.3 4/10/2021 – 2.2.5 11/10/2021 – 1.1.5, 1.1.7 18/10/2021 – 1.1.8, 1.1.4								Seneca 1/11/2021 – 1.1.2, 1.1.6 8/11/2021 - 1.1.1, 1.1.9 15/11/2021 – 3.1.1, 3.1.3, 3.1.6 22/11/2021 – 3.1.2, 3.1.5 29/11/2021 – 3.1.8, 3.1.7 6/12/2021 – 3.1.10, 3.1.11 13/12/2021 – 3.1.12						Seneca 4/1/2022 – 2.1.1, 2.1.2 10/1/2022 – 2.1.3, 2.1.4 17/1/2022 – 2.1.5 24/1/2022 – 1.2.1, 1.2.4 31/1/2022 – 1.2.2, 1.2.3 7/2/2022 – 1.2.5, 1.2.6 14/2/2022 – 1.2.7						Seneca 28/2/2022 – 2.1.8 7/3/2022 – 2.1.10 14/3/2022 – 3.4.1, 3.4.2 21/3/2022 – 3.4.3 28/3/2022 – 3.4.8 4/4/2022 – 3.4.8					Seneca 25/4/2022 – 2.3.1, 2.3.3 2/5/2022 – 2.4.1, 2.4.2 9/5/2022 – 2.4.3, 2.4.4 16/5/2022 – 1.3.5, 1.3.1 23/5/2022 – 1.3.2, 1.3.3					Seneca 6/6/2022 – 1.3.4 13/6/2022 – Project Research 20/6/2022 – Project Research 27/6/2022 - Project Research 4/7/2022 - Revision 11/7/2022 - Revision 18/7/2022									
Key Vocabulary/literacy opportunities	Introduction to Science: Laboratory, Safety, Goggles, Equipment, Method, Table, Graph, Results, Conclusion. Acids and Alkalis: Acid, Alkali, Neutral, Neutralisation, Indicator, pH Scale Cells: Cell, Nucleus, Cell Membrane, Cytoplasm, Cell Wall, Chloroplast, Specialised Cell, Diffusion, Osmosis, Organ, Organ System.								Cells: Cell, Nucleus, Cell Membrane, Cytoplasm, Cell Wall, Chloroplast, Specialised Cell, Diffusion, Osmosis, Organ, Organ System. Energy: Energy, Kinetic, Thermal, Light, Sound, Electrical, Chemical, Nuclear, Gravitational Potential, Elastic Potential, Transfer, Power, Work Done, Efficiency, Fuel						Particles: Particle, Solid, Liquid, Gas, Vibrate, Melting, Boiling, Diffusion, Pressure Reproduction: Reproduction, Sperm, Egg, Fertilisation, Foetus, Pollination, Seed Dispersal, Germination.						Electricity: Electricity, Ammeter, Voltmeter, Current, Potential Difference, Resistance, Series Circuit, Parallel Circuit					Atom and Elements: Atom, Element, Periodic Table, Properties, Metal, Non-metal, Groups, Periods Ecosystems: Respiration, Classification, Food Web, Food Chain, Producers, Consumers, Pesticides, Ecosystem, Habitat, Population.					Ecosystems: Respiration, Classification, Food Web, Food Chain, Producers, Consumers, Pesticides, Ecosystem, Habitat, Population.									

<p><b>National Curriculum Links</b></p>	<p><b>Acids and alkalis:</b></p> <ul style="list-style-type: none"> <li>defining acids and alkalis in terms of neutralisation reactions</li> <li>the pH scale for measuring acidity/alkalinity; and indicators</li> <li>reactions of acids with metals to produce a salt plus hydrogen</li> <li>reactions of acids with alkalis to produce a salt plus water</li> </ul> <p><b>Cells:</b></p> <ul style="list-style-type: none"> <li>cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope</li> <li>the functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts</li> <li>the similarities and differences between plant and animal cells</li> </ul>	<p><b>Cells:</b></p> <ul style="list-style-type: none"> <li>cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope</li> <li>the functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts</li> <li>the similarities and differences between plant and animal cells</li> </ul> <p><b>Energy:</b></p> <ul style="list-style-type: none"> <li>comparing energy values of different foods (from labels) (kJ)</li> <li>comparing power ratings of appliances in watts (W, kW)</li> <li>comparing amounts of energy transferred (J, kJ, kW hour)</li> <li>simple machines give bigger force but at the expense of smaller movement (and vice versa): product of force and displacement unchanged</li> <li>other processes that involve energy transfer: changing motion, dropping an object, completing an electrical circuit, stretching a spring, metabolism of food, burning fuels.</li> </ul>	<p><b>Particles:</b></p> <ul style="list-style-type: none"> <li>the properties of the different states of matter (solid, liquid and gas) in terms of the particle model, including gas pressure changes of state in terms of the particle model.</li> <li>conservation of material and of mass, and reversibility, in melting, freezing, evaporation, sublimation, condensation, dissolving diffusion in liquids and gases driven by differences in concentration</li> </ul> <p><b>Reproduction:</b></p> <ul style="list-style-type: none"> <li>reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, menstrual cycle (without details of hormones), gametes, fertilisation, gestation and birth, to include the effect of maternal lifestyle on the foetus through the placenta</li> <li>reproduction in plants, including flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal, including quantitative investigation of some dispersal mechanisms.</li> </ul>	<p><b>Electricity:</b></p> <ul style="list-style-type: none"> <li>electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge</li> <li>potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current</li> <li>differences in resistance between conducting and insulating components (quantitative).</li> </ul>	<p><b>Atoms and Elements:</b></p> <ul style="list-style-type: none"> <li>a simple (Dalton) atomic model</li> <li>differences between atoms, elements and compounds</li> <li>chemical symbols and formulae for elements and compounds</li> <li>the varying physical and chemical properties of different elements</li> <li>the principles underpinning the Mendeleev Periodic Table</li> <li>the Periodic Table: periods and groups; metals and non-metals</li> <li>how patterns in reactions can be predicted with reference to the Periodic Table</li> </ul> <p><b>Ecosystems:</b></p> <ul style="list-style-type: none"> <li>the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops</li> <li>the importance of plant reproduction through insect pollination in human food security</li> <li>how organisms affect, and are affected by, their environment, including the accumulation of toxic materials.</li> </ul>	<p><b>_Ecosystems:</b></p> <ul style="list-style-type: none"> <li>the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops</li> <li>the importance of plant reproduction through insect pollination in human food security</li> <li>how organisms affect, and are affected by, their environment, including the accumulation of toxic materials.</li> </ul>
<p><b>Connected knowledge</b></p>	<p><b>Maths</b> To know units of measurement To know metric measures Converting between metric units</p>		<p><b>Maths</b> To know units of measurement To know metric measures Converting between metric units</p>	<p><b>Maths</b> To multiply and divide integers To be able to use mental methods of addition and subtraction To be able to use written methods of addition and subtraction of integers (including negatives) To calculate using order of operations (BIDMAS) To multiply and divide by powers of 10 To do mental multiplication and division To use written methods of multiplication and division.</p>		
<p><b>IMPACT:</b> Students will be able to measure progress using tracking sheets in exercise books. As all assessments will use generic criteria, will be moderated through dept meetings it will be possible to measure progress over time within and across year groups.</p>						