



	By the end of Year 3 children should be able to...	By the end of of year 4 children should be able to...	At mastery Level in Year 4 Children Should be able to...
Number and Place Value	<ul style="list-style-type: none"> ■ count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number ■ recognise the place value of each digit in a three-digit number (hundreds, tens, ones) ■ compare and order numbers up to 1000 ■ identify, represent and estimate numbers using different representation ■ read and write numbers up to 1000 in numerals and in words ■ solve number problems and practical problems involving these ideas. ■ use multiples of 2, 3, 4, 5, 8, 10, 50 and 100 continue to count in ones, tens and hundreds, to become fluent in the order and place value of numbers to 1000. 	<ul style="list-style-type: none"> ■ 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 ■ recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) ■ order and compare numbers beyond 1000 ■ identify, represent and estimate numbers using different representation ■ round any number to the nearest 10, 100 or 1000 ■ solve number and practical problems that involve all of the above and with increasingly large positive numbers ■ 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. ■ become fluent in the order and place value of numbers beyond 1000, including counting in tens and hundreds, and maintaining fluency in other multiples through varied and frequent practice ■ begin to extend knowledge of the number system to include the decimal numbers and fractions met so far ■ connect estimation and rounding numbers to the use of measuring instruments put Roman numerals in their historical context to understand that there have been different ways to write whole numbers and that the important concepts of zero and place value were introduced over a period of time 	<ul style="list-style-type: none"> ■ 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 ■ recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) ■ order and compare numbers beyond 1000 ■ identify, represent and estimate numbers using different representation ■ round any number to the nearest 10, 100 or 1000 ■ solve number and practical problems that involve all of the above and with increasingly large positive numbers ■ 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. ■ become fluent in the order and place value of numbers beyond 1000, including counting in tens and hundreds, and maintaining fluency in other multiples through varied and frequent practice ■ begin to extend knowledge of the number system to include the decimal numbers and fractions met so far ■ connect estimation and rounding numbers to the use of measuring instruments put Roman numerals in their historical context to understand that there have been different ways to write whole numbers and that the important concepts of zero and place value were introduced over a period of time

2(Year 4)

Addition and subtraction	<ul style="list-style-type: none"> ■ add and subtract numbers mentally, including: <ul style="list-style-type: none"> ➤ a three-digit number and ones; ➤ a three-digit number and tens; ■ add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction ■ solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. ■ practise solving varied addition and subtraction questions, for mental calculations with two-digit numbers, the answers could exceed 100. 	<ul style="list-style-type: none"> ■ add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate ■ 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. continue to practise both mental methods and columnar addition and subtraction with increasingly large numbers to aid fluency 	<ul style="list-style-type: none"> ■ add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) ■ add and subtract numbers mentally with increasingly large numbers ■ use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy ■ solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why ■ practise using the formal written methods of columnar addition and subtraction with increasingly large numbers to aid fluency practise mental calculations with increasingly large numbers to aid fluency (for example, $12\ 462 - 2\ 300 = 10\ 162$).
Multiplication and division	<ul style="list-style-type: none"> ■ 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 ■ 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. ■ continue to practise mental recall of multiplication tables when calculating mathematical statements in order to improve fluency. 	<ul style="list-style-type: none"> ■ 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 ■ multiply two-digit and three-digit numbers by a one-digit number using formal written layout ■ 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 	<ul style="list-style-type: none"> ■ apply all the multiplication tables and related division facts frequently, commit them to memory and use confidently to make larger calculations ■ recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) ■ use and understand the terms: factor; multiple; square number ; ■ identify multiples and factors, including finding all factor pairs of a number, and common factors of two 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

3(Year 4)

	<ul style="list-style-type: none"> connect the 2, 4 and 8 multiplication tables through doubling solve simple problems in contexts, deciding which of the four operations to use and why including measuring and scaling contexts, (Eg. four times as high, eight times as long etc.) and correspondence problems (in which m objects are connected to n objects Eg. 3 hats and 4 coats, how many different outfits?; 12 sweets shared equally between 4 children; 4 cakes shared equally between 8 children) develop reliable written methods for multiplication and division, starting with calculations of two-digit numbers by one-digit numbers and progressing to formal written methods of short multiplication and division. 	<ul style="list-style-type: none"> continue to practise recalling and using multiplication tables and related division facts to aid fluency practise mental methods and extend this to three-digit numbers to derive facts, (for example $600 \div 3 = 200$ can be derived from $2 \times 3 = 6$) become fluent in the formal written method of short multiplication and short division with exact answers through practise write statements about the equality of expressions (for example, use the distributive law $39 \times 7 = 30 \times 7 + 9 \times 7$ and associative law $(2 \times 3) \times 4 = 2 \times (3 \times 4)$). combine knowledge of number facts and rules of arithmetic to solve mental and written calculations for example, $2 \times 6 \times 5 = 10 \times 6 = 60$ solve two-step problems in contexts, choosing the appropriate operation, working with increasingly harder numbers, solving correspondence questions such as the numbers of choices of a meal on a menu, or three cakes shared equally between 10 children 	<ul style="list-style-type: none"> multiply and divide numbers mentally drawing upon known facts 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 multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates interpret non-integer answers to division by expressing results in different ways according to the context, including with remainders, as fractions, as decimals or by rounding (for example, $98 \div 4 = \frac{98}{4} = 24 \text{ r } 2 = 24 \frac{1}{2} = 24.5 \approx 25$)
Fractions	<ul style="list-style-type: none"> count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 connect tenths to place value, decimal measures and to division by 10 recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators begin to understand unit and non-unit fractions as numbers on the number line, and deduce relations between them, such as size and equivalence, going beyond the [0, 1] interval, and relate this to measure 	<ul style="list-style-type: none"> recognise and show, using diagrams, families of common equivalent fractions count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number recognise and write decimal equivalents of any number of tenths or hundredths 	<ul style="list-style-type: none"> make connections between fractions of a length, of a shape and as a representation of one whole or set of quantities and use factors and multiples to recognise equivalent fractions and simplify where appropriate (for example, $\frac{6}{9} = \frac{2}{3}$ or $\frac{1}{4} = \frac{2}{8}$) continue to practise adding and subtracting fractions with the same denominator, to become fluent through a variety of increasingly complex problems beyond one whole understand that decimals and fractions are different ways of expressing numbers and proportions

4(Year 4)

	<ul style="list-style-type: none"> ■ recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators ■ recognise and show, using diagrams, equivalent fractions with small denominators ■ add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$] ■ compare and order unit fractions, and fractions with the same denominators ■ solve problems involving all of the above. ■ understand the relation between unit fractions as operators (fractions of), and division by integers. ■ continue to recognise fractions in the context of parts of a whole, numbers, measurements, a shape, and unit fractions as a division of a quantity practise adding and subtracting fractions with the same denominator through a variety of increasingly complex problems to improve fluency 	<ul style="list-style-type: none"> ■ relate decimal notation to division of whole number by 10 and later 100 ■ recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ ■ find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths ■ round decimals with one decimal place to the nearest whole number ■ solve simple measure and money problems involving fractions and decimals to two decimal places ■ use number lines to connect fractions, numbers and measures ■ understand the relation between non-unit fractions and multiplication and division of quantities, with particular emphasis on tenths and hundredths ■ use decimal notation and the language associated with it, including in the context of measurements 	<ul style="list-style-type: none"> ■ practise counting using simple fractions and decimals, both forwards and backwards ■ compare and order fractions whose denominators are all multiples of the same number ■ identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths ■ recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [Eg. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$] ■ add and subtract fractions with the same denominator and denominators that are multiples of the same number ■ solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25
Measurements	<ul style="list-style-type: none"> ■ measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) ■ measure the perimeter of simple 2-D shapes ■ add and subtract amounts of money to give change, using both £ and p in practical contexts ■ tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks ■ estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as 	<ul style="list-style-type: none"> ■ convert between different units of measure [Eg. km to m; ml to l; hour to minute] ■ measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres ■ find the area of rectilinear shapes by counting squares ■ estimate, compare and calculate different measures, including money in pounds and pence ■ read, write and convert time between analogue and digital 12- and 24-hour clocks 	<ul style="list-style-type: none"> ■ convert between different units of metric measure (Eg. Km and m; cm and m; cm and mm; g and kg; l and ml) using knowledge of place value and multiplication and division ■ understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints ■ measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres including using the relations of perimeter or area to find unknown lengths ■ calculate and compare the area of rectangles (including squares), and including using standard units, square

5(Year 4)

	<p>o'clock, a.m./p.m., morning, afternoon, noon and midnight</p> <ul style="list-style-type: none"> ■ know the number of seconds in a minute and the number of days in each month, year and leap year ■ compare durations of events [Eg. calculate time taken by particular events or tasks] ■ continue to measure using the appropriate tools and units, progressing to using a wider range of measures, including comparing and using mixed units (Eg. 1 kg and 200g) and simple equivalents of mixed units (Eg. 5m = 500cm) ■ simple scaling by integers (Eg. a given quantity or measure is twice as long or five times as high) and connect to multiplication. ■ continue to become fluent in recognising the value of coins, by adding and subtracting amounts, including mixed units, and giving change using manageable amounts. ■ record £ and p separately (formal decimal recording introduced in Year 4) use both analogue and digital 12-hour clocks to record times 	<ul style="list-style-type: none"> ■ solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days ■ build on understanding of place value and decimal notation to record metric measures, including money ■ use multiplication to convert from larger to smaller units ■ express perimeter algebraically as $2(a + b)$ where a and b are the dimensions in the same unit relate area to arrays and multiplication 	<p>centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes</p> <ul style="list-style-type: none"> ■ estimate volume [Eg. using 1 cm^3 blocks to build cuboids, including cubes] and capacity [Eg. using water] ■ solve problems involving converting between units of time ■ use all four operations to solve problems involving measure [Eg. length, mass, volume, money] using decimal notation, including scaling ■ express missing measures questions algebraically, Eg. $4 + 2b = 20$ for a rectangle of sides 2 cm and b cm and perimeter of 20cm ■ calculate the area from scale drawings using given measurements ■ use all four operations in problems involving time and money, including conversions (for example, days to weeks, expressing the answer as weeks and days)
Geometry properties of Shapes	<ul style="list-style-type: none"> ■ draw 2-D shapes and make 3-D shapes using modelling materials ■ recognise 3-D shapes in different orientations and describe them ■ recognise angles as a property of shape or a description of a turn ■ identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn 	<ul style="list-style-type: none"> ■ compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes (Eg. isosceles, equilateral, scalene, parallelogram, rhombus, trapezium) ■ identify acute and obtuse angles' compare and order angles up to two right angles by size and decide if a polygon is regular or irregular ■ identify lines of symmetry in 2-D shapes presented in different orientations 	<ul style="list-style-type: none"> ■ identify 3-D shapes, including cubes and other cuboids, from 2-D representations ■ know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles ■ draw given angles, and measure them in degrees ($^\circ$) ■ identify: <ul style="list-style-type: none"> ➤ angles at a point and one whole turn (total 360°)

6(Year 4)

	<p>and four a complete turn; identify whether angles are greater than or less than a right angle</p> <ul style="list-style-type: none"> ▪ identify horizontal and vertical lines and pairs of perpendicular and parallel lines ▪ extend knowledge of the properties of shapes to symmetrical and non-symmetrical polygons and polyhedra ▪ extend their use of the properties of shapes to describe the properties of 2-D and 3-D shapes using accurate language, including lengths of lines and acute and obtuse for angles greater or lesser than a right angle. ▪ connect decimals and rounding to drawing and measuring straight lines in centimetres, in a variety of contexts. 	<ul style="list-style-type: none"> ▪ complete a simple symmetric figure with respect to a specific line of symmetry <p>draw symmetric patterns using a variety of media to become familiar with different orientations of lines of symmetry; and recognise line symmetry in a variety of diagrams, including where the line of symmetry does not dissect the original shape</p>	<ul style="list-style-type: none"> ➤ angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°) ➤ other multiples of 90° ▪ use the properties of rectangles to deduce related facts and find missing lengths and angles ▪ distinguish between regular and irregular polygons based on reasoning about equal sides and angles ▪ become accurate in drawing lines with a ruler to the nearest millimetre, and measuring with a protractor and use conventional markings for parallel lines and right angles ▪ use the term diagonal and make conjectures about the angles formed between sides, and between diagonals and parallel sides, and other properties of quadrilaterals, Eg. using dynamic geometry ICT tools <p>use angle sum facts and other properties to make deductions about missing angles and relate these to missing number problems</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Geometry Position and Direction</p>	<ul style="list-style-type: none"> ▪ Consolidate work from year 2 ▪ work with patterns of shapes, including those in different orientations. <p>use the concept and language of angles to describe 'turn' by applying rotations, including in practical contexts (for example, themselves moving in turns, giving instructions to others, using robots)</p>	<ul style="list-style-type: none"> ▪ describe positions on a 2-D grid as coordinates in the first quadrant ▪ describe movements between positions as translations of a given unit to the left/right and up/down ▪ plot specified points and draw sides to complete a given polygon ▪ draw a pair of axes in one quadrant, with equal scales and integer labels <p>read, write and use pairs of coordinates, for example (2, 5), including using coordinate-plotting ICT tools</p>	

7(Year 4)

Data Handling	<ul style="list-style-type: none">■ interpret and present data using bar charts, pictograms and tables■ solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables■ understand and use simple scales (for example, 2, 5, 10 units per cm) in pictograms and bar charts with increasing accuracy continue to interpret data presented in many contexts	<ul style="list-style-type: none">■ interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs■ solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs■ understand and use a greater range of scales in their representations begin to relate the graphical representation of data to recording change over time	
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Key performance indicators are in BOLD.