



**2022-2023 Key Stage 3 Curriculum Map – Science**

WCA KS3- The course is based on the AQA Activate scheme. It is taught through year 7 to the first term of year 9.

Year 7 Curriculum Map		Halfterm1	Halfterm2	Halfterm3	Halfterm4	Halfterm5	Halfterm6	
Science	Curriculum Content inc Knowledge, Skills & Cultural Capital	<p><b>Activate baseline test-</b> pupils carry out the activate tests to be given a baseline level.</p> <p><b>Introductory module-</b> Pupils study a short number of lessons to get to know the lab, safety, variables and get awarded their Bunsen Burner licence.</p> <p><b>Organisms1- 8.1 Movement and 8.2 cells.</b></p> <p><u>Knowledge-</u> Levels of organisation; The skeleton; joints and muscles; Observing cells; plant and animal cells; specialised cells; movement of substances and uni-cellular organisms.</p> <p><u>Skills-</u> Microscope use, measuring the force of a muscle, dissection of a chicken wing.</p>	<p><b>Matter- 5.1 Particle model and 5.2 Separating mixtures</b></p> <p><u>Knowledge-</u> The particle model; states of matter; melting and freezing; boiling; more changes of state; diffusion; gas pressure; inside particles; pure substances and mixtures; solutions; solubility; filtration; evaporation and distillation and chromatography.</p> <p><u>Skills-</u> Measuring the temperature during change of state, using lab equipment including Bunsen Burners to separate mixtures.</p> <p><b>Forces1- 1.1 Speed and 1.2 Gravity</b> Lessons 1-3 (details in next half term)</p>	<p><b>Forces1- 1.1 Speed and 1.2 Gravity</b></p> <p><u>Knowledge-</u> Introduction to forces; balanced and unbalanced; speed; distance-time graphs and gravity.</p> <p><u>Skills-</u> Mathematical use of formula and rearrangement. Using and drawing graphs. Experimental- recognising forces and directions of interaction.</p> <p><b>Genes1- 10.1 Variation and 10.2 Human reproduction</b></p> <p><u>Knowledge-</u> Variation; Continuous and discontinuous; adapting to change; adolescence; reproductive systems; fertilisation and implantation; development of a fetus and the menstrual cycle.</p> <p><u>Skills-</u> Measuring and graphing the occurrence of continuous and discontinuous variation.</p>	<p><b>Waves1- 4.1 Sound and 4.2 Light</b></p> <p><u>Knowledge-</u> Sound waves and speed; loudness and amplitude; frequency and pitch; the ear and hearing; light; reflection; refraction; the eye and vision and colour.</p> <p><u>Skills-</u> Interpreting CRO images, using light boxes to measure reflection and refraction.</p>	<p><b>Energy1- 3.1 Energy costs and 3.2 Energy transfer</b></p> <p><u>Knowledge-</u> Food and fuels; energy resources; energy and power; energy adds up and energy dissipation.</p> <p><u>Skills-</u> Mathematically- using percentages. Practically- Use of Bunsen burner, making observations.</p> <p><b>Revision</b> Two weeks of revision for end of year test</p>	<p><b>End of year test</b></p> <p><b>Energy1- 3.1 Energy costs and 3.2 Energy transfer- Complete</b></p> <p><b>Earth1- 7.1 Earth structure and 7.2 Universe</b></p> <p><u>Knowledge-</u> The structure of the Earth; sedimentary rocks; igneous and metamorphic rocks; the rock cycle; ceramics; the night sky; the solar system; the Earth and the moon and changing ideas.</p> <p><u>Skills</u> Observational skills</p>	
	Assessment	Baseline test SMP Organisms	Organisms and introductory milestone assessment Matter SMP	Forces SMP Genes SMP Forces and matter milestone assessment	Waves SMP Genes and waves milestone assessment	Energy SMP	End of year test Earth SMP Energy and Earth milestone assessment	
	Literacy Links	<p>Key words are defined on learning intention slide New vocabulary is signposted throughout the lesson. This is consolidated on the knowledge organisers. Students will develop literacy skills through regular practice of command words such as describe, explain, assess and evaluate. Where appropriate, opportunities are given for wider reading &amp; comprehension of text. Reading newspapers for any relevant topics/events. Optional reading list: Unlocking the universe by Stephen &amp; Lucy Hawking All about Chemistry by Dr Robert Winston All about Biology by Dr Robert Winston All about physics by Dr Robert Winston</p>						
	Curriculum Links	PE	Maths	Maths, PSHE	Maths	Technology	Maths	
	Outside of the Curriculum	Research how to look after your skeleton and prevent sports injuries	Make rice crispie cakes and draw pictures of all the changes of state that happen whilst they are made.	For forces- watch a sports event and try to identify all the forces and whether they are balanced or unbalanced. For organisms- Research the healthy lifestyle a pregnant woman needs to keep the fetus healthy.	Research how poor eyesight and hearing can be corrected	Watch the news for a week (bbc newsround is fine)- Energy is a hot topic, why?	Watch any of the beautifully films Brian Cox space documentaries on BBC iplayer	
How can I support my child?	<p>Ensure weekly homework set on teams is completed. Use the knowledge organisers to support retention of knowledge &amp; understanding. Use <a href="https://www.bbc.co.uk/bitesize/subjects/zng4d2p">https://www.bbc.co.uk/bitesize/subjects/zng4d2p</a> <a href="https://www.youtube.com/@revisionmonkey3859">https://www.youtube.com/@revisionmonkey3859</a> Watch science developments in the news, encourage students to watch David Attenborough programmes, HOW</p>							



Year 8 Curriculum Map		Halfterm1	Halfterm2	Halfterm3	Halfterm4	Halfterm5	Halfterm6
Department	Curriculum Content inc Knowledge, Skills & Cultural Capital	<p><b>Electromagnets1- 2.1 Potential difference and resistance and 2.2 Current</b></p> <p><u>Knowledge-</u> Potential difference; resistance; series and parallel circuits; current and charging up</p> <p><u>Skills-</u> Connect a circuit and use to measure p.d and current.</p> <p><b>Ecosystems1- 9.1 Interdependence and 9.2 Plant reproduction</b></p> <p><u>Knowledge-</u> Food chains and webs; disruption to food chains and webs; ecosystems; competition; flowers and pollination; fertilisation and germination and seed dispersal.</p> <p><u>Skills-</u> flower dissection, investigation of germination.</p>	<p><b>Ecosystems1- 9.1 Interdependence and 9.2 Plant reproduction-</b> Continued</p> <p><b>Reactions1- 6.1 Acids and alkalis and 6.2 Metals and non-metals</b></p> <p><u>Knowledge-</u> Chemical reactions; acids and alkalis; indicators and pH; acid strength; neutralisation; making salts; more about elements; chemical reactions of metals and non-metals; metals and acids; metals and oxygen; metals and water and metal displacement reactions.</p> <p><u>Skills-</u> Carry out test tube reactions</p>	<p><b>Forces2- 1.3 Contact forces and 1.4 Pressure</b></p> <p><u>Knowledge-</u> Friction and drag; squashing and stretching; turning forces; pressure in gases; pressure in liquids and pressure in solids.</p> <p><u>Skills-</u> Mathematically- using and manipulating an equation. Experimentally- A full investigation into speed of parachute drop with different area parachutes.</p> <p><b>Matter2- 5.3 Elements and 5.4 Periodic table</b></p> <p><u>Knowledge</u> Elements; atoms; compounds; chemical formulae; polymers; the periodic table; the elements of group 0, 1 and 7.</p> <p><u>Skills</u> Manipulation of test tube reactions.</p>	<p><b>Organisms- 8.3 Breathing and 8.4 Digestion</b></p> <p><u>Knowledge-</u> Gas exchange; breathing; drugs; alcohol; smoking; nutrients; food tests; unhealthy diet; digestive system and bacteria and enzymes in digestion.</p> <p><u>Skills-</u> Make qualitative assessments using food tests.</p>	<p><b>Genes2- 10.3 Evolution and 10.4 inheritance</b></p> <p><u>Knowledge-</u> Natural selection; Charles Darwin; extinction; preserving biodiversity; inheritance; DNA; genetics and genetic modification.</p> <p><u>Skills-</u> Analysing and graphing data</p> <p><b>Earth2- 7.3 Climate and 7.4 Earth resources</b></p> <p><u>Knowledge-</u> Global warming; the carbon cycle; climate change; extracting metals and recycling.</p> <p><u>Skills-</u> Analysing and critiquing data.</p> <p><b>End of year revision</b></p>	<p><b>Earth2- 7.3 Climate and 7.4 Earth resources-</b> Continued</p> <p><b>Energy2- 3.3 Work and 3.4 Heating and cooling</b></p> <p><u>Knowledge-</u> Work, energy and machines; energy and temperature; energy transfer: particles; energy transfer: radiation and insulation.</p> <p><u>Skills-</u> Use of Bunsen burners, observing reactions, describing unobservable particles.</p>
	Assessment	Electromagnets SMP	Ecosystems SMP Electromagnets and ecosystems MA	Forces SMP Matter SMP Forces and matter MA	Organisms SMP	Genes SMP Organisms and genes MA	End of year test Earth SMP Energy SMP Energy and Earth MA
	Literacy Links	<p>Key words are defined on learning intention slide New vocabulary is signposted throughout the lesson. This is consolidated on the knowledge organisers. Students will develop literacy skills through regular practice of command words such as describe, explain, assess and evaluate. Where appropriate, opportunities are given for wider reading &amp; comprehension of text. Reading newspapers for any relevant topics/events. Optional reading list: All about Evolution Dr Robert Winston The Climate Book, Greta Thunberg Disgusting digestion Horrible Science</p>					
	Curriculum Links	Geography Climate change	Food Tech	Maths	PE, Food Tech	Geography	Geography
	Outside of the Curriculum	<p>Make a series and parallel circuit out of foil- bring it in and we can add in the components <a href="https://www.youtube.com/watch?v=GI1qWBXNrw">https://www.youtube.com/watch?v=GI1qWBXNrw</a></p>	<p>Look around the park/garden/ internet- find some different flowers- are they wind pollinated or insect pollinated? How do you know?</p>	<p>Research water pressure and diving- what are the bands? How do they happen?</p>	<p>Keep a food diary for a week- can you identify the food groups in your diet?</p>	<p>Research Gregor Mendel- Why was he so important?</p>	
	How can I support my child?	<p>Ensure weekly homework set on teams is completed. Use the knowledge organisers to support retention of knowledge &amp; understanding. Use <a href="https://www.bbc.co.uk/bitesize/subjects/zng4d2p">https://www.bbc.co.uk/bitesize/subjects/zng4d2p</a> <a href="https://www.youtube.com/@revisionmonkey3859">https://www.youtube.com/@revisionmonkey3859</a> Watch science developments in the news, encourage students to watch David Attenborough programmes, HOW</p>					



Year 9 Curriculum Map		Halfterm1	Halfterm2	Halfterm3	Halfterm4	Halfterm5	Halfterm6	
6 hrs per fortnight	Curriculum Content inc Knowledge, Skills & Cultural Capital	<p><b>Ecosystems- 9.3 Respiration and 9.4 Plant reproduction</b></p> <p><u>Knowledge</u>- Aerobic respiration, anaerobic respiration, biotechnology, photosynthesis, investigating photosynthesis, plant minerals.</p> <p><u>Skills</u>- Manipulate yeast to investigate respiration, use a microscope to see stomata, investigate the storage of starch in leaves, investigate the effect of light on photosynthesis.</p> <p><b>Electromagnets2- 2.3 Magnetism and 2.4 Electromagnets</b></p> <p><u>Knowledge</u>- Magnets and magnetic fields; electromagnets and using electromagnets.</p> <p><u>Skills</u>- Investigate the variables that effect the strength of an electromagnet.</p>	<p><b>Reactions2- 6.3 Types of reaction and 6.4 Chemical energy</b></p> <p><u>Knowledge</u> Atoms in chemical reactions, combustion, thermal decomposition, conservation of mass, exothermic and endothermic, energy level diagrams and bond energies.</p> <p><u>Skills</u>- Control reactions that involve heating, use quantitative techniques in Chemistry.</p> <p><b>Waves2- 4.3 Wave effects and 4.4 Wave properties</b></p> <p><u>Knowledge</u> Sound waves, water waves and energy; radiation and energy and modelling waves.</p> <p><u>Skills</u>- Research</p>	<p><b>Foundation level combined science</b></p> <p><b>C1.1 What is the body made of?</b></p> <p><u>Knowledge</u> Cell Structure Structure and function of organs and organ systems. Transport in cells The role of enzymes.</p> <p><u>Skills</u> Microscopy Investigating enzyme action</p> <p><b>C1.2 How does the body work?</b> Respiration and anaerobic respiration in animals. Healthy diet Lifestyle and disease.</p> <p><u>Skills</u> Energy in food Investigating pulse rate</p> <p><b>C5.1 Energy</b> Energy stores and energy transfers</p> <p><u>Knowledge</u> Energy can not be created or destroyed but converted but can be transferred between the different stores of energy. Naming energy stores Describing energy transfers Identifying useful and wasted energy transfers. Conservation of energy Identify energy resources. Energy efficiency IMPACT OF ENERGY ON THE ENVIRONMENT</p> <p><u>Skills</u> Investigate: Energy transfers by heating Calculate energy efficiency Evaluate reducing waste</p>	<p><b>C3 Atoms elements and compounds</b></p> <p><u>Knowledge</u> Atoms and the periodic table, groups in the periodic table, making compounds, the model of the atom, atoms and electrons, metals and the periodic table, non-metals and the periodic table, states of matter, Mixtures, chromatography, structures of carbon, polymers</p> <p><u>Skills</u> Observing chemical reactions Manipulating equipment Interpreting results Drawing valid conclusions</p> <p><b>C6 Electricity and magnetism</b></p> <p><u>Knowledge</u> What current and resistance are. How current flows in a circuit. Investigate series and parallel circuit rules. Properties and uses of magnetism.</p> <p><u>Skills</u> Draw circuit diagrams How to build circuits Measure current and resistance Investigate field lines around a bar magnet. Investigate electromagnets</p>	<p><b>C4 Chemistry in our world</b></p> <p><u>Knowledge</u> Useful chemical reactions – neutralisation, combustion and energy transfer in reactions. Impact of combustion reaction on climate change and air pollution</p> <p><u>Skills</u> Investigating neutralisation reactions. Investigating fuels Investigating water</p> <p><b>C1.3 how the body fights disease</b></p> <p><u>Knowledge</u> What are infectious diseases? What are the bodies defences against infection? How does our body respond to disease? How can medicine help our bodies to fight off infection?</p> <p><u>Skills</u> Investigating the effect of antibiotics</p> <p><u>Knowledge</u> C1.4 How the body is Co-ordinated How does the nervous system work? How do hormones work to control our bodies</p> <p><u>Skills</u> Testing reaction time</p>	<p><b>C2 environment evolution and inheritance</b></p> <p><u>Knowledge</u> Photosynthesis Food chains and food webs interdependence Recycling of materials Competition Mans impact on biodiversity How life has developed on earth Genetic material and inheritance</p> <p><u>Skills</u> Investigating photosynthesis Investigating biodiversity Understanding inheritance using genetic cross diagrams</p>	
	Assessment	SMP Ecosystems SMP Electromagnets MA Ecosystems and electromagnets	SMP Reactions SMP Waves MA Reactions and waves	SMP Vocabulary in biology SMP Evaluate different energy resources MA How the body work and energy				
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	Curriculum Links	Maths	Maths	Geography Climate	Maths, technology	Geography, RE	Geography, RE	
	Outside of the Curriculum	Try a bleep test- when does your respiration change from aerobic to anaerobic?	Use a mirror at home to investigate the reflection of light (from a torch) on different	Evaluate your diet – are you eating a balanced diet. Do 30 minutes of exercise per day – how does this effect your resting pulse rate.				



	Do a magnet and electromagnet survey in your house- where are they being used? Why?	surfaces and the reflection of colour.	How energy efficient are you? Can you reduce your wasted energy			
How can I support my child?	Ensure weekly homework set on teams is completed. Use the knowledge organisers to support retention of knowledge & understanding. Use <a href="https://www.bbc.co.uk/bitesize/subjects/zng4d2p">https://www.bbc.co.uk/bitesize/subjects/zng4d2p</a> <a href="https://www.youtube.com/@revisionmonkey3859">https://www.youtube.com/@revisionmonkey3859</a> Watch science developments in the news, encourage students to watch David Attenborough programmes, HOW <a href="https://www.buysubscriptions.com/digital/bbc-science-focus-digital-subscription?promo=SP23PPC&amp;style=brand&amp;payment=dd&amp;qclid=EA1alQobChMIzdmvvpbR_QIVicftCh1zOQ0IEAQYAiABEglGX_D_BwE">https://www.buysubscriptions.com/digital/bbc-science-focus-digital-subscription?promo=SP23PPC&amp;style=brand&amp;payment=dd&amp;qclid=EA1alQobChMIzdmvvpbR_QIVicftCh1zOQ0IEAQYAiABEglGX_D_BwE</a>					