



Barnfields Primary School
'Believe & Achieve'



Barnfields Primary School

Calculation Policy

Year 6



Addition Calculation: Year 6	
Mental Calculation	<ul style="list-style-type: none"> • Perform mental calculations, including with mixed operations and large numbers. • Children use representation of choice. • Consolidate partitioning and re-partitioning. • Use compensating for adding too much/little and adjusting <div style="background-color: #e0f7fa; padding: 5px; margin: 5px 0;"> <p>Common mental calculation strategies: Partitioning and recombining Doubles and near doubles Use number pairs to 10 and 100 Adding near multiples of ten and adjusting Using patterns of similar calculations Using known number facts Bridging through ten, hundred Complementary addition</p> </div> <div style="background-color: #fff9c4; padding: 2px; margin-top: 5px; text-align: center;"> <i>Refer back to pictorial and physical representations when needed.</i> </div>
Written Calculation	<ul style="list-style-type: none"> • Add larger numbers using the formal written (columnar) method. • Include decimal addition for money. <div style="display: flex; justify-content: space-around; align-items: center; margin: 10px 0;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> $\begin{array}{r} \pounds 563.14 \\ + \pounds 207.88 \\ \hline \pounds 771.02 \\ \hline 111 \end{array}$ </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>789 + 642 becomes</p> $\begin{array}{r} 789 \\ + 642 \\ \hline 1431 \\ \hline \end{array}$ <p>Answer: 1431</p> </div> </div> <div style="border-left: 1px solid black; padding-left: 10px; margin-top: 10px;"> <p>Problem Solving Teachers should ensure that pupils have the opportunity to apply their knowledge in a variety of contexts and problems (exploring cross curricular links) to deepen their understanding.</p> </div>
Possible Concrete and Visual Representations	Teacher Modelling/Children's Recordings
<i>Children apply, consolidate and secure their understanding of columnar addition within the context of new mathematical concepts taught within year 6. (see year 5 table for guidance)</i>	
Fluency	<ul style="list-style-type: none"> • Count in tens and hundreds increasing fluency of order and place value • Perform increasingly complex mental calculations and those with increasingly large numbers to aid fluency

Subtraction Calculation: Year 6

<p>Mental Calculation</p>	<ul style="list-style-type: none"> • Perform mental calculations, including with mixed operations and large numbers. • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. • <i>They undertake mental calculations with increasingly large numbers and more complex calculations.</i> <p align="center"><i>Children draw on basic, Mental subtraction Strategies, (See Year 5.) Children use, or visualise, representation of choice. Refer back to physical representations as required.</i></p>
<p>Written Calculation</p>	<ul style="list-style-type: none"> ◆ Subtract whole numbers with more than 4 digits, including using formal written methods (columnar subtraction). Solve problems involving the calculation and conversions of units of measure, using decimal notation of up to three decimal places where appropriate. (MEASURES)
<p>Possible Concrete and Visual Representations</p>	<p>Teacher Modelling/Children's Recordings</p>
<p align="center"><i>Children apply, consolidate and secure their understanding of columnar subtraction within the context of new mathematical concepts taught within year 6. (see year 5 table for guidance)</i></p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div data-bbox="255 981 564 1198" style="text-align: center;"> $\begin{array}{r} 1\ 7\ 8\ .\ 0\ 1\ 1 \\ -\ 5\ .\ 4\ 5\ 6 \\ \hline 1\ 2\ .\ 5\ 5\ 5 \end{array}$ </div> <div data-bbox="826 949 1315 1198" style="border: 1px solid blue; background-color: #4a7ebb; color: white; padding: 10px; border-radius: 10px; width: 300px;"> <p align="center">Consolidate columnar methods, paying particular attention to the occurrence of zeros as place holders</p> </div> </div>	
<p>Fluency</p>	<ul style="list-style-type: none"> ◆ Undertake mental calculations with increasingly large numbers and more complex calculations

Multiplication Calculation: Year 6	
Mental Calculation	<ul style="list-style-type: none"> • Perform mental calculations, including with mixed operations and large numbers (<i>increasingly large numbers & more complex calculations</i>) • Use all the multiplication tables to calculate mathematical statements in order to maintain fluency. • Use estimation to check answers to calculations & determine, in the context of a problem, an appropriate degree of accuracy. • Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places <div style="background-color: yellow; padding: 5px;"> <p><i>Use mental strategies to solve problems e.g.</i></p> <ul style="list-style-type: none"> ❖ x4 by doubling and doubling again ❖ x5 by x10 and halving ❖ x20 by x10 and doubling ❖ x9 by multiplying by 10 and adjusting ❖ x6 by multiplying by 3 and doubling </div>
Written Calculation	<ul style="list-style-type: none"> ◆ Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication (<i>short & long multiplication</i>) ◆ Multiply one-digit numbers with up to two decimal places by whole numbers
Possible Concrete and Visual Representations	Teacher Modelling/Children's Recordings
<p><i>Children apply, consolidate and secure their understanding of columnar multiplication within the context of new mathematical concepts taught within year 6. (see year 5 table for guidance)</i></p> <div style="text-align: center; background-color: #f0f0f0; padding: 10px; border: 1px solid #ccc;"> </div>	
Fluency	<ul style="list-style-type: none"> ◆ Undertake mental calculations with increasingly large numbers ◆ Continue to use all multiplication tables to calculate mathematical statements in order to maintain fluency

Division Calculation: Year 6	
Mental Calculation	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • Perform mental calculations, including with mixed operations and large numbers. • Use their knowledge of the order of operations to carry out calculations involving the four operations. • Identify common factors, common multiples and prime numbers. • Solve problems involving addition, subtraction, multiplication and division use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. <p>Spider diagrams</p>
Written Calculation	<ul style="list-style-type: none"> ◆ 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.
Possible Concrete and Visual Representations	Teacher Modelling/Children's Recordings
<p style="text-align: center;"><i>See possible representations used in year 5</i></p> <p style="text-align: center;">$£1362.72 \div 40 = ?$</p> <div style="border: 1px solid blue; background-color: #4a7ebb; color: white; padding: 10px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;"> $£1362.72 \div 4 = £340.68$ <i>[½ and ½ again.]</i> $£340.68 \div 10 = £34.068$ <i>which rounds to £34.07.</i> </p> </div>	<p>Children consolidate the long division in year 5, progressing to a more refined approach.</p> $ \begin{array}{r} 23 \\ 24 \overline{) 560} \\ \underline{-480} \\ 80 \\ \underline{-72} \\ 8 \end{array} $ <p>Answer: 23 R 8</p>
Fluency	<ul style="list-style-type: none"> ◆ Practise division for larger numbers, using the formal written methods of short and long division ◆ Continue to use all multiplication tables and division facts to maintain fluency ◆ Perform mental calculations, including with mixed operations and larger numbers