

Wednesfield Academy 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	Topic
3	7	Autumn	Introduction , Particle model Cells
			Energy Atoms, elements and compounds
		Spring	Speed Skeletal system
			Pure an impure substances Forces
		Summer	Forces Pressure in fluids
			Space Earth
	8	Autumn	Chemical reactions Light
			Energy changes Photosynthesis
		Spring	Speed Respiration
			Electricity
		Summer	Energy

			Materials
			Space, Earth
	9	Autumn	Sound, Nutrition and digestion
			Inheritance, Reproduction
		Spring	Magnets, Particle model
			GCSE Transition
		Summer	GCSE Transition
			GCSE Transition

KS4 Combined	Autumn		Spring		Summer	
10 Biology	B1 Recap - Organisation	Infection & response	Bioenergetics	Homeostasis	Homeostasis continued	Homeostasis continued
10 Chemistry	C1 Recap - Structure and bonding	Quantitative chemistry	Quantitative chemistry	Chemical changes	Energy changes	Rates
10 Physics	P1 Recap - Electricity	Electricity	Particle Model of Matter	Atomic Structure	Forces	Forces
11 Biology	Inheritance	Inheritance-Ecology	Ecology	Exam Prep	Exam Prep	Exam Prep
11 Chemistry	Rates of reaction	Organic Chemistry	Chemical analysis Early atmosphere	Exam Prep	Exam Prep	Exam Prep
11 Physics	Forces	Waves	Magnets	Exam Prep	Exam Prep	Exam Prep

KS4 Triple	Autumn		Spring		Summer	
10 Biology	B1 Recap - Organisation	Infection & response	Bioenergetics	Homeostasis	Homeostasis continued	Homeostasis continued
10 Chemistry	C1 Recap - Structure and bonding	Quantitative chemistry	Quantitative chemistry (Triple)	Chemical changes	Energy changes	Rates
10 Physics	P1 Recap - Electricity	Electricity	Particle Model of Matter	Atomic Structure	Forces	Forces
11 Biology	Inheritance	Inheritance-Ecology	Ecology	Exam Prep	Exam Prep	Exam Prep
11 Chemistry	Rates of reaction	Organic Chemistry	Chemical analysis Early atmosphere	Exam Prep	Exam Prep	Exam Prep
11 Physics	Forces	Waves	Magnets Space	Exam Prep	Exam Prep	Exam Prep

KS	Year	Term	Biology	Chemistry	Physics
KS5	12	Autumn	Biological Molecules Nucleic Acids	Atomic structure Amount of Substance Bonding	Measurements and errors Particles and radiation Mechanics
			Cell structure: Transport across cell membranes Cells recognition and the immune system	Energetics Oxidation, Reduction, Redox Kinetics Chemical Equilibrium, Le Chatelier's Principle and Kc	Electricity
		Spring	Cells recognition and the immune system (continued) Genetic information: DNA, genes and protein synthesis Diversity, Classification and Variation Exchange Mass Transport Energy Transfers and nutrient cycles	Periodicity Introduction to Organic Chemistry Alkanes Halogenoalkanes Alkenes Alcohols	Waves Materials Further Mechanics
		Summer	Energy Transfers and nutrient cycles (continued) Genetic diversity and biodiversity Response to stimuli Nervous coordination Photosynthesis	Group 2 Group 7 Organic Analysis	Thermal Physics
			Paper 1 Exam practice and revision		

	13	Autumn	Energy Transfers: Respiration Energy Transfers: Energy and ecosystems Genetics Response to stimuli (continued) Nervous coordination and muscles Homeostasis Gene expression	Aromatic compounds, carbonyls and acids Nitrogen compounds, polymers and synthesis Rates, Equilibrium and pH	Further mechanics Thermal physics Nuclear physics Fields
		Spring	The control of gene expression continued Populations and evolution and ecosystems Essay writing	Organic Synthesis Analysis Transition Elements	Fields (continued) Medical Physics
		Summer	Revision and Final exams		

Useful websites to support independent study		
Key Stage 3	Key Stage 4	Key Stage 5
BBC Bitesize Oka National Academy Seneca Learning STEM KS3 Home Learning	AQA GCSE Combined Science Specification BBC Bitesize Seneca Learning Cognito Physics and Maths Tutor (PMT) Oak National Academy Pearson Revise GCSE Pod	a-level biology specification a-level chemistry specification a-level physics specification UpLearn Physics & Maths Tutor (exam practice) Save My Exams (notes + structure) Cognito (videos) AQA / OCR websites (papers) Seneca (recall practice)

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