Maths Knowledge Progression

This document sets out the expectation for Maths learning in each term for each year group. It is divided into sections within different parts of the maths curriculum.

Garden Class

	EYFS			Year 1			Year 2		
	Number: Multiplication and Division								
	Autumn	**Spring**	**Summer**	**Autumn**	**Spring**	**Summer**	**Autumn**	**Spring**	**Summer**
Multiplication and division facts		To make pairs – odd and even	To explore sharing			Through grouping and sharing small quantities, pupils begin to understand: • multiplication and division • doubling numbers and quantities • finding simple fractions of objects, numbers and quantities They make connections between arrays, number patterns, and counting in 2s, 5s and 10s. (Non statutory)		recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	
		To find a make a double to 8.	To explore groupling.						
		To find a make a double to 10.	To find even and odd sharing.						
		To Explore odd and even	To play with and build doubles.						
Mental Calculation								show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot	
Written Calculation								calculate mathematical statements for multiplication and division within the multiplication tables	

								and write them using the multiplication (×), division (÷) and equals (=) signs	
O P r									
d									
Problem Solving						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	

Maths Knowledge Progression

Lower KS2

	Year 3			Year 4		
	Number: Multiplication and Division					
	Autumn	**Spring**	**Summer**	**Autumn**	**Spring**	**Summer**
Multiplication	recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	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	recall multiplication and division facts for multiplication tables up to 12 × 12	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 they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods	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	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	use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers		use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers
				Pupils continue to practise recalling and using multiplication tables and related division facts to aid fluency.(Non Statutory)	Pupils continue to practise recalling and using multiplication tables and related division facts to aid fluency.(Non Statutory)	Pupils continue to practise recalling and using multiplication tables and related division facts to aid fluency.(Non Statutory)
Written Calculation	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	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	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	multiply two-digit and three-digit numbers by a one-digit number using formal written layout	multiply two-digit and three-digit numbers by a one-digit number using formal written layout	multiply two-digit and three-digit numbers by a one-digit number using formal written layout
Properties of				recognise and use factor pairs and commutativity in mental calculations	recognise and use factor pairs and commutativity in mental calculations	
Order						
Inverse						
Problem Solving		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, 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 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects

Maths Knowledge Progression

Upper KS2

		Year 5			Year 6		
		Number: Multiplication and Division					
		Autumn	**Spring**	**Summer**	**Autumn**	**Spring**	**Summer**
Multiplication							
Mental Calculation		To multiply and divide numbers mentally, drawing upon known facts	To multiply and divide numbers mentally, drawing upon known facts	To multiply and divide numbers mentally, drawing upon known facts	To perform mental calculations, including with mixed operations and large numbers		To perform mental calculations, including with mixed operations and large numbers
		To multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000	To multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000		Pupils continue to use all the multiplication tables to calculate mathematical statements in order to maintain their fluency.(non statutory)	Pupils continue to use all the multiplication tables to calculate mathematical statements in order to maintain their fluency.(non statutory)	Pupils continue to use all the multiplication tables to calculate mathematical statements in order to maintain their fluency.(non statutory)
Written Calculations		To 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	To 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	To 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	To multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication	To multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication	To multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
		To 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	To 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	To 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		To 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	To 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
							To 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
					To practise addition, subtraction, multiplication and division for larger numbers, using the formal written methods of columnar addition and subtraction, short and long multiplication, and short and long division (Non Statutory)		To practise addition, subtraction, multiplication and division for larger numbers, using the formal written methods of columnar addition and subtraction, short and long multiplication, and short and long division (Non Statutory)

Maths Knowledge Progression

Properties of Numbers: Multiples, Factors, Primes, Square and cube number	To identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers			To identify common factors, common multiples and prime numbers	To identify common factors, common multiples and prime numbers	
		To know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers	To know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers			
		To establish whether a number up to 100 is prime and recall prime numbers up to 19	To establish whether a number up to 100 is prime and recall prime numbers up to 19			
		To recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	To recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})			
Order of operation					To use their knowledge of the order of operations to carry out calculations involving the 4 operations	To use their knowledge of the order of operations to carry out calculations involving the 4 operations
Inverse operati						
Problem Solving		To solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes	To solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes		To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
	To solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	To solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign				
			To solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates			