



Ashtree School Progression in Working Scientifically Skills Document



Whole School Intent

High Expectations = High Outcomes

Vision: 'To create a school community which is safe, understanding, aspirational and which values reading, and where curriculum design challenges children to succeed in life emotionally, socially and intellectually.'

Skill	Ideas and Questions	Planning			Obtaining and Presenting Evidence				Considering and Evaluating Evidence		
		Planning an approach	Equipment	Variables	Observing and measuring	Secondary sources	Recording information and data	Presenting evidence	Looking for patterns	Explaining results	Evaluating
Year 1 & Year 2	<ul style="list-style-type: none"> asks simple questions and recognises that they can be answered in different ways recognises scientific and technical developments that help us 	<ul style="list-style-type: none"> performs simple tests with guidance, suggests what they will do with guidance, identifies things to measure or observe that are relevant to the question 	<ul style="list-style-type: none"> uses resources provided or chosen from a limited range uses simple measurements and equipment to gather data 	suggests why a test is unfair	<ul style="list-style-type: none"> observes closely (including changes over time), using simple equipment makes measurements using non-standard units 	<ul style="list-style-type: none"> uses simple secondary sources to find answers, e.g. books, videos, photographs or people 	<ul style="list-style-type: none"> gathers and records simple data to help in answering questions with support, prepares simple tables to record data 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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) 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> with support, suggests whether or not what happened was what they expected with support, suggests different ways they could have done things



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Year 3 & Year 4	<ul style="list-style-type: none"> asks relevant questions and uses different types of scientific enquiries to answer them explains the purposes of a variety of scientific and technological developments 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> begins to choose the type of simple equipment that might be used from a reasonable range uses appropriate equipment and measurements with reasonable accuracy 	<ul style="list-style-type: none"> recognises when a simple fair test is needed with help, decides how to set up a fair test and control variables 	<ul style="list-style-type: none"> makes systematic and careful observation 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 	<ul style="list-style-type: none"> recognises when and how secondary sources (e.g. books, internet, experts, diagrams) might help answer questions that cannot be answered through practical investigations 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> with help, uses results to draw simple conclusions and answers questions using appropriate level of knowledge and their own experiences uses straightforward scientific evidence to answer questions or to support their findings uses relevant scientific language to discuss their ideas and communicate their findings 	<ul style="list-style-type: none"> with support, uses results to suggest improvements to what they have done with support, raises further questions (e.g. arising from the data) with support, makes predictions for new values within or beyond the data collected



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Year 5 & Year 6	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> selects and plans different types of scientific enquiries to answer question makes decisions about what observations to make, what measurements to use, how long to make them for and whether to repeat them 	<ul style="list-style-type: none"> chooses the most appropriate equipment to make measurements explains how to use the equipment accurately 	<ul style="list-style-type: none"> 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) 	<ul style="list-style-type: none"> takes measurements, in standard units, using a range of scientific equipment, with increasing accuracy and precision takes repeat readings when appropriate 	<ul style="list-style-type: none"> recognises which secondary sources will be most useful to research their ideas begins to separate opinion from fact 	<ul style="list-style-type: none"> records data and results of increasing complexity decides how to record data from a choice of familiar approaches calculates mean value where appropriate 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> uses and develops keys and other information to identify, classify and describe living things and materials identifies conclusions, causal relationships and patterns 	<ul style="list-style-type: none"> 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 uses relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas 	<ul style="list-style-type: none"> 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