
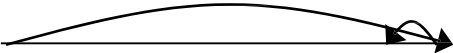

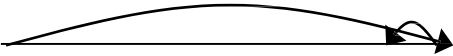


# BSB Sanlitun Calculation Policy

## YEAR 4


<b>Addition</b>		
<b>Mental Strategies</b>	<b>Informal Written Methods</b>	<b>Formal Written Methods</b>
<b>Begin to recognise the most efficient method to use</b>		
<ul style="list-style-type: none"> <li>• <b>Continue to use models and images when necessary</b></li> <li>- practical apparatus</li> </ul>  <ul style="list-style-type: none"> <li>- the empty number line</li> </ul>  <ul style="list-style-type: none"> <li>- count in multiples of 1 to 10, 25, 50, 100 and 1000, forwards or backwards</li> </ul> <ul style="list-style-type: none"> <li>• consolidate recall of addition facts to 20 and related facts involving multiples of 100 and 1000</li> <li>• continue to add numbers mentally, including:               <ul style="list-style-type: none"> <li>- two two-digit numbers</li> <li>- three or more one-digit numbers</li> <li>- a three-digit number and ones</li> <li>- a three-digit number and tens</li> <li>- a three-digit number and hundreds</li> </ul> </li> <li>• identify near doubles, using doubles already known</li> <li>• add the nearest multiple of 10, 100 or 1000, and adjust</li> <li>• use patterns of similar calculations, e.g.  <math>160 + 50 = 210</math> and <math>1600 + 500 = 2100</math></li> <li>• use knowledge of the associative law when adding more than two numbers, e.g.  <math>24 + 27 + 16 = (24 + 16) + 27</math>  <math>= 40 + 27</math>  <math>= 67</math></li> <li>• mentally partition additions into hundreds, tens and ones, then recombine, e.g.  <math>356 + 57 = 356 + 50 + 7</math>  <math>= 406 + 7</math>  <math>= 413</math></li> </ul> <p><b>(use jottings)</b></p>	<p style="text-align: center;"><b>Note: No expanded method</b></p>	<ul style="list-style-type: none"> <li>• <b>Add numbers with up to four digits, including money and measures (ThHTO + ThHTO)</b></li> <li>• Estimate and check the answer to a calculation</li> </ul> <p><b>Formal written method of columnar addition</b></p> $  \begin{array}{r}  2456 + 5378 \\  \phantom{2456} + 5378 \\  \hline  7834 \\  \phantom{7834} \phantom{00} 11 \\  \hline  \phantom{7834} \phantom{00} 11  \end{array}  $ <p><b>Note: position of carry digit</b></p>

# BSB Sanlitun Calculation Policy


<b>Subtraction</b>		
<b>Mental Strategies</b>	<b>Informal Written Methods</b>	<b>Formal Written Methods</b>
<b>Begin to recognise the most efficient method to use</b>		
<ul style="list-style-type: none"> <li>• <b>Continue to use models and images when necessary</b> <ul style="list-style-type: none"> <li>- practical apparatus </li> <li>- the empty number line  </li> </ul> </li> <li>• consolidate recall of subtraction facts to 20 and related facts involving multiples of 100 and 1000</li> <li>• continue to subtract numbers mentally, including:           <ul style="list-style-type: none"> <li>- two two-digit numbers</li> <li>- a three-digit number and ones</li> <li>- a three-digit number and tens</li> <li>- a three-digit number and hundreds</li> </ul> </li> <li>• calculate mentally a difference such as 505 – 286 by counting up from the smaller to the larger number</li> <li>• subtract the nearest multiple of 10, 100 or 1000, and adjust</li> <li>• use patterns of similar calculations, e.g. 18 – 5 = 13 and 1800 – 500 = 1300</li> <li>• use mental partitioning, e.g.           <math display="block">456 - 84 = 456 - 80 - 4</math> <math display="block">= 376 - 4</math> <math display="block">= 372</math> </li> </ul>	<p style="text-align: center;"><b>Note: No expanded method</b></p>	<ul style="list-style-type: none"> <li>• <b>Subtract numbers with up to four digits, including money and measures (ThHTO + ThHTO)</b></li> <li>• Estimate and check the answer to a calculation</li> </ul> <p><b>Formal written method of columnar subtraction (decomposition)</b></p> $  \begin{array}{r}  \phantom{0}3 \phantom{0}12 \phantom{0}1 \\  - \phantom{0}3 \phantom{0}4 \phantom{0}3 \phantom{0}5 \\  \hline  \phantom{0}1 \phantom{0}1 \phantom{0}6 \phantom{0}8 \\  \hline  \phantom{0}2 \phantom{0}2 \phantom{0}6 \phantom{0}7  \end{array}  $ <p style="text-align: center;"><b>Note: position of borrowed digit</b></p>

# BSB Sanlitun Calculation Policy

## YEAR 4

<b>Multiplication</b>		
<b>Mental Strategies</b>	<b>Informal Written Methods</b>	<b>Formal Written Methods</b>
<b>Begin to recognise the most appropriate and efficient method to use</b>		
<p><b>Continue to use models and images:</b></p> <ul style="list-style-type: none"> <li>- arrays</li> <li>- number lines</li> <li>- multiplication square to <math>12 \times 12</math></li> <li>- scaling</li> </ul>  <ul style="list-style-type: none"> <li>• counting in steps of a constant size</li> <li>• consolidate recall of multiplication facts for the 2, 3, 4, 5, 9 and 10 multiplication tables</li> <li>• recall and use multiplication facts for the 6, 7, 8, 11 and 12 multiplication tables</li> <li>• use the 'key multiplication facts' of <math>\times 1</math>, <math>\times 2</math>, <math>\times 5</math>, and <math>\times 10</math> to work out the answers to unknown multiplication facts</li> <li>• continue to use doubling, e.g. connect the 3, 6 multiplication tables</li> <li>• understand and use the commutative law</li> <li>• use known multiplication facts to derive related facts involving multiples of 10 and 100,</li> <li>• use place value, known and derived facts to multiply mentally, including: multiplying by 0 and 1; multiplying together three numbers</li> <li>• Use closely related facts</li> <li>• Use patterns of similar calculations, e.g. <math>8 \times 6 = 48</math> and <math>8 \times 60 = 480</math></li> <li>• Understand and use the associative law, e.g. <math>6 \times 15 = 6 \times (5 \times 3)</math></li> <li>• continue to use the inverse relationship between multiplication and division</li> <li>• calculate the value of an unknown in a number sentence, e.g. <math>\square \times 4 = 36</math>, <math>8 \times \square = 48</math></li> </ul> <p><b>• Short multiplication: Mental Partitioning</b></p> <ul style="list-style-type: none"> <li>- Multiply a two-digit number by a one-digit number (<math>TO \times O</math>)</li> </ul> $43 \times 6 = (40 \times 6) + (3 \times 6)$ $= 240 + 18$ $= 258$ <p><b>(use jottings)</b></p>	<ul style="list-style-type: none"> <li>• <b>Short multiplication:</b></li> <li>- Multiply a three-digit number by a one-digit number (<math>HTO \times O</math>)</li> </ul> <ul style="list-style-type: none"> <li>• Estimate and check the answer to a calculation</li> </ul> <p><b>Partitioning</b></p> <p>Understand and use the distributive law, e.g. partitioning when multiplying a two-digit or three-digit number by a one-digit number,</p> <p>e.g.</p> $356 \times 7 = (300 \times 7) + (50 \times 7) + (6 \times 7)$ $= 2100 + 350 + 42$ $= 2492$ <p><b>Expanded written method</b></p> $  \begin{array}{r}  356 \times 7 \\  \times \quad 7 \\  \hline  42 \quad (6 \times 7) \\  350 \quad (50 \times 7) \\  2100 \quad (300 \times 7) \\  \hline  2492  \end{array}  $	<ul style="list-style-type: none"> <li>• <b>Short multiplication:</b></li> <li>Multiply a three-digit number by a one-digit number (<math>HTO \times O</math>)</li> </ul> <ul style="list-style-type: none"> <li>• Estimate and check the answer to a calculation</li> </ul> <p><b>Formal written method of short multiplication</b></p> $  \begin{array}{r}  356 \times 7 \\  \quad 356 \\  \times \quad 7 \\  \hline  2492  \end{array}  $ <p style="text-align: center;"><b>Note:</b> <b>Position of carry digit</b></p>

# BSB Sanlitun Calculation Policy

Mental Strategies	Informal Written Methods	Formal Written Methods
<b>Begin to recognise the most appropriate and efficient method to use</b>		
<p><b>Continue to use models and images:</b></p> <ul style="list-style-type: none"> <li>- arrays</li> <li>- number lines</li> <li>- multiplication square to <math>12 \times 12</math></li> <li>- scaling</li> </ul>  <ul style="list-style-type: none"> <li>• counting in steps of a constant size</li> <li>• consolidate recall of division facts for the 2, 3, 4, 5, 8 and 10 multiplication tables</li> <li>• recall and use division facts for the 6, 7, 9, 11 and 12 multiplication tables</li> <li>• use place value, known and derived facts to divide mentally, including dividing by 1</li> <li>• use known division facts to derive related facts involving multiples of 10 and 100, e.g. <math>600 \div 3 = 200</math></li> <li>• recognise and use factor pairs in mental calculations</li> <li>• Continue to use halving</li> <li>• Continue to use the inverse relationship between multiplication and division</li> <li>• <b>Short division (without a remainder): Mental Partitioning</b> - Divide a two-digit number by a one-digit number (<math>TO \div O</math>)</li> </ul> <p>Understand and use the distributive law, e.g. partitioning when dividing a three-digit number by a one-digit number</p> $84 \div 6 = (60 \div 6) + (24 \div 6)$ $= 10 + 4$ $= 14$ <p><b>(Use jottings)</b></p>	<ul style="list-style-type: none"> <li>• <b>Short division (without a remainder):</b></li> </ul> <ul style="list-style-type: none"> <li>- Divide a three-digit number by a one-digit number (<math>HTO \div O</math>)</li> </ul> <ul style="list-style-type: none"> <li>• Estimate and check the answer to a calculation</li> </ul> <p><b>Partitioning</b></p> <p>Understand and use the distributive law, e.g. partitioning when dividing a three-digit number by a one-digit number,</p> $291 \div 3 = (270 \div 3) + (21 \div 3)$ $= 90 + 7$ $= 97$ <p style="text-align: center;"><b>Note</b></p> <p style="text-align: center;"><b>No expanded method/chunking in preparation for formal methods</b></p>	<ul style="list-style-type: none"> <li>• <b>Short division (without a remainder):</b></li> </ul> <ul style="list-style-type: none"> <li>- Divide a three-digit number by a one-digit number (<math>HTO \div O</math>)</li> </ul> <ul style="list-style-type: none"> <li>• Estimate and check the answer to a calculation</li> </ul> <p><b>Formal written method of short division</b></p> $\begin{array}{r} 97 \\ 3 \overline{)291} \end{array}$