



SCIENCE

Scale Descriptors

Grade Band	Knowledge and Understanding	Mathematical Skills	Data Analysis	Literacy	Evaluation
Beginning work towards grade 1	Link words or experiences to the topic you are studying	Do addition calculations with a little help	Comment on the results of a practical	Writing is achieved only with teacher help. SPAG is weak. Poor sentence structure.	Put the steps of a method in order
Working towards grade 1	Link some common words to the topic	Do addition and subtraction calculations and compare different quantities	Give a simple conclusion from a completed practical	Writing is achieved mostly on own. Spell and use some keywords appropriately. No attempt is made to link different ideas. Poor SPAG	Find mistakes in a practical method and correct them
Threshold to grade 1	Link some keywords to your experiences connected to the topic	Do calculations including multiplication and division with some help	Make simple comparisons between data in numbers or words	Writing is achieved on own. Spell and use some keywords appropriately. No attempt is made to link different ideas. Poor SPAG	Choose which of two practical methods is better and say why
1	Link some keywords to short sentences about science facts and show you understand them	Do calculations with whole numbers without help	Using a writing frame, make some conclusions from data in numbers or words	Spell and use majority of keywords appropriately. Be able to write simple statements that explain, attempt linking different ideas using connective words.	Comment on how good a practical method is
2	Show your scientific knowledge and understanding using some relevant keywords to explain a topic	Carry out basic calculations on your own	Make some correct conclusions from data in numbers or words without help	Spell and use majority of keywords appropriately. Be able to write simple statements that explain, successful attempt linking different ideas using connective words.	Make some comments on methods for different experiments
3	Show your scientific knowledge and understanding using some relevant keywords to explain a range of topics	Carry out calculations including using significant figures, rounding, means and decimals	Draw correct conclusions from data in numbers and data in words easily	Mixed evidence of good SPAG. Mostly correct use of scientific terminology. Explanations lack detail and are sometimes jumbled.	State a specific strength and suggest an improvement to either the accuracy or reproducibility of an experimental method
4	Show mostly accurate and appropriate knowledge and apply this mostly correctly to familiar contexts, using mostly accurate scientific terminology	Use good math skills to convert units, work out ratios, area and volume, and compound units	Work with qualitative and quantitative data, handling it so that you can make sensible conclusions	Mixed evidence of good SPAG. Some correct use of scientific terminology. Explanations are clear but may lack detail.	State specific strengths and suggest improvements to both the accuracy and the reproducibility of an experimental method
5	Demonstrate mostly accurate and appropriate knowledge and apply this mostly correctly to familiar and unfamiliar contexts, using mostly accurate scientific terminology	Use appropriate math skills to perform multi-step calculations, recalling some but selecting and applying all appropriate equations	Analyse qualitative and quantitative data to make accurate conclusions supported by some evidence	Evidence of good SPAG. Good use of scientific terminology including some use of tier 2 academic writing terms. Explanations are clear but may lack detail.	Evaluate experimental methods to suggest improvements and comment briefly on the science in the conclusions
6	Demonstrate accurate and appropriate knowledge and apply this correctly to familiar and sometimes to unfamiliar contexts, using accurate scientific terminology	Use appropriate math skills to perform multi-step calculations including the rearrangement of equations and standard form	Analyse qualitative and quantitative data to make some accurate conclusions, supported by evidence and linked to the practical aim	Evidence of consistently good SPAG. Good use of scientific terminology including some use of tier 2 academic writing terms. Explanations are clear with sufficient detail.	Link comments on scientific conclusions to detailed improvements in experimental methods
7	Demonstrate comprehensive knowledge and apply this correctly to familiar and often correctly to unfamiliar contexts using accurate scientific wording	Use a variety of math skills to perform scientific calculations including estimation, tangents and gradient calculations	Analyse qualitative and quantitative data to make logical, evidenced conclusions covering most of the data and mostly linked to the practical aim	Flawless SPAG, effective use of key scientific terminology throughout written work and extended pieces of writing. Extended writing contains detailed explanations and good use of academic writing words.	Justify improvements in accuracy and reproducibility of the method by directly linking the improvements to comments on the scientific conclusions

8	<p>Demonstrate detailed knowledge and apply this correctly to both familiar and unfamiliar contexts using accurate scientific wording</p>	<p>Use a range of math skills to perform complex scientific calculations, recalling or selecting all equations as required</p>	<p>Analyse qualitative and quantitative data in detail to make logical, well-evidenced conclusions</p>	<p>Flawless SPAG, effective use of key scientific terminology throughout written work and extended pieces of writing. Extended writing contains detailed explanations and excellent use of academic writing words.</p>	<p>Critically evaluate and refine experimental methods and judge the validity of scientific conclusions</p>
9	<p>Demonstrate comprehensive knowledge of a range of topics and apply this correctly to unfamiliar contexts that require connections between scientific disciplines</p>	<p>Use a wide range of mathematical skills to perform complex scientific calculations in sequence and requiring multiple units of measurement, squares, or the rearrangement of equations with more than 3 quantities or including fractions</p>	<p>Critically analyse qualitative and quantitative data from a wide range of sources to draw logical, well-evidenced and justified conclusions, linked clearly to all the aims of the experiment</p>	<p>Flawless SPAG, effective use of key scientific terminology throughout written work and extended pieces of writing. Extended writing contains detailed explanations and excellent use of academic writing words & techniques. Numerous links made between topics.</p>	<p>Critically evaluate and refine experimental methods, linking all suggestions to improvements in the validity of the scientific conclusions.</p>