

# Mathematics long term plan – Year 6



Key Targets are highlighted in red – these targets should be delivered first within each unit of work and children should not progress beyond these targets within each unit of work until they are secure. If children do not secure key targets within a unit of work, they should progress onto the next unit of work with the rest of the class but these key targets should be revisited during consolidation weeks and/or during the next academic year (e.g. before progressing onto key targets for multiplication in Year 6, unsecured key targets for multiplication from the Year 5 curriculum should be secured first when a child progresses into Year 6)

Order of delivery – targets have been placed in a suggested order of delivery; however, class teachers should use their professional judgement and discuss the order of delivery and/or the number of lessons that should be dedicated to each learning objective with the maths coordinator/SLT members, if needed.

Teaching some objectives through regular practice – some targets/learning objectives may not need their own lesson for delivery (e.g. using estimation to check answer to calculations). Teachers should use their professional judgement when deciding how many lessons should be dedicated to each learning objective. Teachers may decide that using estimation to check answers to calculations is something that will be incorporated into most of their teaching inputs throughout the year and that additional lessons could be used for the delivery of more essential targets. Class teachers to discuss which targets may not need their own lesson for delivery with maths coordinator/SLT members; however, all key targets must have their own dedicated lessons for delivery.

Children working below age-related expectations – class teachers should consolidate and secure key targets from a previous year group before progressing children working below age-related expectations onto the learning objectives attached to their current year group (e.g. before progressing onto key targets for multiplication in Year 6, unsecured key targets for multiplication from the Year 5 curriculum should be secured first when a child progresses into Year 6). If children have secured key targets from the previous year group during the unit of work, they should progress onto key targets attached to their current year group. If a unit of work is being delivered with no key targets (e.g. statistics), class teachers should review gaps in learning from previous year groups and use their professional judgement when deciding which targets that child should consolidate and secure during that unit of work (e.g. more essential gaps in learning involving statistics from previous year groups should be consolidated and secured first; less-essential targets from previous year groups may be left undelivered if it is not appropriate for that child to progress onto that target).

Re-capping and consolidating targets from previous year groups – as part of ongoing and good practice across all year groups, all teachers should re-cap learning objectives from the previous year group as part of their success criteria in one or more of their lessons (e.g. Year 6 lessons should re-cap multiplying 4-digit numbers by a 1-digit number before progressing children onto multiplying numbers with up to 4 digits by 2-digit numbers.) A one-size-fits-all approach is nearly impossible to achieve but gaps in learning for a vast majority of pupils working at age-related expectations should be addressed and secured across all year groups if every year group does this well.

Adapting weeks to suit each academic year – the number of weeks in each academic year may slightly change (e.g. autumn term may have 15 weeks instead of 14 weeks in some academic years). Class teachers should adapt the overviews accordingly depending on the length of each term and discuss and agree this with the maths coordinator or SLT members if needed.

Retention of learning – Learning has been organised into units of work (e.g. 2 weeks may be dedicated to addition at the start of the year and then addition may not be planned in to be revisited for the remainder of the year). Class teachers should ensure that calculations of the day, discussion of past paper questions every day, and starter activities throughout the year recaps prior learning throughout the year to ensure retention of previous learning.

**The aim of the curriculum design is to ensure that every child, or nearly every child, progresses into the next year group with all of the key targets attached to their year group secure. This will ensure that children can access maths lessons being delivered in the following academic year.**



# Year 6: Autumn Term

<p><b><u>Weeks 1 &amp; 2</u></b>  <b>Number – place value</b></p>	<p><b><u>Weeks 3, 4, 5 &amp; 6</u></b>  <b>Number – addition, subtraction, multiplication and division</b></p>	<p><b><u>Weeks 7, 8, 9, 10 &amp; 11</u></b>  <b>Number – fractions</b></p>	<p><b><u>Week 12</u></b>  <b>Percentages</b></p>	<p><b><u>Weeks 13 &amp; 14</u></b>  <b>Consolidation weeks</b></p>
<p><b>-Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit</b></p> <p><b>-Use negative numbers in context, and calculate intervals across zero</b></p> <p>-Round any whole number to a required degree of accuracy</p> <p>-Solve number and practical problems that involve all of the above</p>	<p><b>-Accurately add numbers with up to 7 digits and 3 decimal places using formal written methods</b></p> <p><b>-Accurately subtract numbers with up to 7 digits and 3 decimal places using formal written methods</b></p> <p><b>-Multiply multi-digit numbers up to 4 digits by a 2-digit number using the formal written method of long multiplication.</b></p> <p><b>-Divide numbers up to 4 digits by a 2-digit number using the formal written method of short division,</b> interpreting remainders according to context.</p> <p><b>-Divide numbers up to 4 digits by a 2-digit whole number using the formal written method of long division,</b> and interpret remainders as whole number remainders, fractions or by rounding as appropriate for the context.</p> <p><b>-Use their knowledge of the order of operations to carry out calculations involving the four operations.</b></p> <p><b>-Solve problems involving addition, subtraction, multiplication and division (this target can also be incorporated into addition and subtraction lessons at the start of the unit as extension or mastery activities)</b></p> <p>-Identify common factors, common multiples and prime numbers.</p> <p>-Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why.</p> <p>-Use estimation to check answers to calculations and determine in the context of a problem, an appropriate degree of accuracy (suggested that this target is built into regular teaching practice throughout the year rather than through stand-alone lessons)</p> <p>-Perform mental calculations, including with mixed operations and large numbers (suggested that this target is built into regular teaching practice throughout the year rather than through stand-alone lessons)</p>	<p><b>-Use common factors to simplify fractions</b></p> <p><b>-Use common multiples to express fractions in the same denomination</b></p> <p><b>-Compare and order fractions, including fractions &gt; 1</b></p> <p><b>-Add and subtract fractions with different denominations and mixed numbers, using the concept of equivalent fractions</b></p> <p><b>-Multiply simple pairs of proper fractions, writing the answer in its simplest form (for example <math>\frac{1}{4} \times \frac{1}{2} = 1/8</math>)</b></p> <p><b>-Divide proper fractions by whole numbers [for example <math>1/3 \div 2 = 1/6</math>]</b></p> <p><b>-Generate and describe linear number sequences (with fractions)</b></p> <p>-Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example 3/8]</p> <p>-Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</p>	<p><b>-Calculate percentages of quantities (e.g. 15% of 360)</b></p> <p>-Solve problems involving the calculation of percentages and the use of percentages for comparison</p> <p>-Recall and use equivalences between simple Fraction-Decimal-Percentage equivalents, including in different contexts</p>	<p>Based on knowledge of their pupils and awareness of misconceptions, class teachers to decide which targets should be re-capped and consolidated during these weeks.</p> <p><b>Key Targets should be prioritised during consolidation weeks.</b></p> <p><b>Assessment weeks will also take place during Week 13.</b></p>

# Year 6: Spring Term



<p><b><u>Weeks 1 &amp; 2</u></b> <b>Number - decimals</b></p>	<p><b><u>Weeks 3, 4 &amp; 5</u></b> <b>Measurement</b></p>	<p><b><u>Weeks 6 &amp; 7</u></b> <b>Algebra</b></p>	<p><b><u>Weeks 8 &amp; 9</u></b> <b>Ratio</b></p>	<p><b><u>Week 10</u></b> <b>Statistics</b></p>	<p><b><u>Weeks 11 &amp; 12</u></b> <b>Geometry – properties of shapes</b></p>
<p><b>-Identify the value of each digit in numbers given to three decimal places</b></p> <p><b>-Multiply numbers by 10, 100 and 1000 giving answers up to 3 decimal places</b></p> <p><b>-Multiply one-digit numbers with up to 2dp by whole numbers</b></p> <p>-Use written division methods in cases where the answer has up to two decimal places</p> <p>-Accurately round a number with up to 3 decimal places to a specified degree of accuracy, including to the nearest tenth, hundredth and thousandth</p> <p>-Solve problems which require answers to be rounded to specified degrees of accuracy, including to 3 decimal places</p>	<p>-Recognise when it is possible to use formulae for area and volume of shapes.</p> <p>-Calculate the area of parallelograms and triangles.</p> <p>-Recognise that shapes with the same areas can have different perimeters and vice versa.</p> <p>-Calculate, estimate and compare volume of cubes and cuboids using standard units, including <math>\text{cm}^3</math>, <math>\text{m}^3</math> and extending to other units (<math>\text{mm}^3</math>, <math>\text{km}^3</math>)</p> <p>-Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places.</p> <p>-Convert between miles and kilometres.</p> <p>-Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.</p>	<p>-Express missing number problems algebraically (e.g. <math>7 \times \_ = 42</math>; <math>7y = 42</math>).</p> <p>-Accurately solve simple algebraic equations (e.g. <math>6y + 4 = 40</math>; <math>y = 6</math>).</p> <p>-Use simple formulae (e.g. price of pizza = number of toppings <math>\times</math> 40p + price of base).</p> <p>-Generate and describe linear number sequences.</p> <p>-Find pairs of numbers that satisfy an equation with two unknowns.</p> <p>-Enumerate possibilities of combinations of two variables</p>	<p>-Solve problems involving similar shapes where the scale factor is known or can be found.</p> <p>-Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.</p> <p>-Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</p>	<p>-Calculate the mean as an average.</p> <p>-Interpret and construct pie charts and line graphs and use these to solve problems.</p>	<p>-Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.</p> <p>-Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons.</p> <p>-Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</p> <p>-Draw 2D shapes using given dimensions and angles.</p> <p>-Build simple 3D shapes</p> <p>-Recognise, describe and build simple 3-D shapes, including making nets</p> <p><b>Assessment week during week 11.</b></p>

# Year 6: Summer Term



<b>Week 1</b> <b>Geometry</b> <b>– position</b> <b>and</b> <b>direction</b>	<b>Weeks 2, 3 &amp; 4</b> <b>Pre-SATs consolidation of key</b> <b>targets</b> <b>Week 4 – SATs week</b>	<b>Weeks 5, 6 &amp; 7</b> <b>Post-SATs</b> <b>Geometry – position and</b> <b>direction</b>	<b>Week 8</b> <b>Post-SATs</b> <b>Multiplication and</b> <b>division consolidation</b>	<b>Week 9</b> <b>Post-SATs</b> <b>Percentages and</b> <b>BIDMAS</b> <b>consolidation</b>	<b>Weeks 10 and 11</b> <b>Post-SATs</b> <b>Algebra</b> <b>consolidation</b>	<b>Week</b> <b>12</b> <b>Consolidation</b> <b>week</b>
<p>-Describe positions on the full coordinate grid (all four quadrants).</p> <p>-Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.</p>	<p><b>Based on knowledge of their pupils and awareness of misconceptions, class teachers to decide which targets should be re-capped and consolidated during these weeks.</b></p> <p><b>Key Targets should be prioritised during consolidation weeks.</b></p> <p><b>It is suggested that multiplication and division are consolidated during Week 2, fractions targets are consolidated during Week 3, and percentages and BIDMAS targets are consolidated during Week 4; however, class teachers should use their professional judgement and knowledge of their class when deciding which targets to revisit during these weeks.</b></p>	<p>-Describe the position and translation of simple shapes on the coordinate plane – progress onto describing position using vectors</p> <p>-Draw and translate simple shapes on the coordinate plane – progress children onto translating using vectors</p> <p>-Draw and translate simple shapes on the coordinate plane and reflect them in the axes – progress onto identifying lines of equation for reflection and reflecting shapes in these lines</p> <p><b>Any chn who have not secured previous Year 6 targets relating to position and direction should remain on those targets instead</b></p>	<p><b>-Multiply multi-digit numbers up to 4 digits by a 2-digit number using the formal written method of long multiplication.</b></p> <p><b>-Divide numbers up to 4 digits by a 2-digit number using the formal written method of short division, interpreting remainders according to context.</b></p> <p><b>-Divide numbers up to 4 digits by a 2-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.</b></p> <p><b>-Solve problems involving addition, subtraction, multiplication and division.</b></p>	<p><b>-Calculate percentages of quantities (e.g. 15% of 360)</b></p> <p><b>-Use their knowledge of the order of operations to carry out calculations involving the four operations</b></p> <p>-Solve problems involving the calculation of percentages and the use of percentages for comparison.</p>	<p>-Express missing number problems algebraically (e.g. <math>7x + 4 = 42</math>; <math>7y = 42</math>).</p> <p>-Accurately solve simple algebraic equations (e.g. <math>6y + 4 = 40</math>; <math>y = 6</math>).</p> <p>-Use simple formulae (e.g. price of pizza = number of toppings <math>\times</math> 40p + price of base).</p> <p>-Generate and describe linear number sequences.</p> <p>-Find pairs of numbers that satisfy an equation with two unknowns.</p> <p>-Enumerate possibilities of combinations of two variables</p> <p><b>Year 6 do not need to complete assessment week during summer term – SATs results will be used instead.</b></p>	<p><b>Based on knowledge of their pupils and awareness of misconception s, class teachers to decide which targets should be re-capped and consolidated during these weeks.</b></p> <p><b>Key Targets should be prioritised during consolidation weeks.</b></p> <p><b>Residential week during the summer term may replace this week of planning for Year 6.</b></p>