

Curriculum overview draft 1

Subject: Science	Components of science			'Core' knowledge	'Hinterland' knowledge
	What new knowledge do we introduce?			Essential knowledge needed to be successful	What do students <i>do</i> with this knowledge?
	Year 7	Year 8	Year 9		
Autumn 1 <i>September - October</i>	Biology - Cells: Living body (7.1.a)	Biology – Cells: How the bodyworks (8.1.a)	Chemistry – Atomic structure and the periodic table (9.1.a)	Living body - Cellular basis of life; cell structure; respiration and human body systems involved in respiration.  Particles – States of matter; atomic structure and separating mixtures.	Explicitly referenced throughout the topics give the history and story behind science and famous scientists.  Topics that are extra – space; rocks and the rock cycle; pressure skeleton and muscles.
Autumn 2 <i>November - December</i>	Chemistry - Particles: Elements, Mixtures and Compounds (7.1.b)  Physics – Space (7.1c)	Chemistry – Particles: Physical and chemical change (8.1.b)	Biology – Cell structure and transport ; cell division (9.1.b)		
Spring 1 <i>January - February</i>	Physics – Forces: Speed and forces (7.2.a)	Physics – Energy: Energy (8.2.a)	Physics – Conservation and dissipation of energy, energy transfer by heating (9.2.a)	Space – Seasons, phases of the moon, planets in the solar system  Speed and forces – Speed and acceleration; calculating speed; distance time graphs; balance forces and representing forces.	WOW lessons – links to STEM organisations e.g. Sanger institute; Sea cadets – buoyancy; BT crumble robots and the Welcome Trust.
Spring 2 <i>March - April</i>	Biology – Genetics: Habitats and organisation (7.2.b)	Biology – Genetics: Inheritance and evolution (8.2.b)	Chemistry – Structure and bonding (9.2.b)		
Summer 1 <i>April - May</i>	Chemistry – Chemical reactions: Common reactions (7.3.a)	Chemistry – Chemical reactions: Chemistry on Earth (8.3.a)	Physics – Energy and Matter (9.3.b)	Habitats and organisation – Food chains and webs; adaptations; impact of humans and habitats.  Common reactions –	
Summer 2 <i>June - July</i>	Physics – Energy – Electricity (7.3.b)  Biology – SEEN Lessons – Brain Development	Physics – Energy: Magnetism and waves (8.3.b)	Biology – Biology – Organisation of the digestive system and organisation of plants and animals (9.3.a) Biology – Non-		

			<p>Communicable Disease</p>	<p>Chemical reactions and rearranging atoms; word equations; evidence of chemical reactions; acids and alkalis.</p> <p>Physical and chemical changes – physical changes; chemical changes; reactivity and displacement.</p> <p>Energy – Energy stores; energy pathways; units of energy and energy resources.</p> <p>Inheritance and evolution – Sexual and asexual reproduction; variation and evolution.</p> <p>Chemistry on Earth – metal ores; combustion; carbon cycle and the composition of the Earth’s atmosphere.</p> <p>Magnetism and waves – Magnets; magnetic fields; electromagnets; types of wave and what happens when waves hit things.</p>	
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<p>How is student progress assessed?</p> <ul style="list-style-type: none"><li>- How do you know students are learning more? Evidence of work in booklets; key knowledge explicitly explained and shared with students.</li><li>- How is knowledge assessed? MCQ pre and post test; high frequency recall questions every lesson; 50 knowledge questions per topic; three extended writing assessments and an end of topic formal assessment.</li><li>- How is the curriculum clearly the progression model – key knowledge is revisited in different topics; students are required to complete knowledge and MCQ from previous topics.</li></ul>	<p><i>Opportunities</i></p> <p>Booklets provide support for non specialist teachers. Booklets ensure a consistent excellent explanation that all students have access to..</p> <p>Booklets are ambitious in the quantity of key knowledge to support stretch and challenge, they are written to the top end.</p>	<p><i>Resources</i></p> <p>Biology, chemistry and physics mastery booklets for each topic.</p>
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**Materials to read:**

<https://thedignityofthethingblog.wordpress.com/2018/04/07/senior-curriculum-leadership-1-the-indirect-manifestation-of-knowledge-a-curriculum-as-narrative/>

<https://teacherhead.com/2019/09/27/signposting-the-hinterland-practical-ways-to-enrich-your-core-curriculum/>

<https://achemicalorthodoxy.wordpress.com/2019/02/01/core-and-hinterland-whats-what-and-why-it-matters/>

<https://impact.chartered.college/article/taking-curriculum-seriously/>