



STEM Skills Progression Document



	EYFS	KS1		LKS2		UKS2	
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working Scientifically	Understanding the world	<p>Ask simple questions and recognise that they can be answered in different ways</p> <p>Observe closely, using simple equipment</p> <p>Perform simple tests</p> <p>Identify and classify</p> <p>Use their observations and ideas to suggest answers to questions</p> <p>Gather and record data to help in answering questions.</p>		<p>Ask relevant questions and use different types of scientific enquiries to answer them</p> <p>Set up simple practical enquiries, comparative and fair tests</p> <p>Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>Gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p>		<p>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs</p> <p>Use test results to make predictions to set up further comparative and fair tests</p> <p>Report and present findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations</p>	

			<p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>Identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>Use straightforward scientific evidence to answer questions or to support their findings.</p>	<p>Identify scientific evidence that has been used to support or refute ideas or arguments.</p>
<p>Skills and Knowledge (DT/Engineering)</p>	<p>Understanding the world</p>	<p>Design purposeful, functional, appealing products for themselves and other users based on design criteria</p> <p>Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</p> <p>Select from and use a range of tools and equipment to perform practical</p>	<p>Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <p>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</p> <p>Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</p>	

		<p>tasks [for example, cutting, shaping, joining and finishing]</p> <p>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</p> <p>Explore and evaluate a range of existing products</p> <p>Evaluate their ideas and products against design criteria</p> <p>Build structures, exploring how they can be made stronger, stiffer and more stable</p> <p>Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</p>	<p>Investigate and analyse a range of existing products</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p> <p>Understand how key events and individuals in design and technology have helped shape the world</p> <p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p> <p>Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</p> <p>Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p> <p>Apply their understanding of computing to program, monitor and control their products.</p>
<p>Skills and Knowledge (Computing)</p>	<p>Understanding the world</p>	<p>Use technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <p>Recognise common uses of information technology beyond school</p>	<p>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</p> <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p> <p>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</p>

				Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information			
Skills and Knowledge (Mathematics)	Mathematics strand	<p>Compare, describe and solve practical problems for: -lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] - mass/weight [for example, heavy/light, heavier than, lighter than]</p> <p>Measure and begin to record the following: -lengths and heights</p> <p>Recognise and know the value of different denominations of coins and notes</p>	<p>Solve problems with addition and subtraction: -using concrete objects and pictorial representations, including those involving numbers, quantities and measures</p> <p>Choose and use appropriate standard units to estimate and measure length/height in any direction</p> <p>Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</p>	<p>Measure, compare, add and subtract: lengths</p> <p>Measure the perimeter of simple 2-D shapes</p> <p>Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them</p> <p>Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether</p>	<p>Convert between different units of measure</p> <p>Measure and calculate the perimeter of a rectilinear figure</p> <p>Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</p>	<p>Convert between different units of metric measure</p> <p>Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</p> <p>Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</p> <p>Draw given angles, and measure them in degrees (o)</p> <p>Complete, read and interpret information in</p>	<p>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</p> <p>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p> <p>Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison</p>

		<p>Recognise and name common 2-D and 3-D shapes, including:</p> <ul style="list-style-type: none"> - 2-D shapes [for example, rectangles (including squares), circles and triangles] - 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] 	<p>Compare and sort common 2-D and 3-D shapes and everyday objects.</p> <p>Interpret and construct simple pictograms, tally charts, block diagrams and simple tables</p>	<p>angles are greater than or less than a right angle</p> <p>Identify horizontal and vertical lines and pairs of perpendicular and parallel lines</p> <p>Interpret and present data using bar charts, pictograms and tables</p>		<p>tables, including timetables.</p>	<p>Solve problems involving similar shapes where the scale factor is known or can be found</p> <p>Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate</p> <p>Use, read, write and convert between standard units, converting measurements of length</p> <p>Draw 2-D shapes using given dimensions and angles</p> <p>Recognise, describe and build simple 3-D shapes, including making nets</p>
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							Interpret and construct pie charts and line graphs and use these to solve problems
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