HfL Assessment Criteria for Working Scientifically Skills Overview Table

Skill		Key stage 1	Lower key stage 2	Upper key stage 2
Ideas and questions		• **asks simple questions and recognising that they can be answered in different ways** • recognises scientific and technical developments that help us	• **asks relevant questions and using different types of scientific enquiries to answer them** • explains the purposes of a variety of scientific and technological developments	• uses their scientific experiences to explore ideas and raise different types of questions • talks about how scientific ideas have developed over time • recognises the applications of specific scientific ideas
Planning	Planning an approach	• **performs simple tests** or follows teachers' instructions • with guidance, suggests what they will do • with guidance, identifies things to measure or observe that are relevant to the question	• **sets up simple practical enquiries, comparative and fair tests** • begins to make decisions about what observations to make and how long to make them for	• selects and **plans different types of scientific enquiries to answer questions** • makes decisions about what observations to make, what measurements to use, how long to make them for and whether to repeat them
	Equipment	• uses resources provided or chosen from a limited range • uses simple measurements and equipment to gather data	• begins to choose the type of simple equipment that might be used from a reasonable range • uses appropriate equipment and measurements with reasonable accuracy	• chooses the most appropriate equipment to make measurements • explains how to use the equipment accurately
	Variables	• suggests why a test is unfair	• recognises when a simple fair test is needed • with help, decides how to set up a fair test and control variables	• recognises when and how to set up comparative and fair tests • **recognises and controls variables where necessary** (e.g. explains which variables need to be controlled and why)

Obtaining and presenting evidence	Observing and measuring	• **observes closely** (including changes over time)**, using simple equipment** • makes measurements using non-standard units	• **makes systematic and careful observations** • **makes accurate measurements using standard units (e.g. cm, m, °C, N, g, Kg, ml), using a range of equipment, e.g. data loggers and thermometers**	• **takes measurements,** in standard units**, using a range of scientific equipment, with increasing accuracy and precision** • **takes repeat readings when appropriate**
	Secondary sources	• uses simple secondary sources to find answers, e.g. books, videos, photographs or people	• recognises when and how secondary sources (e.g. books, internet, experts, diagrams) might help answer questions that cannot be answered through practical investigations	• recognises which secondary sources will be most useful to research their ideas • begins to separate opinion from fact
	Recording information and data	• **gathers and records simple data to help in answering questions** • with support, prepares simple tables to record data	• **gathers and records data in a variety of ways to help in answering questions** • prepares own format for recording data • makes decisions about how to record and analyse the data	• **records data and results of increasing complexity** • decides how to record data from a choice of familiar approaches • calculates mean value where appropriate
	Presenting evidence	• with help, records their findings in a range of ways, e.g. simple tables, diagrams, pictograms, sorting circles, bar charts and templates • talks about their findings using everyday terms, text scaffolds or simple scientific language	• **records and presents findings using drawings, labelled diagrams, keys, tally charts, Carroll diagrams, Venn diagrams, bar charts and tables** • **reports on findings from enquiries, in simple scientific language, using oral and written explanations, displays or presentations of results and conclusions**	• **records and presents findings using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs** • **reports on findings from enquiries,** using relevant scientific language and conventions**, in oral and written explanations such as displays and other presentations**

Considering and evaluating evidence	Looking for patterns	• uses simple observable features to compare objects, materials and living things • **identifies and classifies** (decides how to sort and group objects) • with guidance, begins to notice changes (i.e. cause and effect), patterns and relationships (i.e. how one variable affects another)	• uses observable and other criteria to group, sort and classify in different ways (including simple keys and branching databases) • **identifies differences, similarities or changes related to simple scientific ideas and processes** • with help, looks for changes, patterns, and relationships in their data	• uses and develops keys and other information records to identify, classify and describe living things and materials • **identifies conclusions, causal relationships and patterns**
	Explaining results	• talks about what they have found out and how they found it out • **uses their observations and ideas to suggest answers to questions** • uses comparative language to describe changes, patterns and relationships	• with help, **uses results to draw simple conclusions** and answers questions using appropriate level of knowledge • **uses straightforward scientific evidence to answer questions or to support their findings** • uses relevant scientific language to discuss their ideas and communicate their findings	• draws valid conclusions, explains and interprets the results (**including the degree of trust)** using scientific knowledge and understanding (e.g. recognises limitations of data) • **identifies scientific evidence that has been used to support or refute ideas or arguments** • uses relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas
	Evaluating	• with support, suggests whether or not what happened was what they expected • with support, suggests different ways they could have done things	• with support, **uses results to suggest improvements** to what they have done • with support, **raise further questions** (e.g. arising from the data) • with support, **makes predictions for new values** within or beyond the data collected	• makes practical suggestions about how their working method could be improved (e.g. the effect of sample size on reliability) • uses results to identify when further tests and observations might be needed • **uses test results to make predictions and to set up further comparative and fair tests**

Vocabulary for working scientifically:
Variable, evidence, fair test, method, equipment, results, conclusion, accurate, reliable, prediction supports, observe, measure, question,

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