KS2 - Year 4		
National Curriculum	**Key Performance Indicators**	**Working at Greater Depth**
Number and Place Value		
Count in multiples of 6, 7, 9, 25 and 1000	• Can count in multiples of 6, 7 and 9 • Can count in multiples of 25 and 100 and explain the link between the two amounts	• Can explain reasoning in counting activities *e.g. When I count in 25s the numbers will always end in 5 or 0. Is this sometimes, always or never true?*
Find 1000 more or less than a given number	• Can find 1000 more than a given number and explain which digit changes • Can find 1000 less than a given number and explain which digit changes	• Can explain how to change the value of a digit using addition and subtraction e.*g. How can you change 17685 to 10685 using subtraction*?
Count backwards through zero to include negative numbers	• Can count backwards in a range of multiples to include negative numbers and understand the value of the digits	• Can explain reasoning in counting activities • Can solve problems involving negative numbers
Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)	• Can identify the number of thousands, hundreds, tens and ones in a 4-digit number 4NPV–1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100. 4NPV–2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning	• Can solve problems involving 4-digit numbers • Can understand that numbers can be partitioned in different ways to give the same value

Order and compare numbers beyond 1000	• Can identify the larger of two 4-digit numbers and explain reasoning • Can position 4-digit numbers on a number line and explain reasoning about where they are positioned 4NPV–3 Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each. 4NPV–4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts	• Can order values linked to money and measurement including where conversion is needed
Identify, represent and estimate numbers using different representations	• Can use equipment to represent numbers and to explain reasoning about the size of numbers 4NPV–1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100.	• Can use scripts from other number systems to solve problems
Round any number to the nearest 10, 100 or 1000	• Can round numbers to the nearest 10 • Can round numbers to the nearest 100 • Can round numbers to the nearest 1000 • Can explain the rules of rounding	• Can solve problems involving rounding, including linked to measures *e.g. What is the smallest and largest number that can round to 200 when rounded to the nearest 10 and 100?*

Solve number and practical problems that involve all of the above and with increasingly large positive numbers	• Solve problems involving place value, including word problems and problems linked to money and measure	• Can solve complex multi-step problems involving place value, including word problems and problems linked to money and measure *e.g. if I wrote down all of the numbers between 1 and 1000 how many times would I write the digit 0?*
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.	• Can read Roman numerals to 100 • Can understand how the numeral system developed over time	• Can solve problems involving Roman numerals

Addition and Subtraction		
Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	• Can use place value to calculate mentally • Can add and subtract multiples of 1, 10, 100 and 1000 • Can subtract by finding the difference • Can calculate mentally by reordering • Can calculate mentally by compensating • Can use a written methods to add two 4-digit numbers, including bridging 10 and 100 • Can use a written methods to subtract two 4-digit numbers, including bridging 10 and 100 • Can use a written methods to add and 3 and 4-digit number together, including bridging 10 and 100 • Can use a written methods to subtract a 3-digit number from a 4-digit number, including bridging 10 and 100 • Can reflect on when it is appropriate to use a standard written method in an addition or subtraction calculation with up to 4 digits 4NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100),	• Can create calculations that should be solved mentally and justify why they should be solved using a given mental method • Can create calculations that should be solved using a formal written method and justify why a written method would be more efficient than a mental method • Can fill in a missing box from a variety of written addition or subtraction calculations
Estimate and use inverse operations to check answers to a calculation	• Can estimate the answer of an addition or subtraction up to 4 digits • Can use addition and subtraction to calculate the inverse	• Can explain their reasoning why some addition and subtraction calculations are correct and why some are not
Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	• Can use a calculation skill in a problem using units of measure (km, m, cm, mm, kg, g, l, ml, hours, minutes and seconds)	• Can solve missing information problems *e.g. 2500g of flour is needed. We currently have 750g. How much more do we need to buy?* • Solve complex problems including those with more than one or two steps

Multiplication and Division		
Recall multiplication and division facts for multiplication tables up to 12 × 12	• Can explain how to use known facts to derive others • Can recall the 2x 5x and 10x tables from Year 2 • Can recall the 3x 4x 8x tables from Year 3 • Can recall the 6x table • Can recall the 7x table • Can recall the 9x table • Can recall the 11x table • Can recall the 12x table • Can derive related division facts • Understands that division cannot be done in any order 4NF–1 Recall multiplication and division facts up to 12x12 and recognise products in multiplication tables as multiples of the corresponding number.	• Understands how to multiply 3 numbers together • Understands how a multiplication such as 8 x 6 could be adapted in a range of ways to make it easier to calculate *e.g. 8 x 3 x 2 or 6 x 4 x 2*
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	• Understands how a multiplication fact can be used to multiply by a multiple of 10 • Understands how a multiplication fact can be used to multiply by a multiple of 100 • Understands how to multiply 3 one-digit numbers together • Understands the effect of multiplying by 1 and 0 • Understands the effect of dividing by 1 • Understands how a multiplication fact can be used to solve a division calculation 4NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100) 4MD–1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. 4MD–3 Understand and apply the distributive property of multiplication.	• Can solve open ended/complex problems linked to multiplication and division *e.g. Tom has 4 times as many sweets as Sam they have 100 altogether. How many does Sam have?* • Can solve reasoning problems linked to multiplication and division *e.g. True or false: when you multiply a number it always gets bigger*

Recognise and use factor pairs and commutativity in mental calculations	• Can identify factors of a 2-digit number • Understands that multiplication can be done in any order 4MD–2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.	• Can solve open ended problems linked to factors *e.g. Which two digit numbers are abundant numbers?*
Multiply two-digit and three-digit numbers by a one-digit number using formal written layout	• Can use a formal written method to multiply TU by U • Can use a formal written method to multiply HTU by U	• Can solve missing box calculations involving a written multiplication method and reason about how the answer was found
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.	• Can solve word problems involving multiplication • Can solve word problems involving division • Can solve scaling problems involving measures • Can solve correspondence problems *e.g. There are 3 starters, mains and desserts on a menu, how many possible meals could you have?* 4NF–2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders	• Can solve "I think of a number" problems that involve understanding of the inverse calculation for multiplication and division

Fractions, Decimals & Percentages		
Recognise and show, using diagrams, families of common equivalent fractions	• Can use common multiples to generate equivalent fractions. • Can simplify fractions using common factors	• Can list equivalent fractions to a given fraction and another, and another…
Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.	• Understands hundredths are dividing an object or a number into 100 equal parts. • Understand tenths are dividing an object or a number into 10 equal parts. • Understands hundredths can be made by dividing tenths into 10 equal parts. • Can find and place hundredths on a number line. • Can use hundredths in money and measure • Can compare and order numbers to 2dp	• Can explain the impact of adding tenths and hundredths to a given number.
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	• Can use unit fractions to solve a problem. • Can use non-unit fractions to solve a problem.	• Can solve problems involving finding the whole where the fractional quantity is known e.g. If 2/5 of a number is 30, what's the number?
Add and subtract fractions with the same denominator	• Can add and subtract fractions with a common denominator 4F–1 Reason about the location of mixed numbers in the linear number system 4F–2 Convert mixed numbers to improper fractions and vice versa. 4F–3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers	• Can find the missing fraction in an addition or subtraction calculation to make the answer.

Recognise and write decimal equivalents of any number of tenths or hundredths	• Can identify and calculate $\frac{1}{10}$ as a decimal • Can identify the pattern when finding other tenths. • Can identify and calculate $\frac{1}{100}$ as a decimal • Can identify the pattern when finding other hundredths.	• Can identify the missing decimal in a sequence.
Recognise and write decimal equivalents to ¼, ½ and ¾	• Can recall decimal equivalent to ½ • Can recall decimal equivalent to ¼ • Can recall decimal equivalent to ¾	• Can round a decimal to the next whole number
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	• Can explain the effect of dividing a one-digit number by 10 • Can explain the effect of dividing a two-digit number by 10 • Can explain the effect of dividing a one-digit number by 100 • Can explain the effect of dividing a two-digit number by 100 4MD–1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size.	• Can derive other related decimal facts from known equivalences. • Can they reason about equivalent calculations e.g. *True or False: 23.4 /100 = 2.34/10 and explain reasoning*
Round decimals with one decimal place to the nearest whole number	• Can identify the nearest whole number to a one decimal place number.	• Can make a number to 2dp from 3 given digits that will round to a given number
Compare numbers with the same number of decimal places up to two decimal places	• Can compare and order 1 dp numbers on a number line. • Can compare 2dp numbers on a number line	• Can compare and order a mixture of 1dp and 2dp numbers • Can place an additional decimal number in between two existing decimal numbers.
Solve simple measure and money problems involving fractions and decimals to two decimal places.	• Knows how many 10ps are in a £1 • Knows how many 1ps are in a £1 • Knows how many centimetres are in a metre. • Can solve problems involving money to 2dp • Can solve problems involving length to 2dp	• Can apply their knowledge of tenths and hundredths to Km.

Geometry: Properties of Shape		
Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes .	Can recall and recognise in a variety of shapes that: • an equilateral triangle has three equal sides and three equal angles • isosceles triangles have two equal sides and two equal angles • right angled triangles have one right angle • scalene triangles have no equal sides and no equal angles • triangles cannot have more than one obtuse angle • squares have four equal sides and four right angles • rectangles have two pairs of equal and parallel sides and four right angles • parallelograms have two pairs of equal and parallel sides • rhombuses have four equal sides, two pairs of parallel sides • trapeziums have one pair of parallel sides • kites have two pairs of equal sides which are adjacent, two equal angles • Can recall the names of other polygons and their associated numbers of sides 4G–2 Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons.	• Can explain whether they agree or disagree with a statement *e.g. A rectangle is a regular shape because it has four right angles; A quadrilateral can sometimes only have three right angles.*
Identify acute and obtuse angles and compare and order angles up to two right angles by size	• Can identify acute angles on their own and within shapes • Can identify obtuse angles on their own and within shapes • Can compare two or more angles up to 180°	• Can use properties of acute and obtuse angles to reason about missing angles.

Identify lines of symmetry in 2-D shapes presented in different orientations	• Can recall and recognise in different shapes that: • A square has four lines of symmetry • A rectangle has two lines of symmetry • A rhombus has two lines of symmetry • A parallelogram has no lines of symmetry • A trapezium may or may not have a line of symmetry • A kite has one line of symmetry • An equilateral triangle has three lines of symmetry • An isosceles triangle has one line of symmetry • A regular polygon has the same of lines of symmetry as it has sides 4G–3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.	• Can say if a statement is always true, sometimes true or never true *e.g. Diagonals of a quadrilateral are also lines of symmetry*
Complete a simple symmetric figure with respect to a specific line of symmetry	Can complete a pattern drawn on a square grid with: • one line of symmetry drawn parallel to the gridlines • one line of symmetry drawn at an angle to the gridlines • two lines of symmetry 4G–3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.	• Can identify a line of symmetry that is not parallel to the grid lines.

Geometry: Position & Direction		
Describe positions on a 2-D grid as coordinates in the first quadrant	• Can distinguish between the x and y axis. • Can draw a pair of axes in one quadrant with equal scales and integer labels.	• Can determine the vertex of a shape when given just one coordinate.
Describe movements between positions as translations of a given unit to the left/right and up/down	• Can describe position of a vertex of a 2D shape in the first quadrant using a pair of coordinates. • Can translate a shape using left/right and up/down 4G–1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant	• Can explain how a shape has been translated once it has been moved. .
Plot specified points and draw sides to complete a given polygon	• Can use properties of shape to complete the vertices of a simple shape. 4G–1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.	• Can use properties of shape to complete the vertices of many quadrilaterals

Measurement		
Convert between different units of measure [for example, kilometre to metre; hour to minute]	• Knows and understands the relationships between familiar units of measurement • Can use multiplication and division to aid conversion. • Can convert km into m and vice versa. • Can convert an hour into minutes and vice versa. • Can convert l into ml and vice versa. • Can convert kg into g and vice versa. • Can suggest the most appropriate unit of measure.	• Can find a total distance/weight/ capacity where the quantities added are all different units of measure and need to be converted to the same measure *e.g. 1.5km +600m+ 1900m*
Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.	• Can measure sides of a rectangle to calculate the perimeter. • Can generalise about the perimeter of a rectangle using words and symbols. • Can use the formulae 2(L+W) to calculate perimeter of a rectangle. • Can work out the perimeter of irregular shapes.	• Can identify the perimeter of a shape using properties of shapes to establish the length of some of the sides.
Find the area of rectilinear shapes by counting squares	• Can relate area to arrays and multiplication. • Can find the area of a rectangle by counting squares. • Can generalise about the area of a rectangle using words and symbols.	• Can identify the area of a shape using properties of shapes to establish the length of some of the sides.
Estimate, compare and calculate different measures, including money in pounds and pence	• Can use decimal place value knowledge to compare different measures. • Can calculate with measures	• Can explain what the value of digits are in 1.5m, 1.5km etc
Read, write and convert time between analogue and digital 12- and 24-hour clocks	• Can read and understand 24-hour time • Can relate 24 hour notation to am and pm • Can covert 12 hr into 24 hour and vice versa.	• Can order 12 hour and 24 hour clock times and fill in missing times.
Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	• Can solve problems involving familiar conversions. • Can interpret the answer in more than one measure	• Can create a problem involving converting measure for someone to solve.

Statistics		
Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.	• Understands which is the best method of recording data *e.g. compare data presented in a bar chart and line graph and reason as to which is the most effective* • Can use an appropriate scale when representing data • Can answer questions from a range of different graphs *e.g. In which months was the temperature below 10˚C?*	• Can reason and infer about data that is presented *e.g. What would happen if…?*
Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	• Can answer questions from a bar chart that involve comparison, sum and difference • Can answer questions from a pictogram that involve comparison, sum and difference • Can answer questions from a table that involve comparison, sum and difference • Can answer questions from a line graph that involve comparison, sum and difference	• Can reason about graphs and charts *e.g. What is the story of this line graph? or Tell me something that is true, false or unknown about this table*