



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 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	Science
KS3	7	Autumn	Introduction to Science: Science skills Cells and organisation
			The Particle Model The Skeletal & muscular system Atoms, Elements and compounds
		Spring	Energy Pure and impure substances Speed Reproduction
		Summer	Reproduction (continued) Forces Nutrition and Digestion Sound
	8	Autumn	Reproduction Atoms, elements & compounds Pressure in Fluids Sound
		Spring	Gas exchange systems Types of chemical reactions Energy Changes
		Summer	Light Ecosystems Space
		Autumn	Inheritance Variation & evolution Periodic Table

9		Metals & materials Static Particle Model
	Spring	Inheritance Variation & Evolution Metals & Materials Green chemistry Space
	Summer	Fundamentals

KS	Year	Term	Biology	Chemistry	Physics
KS4	10	Autumn	Cell biology Organisation Infection & response	Atomic structure & periodic table Structure & bonding	Energy Particle model
		Spring	Infection & response continued Bioenergetics	Chemical changes Energy Changes Quantitative chemistry	Electricity Atomic Structure
		Summer	Homeostasis & response	Chemical analysis Chemistry of the atmosphere	Forces
	Paper 1 Exam Practice & revision				
	11	Autumn	Ecology Inheritance, variation & evolution	Rate and extent of chemical change Organic Chemistry	Forces Continued Waves
		Spring	Inheritance, variation & evolution continued	Using resources	Electromagnetism Space (triple only)
Summer		Revision and final exams			
KS5	12	Autumn	Biological Molecules Nucleic Acids	Atomic structure Amount of Substance Bonding	Measurements and errors Particles and radiation Mechanics

		<p>Cell structure: Transport Across cell membranes</p> <p>Cells recognition and the immune system</p>	<p>Energetics</p> <p>Oxidation, Reduction, Redox</p> <p>Kinetics</p> <p>Chemical Equilibria, Le Chatelier's Principle and K_c</p>	<p>Electricity</p>
	Spring	<p>Cells recognition and the immune system continued</p> <p>Genetic information: DNA, genes and protein synthesis</p> <p>Diversity, Classification and Variation</p> <p>Organisms exchange substances with their environment: Exchange</p> <p>Organisms exchange substances with their environment: Mass Transport</p> <p>Energy Transfers and nutrient cycles</p>	<p>Periodicity</p> <p>Introduction to Organic Chemistry</p> <p>Alkanes</p> <p>Halogenoalkanes</p> <p>Alkenes</p> <p>Alcohols</p>	<p>Waves</p> <p>Materials</p> <p>Further Mechanics</p>
	Summer	<p>Energy Transfers and nutrient cycles Continued</p> <p>Genetic diversity and biodiversity</p> <p>Organisms respond to changes: Response to stimuli</p> <p>Nervous coordination</p> <p>Energy Transfer: Photosynthesis</p> <p>Energy Transfers and nutrient cycles</p>	<p>Group 2</p> <p>Group 7</p> <p>Organic Analysis</p>	<p>Thermal Physics</p>
		Paper 1 Exam practice and revision		
13	Autumn	<p>Energy Transfer: Respiration</p> <p>Energy Transfer: Energy and ecosystems</p> <p>Genetics</p> <p>Organisms respond to changes: Response to stimuli continued</p>	<p>Aromatic compounds, carbonyls and acids</p> <p>Nitrogen compounds, polymers and synthesis</p> <p>Rates, Equilibrium and pH</p>	<p>Further mechanics</p> <p>Thermal physics</p> <p>Nuclear physics</p> <p>Fields</p>

		<p>Nervous coordination and muscles Homeostasis</p> <p>The Control of gene expression: gene expression</p> <p>Energy Transfers and nutrient cycles</p>	Energy	
Spring	<p>The Control of gene expression continued Populations and evolution and ecosystems</p> <p>Essay writing</p>	<p>Organic Synthesis Analysis</p> <p>Transition Elements</p>		<p>Fields Continued Medical Physics</p>
Summer	Revision and Final exams			

Useful Websites to support independent study		
Key Stage 3	Key Stage 4	Key Stage 5
<p>BBC Bitesize BBC Teach Oak Academy GCSE Pod</p>	<p>Specifications and past papers can be found here: https://www.aqa.org.uk/subjects/science/gcse</p> <p>Revision notes, practice questions and model answers can be found here: https://mmerevise.co.uk/gcse-science-revision/</p>	<p>Specifications and past papers can be found here for biology and physics https://www.aqa.org.uk/subjects/science/as-and-a-level</p> <p>https://www.ocr.org.uk/images/171720-specification-accredited-a-level-gce-chemistry-a-h432.pdf</p> <p>Revision notes, practice questions and model answers can be found here: https://mmerevise.co.uk/a-level-revision/</p>

