



Mathematics Curriculum Progression Map

Number: Multiplication and Division

<u>EYFS</u>		<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
<u>3-4 Year olds</u>	<u>Reception</u>						
<u>Multiplication and Division Facts</u>							
	Begin counting in 2s, 5s and 10s	<i>Count in multiples of twos, fives and tens (cross reference - Number and Place Value)</i>	<i>Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward (cross reference - Number and Place Value)</i>	<i>Count from 0 in multiples of 4, 8, 50 and 100 (cross reference - Number and Place Value)</i>	<i>Count in multiples of 6, 7, 9, 25 and 1 000 (cross reference - Number and Place Value)</i>	<i>Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 (cross reference - Number and Place Value)</i>	
	Begin to understand that division means sharing equally		Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	Recall multiplication and division facts for multiplication tables up to 12×12		

	through songs and games, e.g. "You can't share if you can sit on a chair."		recognising odd and even numbers				
Mental Calculation							
	<p>Recognise and use the terms double, half and halve.</p> <p>Double numbers to 5 and 10 using fingers and objects.</p> <p>Halve even numbers to 10 and 20 using fingers and objects.</p> <p>Begin to halve 1 and 3 by cutting shapes in half, e.g. cakes.</p>			<p>Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods (<i>cross reference - Written Methods</i>)</p>	<p>Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers</p>	<p>Multiply and divide numbers mentally drawing upon known facts</p>	<p>Perform mental calculations, including with mixed operations and large numbers</p>

			<p>Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</p>		<p>Recognise and use factor pairs and commutativity in mental calculations (<i>cross reference - Properties of Numbers</i>)</p>	<p>Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</p>	<p><i>Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$) (cross reference - Fractions)</i></p>
Written Calculation							
			<p>Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs</p>	<p>Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods (<i>Cross reference - Mental Methods</i>)</p>	<p>Multiply two-digit and three-digit numbers by a one-digit number using formal written layout</p>	<p>Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers</p>	<p>Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</p>

						Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context	Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context
							Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
							<i>Use written division methods in cases where the answer has up to two decimal places (cross reference -</i>

							Fractions (including decimals)
Properties of Numbers: Multiples, Factors, Primes, Square and Cube Numbers							
					Recognise and use factor pairs and commutativity in mental calculations (<i>cross reference -Mental Calculation</i>)	Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.	Identify common factors, common multiples and prime numbers
						Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers	<i>Use common factors to simplify fractions; use common multiples to express fractions in the same denomination (cross reference - Fractions)</i>
						Establish whether a number up to 100 is prime and recall prime numbers up to 19	
						Recognise and use square numbers and cube numbers, and the notation for squared ² and cubed ³	<i>Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm³) and cubic metres (m³), and</i>

							<i>extending to other units such as mm^3 and km^3 (cross reference- Measures)</i>
<u>Order of Operations</u>							
							Use their knowledge of the order of operations to carry out calculations involving the four operations
<u>Inverse Operations, Estimating and Checking Answers</u>							
				<i>Estimate the answer to a calculation and use inverse operations to check answers (cross reference - Addition and Subtraction)</i>	<i>Estimate and use inverse operations to check answers to a calculation (cross reference - Addition and Subtraction)</i>		Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy
<u>Problem Solving</u>							
		Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations	Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts,	Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and	Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer	Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	Solve problems involving addition, subtraction, multiplication and division <i>Solve problems involving similar shapes where the</i>

		and arrays with the support of the teacher	including problems in contexts	correspondence problems in which n objects are connected to m objects	scaling problems and harder correspondence problems such as n objects are connected to m objects	Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	<i>scale factor is known or can be found (cross reference - Ratio and Proportion)</i>
						Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	