Knowledge Progression in Counting and place value

Early Learning Goals	Have a deep understanding of number to 10, including the composition of each number; - Subitise (recognise quantities without counting) up to 5; - Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

Year Group	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Counting	•Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number •Count, read and write numbers to 100 in numerals; •Count in multiples of twos, fives and tens •Recognise odd and even numbers from 1 - 100	•Count in steps of 2 and 10, from any number, forward and backward •Count in multiples of 3 and 5	•Count from 0 in multiples of 4, 8, 50 and 100; •Find 10 or 100 more or less than a given number bridging 100	•Count in multiples of 6, 7, 9, 25 and 1000 •Find 1000 more or less than a given number •Count backwards through zero to include negative numbers	•Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 •Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero	•Use negative numbers in context, and calculate intervals across zero
Key Vocabulary	Numbers to 100 Ten more/less, digit, numeral, figure(s), compare, (in) order/a different order, size, value,	Numbers to and beyond one hundred, hundreds, partition, recombine, more/less	Numbers to one thousand	Tenths, hundredths, decimal (places), round (to nearest), thousand more/less than, negative integers,	Powers of 10 Numbers to 1 000 000	Numbers to ten million

				count through zero, Roman numerals I to C		
Place value	•Recognise the place value of each digit in a two-digit number •Compare and order numbers from 0 up to 100;	•Recognise the place value of each digit in a three-digit number •Compare and order numbers up to 100 using <,> and = signs	•Recognise the place value of each digit in a four-digit number •Order and compare numbers beyond 1000	•Read, write, order and compare numbers up to 10 000 and determine the value of each digit •Round any number to the nearest 10, 100 or 1000	•To be able to read, write, compare and order any number to 1 000 000 and determine the value of each digit •Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000	•Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit •Round any whole number to a required degree of accuracy
Representing number –	•Identify and represent numbers using objects and pictorial representations including the number lines, diennes, and ten frames • Use language of: equal to, more than, less than (fewer), most, least •Read and write numbers from 1 to 20 in numerals and words •Read, write and interpret mathematical statements involving addition (+),	•Identify, represent and estimate numbers using different representations, including the number line diennes, and ten frames •Read and write numbers to at least 100 in numerals and in words	•Identify, represent and estimate numbers using different representations •read and write numbers up to 1000 in numerals and in words	•Identify, represent and estimate numbers using different representations •Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value	Read Roman numerals to 1000 (M) and recognise years written in <u>Roman numerals</u> •<u>Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})</u>	

	subtraction (–) and equals (=) signs					
Number facts (+/-)	•Given a number, identify one more and one less •Represent and use number bonds and related subtraction facts within 20 To know number bonds for 20 Demonstrate an understanding of inverse +/- Doubling and halving •Doubles to 20 (10+10) To be able to halve even numbers to 20 •Near Doubles To know 5 + 6 is double 5 and add 1 or double 6 and subtract 1	•Use place value and number facts to solve problems recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 e.g. All pairs of multiples of 10 with a total of 100 e.g. 30 + 70 All pairs of multiples of 5 with a total of 100 e.g. 45+ 55 •Recall and use doubles and halves to 20 To be able to double all multiples of 10 to 100 (100+ 100) •To be able to half all numbers to 20. •To be able to halve all multiples of 10 Near doubles •To know 13 + 14 is double 14 and subtract 1 or double 13 and add 1 40 + 39 is double 40 and subtract 1 18 + 16 is double 18 and subtract 2 or	Doubling and halving •To be able to double and half all 2 digit odd and even numbers •To be able to double and halve all multiples of 10 to 1000 e.g. half of 900 is 450 half of 36 is 18 Near doubles •To know 38 + 35 is double 35 and add 3 160 + 170 is double 150 and add 10 then add 20, or double 160 and add 10, or double 170 and subtract 10 380 + 380 is double 400 and subtract 20 twice	Number Bonds •Number bonds to 1 decimal place e.g.0.8 + 0.2 •All number bonds to 2 decimal places e.g. 0.12 + 0. 88 Doubling and halving •To be able to double and halve all 3 digit numbers by partitioning e.g. 346 x2 = 600 + 80 + 12 •To be able to find a quarter of 3 digit numbers by halving twice •Near doubles 1.5 + 1.6 is double 1.5 and add 0.1 or double 1.6 and subtract 0.1	•To be able to find fractions and percentages of different amounts by Halving and doubling 20% of £15 = 10% of £15 x 2 36 x 25 = 36 x 100 ÷ 4 = (36 ÷ 4) x 100 1.6 ÷ 2 = 0.8 •Near doubles 421 + 387 is double 400 add 21 and then subtract 13	

		double 16 and add 2 60 + 70 is double 60 and add 10 or double 70 and subtract 10				
Mental +/-	•Add and subtract one-digit and two-digit numbers to 20, including zero •Understand the effect of adding and subtracting 0 •Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot •To be able to partition bridging through multiples of 10 6 + 7 = 6 + 4 + 3 23 − 9 = 23 − 3 − 6 15 + 7 = 15 + 5 + 2	•Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: TU+U, TU+T, TU+TU and U+U+U •Add and subtract numbers mentally where regrouping may be required •To be able to count on 2 to 70 then 3 to 73 e.g. 73 − 68 86 − 30 count back in tens from 86 or count on in tens from 30 • To be able to partition using multiples of 10 30 + 47 = 30 + 40 + 7 78 − 40 = 70 − 40 + 8 25 + 14 = 20 + 5 + 10 + 4 = 20 + 10 + 5 + 4 23 + 45 = 40 + 5 + 20 + 3 = 40 + 20 + 5 + 3	•Add and subtract numbers mentally, including: HTU+U, HTU+T and HTU+H 570 + 300 count on in hundreds from 300 960 − 500 count back in hundreds from 960 or count on in hundreds from 500 To be able to partition using multiples of 10 and 100 55 + 37 = 55 + 30 + 7 = 85 + 7 365 − 40 = 300 + 60 + 5 − 40 = 300 + 60 − 40 + 5 43 + 28 + 51 = 40 + 3 + 20 + 8 + 50 + 1 = 40 + 20 + 50 + 3 + 8 + 1 5.6 + 3.7 = 5.6 + 3 + 0.7 = 8.6 + 0.7 4.7 −3.5 = 4.7 − 3 − 0.5 •To be able to partition bridging through multiples of 10 49 + 32 = 49 + 1 + 31	•Add and subtract numbers mentally including bridging 1000's •To be able to partition using multiples of 10 and 100 540 + 280 = 540 + 200 + 80 276 − 153 = 276 − 100 − 50 − 3 •To be able to partition bridging through multiples of 10 57 + 14 = 57 + 3 + 11 or 57 + 13 + 1 3.8 + 2.6 = 3.8 + 0.2 + 2.4 5.6 + 3.5 = 5.6 + 0.4 + 3.1 296 + 134 = 296 + 4 + 130 584 − 176 = 584 − 184 + 8 •Partitioning using compensating 38 + 69 = 38 + 70 − 1	•Add and subtract numbers mentally with increasingly large numbers •To be able to mentally add and subtract tenths, and one-digit whole numbers and tenths 0.8 + 0.35 = 0.8 + 0.2 + 0.15	•Perform mental calculations, including with mixed operations and large numbers

		$68 - 32 = 60 + 8 - 30 - 2$ $= 60 - 30 + 8 - 2$ To be able to partition bridging through multiples of 10 $6 + 7 = 6 + 4 + 3$ $23 - 9 = 23 - 3 - 6$ $15 + 7 = 15 + 5 + 2$ Partitioning using compensating $34 + 9 = 34 + 10 - 1$ $52 + 21 = 52 + 20 + 1$ $70 - 9 = 70 - 10 + 1$ $53 + 11 = 53 + 10 + 1$	1130 •Partitioning using compensating $84 - 19 = 84 - 20 + 1$	$53 + 29 = 53 + 30 - 1$ $64 - 19 = 64 - 20 + 1$ $138 + 69 = 138 + 70 - 1$ $405 - 399 = 405 - 400 + 1$		
Apparatus and informal written methods +/- Reay strategy progression (in order)	•Use objects to combine two parts to make a whole or subtract •Children to represent the cubes using dots and crosses •Use part part whole model to show addition/ subtraction	•Use a number line to count on/ back •Represent addition/ subtraction using the part, part whole model and the bar model •Draw a number line to show adding and subtracting a single digit to a two digit number bridging	•Represent addition and subtraction using the part, part whole model and the bar model •Draw a number line to show adding and subtracting a single digit to a two digit number bridging tens e.g. $46 + 7 = 46 + 4 + 3$ •Draw a number line and count in ten 's and then multiples of 10 to add a two digit			

	•Use a number line or Numicon to count on •Represent addition in a bar model which encourages children to count on rather than count all •Regrouping to make 10Using ten frames and counters/ Numicon e.g. 6 + 5 = 6 + 4 + 1 or e.g. 14 – 5 = 14 – 4 = 10 -1 •Children to draw the ten frame and counters/ cubes •Children to use base 10 to add a single digit to a two digit number and develop their understanding of place value •Children to represent this pictorially	tens e.g. 46 + 7 = 46 + 4 + 3 and 54-6 = 54 – 4= 50 -2 = 48 •Use a 100 grid to add/subtract a two digit number to a two digit number first adding/subtracting tens and then ones •Add two, two digit numbers using base ten, representing the base ten pictorially e.g. lines for tens and dots/ crosses for ones, then by partitioning into tens and ones to add •Partition two digit numbers to subtract e.g 56 – 24 = 50 – 20 = 30 , 6 – 4 =2 •Draw a number line to subtract a two digit number from a two digit number bridging the tens e.g. 54 – 26	number to a two digit number and to subtract a two digit number by ' counting on ' to find the difference •Partition 3 digit numbers to add using base ten and recording pictorially before recording as number sentences •Use base ten to introduce the column method and carrying a ten over, children to represent this pictorially •Use the formal method to add 2 and 3 digit numbers including carrying •Use base ten to introduce the column method for subtraction and borrowing a ten , children to represent this pictorially •Use the formal written method to subtract 2, 2 digit			

			•Draw a number line and count in tens to add a two digit number to a two digit number •Use base ten to introduce the column method and carrying a ten over, children to represent this pictorially	numbers including borrowing		
Written +/-			•Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	•Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	•Add and subtract whole numbers with more than 4 digits, including using formal written methods	•Use formal methods to add and subtract 5 digit numbers and beyond in different contexts such as money and measures •Use formal methods to add and subtract decimal numbers, up to 3 decimal places
Money	•recognise and know the value of different denominations of coins and notes •find different combinations of coins that equal the same amounts of money	•recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value •find different combinations of coins that equal the	•add and subtract amounts of money to give change, using both £ and p in practical contexts •To be able to find change using mental	•estimate, compare and calculate different measures, including money in pounds and pence		

		same amounts of money •Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change to £1 and beyond	methods and column subtraction			
Problems +/-	•Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ − 9	•Solve problems with addition and subtraction, using concrete, pictorial and abstract representations •Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. •Solve missing number problems using addition and subtraction	•Estimate the answer to a calculation and use inverse operations to check answers •Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	•Estimate and use inverse operations to check answers to a calculation •Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	•Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy should an answer include a decimal or fraction? •Solve addition and subtraction multi-step problems in contexts. Estimate. Decide which operations to use and why- 4 digit numbers and above, use formal written methods •Solve problems using Roman Numerals and	•Solve addition and subtraction multi-step problems with increasing difficulty in contexts, deciding which operations and methods to use and why • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

					convert between the two	
Key vocabulary	Number bonds, number line, add, more, plus, make, sum, total, altogether, inverse, double, near double, equals, is the same as (including equals sign), difference between, subtract, take away, minus

How many more to make …?, How many more is … than ... ?, How much more is ... ?, How many fewer is … than … ?, How much less is … ?

How much?, How many?, money, coin, penny, pence, pound, price, cost, buy, sell, spend, spent, pay, change, dear(er), costs more, costs less, cheaper, costs the same as, total | Column addition, carry | Column addition and subtraction; carry, borrow | | Efficient written method | Order of operations |