Progression in Multiplication and Division

All programmes of study statements are included in the progression map and some appear twice. This is indicated in the text. This occurs where:

- The statement has central relevance to more than one sub category within a topic;
- The statement has central relevance to more than one mathematics topic. This is done to reflect the aims of the curriculum that pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.

MULTIPLICATION AND DIVISION

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
MULTIPLICATION & DIVISION FACTS	• Explore and represent patterns within numbers up to 10, including double facts	• 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 (also in Number and Place Value) • recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	• count from 0 in multiples of 4, 8, 50 and 100 (also in Number and Place Value) • recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	• count in multiples of 6, 7, 9, 25 and 1 000 (also in Number and Place Value) • recall multiplication and division facts for multiplication tables up to 12 × 12	• count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 (also in Number and Place Value)	
MENTAL CALCULATION			• show that multiplication of two numbers can be done in any order (commutative)	• write and calculate mathematical statements for multiplication and division using the	• use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing	• multiply and divide numbers mentally drawing upon known facts • multiply and divide whole	• perform mental calculations, including with mixed operations and large numbers

			and division of one number by another cannot	multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.	by 1; multiplying together three numbers • recognise and use factor pairs and commutativity in mental calculations (also in Properties of Numbers)	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. 3/8) (also in Fractions)
WRITTEN CALCULATION			• calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	• begin 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	• multiply two-digit and three-digit numbers by a one-digit number using formal written layout	• 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 • divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately	• multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • 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

						for the context	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 (copied from Fractions (including decimals))
PROPERTIES OF NUMBERS: MULTIPLES, FACTORS, PRIMES, SQUARE AND CUBE NUMBERS					• 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 • use common factors to simplify

						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 • recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)	fractions; use common multiples to express fractions in the same denomination (also in Fractions) • calculate, estimate and compare volume of cubes and cuboids using standard units, including centimeter cubed (cm3) and cubic meters (m3), and extending to other units such as mm3 and km3 (also in Measures)
ORDER OF OPERATIONS							• use their knowledge of the order of operations to carry out calculations involving the four operations

INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS				estimate the answer to a calculation and use inverse operations to check answers (also in Addition and Subtraction)	estimate and use inverse operations to check answers to a calculation (also from Addition and Subtraction)		• use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy
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	• 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 addition, subtraction, multiplication and division • solve problems involving similar shapes where the scale factor is known or can be found (also in Ratio and Proportion)

						• solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	