Progression in Multiplication and Division

	Multiplication and Division Facts	Mental Calculations	Written Calculations
R			
Y1	• count in multiples of twos, fives and tens (See Number and Place Value)		
Y2	• *count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward* (See 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	• show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.	• calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs
Y3	• *count from 0 in multiples of 4, 8, 50 and 100* (See Number and Place Value) • recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	• 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 (See also Written Methods) • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot (Consolidation from Year 2)	• 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 (See also Mental Methods)
Y4	• *count in multiples of 6, 7, 9, 25 and 1 000* (See Number and Place Value) • recall multiplication and division facts for multiplication tables up to 12 × 12	• 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 • recognise and use factor pairs and commutativity in mental calculations (See also Properties of numbers)	• multiply two-digit and three-digit numbers by a one- digit number using formal written layout
Y5	• *count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000* (See Number and Place Value) • recall multiplication and division facts for multiplication tables up to 12 × 12 (Consolidation from Year 4)	• multiply and divide numbers mentally drawing upon known facts • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	• multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for twodigit numbers • divide numbers up to 4 digits by a one-digit number using the formal written method of short

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			division and interpret remainders appropriately for the context
Y6	• recall multiplication and division facts for multiplication tables up to 12 × 12 (Consolidation from Year 4)	• perform mental calculations, including with mixed operations and large numbers (Children to be taught • when to use a mental or written method depending on the calculation) *associate a fraction with division and calculate decimal fraction equivalents (e.g 0.375) for a simple fraction (e.g. ³/8)* (See Fractions)	• 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 numbers up to 4 digits by a twodigit 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* (See Fractions (including decimals))

Properties of Numbers: Multiples, Factors, Primes , Squares and Cubed Numbers	
R	
Y1	
Y2	
Y3	
Y4	• recognise and use factor pairs and commutativity in mental calculations (repeated)

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Y5	• identify multiples and factors, including finding all factor pairs of a number, and common factors of two 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 • recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})
Y6	• identify common factors, common multiples and prime numbers • *use common factors to simplify fractions; use common multiples to express fractions in the same denomination* (See Fractions) • *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 (See Measures)*

	Order of Operation	Inverse Operation, Estimating and Checking Answers	Problem Solving
R			
Y1			• solve one-step problems involving multiplication and division, by calculating the answer first using concrete objects, then pictorial representations and arrays with the support of the teacher
Y2			• solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts and previous years learning.
Y3		• *estimate the answer to a calculation and use inverse operations to check answers* (See Addition and Subtraction)	• solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which objects are

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			connected to m objects and previous years learning.
Y4		*• estimate and use inverse operations to check answers to a calculation* (See Addition and Subtraction)	• 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 and previous years learning.
Y5		*• estimate and use inverse operations to check answers to a calculation* (See Addition and Subtraction) (Consolidation from Year 4)	• 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 fractions and problems involving simple rates
Y6	• use their knowledge of the order of operations to carry out calculations involving the four operations	• use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy	• solve problems involving addition, subtraction, multiplication and division • *solve problems involving similar shapes where the scale factor is known or can be found* (See Ratio and Proportion)