

SCIENCE 9-1 GRADE DESCRIPTORS

9-1 Grade	Description
9	9 is awarded to the top 20 percent of pupils nationally in band 7 and 8. Typical indicators would be as 8 but in greater detail and with few, if any, errors. Demonstrates an ability to bring together scientific knowledge from a wide range of sources to solve problems in unfamiliar contexts.
8	Demonstrates relevant and comprehensive knowledge and understanding and applies these correctly to both familiar and unfamiliar contexts using accurate scientific terminology; uses a range of mathematical skills to perform complex scientific calculations; critically analyses qualitative and quantitative data to draw logical, well-evidenced conclusions; critically evaluates and refines methodologies, and judges the validity of scientific conclusions.
7	Recalls in detail the key terms and knowledge required to explain concepts and processes. Uses detailed models to explain ideas from most areas of the curriculum. Selects and confidently uses methods, sources of information and data; applies skills to answer scientific questions, solve problems and test hypothesis in unfamiliar contexts. Discusses the limitations of evidence and develops arguments with supporting explanations and draws conclusions consistent with the available evidence.
6	Uses abstract ideas, models and theories to explain why things happen and to identify patterns in a range of contexts. Distinguishes between evidence and opinion. Analyses and interprets a broad range of quantitative and qualitative data and information. Confidently selects, recalls and rearranges more complex equations and confidently balances unfamiliar simple chemical symbol equations.
5	Demonstrates mostly accurate and appropriate knowledge and understanding and applies these mostly correctly to familiar and unfamiliar contexts using mostly accurate scientific terminology; uses appropriate mathematical skills to perform multi-step calculations; analyses qualitative and quantitative data to draw plausible conclusions supported by some evidence; evaluates methodologies to suggest improvements to experimental methods, and comments on scientific conclusions.
4	Recalls, selects and communicates appropriate knowledge and understanding of science although may still hold some common misconceptions of topics being studied. Draws some links between hypotheses, evidence, theories and explanations. Applies appropriate but limited mathematical skills.
3	Makes predictions based on more abstract concepts e.g. able to explain simple phenomena such as 'melting' in terms of particle behaviour. Makes simple judgements based on given evidence. Draws simple conclusions having collected some evidence. Starts to use scatter graphs to show a relationship between variables – may need help scaling axes.
2	Applies concrete thinking in unfamiliar situations. Demonstrates some relevant scientific knowledge and understanding using limited scientific terminology. Performs basic calculations with help; draws simple conclusions from qualitative or quantitative data; makes basic comments relating to experimental methods.
1a	Suggests where to find evidence, information and ideas and plans, with support, the method to be used for their enquiries. Talks about their ideas and uses their everyday experience to make simple predictions. Agrees on some basic success criteria. Follows a simple series of instructions safely to gather their findings, and where appropriate make observations that they could measure using simple equipment. Begins to organise their findings and displays them in a given format. Begins to identify simple patterns and trends. Begins to distinguish between scientific 'facts', beliefs and opinions. Gives an explanation, based upon their everyday experiences, for their findings, including any patterns. Gives simple explanations and says what they have found out from their work and makes their own decisions by weighing up pros and cons.
1b	Chooses from given options where to find evidence, information and ideas. Talks about the steps needed to carry out their enquiries and what is needed to be successful. Makes enough observations to be able to sort, group and compare organisms, objects, materials, and events. Makes simple records of their findings. Describes the basis for their groupings using simple differences between organisms, objects, materials and physical phenomena.
1c	Listens and responds to scientific ideas and reacts appropriately. Takes part in simple activities and through a variety of experiences explores the world around them. Observes and describes simple features of organisms, objects, materials and events through talking, drawing, writing using simple scientific words. Recognises and names a range of common organisms, objects, materials, light sources and sound sources.