



Year 6 Summer 1

<p>Starter suggestions for Number</p> <ul style="list-style-type: none"> ▪ Know by heart facts for all multiplication tables up to 10 x 10. ▪ Find pairs of numbers with a sum of 100, decimals with a sum of 0.1, 1, 10. ▪ To derive related facts from those already known (e.g. 4 x 0.8 linked to 4 x 8 or 3 + 7 = 10 linked to 0.3 + 0.7 = 1) ▪ Mentally multiply and divide two-digit and single-digit numbers. ▪ Use partitioning to double or halve any number. ▪ Mentally multiply and divide pairs of multiples of 10 and 100. ▪ Mentally multiply and divide two-digit decimals by a single digit number, e.g., (U.t x U or U.t ÷ U). ▪ Identify the multiples/factors of given numbers. ▪ Read and write any integer and use decimal notation for tenths, hundredths and thousandths and know what each digit represents. ▪ Compare and order two or more different positive and/or negative integers and/or decimal numbers with up to 3 decimal places, say which is the least / greatest; use the symbols <, > and = correctly and place on a number line. ▪ Calculate differences in temperature, including those that involve a positive and negative temperature. ▪ Count forwards and backwards in steps of 0.001, 0.01, 0.1, 1, 10, 100, 1000, 25, 2.5, 0.2, 0.25 from any positive or negative integer or decimal. ▪ Recall and use addition and subtraction facts for 1 (with decimal numbers to two decimal places). ▪ Multiply and divide whole numbers and decimals mentally by 10 or 100, and integers by 1000 and use this to convert between units of measurement, e.g. cm to m, g to kg etc. ▪ Round whole numbers to the nearest 10, 100, 1000 or a number with up to three decimal places to the nearest integer or number of decimal places. ▪ Count in fraction steps (e.g. of $\frac{1}{12}$, i.e. $\frac{1}{12}, \frac{1}{6}, \frac{1}{4}, \frac{1}{3}, \frac{5}{12}, \frac{1}{2}$). 	<p>Starter suggestions for Measurement, Geometry and Statistics</p> <ul style="list-style-type: none"> ▪ Know and use standard metric units of measure. ▪ Estimate and calculate length (including perimeter), mass, volume/capacity and area. ▪ Convert between units by multiplying and dividing by powers of 10. ▪ Know metric and imperial equivalences of feet, inches, pints and pounds. ▪ Convert between miles and kilometres using knowledge that 5 miles is roughly equivalent to 8km. ▪ Read, write and convert between units of time. ▪ Identify and describe properties of 2D and 3D shapes, including regular and irregular. ▪ Find missing angles and lengths using properties of shape. ▪ Estimate and identify acute, obtuse and reflex angles. ▪ Describe positions on the first quadrant of a coordinate grid. ▪ Solve comparison, sum and difference problems using information presented in all types of graph. ▪ Continue to complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes).
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	Main learning	Rationale
<p>Week 1 Place value, decimals and fractions</p>	<ul style="list-style-type: none"> ▪ <i>Count forwards or backwards in steps of integers, decimals or powers of 10 for any number.</i> ▪ <i>Order and compare numbers including integers, decimals and negative numbers.</i> ▪ <i>Identify, represent and estimate numbers using the number line.</i> ▪ <i>Find 0.001, 0.01, 0.1, 1, 10 and powers of 10 more or less than a given number.</i> ▪ <i>Round decimals with three places to the nearest whole number or one or two decimal places.</i> ▪ Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. ▪ Compare and order fractions, including fractions > 1 (including on a number line). ▪ Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. ▪ Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$) 	<p>Prior to end of year statutory assessments, it is useful to consolidate children's understanding of the number system as a whole and how numbers can be represented in different ways e.g. as precise values, as estimates when rounding, as fractions or decimals, on a number line, as a diagram etc.</p>



Week 2	Main learning	Rationale
Week 2 Mental and written calculation	<ul style="list-style-type: none"> ▪ Perform mental calculations, including with mixed operations and large numbers and decimals. ▪ <i>Identify, represent and estimate numbers using the number line.</i> ▪ <i>Add and subtract whole numbers and decimals using formal written methods (columnar addition and subtraction).</i> ▪ <i>Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method).</i> ▪ <i>Select a mental strategy appropriate for the numbers involved in the calculation.</i> ▪ Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. ▪ Solve problems involving addition, subtraction, multiplication and division. ▪ Use their knowledge of the order of operations to carry out calculations involving the four operations. ▪ 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 long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. ▪ Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. ▪ Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. 	<p>Prior to end of year statutory assessments, it is useful to consolidate children's understanding of calculations across all four operations.</p> <p>Children should continue to learn when it is appropriate to use mental methods and when to use written methods.</p> <p>Problems should be presented in a variety of real life and abstract situations, so children recognise clues that indicate the operation(s) to use. Children should therefore be given examples of mixed problems, rather than problems that are all the same operation.</p> <p>When solving problems, children should be encouraged to express their understanding of the context before trying to solve the problem.</p>
Week 3 Calculating fractions, ratio and proportion	<ul style="list-style-type: none"> ▪ Multiply simple pairs of proper fractions, writing the answer in its simplest form (<i>using diagram</i>) (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$). ▪ Divide proper fractions by whole numbers (<i>using diagram</i>) (e.g. $\frac{1}{3} \times 2 = \frac{2}{3}$). ▪ Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. ▪ Solve problems involving the calculation of percentages (for example, of measures, and such as 15% of 360) and the use of percentages for comparison. ▪ Solve problems involving similar shapes where the scale factor is known or can be found. ▪ Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. 	<p>Prior to end of year statutory assessments, it is useful for children to apply their knowledge of place value, multiplication and division in the context of fractions, ratio and proportion.</p> <p>When multiplying and dividing fractions, it is essential that children use diagrams and knowledge of multiplication and division of whole numbers to understand the concept of calculating with fractions. Teachers should select from different contexts for children to explore proportion through scaling up and down.</p> <p>Children should also consider ratio as unequal sharing and grouping, using real life contexts such as recipes.</p>
Week 4 2-D shape, coordinates, translation and reflection	<ul style="list-style-type: none"> ▪ Draw 2-D shapes using given dimensions and angles. ▪ Describe positions on the full coordinate grid (all four quadrants). ▪ Draw and translate simple shapes on the coordinate plane, and reflect them in the axes. 	<p>Children combine their understanding of shapes and coordinates. When identifying the coordinates of missing corners of shapes, the coordinate grid should be on plain paper, so children are applying their knowledge of shapes, rather than simply counting squares.</p> <p>When reflecting and translating shapes, children should identify relationships between coordinates of the corners and use these relationships when identifying and checking the coordinates of the transformed shape.</p>



	Main learning	Rationale
Week 5 Algebra and sequences	<ul style="list-style-type: none">▪ Describe and extend number sequences including those with multiplication and division steps, inconsistent steps, alternating steps and those where the step size is a decimal.▪ Use simple formulae.▪ Generate and describe linear number sequences.▪ Convert between miles and kilometres.	Children can use the work from the previous week on to explore relationships between the coordinates of the corners of some 2-D shapes, generalise and express relationships using formulae. Children extend their work to generalise, identify and create formulae for linear number sequences, including for use when converting miles to kilometres and vice versa using the knowledge that 5 miles is roughly equivalent to 8km.
Week 6 Measurement (length and time) and statistics (mean)	<ul style="list-style-type: none">▪ Solve problems involving the calculation and conversion of units of measure (including money and time), using decimal notation up to three decimal places where appropriate.▪ Use, read, write and convert between standard units, converting measurements of length and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places.▪ Calculate and interpret the mean as an average.▪ Solve comparison, sum and difference problems using information presented in all types of graph.	Children should use their performance in PE (athletics) to generate length and time measurements, for jumping, throwing and running. These measurements can be used to explore converting units of measure; scaling up and down; finding the mean measurement of a given selection; presenting data in different ways; solving problems when interpreting graphs presented in different ways.