ADDITION & SUBTRACTION

	Recall/ Mental	Representations	Written	Representations	Problem Solving
Year 1	Represent and use number bonds and related subtraction facts within 20 Add and subtract one-digit and two-digit numbers to 20, including zero	Practical use of objects, using number songs and rhymes, number stories. Recall of number bonds – fingers and oral explanation. Recall of facts to find 10 more and 1 more. Addition - count on in 1's from the largest number. Subtraction – count back in ones from the largest number.	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs	Practical use of objects, number stories, Pictorial & written representation, Number bonds – Missing number sentences, finding the inverse using… Partitioning numbers. Partitioning the smaller number adding tens then units, using number lines - moving on to blanks. Repeat bridging through tens.	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ - 9
Year 2	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones a two-digit number and tens two two-digit numbers adding three one-digit numbers	Recall of number bonds –use of fingers to represent tens and oral explanation. Addition counting on adding in multiplies of tens then units… Count back in tens and ones from a given two digit number. (Use visual prompts such as numberlines to model processes).	Solve problems with addition and subtraction Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	Practical use of objects (eg. dienes) , number stories, Pictorial & written representation, Number bonds to 100 – Missing number sentences, finding the inverse. Bead strings, fingers, hundred square. Numberlines with numbers then moving on to blanks – counting on and back in 1's then 10's. Partitioning pairs of numbers for addition. Use column addition and subtraction - moving on to exchanging. Adding least significant number first. (Use of dienes to aide).	Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods
Year 3	Add and subtract numbers mentally, including:	Partition to H, T, U for addition progressing to H, TU.	Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	Use columns for addition – calculating from least significant number first. Record exchanges above written	Solve problems, including missing number problems, using number facts, place value, and more complex

	a three-digit number and ones a three-digit number and tens a three-digit number and hundreds	Subtraction counting back for tens numbers…. Progressing to counting on for subtraction for large numbers similar in value. Eg. 351 – 236… count on to 300 then add 51 to find the difference.		calculation. Subtract in columns from LSN – exchanging tens and hundreds - recording all exchanging above the written calculation.	addition and subtraction
Year 4			Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	Continue to develop written strategies introduced in Year 3.	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why
Year 5	Add and subtract numbers mentally with increasingly large numbers	Continue to partition for addition decimals and even larger numbers. Continue to develop counting on to find the difference. Introduce round and adjust. Eg. 347 – 48…. Subtract 50 and add 2 back on.	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	Continue to develop written strategies introduced in Year 3 and 4.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
Year 6	Perform mental calculations, including with mixed operations and large numbers	Use a range of most efficient strategies with increasing confidence, speed and accuracy. Explain strategies for checking their own calculations.	Use their knowledge of the order of operations to carry out calculations involving the four operations	Use formal written methods - applying rules of BODMAS when appropriate.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

MULTIPLICATION & DIVISION

	Recall/ Mental	**Representations**	**Written**	**Representations**	**Problem Solving**
Year 1	Count in multiples of twos, fives and tens	Recognise odd and even numbers Skip counting in 2's, 5's and 10's. Use fingers – to count on in 2, 5 or10.	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	Repeated addition / subtraction Drawing arrays Drawing groups of objects – halving amounts. Describing amounts using	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

				mathematical language.	
Year 2	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	Practice and recite times tables – recalling facts in random order.	Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	Repeated addition. Linking x statement and + process. Use a numberline to count on in multiples of given number. Sharing equally into groups Repeated subtraction on a number line.	Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts
Year 3	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	Practice, recite and recall times tables facts. Recognise and apply the commutative/distributive laws for multiplication Eg. 2 x 5 = 10 therefore 5 x 2 = 10 7 x 7 = ? 5 x 7 = 35 2 x 7 = 14 35 + 14 = 49	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	Partition 2 digit numbers into tables facts that they know… Eg. 25 x 4 = 10 x 4 = 10 x 4 = 5 x 4 = Progress to using grid method to multiply, again using known facts, still partitioning Eg.20 x 4 5 x 4 Division on a numberline – subtracting multiples of divisor	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
Year 4	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	Use known x facts, related facts and inverse to x and ÷ ➢ Recall facts ➢ Number stories Apply rules for multiplying 3 numbers ….	Multiply two-digit and three-digit numbers by a one-digit number using formal written layout	Partitioning using HTU by units then up to 2 digit numbers. Use place value to calculate facts such 200 x 4 … using 2 x 4 and 2 x 40 to get the answer. Introduce formal written multiplication layout. Introduce short division (Bus Stop) Divisors up to 12. Developing to numbers with remainders.	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

Year 5	Multiply and divide numbers mentally drawing upon known facts Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	Practical activities to represent numbers and shifts of digits when x or ÷ by 10, 100 and 1000. Chn to describe place value changes.	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 for the context	Using formal written layout. (Expanded) ThHTU x TU Develop short division – dividing by any 2 digit number. Short division using factor pairs of 2 digit numbers. Remainders expressed as fractions or decimals.	Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
Year 6	Perform mental calculations, including with mixed operations and large numbers	Verbalise and evaluate strategies. Selecting the most efficient to suit a problem. Use a full range of strategies to manipulate numbers at speed. Mentally calculate to solve word problems.	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 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	Continue using formal multiplication layout – including multiplying decimals. Develop short division – dividing by any 2 digit number. Short division using factor pairs of 2 digit numbers. Remainders expressed as fractions or decimals. (Long division to be taught. Focus on mastering short division using factors).	Solve problems involving addition, subtraction, multiplication and division