# Maths Programme of Study – Year 4

| | Autumn | Spring | Summer |
|---|---|---|---|
| Place Value and a Sense of Number | Find 1000 more than any given number. Recognise the place value of each digit in a four-digit number (Th, H, T, O). Count in multiples of 25 and 1000. Identify multiples of 2,3,4 and 8, using patterning to generate the next multiple. Identify, represent and estimate numbers using different representations. Round any number to the nearest 10, 100. Round decimals with one dp to the nearest whole number. Order and compare numbers beyond 1000. Count in multiples of 6. Round any number to the nearest 10, 100 or 1000. | Count backwards through zero to include negative numbers. Count in multiples of 6, 25 and 1000 (link to 2x, 3x, 4x, 5x and 10x). Read Roman numerals to 100 (I to C) and know that, over time the numeral system changed to include zero and the concept of place value. Order and compare numbers beyond 1000. Identify 1, 10, 100 more and less to support efficient calculation. Count up and down in hundredths. Recognise and write decimal equivalents of any number of tenths or hundredths. | Explore partitioning up to numbers in different ways. How many ways can a partition 3? (3+0; 2+1; 1+1+1) How many ways can I partition 19 into two parts? (19+0; 18+1; ….) Model heuristics such as being systematic and patterning. Round numbers to the nearest whole number, 10, 100, 1000. Use rounding to estimate answers. Explore decimal partitions of 1 and compare to known number bonds. Count in multiples of 6,7,9. Count backwards through zero to include negative numbers. |
| Problem Solving and Reasoning | Solve addition and subtraction two-step problems in context, deciding which operations to use and why. Solve problems involving multiplying and dividing by 10 and 100.. Solve problems involving addition and | Use partitioning with appropriate resources, models and images to reason about how column methods work (conceptual to support procedural). Solve problems involving multiplying and dividing using the distributive law | Solve problems involving length where lengths are given in two different units so that pupils must convert before solving e.g. I walked 3500 m and my friend walked 3.6 km. Who walked furthest, justify your answer. |

| | | | |
|---|---|---|---|
| | subtraction with numbers up to four digits in context. Encourage pupils to estimate and show them 1000 objects for a sense of size of number.<br>Solve simple measure and money problems involving fractions | (partitioning) to multiply two-digit by one-digit numbers.<br>Solve simple money and measure problems involving fractions and decimals to 2dps.<br>Solve contextual integer scaling problems, such as four times as high.<br>Solve contextual correspondence problems, such as 3 hats and 4 coats ~ how many different outfits? | Solve comparison, sum and difference problems involving a range of statistical charts and graphs.<br>Solve problems involving capacity and mass where pupils need to convert between units to find a solution and justify that solution,<br>Solve a contextual problem that requires all four operations and fractions (perhaps a budget for an end of term party, or a summer holiday, or a recipe (and cost) for a party drink for 5, 10, 100 children). |
| Calculations | Addition and Subtraction<br>Add and subtract three digit numbers using a variety of strategies.<br>Estimate and use inverse operations to check answers to a calculation (use bar modelling and number lines to explain the structure).<br>Add and subtract with up to four digits, using a range of representations and informal recording.<br>Multiplication and Division<br>Use place value and known and derived facts to multiple and divide mentally, with informal jottings.<br>Recall and use multiplication and division facts for, 2x, 3x, 4x, 5x, 6x, 8x<br>Fractions<br>Recognise and show using diagrams simple equivalent fractions. | Addition and Subtraction<br>Add and subtract with up to four digits, developing column methods where appropriate, with concrete and pictorial representations alongside.<br>Multiplication and Division<br>Multiply by 0 and 1, divide by 1.<br>Multiply a two-digit or three-digit number by a one-digit number in informal ways, developing the idea of partitioning to support multiplying (use Dienes to show this).<br>Know or quickly derive multiplication and division facts up to 12x12 (arrays, repeated addition, partitioning).<br>Use factor pairs in mental calculations and partitioning (the distributive law) to multiply up to 2-dogit by 1-digit numbers.<br>Develop a reliable written method for multiplication of 2-digit or 3-digit by 1-digit | Addition and Subtraction<br>Continue to develop fluency with addition and subtraction by working with a few four digit examples and generating all possible representations and solutions e.g. 2563 + 3491 can be solved in a variety of ways. What could it mean? Crowds at a sports match / ants in two ant hills ….<br>Show the solution using as many different ways as possible (bar model, Dienes, partitioning in a range of ways, rounding and adjusting the answer and so on.<br>Continue to develop efficient written and mental methods, performing calculations with increasingly large numbers (up to four digits but could bridge to 10,000). Ensure that pupils reason about their chosen method and justify their choice with multiple representations. |

| | | | |
|---|---|---|---|
| | Divide a one- or two-digit number by 10 or 100 (÷ or x by 100 = convert between £ and p, m and cm; ÷ or x by 10 = convert between cm and mm).<br><br>Add or subtract fractions with the same denominator beyond one whole.<br>Recognise that hundredths arise when dividing a quantity by 100 and dividing tenths by 10.<br>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. | numbers.<br>Fractions<br>Recognise and show, using diagrams, families of common equivalent fractions (use bar model and Cuisenaire rods to support this).<br>Recognise and write decimal equivalents to ½, ¼ and ¾<br>Compare numbers with the same number of decimal places up to two dps. | Generate 'new for old' by identifying 'nearly numbers'. e.g. 2500 – 999 is nearly 2500 -1000 = 1500 (so my answer is 1501).<br>Multiplication and Division<br>Recall multiplication and division facts up to 12x12 ( explore a range of representations to enable pupils to quickly call the facts to mind).<br>Develop formal methods of short multiplication and short division with appropriate models and images alongside.<br>Fractions<br>Multiply and divide by 10, 100 and 1000 in context.<br>Convert between fractions and decimals.<br>Independently identify equivalent fractions using the multiplicative relationship between the numerator and the denominator (e.g.in quarters, the denominator is always four times the numerator). |
| Measurement | Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.<br>Estimate, compare and calculate with money in £ and p.<br>Convert between pounds and pence.<br>Read, write and convert between analogue and digital 12 and 24-hour clocks.<br>Estimate, compare and calculate with mass in kg / g. | Estimate, compare and calculate with capacity in litres and ml.<br>Convert between units of length: km, m , cm.<br>Convert between different units of capacity: litres and ml.<br>Convert between hours and minutes; minutes to seconds; years to months; weeks to days. | Convert between length measurements (km, m, cm and mm).<br>Convert between mass measurements (kg, g).<br>Convert between capacity measurements (litres and ml).<br>Use measuring instruments accurately, making connections between measure and number (e.g. recipes, mixing fruit cocktails, |

| | | | |
|---|---|---|---|
| | Convert between kg and g. | | the perimeter of the playground…) |
| Geometry | Compare and classify geometric shapes, based on their properties and sizes. Identify acute and obtuse angles. Complete a simple symmetric figure with respect to a specific line of symmetry. Describe positions on a 2D grid as coordinates in the first quadrant. Compare and classify geometric shapes, including different quadrilaterals, based on their properties.. Identify lines of symmetry in 2-D shapes presented in different orientations. | Describe movements between positions as translations of a given unit to the left/right and up/down (the square has moved 3 squares to the left and 2 squares down). Plot given points to draw the sides to complete a polygon. Compare and classify geometric shapes including different triangles, based on their properties. Identify acute and obtuse angles and compare and order angles up to two right angles by size. | Plot specified points to complete a polygon on a coordinate grid. Reason about possible places if the final point in the quadrilateral makes it into a kite, or a rectangle, or a parallelogram. Draw shapes with accuracy using mathematical reasoning and analyse shapes and their properties, describing the relationship between them (all have four sides, both have sides of equal length, both have four equal angles..) |
| Statistics | Interpret and present discrete and continuous data using bar charts and line graphs to show time. | | Interpret and present discrete and continuous data using appropriate graphical methods including bar charts and time graphs. |