Multiplication and Division: Objective Progression Document

	Autumn Term	Spring Term	Summer Term
Year 1	• solve one-step problems involving multiplication and division by calculating the answer using concrete objects with the support of the teacher	• solve one-step problems involving multiplication and division by calculating the answer using concrete objects with the support of the teacher	• solve one-step problems involving multiplication and division by calculating the answer using concrete objects with the support of the teacher
Mental Maths	• *Recall addition doubles to at least 5 + 5* • *Read and write numerals to at least 20*	• *Read and write numerals to at least 20* • *Order a set of numbers (up to 20)* • *Order a set of numbers to 20* • *Recall addition and subtraction facts up to at least 5*	• *Count in steps of three from zero* • *Recall pairs of numbers which total 10* • *Recall addition doubles up to at least 5+5* • *Count reliably at least 20 objects*
Year 2	• Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	• Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	• calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.
Mental Maths	• *Count in steps of three forwards and backwards* • *Recall pairs of numbers which total 20* • *Recall addition doubles up to at least 10 + 10*	• Use commutativity and inverse relations to develop multiplicative reasoning (for example, 4 × 5 = 20 and 20 ÷ 5 = 4). • *Recall pairs of numbers which total 100* • *Recall halves of numbers up to 20*	• *As Spring plus* • *Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.*
Year 3	• To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables (ONGOING target) • To write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers	• To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables (ONGOING target) • To write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times	• To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables (ONGOING target) • To 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. • To solve problems, including missing number problems, involving multiplication and division.	one-digit numbers, using mental and progressing to formal written methods. • To solve problems, including missing number problems, involving multiplication and division, including integer scaling problems.	times one-digit numbers, using mental and progressing to formal written methods. • To solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which *n* objects are connected to *m* objects.
Mental Maths	• *Recall multiplication facts in x10 table and derive division facts.* • *Recall multiplication facts in x2, x5 and x10 tables and derive division facts.* • *Recall multiplication facts up to 5 x 5.* • *Know multiplication facts in x5 table and derive division facts.* • *Recall multiplication facts in x10 table and derive division facts.* • *Recall multiplication facts in x2 table and derive division facts.*	• *Begin to derive division facts in the x3 and x4 tables.* • *Recall multiplication facts in x3 table, then in 4 times table.* • *Recall multiplication facts in x3 table and begin to derive division facts.*	• *Review Autumn and Spring +* • *Count on/back in 10s, 100s from any two-/three-digit number.* • *State division fact corresponding to a multiplication fact.*
Year 4	• To 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. • To solve problems involving multiplying and adding, including using the distributive law and harder multiplication problems such as which *n* objects are connected to *m objects.* • To recognise and use factor pairs and commutativity in mental calculations.	• To 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. • To solve problems involving multiplying and adding, including using the distributive law and harder multiplication problems such as which *n* objects are connected to *m objects.* • To recognise and use factor pairs and commutativity in mental calculations.	• To recall multiplication facts for multiplication tables up to 12 × 12. • To recall multiplication and division facts for multiplication tables up to 12 × 12. • To multiply two-digit and three-digit numbers by a one-digit number using formal written layout
Mental Maths	• *Recall multiplication facts in x2, x3, x4, x5, x10 tables and derive division facts.* • *Multiply and divide whole numbers by 10.* • *Derive doubles of whole numbers to 50, corresponding halves.*	• *Derive doubles of multiples of 100 to 5000, corresponding halves.* • *Derive doubles of multiples of 10 to 500, corresponding halves.* • *Multiply or divide whole numbers by 10 or 100.*	• *Multiply TU by U, e.g. 13 x 3.* • *Derive multiplication facts in x8 table and begin to recall them.* • *Begin to recall facts in x6 and x8 tables.* • *Derive multiplication facts in x6 table and begin to recall them*
Year 5	• 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. • Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers.	• 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. • 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.	• 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. • Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}).

	• Divide numbers up to 4 digits by a one-digit number using the formal written method of short division (plus 'chunking' as revision in preparation for long division).	• 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. • Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	• Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes. • 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 (plus 'chunking' as revision in preparation for long division). • 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 fractions and problems involving simple rates.
Mental Maths	• *Recall facts in x2, x3, x4, x5, x6, x10 tables and derive division facts.* • *Begin to recall facts in x7, x8 and x9 tables,* • *Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000* • *Double or halve any number up to 100.*	• *Recall facts in x7, x8, x9 tables and begin to derive division facts.* • *Recall squares to 10 x 10.* • *Multiply or divide whole numbers up to 10 000 by 10 or 100.* • *Double any whole number to 100 and multiples of 10 to 1000.* • *Halve any two-digit number.*	• *Recall multiplication facts to 10 x 10 and derive all division facts.* • *Use doubling and halving to multiply or divide two-digit numbers by 4.* • *Identify pairs of factors of small two-digit numbers.* • *Partition to multiply by 2, 3, 5 or 10, and use tests of divisibility.*
Year 6	• Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. • Identify common factors, common multiples and prime numbers. • 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 • Solve problems involving division. • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. • Use written division methods in cases where the answer has up to 2 decimal places.	• Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. • Solve problems involving multiplication and division. • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. • 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. • Solve problems which require answers to be rounded to specified degrees of accuracy.	• Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. • Solve problems involving multiplication and division. • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. • 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. • Solve problems involving division. • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Mental Maths	• *Recall multiplication and division facts to 12 x 12.* • *Multiply or divide whole numbers by 10, 100 or 1000.* • *Double decimals e.g. 3.8 x 2, 0.76 x 2.* • *Find halves of decimals in an even digit, e.g. 3.8 *2, 0.76 * 2.* • *Multiply mentally any two-digit number by a one-digit number.* • *Multiply or divide whole numbers by 10, 100 or 1000.* • *Perform mental calculations, including with mixed operations and large numbers.* • *Use their knowledge of the order of operations to carry out calculations involving the 4 operations.* • *Use tests of divisibility.*	• *Recall multiplication and division facts to 12 x 12.* • *Give pairs of factors for whole numbers to 100.* • *Identify squares and primes* • *Multiply or divide whole numbers by 10, 100 or 1000.* • *Perform mental calculations, including with mixed operations and large numbers.* • *Use their knowledge of the order of operations to carry out calculations involving the 4 operations.*	• Recall multiplication and division facts to 12 x 12. • Give pairs of factors up to 144 and other key numbers e.g. 250, 360. • Use doubling or halving with whole number, decimals and measures. • Multiply or divide whole numbers by 10, 100 or 1000. • Perform mental calculations, including with mixed operations and large numbers. • Use their knowledge of the order of operations to carry out calculations involving the 4 operations.