



Maths Progression Map Multiplication and Division

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication and Division Facts	Say one number name for each item in sequence 1, 2, 3, 4, 5	Begin to count to 20 and beyond.	count in multiples of twos, fives and tens	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward	count from 0 in multiples of 4, 8, 50 and 100	count in multiples of 6, 7, 9, 25 and 1 000	count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000	
				recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	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		
Mental Calculation					write and calculate mathematical statements for multiplication and division using the multiplication tables that	use place value, known and derived facts to multiply and divide mentally, including: multiplying by	multiply and divide numbers mentally drawing upon known facts	perform mental calculations, including with mixed operations and large numbers



					they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods	0 and 1; dividing by 1; multiplying together three numbers		
				show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot		recognise and use factor pairs and commutativity in mental calculations	multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$)
Written calculations				calculate mathematical statements for multiplication and division	write and calculate mathematical statements for multiplication	multiply two-digit and three-digit numbers by a one-digit number using	multiply numbers up to 4 digits by a one- or two-digit number	multiply multi-digit numbers up to 4 digits by a two-digit whole number



				within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs	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	formal written layout	using a formal written method, including long multiplication for two-digit numbers	using the formal written method of long multiplication
							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 whole number using the formal written method of short division where appropriate for 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
								use written division methods in cases where the answer has up to two decimal places
Properties of numbers: multiples, factors, prime, square and cube number						recognise and use factor pairs and commutativity in mental calculations (repeated)	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 establish whether a number up to 100 is prime and recall prime numbers up to 19	use common factors to simplify fractions; use common multiples to express fractions in the same denomination (copied from Fractions)
							recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³)	calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm ³) and cubic metres (m ³), and extending to other units such as mm ³ and km ³



								use their knowledge of the order of operations to carry out calculations involving the four operations
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Inverse operations, estimating and checking answers.	Subitise to 3	Subtise to 10			estimate the answer to a calculation and use inverse operations to check answers	estimate and use inverse operations to check answers to a calculation		use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy



Problem solving	Solve real world problems	Solve real world problems	solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects	solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	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 and a combination of these, including understanding the meaning of the equals sign solve problems involving multiplication and division, including scaling by simple	solve problems involving addition, subtraction, multiplication and division solve problems involving similar shapes where the scale factor is known or can be found
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								<i>fractions and problems involving simple rates</i>	
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