

SCIENCE



	EMERGING	DEVELOPING	SECURE	REFINING
Scientific knowledge and recall (key ideas & facts) through the disciplines of biology, chemistry and physics.	Recalls (with prompts), a limited range of scientific content in biology, chemistry and physics from the key stage three national curriculum for science. Some misconceptions persist.	Recalls some of the scientific content in biology, chemistry and physics from the key stage three national curriculum for science. Beginning to connect them across topics. Addresses misconceptions.	Accurately recalls a broad range of scientific content taught from the key stage three national curriculum for science, and can see connections across the three subject areas. Uses technical vocabulary accurately and precisely across all three sciences.	Demonstrates breadth and depth of factual recall from the key stage three national curriculum for science. Confidently applies knowledge to unfamiliar or cross-curricular contexts.
Conceptual understanding and application through the disciplines of biology, chemistry and physics.	Understands simple cause-and-effect links in familiar contexts (e.g. plants need light to grow). Starting to use mathematical knowledge in the understanding of science.	Applies scientific ideas to simple scenarios and is beginning to explain using some correct terminology. Starting to apply mathematical knowledge to the understanding of science (with prompts).	Explains concepts and relationships using appropriate scientific language. Can apply to new situations with reasoning. Can apply mathematical knowledge to the understanding of science.	Synthesises and evaluates concepts across topics. Can explain abstract and complex ideas fluently. Confidently applies mathematical knowledge to the understanding of science.
Analysis and evaluation (working scientifically) through the disciplines of biology, chemistry and physics.	Starting to apply age- related mathematical concepts and calculate results. Suggests simple patterns or trends with support. Limited ability to evaluate results.	Can apply age- related mathematical concepts and calculate results. Identifies obvious patterns; begins to consider reliability and errors with prompts.	Can apply mathematical concepts and calculate results, as expected from the key stage three national curriculum. Recognises patterns and relationships in data; comments on accuracy, reliability, and sources of error.	Independently applies mathematical concepts and result calculations, as expected from the key stage three national curriculum. Evaluates methods and data critically; refines approaches and draws substantiated, balanced conclusions.
Experimental skills and investigation (working scientifically) through the disciplines of biology, chemistry and physics.	Follows simple instructions to carry out practical tasks safely with support. Records results in a basic format.	Plans simple investigations with some guidance; makes observations and measurements with growing accuracy. Works safely.	Independently plans reliable investigations; selects appropriate equipment; records and presents data clearly in tables and graphs. Considers risks and works safely.	Designs and evaluates complex investigations; justifies choices; analyses data critically to draw valid, evidence-based conclusions. Considers risks and works safely.
Communication (spoken language, scientific vocabulary and mathematical representations)	Uses everyday language to describe phenomena with limited use of scientific vocabulary. Requires support for mathematical concepts.	Uses some correct scientific vocabulary and mathematical concepts in explanations; simple diagrams and graphs attempted.	Consistently uses correct scientific terminology, symbols and mathematical concepts to communicate ideas through structured written response, diagrams, and graphs.	Communicates complex ideas precisely using appropriate formats. Independently uses mathematical concepts, diagrams and graphs in written responses.