

# St. Ethelbert's Written Calculation Policy

|        | Addition                                                                                                                                                                                                                                               | Subtraction                                                                                                                                               | Multiplication                                                                                                                                                                                                                                 | Division                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year 1 | <p>Pictorial Objects</p> <p>Visual representations</p> <p>Horizontal addition</p> $5 + 4 =$                                                                                                                                                            | <p>Pictorial Objects</p> <p>Visual representations</p> <p>Horizontal subtraction</p> $5 - 4 =$                                                            | <p>Pictures/arrays/visual representations – relate to doubling, x2, 2 lots of, multiply by 2</p>                                                                                                                                               | <p>Pictures/arrays/visual representations – relate to halving, dividing by 2, how many groups of 2, show fraction notation e.g. <math>8/2 = 8</math> div by 2 etc.</p> <p>Extend to fifths and tenths.</p> <p>Sharing (discrete skill – explain as sharing first then as grouping which links to counting).</p> <p>Grouping (relate to division) including remainders.</p>                                                                                   |
| Year 2 | <p>Vertical partitioning method using a column eg:<br/><i>Start with ones</i></p> $\begin{array}{r} 67+24 \\ 60+7 \\ 20+4 \\ \hline 80+11=91 \\ \hline \end{array}$ <p>Extend to compact column method if have sound understanding of place value.</p> | <p>Counting on with number line from smallest to largest number.</p> <p>Moving on to partitioning which leads into setting out as an expanded column.</p> | <p>Extend use of arrays to develop concepts and links between x and <math>\div</math>.</p> <p><i>Link grouping to counting/repeated addition</i></p> <p>Grid method (TOxO)</p> <p>Largest number partitioned vertically on left hand side.</p> | <p>Extend use of arrays to develop concepts and links between x and <math>\div</math>.</p> <p><i>Link division to number of counts/multiples of a number/repeated subtraction</i></p> <p>Counting e.g. :</p> $35 \div 5 = 7$ <p>5, 10, 15, 20, 25, 30, 35</p> <p>Extend to <math>350 \div 50 = 7</math></p> <p>50, 100, 150, 200, 250, 300, 350</p> <p><i>This could be written initially and then orally or using table knowledge as this develops.</i></p> |

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| Year 3 | <p>Compact column addition (numbers up HTO)</p> $\begin{array}{r} 625 \\ + 48 \\ \hline 673 \\ 1 \end{array}$ <p>Extend to decimals in the context of money starting with multiples<br/>Begin to add fractions with the same denominator.<br/>Recognise fractions that add up to 1.</p> | <p>Decomposition (HTO)<br/>Including decimals to 1 decimal place.</p> $\begin{array}{r} 611 \\ 724 \\ - 198 \\ \hline 526 \end{array}$ <p>Extend to decimals in the context of money starting with multiples of 10p.<br/>Use counting up for small difference.<br/>Choose most efficient method.<br/>Begin to subtract fractions with same denominator.</p> | <p>Grid method (HTOxO)<br/>Largest number partitioned<br/>Vertically on left hand side.</p>                                                                                                             | <p>Short (bus stop division)<br/>Find unit fractions of amounts and begin to find non-unit fractions of amounts.</p>                                |
| Year 4 | <p>Compact column addition (numbers up to ThHTO) including decimals to 2 decimal places.</p> $\begin{array}{r} 2.45 \\ + 6.73 \\ \hline 9.18 \\ 1 \end{array}$ <p>Add fractions with same denominator. Know fraction complements to 1.</p>                                              | <p>Decomposition (ThHTO)<br/>Including decimals to 2 decimal place.<br/>Use counting on where larger number is multiple of 100 or 1000, or where difference is small.<br/>Subtract fractions with same denominator. Use fraction complements to 1 to solve subtractions.<br/>Choose most efficient method.</p>                                              | <p>Once secure with all times tables and grid method/partitioning, introduce short multiplication for HTO x O</p>  | <p>Extend short division to HTO by O<br/>Begin to reduce fractions to their simplest terms. Find unit and non-unit fractions of larger amounts.</p> |

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|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | Choose most efficient method.                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                   |
| Year 5 | Compact column addition (numbers up to ThHTO+) including decimals to 3 decimal places.<br>Add fractions with same denominator and denominators that are multiples.<br>Choose most efficient methods. | Decomposition (ThHTO+) Including decimals to 3 decimal places.<br>Use counting on where larger number is multiple or near multiple of 1000 or 10000.<br>Subtract fractions with same denominator and denominators that are multiples.<br>Choose most efficient method.                                                          | Short multiplication (ThHTO x O) including decimals to one decimal place.<br>Traditional long multiplication (ThHTO x U/TO)<br>Find simple % of amounts e.g. 10%, 5%, 50% etc.<br>Begin to multiply mixed numbers by whole numbers.                                                | Short division ThHTO by O<br>Traditional long division with divisors between 12 and 20.<br>Find non-unit fractions of numbers with up to 3 digits.<br>Turn improper fractions into mixed numbers and vice versa.<br>Choose most efficient method. |
| Year 6 | Compact column addition (numbers up to ThHTO +) including decimals to 3 decimal places.<br>Add mixed numbers and fractions with different denominators.                                              | Decomposition (ThHTO +) Including decimals to 3 decimal places.<br>Use counting on where larger number is multiple or near multiple of 1000 or 10000.<br>Use counting on with decimals where there is a small difference.<br>Choose most efficient method.<br>Subtract mixed numbers and fractions with different denominators. | Short multiplication 4 digits including decimals to two decimal places x O.<br>Long multiplication (ThHTO x TO) or 4 digits with decimals x TU.<br>Multiply fractions and mixed numbers by whole numbers. Multiply pairs of proper fractions, writing answer in its simplest form, | Long division ThHTO by TO<br>Divide proper fractions by whole numbers.                                                                                                                                                                            |

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