
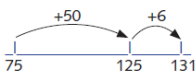

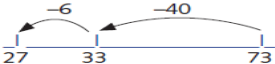


BSB Sanlitun Calculation Policy


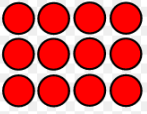
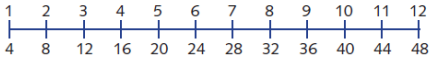
YEAR 3

Addition		
Mental Strategies	Informal Written Methods	Formal Written Methods
Begin to recognise the most efficient method to use		
<ul style="list-style-type: none"> • Use of models and images: <ul style="list-style-type: none"> - practical apparatus  <ul style="list-style-type: none"> - the empty number line  <ul style="list-style-type: none"> • count from 0 in multiples of 1, 2, 3, 4, 5, 9, 10, 50 and 100, forwards and backwards • continue to recall and use addition facts to 20 fluently, and derive and use related facts up to 100, e.g. $130 + 50 = 180$ • continue to add numbers mentally, including: <ul style="list-style-type: none"> - two two-digit numbers - three or more one-digit numbers - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds • use knowledge that addition can be done in any order (commutative), e.g. <ul style="list-style-type: none"> - put the larger number first and count on in steps of 1, 10 or 100 • identify near doubles, using doubles already known • add the nearest multiple of 10 or 100, and adjust • use patterns of similar calculations, e.g. $13 + 5 = 18$ and $130 + 50 = 180$ • use knowledge of the associative law when adding more than two numbers, e.g. $4 + 7 + 6 = (4 + 6) + 7 = 10 + 7 = 17$ • recognise and use the inverse relationship between addition and subtraction <ul style="list-style-type: none"> • Add numbers with up to three digits (HTO + HTO) <p>Use mental partitioning</p> <ul style="list-style-type: none"> - mentally partition additions into hundreds, tens and ones, then recombine, e.g. $175 + 56 = 175 + 50 + 6$ $= 225 + 6$ $= 231$	<ul style="list-style-type: none"> • Add numbers with three digits (HTO + HTO) <ul style="list-style-type: none"> • Estimate and check the answer to a calculation <p>Expanded written method</p> $548 + 387$ $\begin{array}{r} 548 \\ +387 \\ \hline 15 \text{ (8 + 7)} \\ 120 \text{ (40 + 80)} \\ + 800 \text{ (500 + 300)} \\ \hline 935 \end{array}$	<ul style="list-style-type: none"> • Add numbers with up to three digits (HTO + HTO) <ul style="list-style-type: none"> • Estimate and check the answer to a calculation <p>Formal written method of columnar addition</p> $\begin{array}{r} 548 + 387 \\ \hline 548 \\ + 387 \\ \hline 935 \\ \hline 11 \end{array}$ <p>Note: Position of carry digit</p>


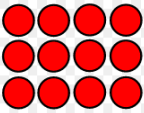
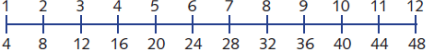
BSB Sanlitun Calculation Policy

Subtraction		
Mental Strategies	Informal Written Methods	Formal Written Methods
Begin to recognise the most efficient method to use		
<ul style="list-style-type: none"> • Use of models and images: - practical apparatus  <ul style="list-style-type: none"> - the empty number line  <ul style="list-style-type: none"> • continue to recall and use subtraction facts to 20 fluently, and derive and use related facts, e.g. $120 - 70 = 50$ • continue to subtract numbers mentally, including: <ul style="list-style-type: none"> - two two-digit numbers - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds • find a difference by counting up from the smaller to the larger number • subtract the nearest multiple of 10 or 100, and adjust • use patterns of similar calculations, e.g. $27 - 5 = 22$ and $270 - 50 = 220$ • recognise and use the inverse relationship between addition and subtraction • use mental partitioning, e.g. $164 - 36 = 164 - 30 - 6$ $= 134 - 6$ $= 128$ <p>(use jottings)</p> <ul style="list-style-type: none"> • Subtract two numbers with three digits (HTO – HTO) mental, no regrouping e.g. $335 - 122 = 213$ 	<p>Not used in Year 3</p>	<ul style="list-style-type: none"> • Subtract two numbers with three digits (HTO - HTO) • Estimate and check the answer to a calculation <p>Formal written method of columnar subtraction (decomposition)</p> $ \begin{array}{r} 3 \quad 12 \quad 1 \\ \cancel{4} \quad \cancel{3} \quad 5 \\ - 1 \quad 6 \quad 8 \\ \hline 2 \quad 6 \quad 7 \end{array} $ <p>Note: Position of borrowed digit</p>

YEAR 3

Multiplication	Informal Written Methods	Formal Written Methods
<p style="text-align: center;">Mental Strategies</p> <ul style="list-style-type: none"> • Use of models and images: <ul style="list-style-type: none"> - scaling  - arrays  - number lines e.g.  - multiplication square • counting in steps of a constant size • consolidate recall of multiplication facts for the 2, 5 and 10 multiplication tables • recall and use multiplication facts for the 3, 4 and 9 multiplication tables • use the 'key multiplication facts' of x 1, x 2, x 5, and x 10 to derive facts in multiplication tables • use known multiplication facts to derive related facts involving multiples of 10, e.g. $3 \times 30 = 90$ • use doubling, e.g. connect the 2, 4 multiplication tables • use patterns of similar calculations, e.g. $8 \times 4 = 32$ and $8 \times 40 = 320$ • show that multiplication of two numbers can be done in any order (commutative) • calculate the value of an unknown in a number sentence, e.g. $\square \times 2 = 16$ • understand and use the inverse relationship between multiplication and division <p>• Short multiplication (using mental partitioning)</p> <ul style="list-style-type: none"> - Multiply a two-digit number by a one-digit number (TO x O) • Estimate and check the answer to a calculation • Understand and use the distributive law, e.g. partitioning when multiplying a two-digit number by a one-digit number, e.g. $63 \times 4 = (60 \times 4) + (3 \times 4)$ $= 240 + 12$ $= 252$ <p>(use jottings)</p>	<p>Note: No column preparation for formal methods</p>	<p>Not introduced in Year 3</p>

BSB Sanlitun Calculation Policy

Division		
Mental Strategies	Informal Written Methods	Formal Written Methods
<p>• Use of models and images:</p> <p>- scaling</p>  <p>- arrays</p>  <p>- number lines e.g.</p>  <p>- multiplication square</p> <ul style="list-style-type: none"> • counting in steps of a constant size • consolidate recall of division facts for the 2, 5 and 10 multiplication tables • recall and use division facts for the 3, 4 and 9 multiplication tables • use known division facts to derive related facts involving multiples of 10, e.g. $90 \div 3 = 30$ • write and calculate mathematical statements for division using known multiplication tables • calculate the value of an unknown in a number sentence, e.g. $\square \div 2 = 6$ relates to $2 \times 6 = 12$; $30 \div \square = 10$ relates to $10 \times 3 = 30$ • understand and use the inverse relationship between multiplication and division • use halving, e.g. find quarters by halving halves • use patterns of similar calculations, e.g. $36 \div 4 = 9$ and $360 \div 40 = 9$ <p>• Short division (without a remainder) (using mental partitioning)</p> <p>- Divide a two-digit number by a one-digit number (TO \div O)</p> <ul style="list-style-type: none"> • Estimate and check the answer to a calculation • Understand and use the distributive law, e.g. partitioning when dividing a two-digit number by a one-digit number, $88 \div 4 = (80 \div 4) + (8 \div 4)$ $= 20 + 2$ $= 22$ <p>(use jottings)</p>	<p>Note: No column preparation for formal methods</p>	<p>Not introduced in Year 3</p>