The Purbeck School
Achieving Excellence Together

KS2 → KS3 SCIENCE PROGRESSION MAP

	Strand	Year 6 (KS2)	Year 7 (KS3)	Year 8 (KS3)	Progression Shift
Biology	Cells & Organisation	describe how nutrients and water are transported in the body	explain organisation of cells → tissues → organs → systems	explain specialised cells and interactions between organ systems	macro → micro → integrated systems understanding
	Circulatory → Gas Exchange	identify parts of circulatory system and functions	describe cells and basic life processes	explain gas exchange and link to respiration	structure → process → system interaction
	Respiration	understand basic energy needs of organisms	explain processes such as respiration	describe aerobic and anaerobic respiration and energy release	basic idea → scientific process → biochemical explanation
	Evolution & Adaptation	describe how living things change over time (fossils)	describe adaptations to environments	explain natural selection and evolutionary processes	description → explanation → theory
	Variation	explain variation in offspring	distinguish inherited vs environmental variation	explain inheritance using genes, DNA and chromosomes	observation → cause → molecular explanation
	Classification	group living things based on similarities	classify organisms using shared characteristics	use more complex classification and microorganisms	simple grouping → scientific systems → abstract classification
	Reproduction	describe plant reproduction	explain plant reproduction processes	explain inheritance and reproduction in terms of genes	process description → mechanism → genetic explanation

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Chemistry	States of Matter	describe solids, liquids and gases	explain states using particle model	apply particle model to pressure, temperature and energy changes	observable → model → quantitative explanation
	Dissolving & Solutions	describe dissolving and solutions	explain diffusion and particle movement	explain concentration and environmental impacts (e.g. pollution)	simple mixing → particle model → application
	Materials & Structure	compare materials by properties	distinguish elements, compounds and mixtures	explain periodic table trends and properties of elements	properties → classification → periodic patterns
	Conductivity	identify conductors and insulators	explain resistance and material behaviour	link structure to properties (metals vs non-metals)	simple property → explanation → structure-property link
	Separation	separate mixtures (filtering, evaporation)	explain separation techniques	select appropriate methods and justify choices	method → reasoning → evaluation
	Chemical Change	identify reversible/irreversible changes	describe chemical reactions and new substances	explain exothermic/endothermic reactions and energy changes	observation → model → energy explanation
	Reactions	observe simple reactions	explain acids, alkalis and neutralisation	describe reactivity series and reactions of metals and acids	simple reactions → types of reactions → predicting reactions

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Physics	Electricity	construct simple circuits	describe current, voltage and resistance	explain domestic electricity and static charge	building → understanding → application
	Circuits	explain brightness changes	explain voltage and current relationships	explain energy transfer and safety in circuits	qualitative → quantitative → applied understanding
	Conductors	identify conductors and insulators	explain resistance in materials	explain charge transfer and static electricity	surface understanding → model → particle explanation
	Light	describe light travelling in straight lines	explain light using ray models	explain wave behaviour including refraction and applications	description → modelling → application
	Waves & Sound	basic understanding of sound	describe sound as a wave	explain wave properties (frequency, amplitude) and effects	simple idea → model → detailed wave physics
	Forces	describe pushes, pulls and gravity	explain balanced/unbalanced forces	apply forces to motion, pressure and real-world contexts	naming → explaining → applying
	Energy	identify everyday energy use	describe energy stores and transfers	compare energy resources and efficiency	everyday understanding → model → evaluation

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Working Scientifically	Planning	plan simple fair tests	carry out structured investigations	design investigations with greater independence	guided → structured → independent
	Variables	identify variables	control variables	evaluate control of variables and reliability	basic recognition → control → critical evaluation
	Data Recording	record results in tables/graphs	present data appropriately	select appropriate methods of data presentation	simple → appropriate → justified
	Analysis	identify patterns	analyse data and draw conclusions	explain relationships and evaluate conclusions	spotting → explaining → evaluating
	Evaluation	suggest improvements	justify conclusions using evidence	critically evaluate methods and data reliability	simple feedback → reasoning → critique
	Application	use findings in simple contexts	apply knowledge to familiar contexts	apply knowledge to new/unfamiliar contexts	recall → apply → transfer