

The Science Curriculum at AJK

Why should all students learn your subject?

To deliver a rigorous curriculum, which inspires pupils and equips every child with skills and knowledge to;

- Critically consume data (including media sources) and draw valid conclusions
- Be curious about their surroundings
- Undertake practical work safely and skilfully
- Communicate ideas and opinions articulately
- Have mastery of core scientific knowledge which gives the confidence to undertake further study
- Develop optimism and excitement for what science can do for people and the planet
- Understand the impact science can make on communities and society for social justice

What is the core knowledge in your subject?

- Cells are alive
- Bodies are systems
- Organisms are independent
- Ecosystems recycle resources
- Characteristics are inherited
- Species show variation
- Structure determines properties
- Reactions rearrange matter
- Earth systems interact
- Forces predict motion
- Fields produce forces
- Energy is conserved
- Electricity transfers energy
- Radiation transfers energy

What is the key way students practice in your subject?

Short written responses

Longer written answers (6 markers)

Completion of required practical activities

Science Curriculum Content Overview

	Autumn	Spring	Summer
Year 7	Cells Particles Forces Reproduction	Atoms, elements and compounds Gravity Interdependence	Energy transfers Mixtures Electrical circuits
Year 8	Tissues and organs Acids and alkalis Movement and pressure Respiration and photosynthesis	Changing substances Magnetism Life diversity Earth systems	Electrical circuits Nutrition Light
Year 9	C1 Atomic structure C2 Periodic table B1 Cell structure and transport B2 Cell division P1 Conservation and dissipation of energy P2 Energy transfer by heating	C3 Structure and bonding B3 Organisation and the digestive system B4 Organising animals and plants P3 Energy resources P6 Molecules and matter	C5 Chemical changes B9 Respiration B15 Adaptations, interdependence and competition P5 Electricity in the home P4 Electric circuits
Year 10	C4 Chemical calculations C6 Electrolysis B5 Communicable diseases	C7 Energy Changes C9 Crude oil and fuels	C8 Rates and equilibrium B13 Variation and Evolution P10 Forces and motion

	<p>B7 Non-communicable diseases B6 Preventing and treating disease B8 Photosynthesis P6 Molecules and matter P2 Energy transfer by heating P7 Radioactivity</p>	<p>B10 The human nervous system B12 Reproduction P8 Forces in Balance P9 Motion</p>	
Year 11	<p>C11 The Earth's atmosphere C12 The Earth's resources B14 Genetics and evolution B11 Hormonal coordination B16 Organising an ecosystem B17 Biodiversity and ecosystems</p>	<p>C10 Chemical analysis P13 Electromagnetism P11 Wave properties P12 Waves and EM</p>	<p>Reteach Exams preparation</p>
Year 12 bio	<ul style="list-style-type: none"> • Biological molecules • Nucleic acids • Cell structure • Transport across cell membranes • Cell recognition and the immune system • Exchange • Mass transport • DNA, genes and protein synthesis • Genetic diversity 	<ul style="list-style-type: none"> • Biodiversity • Photosynthesis • Respiration • Energy and ecosystems • Response to stimuli 	<ul style="list-style-type: none"> • Nervous coordination and muscles • Homeostasis
Year 13 bio	<ul style="list-style-type: none"> • Inherited change • Populations and evolution • Populations in ecosystems 	<ul style="list-style-type: none"> • Gene expression • Recombinant DNA technology 	<p>Reteach Exams preparation</p>
Year 12 chem	<ul style="list-style-type: none"> • Atomic structure • Amount of substance • Bonding • Oxidation, reduction, redox • Periodicity • Group 2 and 7 elements • Energetics 	<ul style="list-style-type: none"> • Introduction to organic chemistry • Alkanes • Halogenoalkanes • Alkenes • Kinetics • Equilibria 	<ul style="list-style-type: none"> • Alcohols • Organic analysis • Thermodynamics • Kinetics • Equilibrium constant
Year 13 chem	<ul style="list-style-type: none"> • Electrode potential • Acids, bases and buffers • Periodicity 2 • Transition metals • Nomenclature and isomerism • Carbonyl group compounds • Amines • Aromatic chemistry • Amines 	<ul style="list-style-type: none"> • Transition metals • Reactions of inorganic compounds • Organic synthesis and analysis • Polymerisation • Amino acids, proteins, DNA • Chromatography • Structure determination 	<ul style="list-style-type: none"> • Required practicals • Reteach • Exam preparation
Year 12 phys	<ul style="list-style-type: none"> • Forces in equilibrium • On the move • Skills in AS Physics • Materials • Waves • Newton's laws of motion • Force and momentum • Work, energy, and power • Electric current 	<ul style="list-style-type: none"> • Waves • Optics • Quantum phenomena • Mathematical skills • Electric current • DC circuits • Matter and radiation • Quarks and leptons 	<ul style="list-style-type: none"> • Quarks and leptons • Gravitational fields • Electric fields • Motion in a circle • Simple harmonic motion • Capacitors • Magnetic fields

Year 13 phys	<ul style="list-style-type: none">• Gravitational fields• Capacitors• Magnetic fields• Electromagnetic induction• Radioactivity• Mathematical skills• Electric fields• Thermal physics• Gases	<ul style="list-style-type: none">• Optional unit -Turning points	<ul style="list-style-type: none">• Required practicals• Reteach• Exam preparation
--------------------	---	---	--