



## Science Curriculum Overview

**Curriculum Intent & Rationale:** At Wednesfield Academy we strongly believe that all our pupils should develop an in-depth understanding of the sciences and empower them to have the practical and analytical skills that are necessary in today's ever-changing world. Our curriculum is designed around the 'Big Ideas' in science (in bold) and due to the spiral design of our curriculum, each year our pupils will revisit and deepen their love of and understanding of those big ideas, to ensure scientific literacy.

Key Stage	Year	Term	Biology	Chemistry	Physics
KS3	7	Autumn	<b>Science skills</b> <b>Cells &amp; organs:</b> Cells and organization <b>Cells &amp; organs:</b> The Skeletal & muscular system	<b>Science skills</b> <b>Matter:</b> Particles	<b>Science skills</b> <b>Forces</b> (speed/ Gravity)
		Spring	<b>Cells &amp; organs:</b> Reproduction	<b>Earth:</b> Earth Structure, atmosphere & the rock cycle <b>Reactions:</b> Acids & alkalis	<b>Energy:</b> Energy costs/transfers <b>Energy:</b> Electricity.
		Summer	<b>Core question consolidation and project work</b>		
	8	Autumn	<b>Cells &amp; organs:</b> Nutrition & Digestion <b>Cells &amp; organs:</b> Gas Exchange systems	<b>Matter:</b> Atoms, elements & compounds	<b>Energy:</b> Energy in particles <b>Forces:</b> Contact/non-contact
		Spring	<b>Recycling materials &amp; energy:</b> Cellular Respiration & photosynthesis <b>Recycling materials &amp; energy:</b> Relationships in an ecosystem	<b>Reactions:</b> Types of chemical reactions	<b>Waves:</b> wave effects/wave properties <b>Forces:</b> Electromagnetism
		Summer	<b>Core question consolidation and project work</b>		
	9	Autumn	<b>Genetics &amp; Evolution:</b> Inheritance Variation & evolution	<b>Matter:</b> Periodic Table <b>Reactions:</b> Metals & materials	<b>Forces:</b> Static
		Spring	<b>Genetics &amp; Evolution:</b> Inheritance Variation & evolution	<b>Reactions:</b> Metals & materials <b>Earth:</b> Green chemistry	<b>Forces:</b> Space
		Summer	<b>Core question consolidation and project work</b>		

KS	Year	Term	Biology	Chemistry	Physics
KS4	10	Autumn	<b>Cells &amp; organs:</b> Cell biology <b>Cells &amp; organs:</b> Organisation <b>Cells &amp; organs:</b> Infection & response	<b>Matter:</b> Atomic structure & periodic table <b>Matter:</b> Structure & bonding	<b>Energy</b> <b>Forces:</b> particle model Radiation
		Spring	<b>Recycling materials &amp; energy:</b> Bioenergetics	<b>Reactions:</b> Chemical changes <b>Reactions:</b> Energy Changes <b>Reactions:</b> Quantitative chemistry	<b>Energy:</b> Electricity <b>Forces</b>
		Summer	<b>Recycling materials &amp; energy:</b> Ecology <b>Paper 1 consolidation &amp; revision</b>	<b>Matter:</b> Chemical analysis <b>Reactions:</b> Rate of Reactions <b>Paper 1 consolidation &amp; revision</b>	<b>Waves</b> <b>Paper 1 consolidation &amp; revision</b>
	11	Autumn	<b>Cells &amp; organs:</b> Homeostasis & response	<b>Reactions:</b> Organic Chemistry <b>Earth:</b> Chemistry of the atmosphere	<b>Forces:</b> Electromagnetism
		Spring	<b>Genetics &amp; Evolution:</b> Inheritance, variation & evolution	<b>Earth:</b> Using resources	<b>Forces:</b> Space (triple only)
		Summer	<b>Revision and final exams</b>		
KS5	12	Autumn	<b>Big Idea: Cells and organs</b> (Yr 12)	<b>Big Idea: Reactions</b> (Yr 12)	<b>Big Idea Forces:</b> mechanics
		Spring	<b>Big Idea: Genetics and evolution</b> (Yr 12)	<b>Big Idea: Earth</b> (Yr 12)	<b>Big Idea Energy:</b> Electricity <b>Big Idea Waves</b>
		Summer	<b>Consolidation of big ideas</b>		
	13	Autumn	<b>Big Idea: Cells and organs</b> (Yr 13)	<b>Big Idea: Reactions</b> (Yr 13) <b>Big Idea: Matter</b>	<b>Big Idea Forces: Further Mechanics</b>
		Spring	<b>Big idea: recycling materials and energy</b> <b>Big Idea: Genetics and evolution</b>	<b>Big Idea: Earth</b> (Yr 13)	<b>Big Idea Forces:</b> nuclear physics <b>Big Idea Waves:</b> medical physics
		Summer	<b>Revision and final exams</b>		

Useful Websites to support independent study		
Key Stage 3	Key Stage 4	Key Stage 5
<p>BBC Bitesize - <a href="#">KS3 Science - BBC Bitesize</a></p> <p>BBC Teach - <a href="#">KS3 secondary teaching resources - BBC Teach</a></p> <p>Oak Academy - <a href="#">All subjects - Key Stage 3 - Oak National Academy (thenational.academy)</a></p>	<p>Specifications and past papers can be found here: <a href="https://www.aqa.org.uk/subjects/science/gcse">https://www.aqa.org.uk/subjects/science/gcse</a></p> <p>Revision notes, practice questions and model answers can be found here: <a href="https://mmerevise.co.uk/gcse-science-revision/">https://mmerevise.co.uk/gcse-science-revision/</a></p>	<p>Specifications and past papers can be found here for biology and physics <a href="https://www.aqa.org.uk/subjects/science/as-and-a-level">https://www.aqa.org.uk/subjects/science/as-and-a-level</a></p> <p>and here for chemistry: <a href="https://www.ocr.org.uk/images/171720-specification-accredited-a-level-gce-chemistry-a-h432.pdf">https://www.ocr.org.uk/images/171720-specification-accredited-a-level-gce-chemistry-a-h432.pdf</a></p> <p>Revision notes, practice questions and model answers can be found here: <a href="https://mmerevise.co.uk/a-level-revision/">https://mmerevise.co.uk/a-level-revision/</a></p>