



# Primary Maths Calculation Policy

## Pencil and Paper Procedures

This procedure is reviewed annually to ensure compliance with current regulations

Approved/reviewed by	Head of Primary & Secondary
Date of review	August 2023
Date of next review	August 2024

### Introduction

Over the years much has changed in the teaching and learning of maths. The calculation methods used by children today are in many cases different from those used by adults when they were at school. This can cause anxiety, with parents and carers unsure whether or not they should teach children particular methods.

The purpose of this booklet is to provide guidance and information about the types of calculation methods that the children at Dubai British School are being taught and are using from Foundation up to Year 6.

The calculation methods taught today gradually build on the children's understanding over a period of time. They have been introduced after research programmes have shown them to be effective. The aim is to teach children calculation methods which they understand, can use correctly, and can use confidently to solve problems.

The Primary National Strategy gives a great deal of emphasis to children learning to use a whole range of mental calculation methods properly, before they move on to written calculations. These mental methods will involve the children writing or drawing things to help them. These are often called "jottings" and might well involve using a number line.

This does not mean that written methods are not seen as important. It is expected that children in Year 6 will have a written method for each operation  $+$   $-$   $\times$   $\div$  which they can use reliably to solve problems. The written methods that children use will not necessarily involve lining the numbers up in columns, since there are other effective methods which we will look at in this booklet.

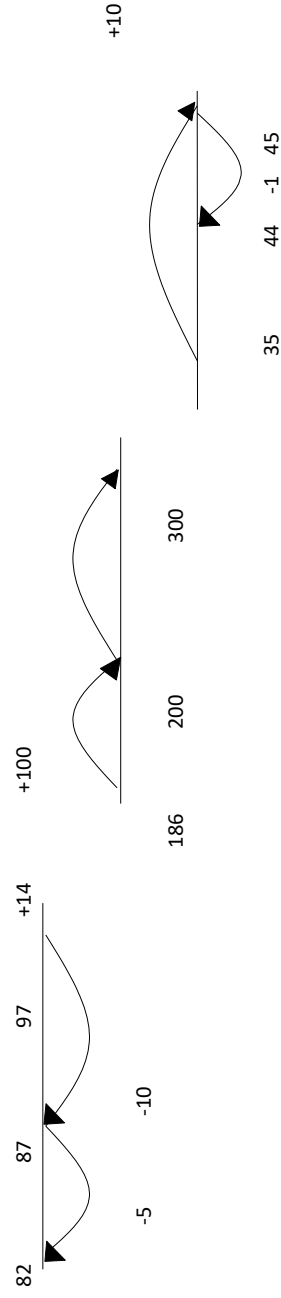
$$\begin{array}{r|l|l} \times & 20 & 3 \\ 7 & 140 & 21 \\ \hline \end{array}$$



Notes to accompany the Calculation Policy

1. The columns for each year group are intended to be for the standard level. Teachers use their year group as a starting point for planning, but in order to meet the needs of the individuals there will be need to look forward or back.

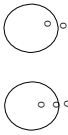


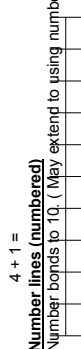


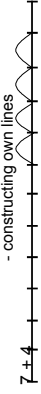
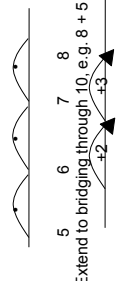

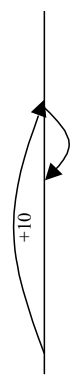
2. When using a number line, show counting on above the line and counting back below the line. Include an arrow to show direction.





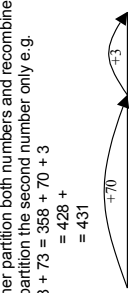

3. Using calculators is encouraged for checking answers in all year groups. In years 5 and 6, when written methods are secure, calculators can be used if it is the most efficient method of calculation.


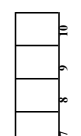








4. Estimating is encouraged from foundation to year 6 by the use of apparatus, rounding and using the inverse operation.

5. The methods of calculations taught within each year group should be applied to other areas, including measurement and problem solving.

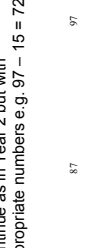

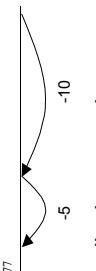
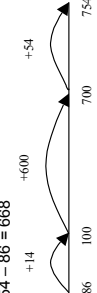
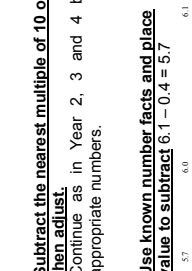
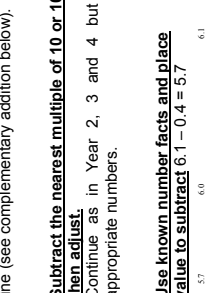
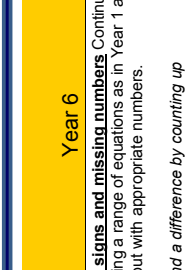
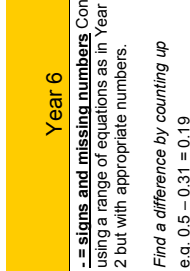
Foundation	Addition Year 1	Year 2
<p>Note: Recording the numerals is not expected until F2, term 3. Prior to this teachers will model simple addition and subtraction using formal notation. Children will be encouraged to use their own pictorial recording to represent quantities and the results of simple calculations.</p> <p><b>Oral and practical</b> Songs and rhymes. Dice and number games. Counting objects in groups. Unifix cubes. Cutting and sticking. Number stories, e.g. There are 3 crabs in the sand and 2 in the water. How many are there altogether? Drawing. When children are ready to record numerals the following are possible ways to record simple calculations:</p> <p><b>Combining sets</b> <math>3 + 2 =</math> </p> <p><b>Identifying and generating numbers using Numicon</b> </p> <p><b>Finding one more than a given number</b> </p> <p><math>4 + 1 =</math></p> <p><b>Number lines (numbered)</b> Number bonds to 10. (May extend to using number lines to 20). </p> <p>0 1 2 3 4 5 6 7 8 9 10</p>	<p><b>Oral and practical</b> Continue practical work as in foundation. Working with apparatus, including bead strings and unifix to 20.</p> <p><b>Generating and solving number sentences with Numicon</b> </p> <p><b>Number bonds using Numicon</b> </p> <p><math>10 = 1+9, 2+8, 3+7</math></p> <p><b>± = signs and missing numbers</b> <math>3 + 4 = \bullet</math> <math>3 + \bullet = 7</math> <math>\bullet + 4 = 7</math> <math>7 = \bullet + \bullet + \bullet</math> <math>7 = 7</math> <math>7 = \bullet + \bullet + \bullet</math></p> <p>Promoting covering up of operations and numbers.</p> <p><b>Number lines (numbered)</b> Teacher models first. Children record by - drawing jumps on prepared lines - constructing own lines</p> <p><math>7 + 4</math> </p> <p><b>Empty number lines</b> <math>5 + 3</math> </p> <p>Extend to bridging through 10, e.g. <math>8 + 5 = 13</math></p> <p>8 10 13</p>	<p><b>+ = signs and missing numbers</b> Continue using a range of equations as in Year 1 but with appropriate, larger numbers. Extend to <math>14 + 5 = 10 + \bullet</math> and adding three numbers <math>32 + \bullet + \bullet = 100</math> <math>35 = 1 + \bullet + 5</math></p> <p><b>Partition into tens and ones and recombine</b> <math>12 + 23 = 10 + 2 + 20 + 3</math> <math>= 30 + 5</math> <math>= 35</math></p> <p><b>refine to partitioning the second number only:</b> <math>23 + 12 = 23 + 10 + 2</math> <math>= 33 + 2</math> <math>= 35</math></p> <p><math>23</math>  <math>35</math></p> <p><math>33</math> <math>35</math></p> <p>Add 9 or 11 by adding 10 and adjusting by 1 <math>35 + 9 = 44</math></p> <p><math>35</math>  <math>44</math> <math>45</math> <math>-1</math></p>

## PRIMARY MATHS CALCULATION POLICY


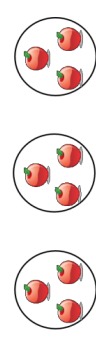
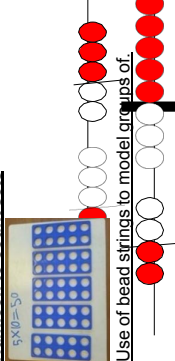
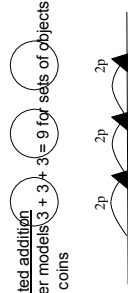

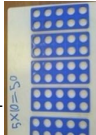


Addition		Year 3	Year 4	Year 5	Year 6
	<p><b>+ = signs and missing numbers</b> Continue using a range of equations as in Year 1 and 2 but with appropriate, larger numbers.</p> <p><b>Partition into tens and ones and recombine</b> Partition both numbers and recombine. <math>47 + 36 = 40 + 7 + 30 + 6</math> OR <math>47 + 36 = 70 + 13 = 83</math> Refine to partitioning the second number only e.g. <math>36 + 53 = 53 + 30 + 6 = 83 + 6 = 89</math></p> 	<p><b>+ = signs and missing numbers</b> Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><b>Partition into tens and ones and recombine</b> Either partition both numbers and recombine or partition the second number only e.g. <math>55 + 37 = 55 + 30 + 7 = 85 + 7 = 92</math></p>  <p><b>Add the nearest multiple of 10, then adjust</b> Continue as in Year 2 and 3 but with appropriate numbers e.g. <math>63 + 29</math> is the same as <math>63 + 30 - 1</math></p> <p><b>Pencil and paper procedures</b> <math>358 + 73 = 431</math></p> <p>Either</p> $\begin{array}{r} 300 + 50 + 8 \\ + 70 + 3 \\ \hline 300 + 120 + 11 = 431 \\ 120 \end{array}$ <p>OR</p> $\begin{array}{r} 358 \\ + 73 \\ \hline 431 \end{array}$ <p>Extend to decimals in the context of money (vertically)</p> $\begin{array}{r} \pounds 2.50 + \pounds 1.75 = \pounds 4.25 \\ \pounds 2.50 \\ + \pounds 1.75 \\ \hline \pounds 4.25 \\ 111 \end{array}$ <p>(Revert to expanded methods if the children experience any difficulty.)</p>	<p><b>+ = signs and missing numbers</b> Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><b>Partition into hundreds, tens and ones and recombine</b> Either partition both numbers and recombine or partition the second number only e.g. <math>358 + 73 = 358 + 70 + 3 = 428 + 3 = 431</math></p>  <p><b>Add or subtract the nearest multiple of 10, then adjust</b> Continue as in Year 2, 3 and 4 but with appropriate numbers e.g. <math>458 + 79 =</math> is the same as <math>458 + 80 - 1</math></p> <p><b>Pencil and paper procedures</b> Leading to formal method, showing numbers carried underneath.</p> $\begin{array}{r} 358 \\ + 73 \\ \hline 431 \\ 11 \end{array}$ <p>Extend to numbers with at least four digits</p> $\begin{array}{r} 3587 \\ + 675 \\ \hline 4262 \\ 111 \end{array}$ <p>Revert to expanded methods if the children experience any difficulty. Extend to decimals (same number of decimal places) and adding several numbers (with different numbers of digits).</p> <p><i>Model negative numbers using a number line.</i></p>	<p><b>+ = signs and missing numbers</b> Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><b>Partition into hundreds, tens, ones and decimal fractions and recombine</b> Either partition both numbers and recombine or partition the second number only e.g. <math>35.8 + 7.3 = 35.8 + 7 + 0.3 = 42.8 + 0.3 = 43.1</math></p>  <p><b>Add the nearest multiple of 10, 100 or 1000, then adjust</b> Continue as in Year 2, 3, 4 and 5 but with appropriate numbers including extending to adding 0.9, 1.9, 2.9 etc</p> <p><b>Pencil and paper procedures</b> Extend to numbers with any number of digits and decimals with 1 and 2 decimal places.</p> $\begin{array}{r} 124.9 \\ + 117.25 \\ \hline 242.15 \\ 11 \end{array}$ <p>Revert to expanded methods if the children experience any difficulty. Extend to decimals (either one or two decimal places).</p>	

Foundation	Subtraction Year 1	Year 2
<p><b>Oral and Practical work</b> Songs and rhymes Dice and number games Counting groups of objects and removing some and counting again – emphasising inverse of addition. Unifix cubes Cutting and sticking Number stories using objects, e.g. How many are there altogether? How many are there now? (after some have been removed.)</p> <p><b>Pictures / marks</b> Take away two  <input type="checkbox"/></p> <p><math>5 - 2 =</math></p> <p><b>Finding 1 less than a given number</b> Number tracks  <input type="checkbox"/></p> <p><math>5 - 1 =</math></p> <p><b>Counting back</b> Counting back in 1's orally from different totals up to 20. End of term 3 – more able draw on prepared number lines. </p> <p>0 1 2 3 4 5 6 7 8 9 10</p>	<p><b>Oral and practical</b> Continue as in foundation with apparatus, including bead strings and unifix, using numbers within 20.</p> <p><b>Pictures / marks</b> Sam spent 4p. What was his change from 10p? Extend to </p> <p><b>Generating and solving number sentences with Numicon</b>  <math>9 + 3 = 12</math></p> <p><b>- = signs and missing numbers</b> <math>7 - 3 = \bullet</math>     <math>\bullet = 7 - 3</math> <math>7 - \bullet = 4</math>     <math>4 = \bullet - 3</math> <math>\bullet - 3 = 4</math>     <math>4 = 7 - \bullet</math> <math>\bullet - \nabla = 4</math>     <math>4 = \bullet - \nabla</math></p> <p><b>Number lines (numbered and semi structured)</b> <math>11 - 7</math> (Counting back) </p> <p>The difference between 7 and 11 (Counting up) </p> <p>Recording by - drawing jumps on prepared lines - constructing own lines (Teachers model jottings appropriate for larger numbers)</p>	<p><b>- = signs and missing numbers</b> Continue using a range of equations as in Year 1 but with appropriate numbers. Extend to <math>14 + 5 = 20</math> - -</p> <p><b>Find a small difference by counting up</b> <math>42 - 39 = 3</math></p> <p></p> <p>39     40     42</p> <p><b>Subtract 9 or 11. Begin to add/subtract 19 or 21</b> <math>35 - 9 = 26</math></p> <p></p> <p>25     26     35     -10</p> <p><b>Use known number facts and place value to subtract</b> (partition second number only) <math>37 - 12 = 37 - 10 - 2</math> <math>= 27 - 2</math> <math>= 25</math></p> <p></p> <p>25     27     37</p> <p>-2     -10</p>

## PRIMARY MATHS CALCULATION POLICY


Subtraction	
Year 3	Year 4
<p><b>- = signs and missing numbers</b> Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><b>Find a small difference by counting up</b> Continue as in Year 2 but with appropriate numbers e.g. <math>102 - 97 = 5</math></p> <p><b>Subtract mentally a 'near multiple of 10' to or from a two-digit number</b> Continue as in Year 2 but with appropriate numbers e.g. <math>78 - 49</math> is the same as <math>78 - 50 + 1</math></p> <p><b>Use known number facts and place value to subtract</b> Continue as in Year 2 but with appropriate numbers e.g. <math>97 - 15 = 72</math></p>  <p><b>Pencil and paper procedures</b> Complementary addition</p> $\begin{array}{r} 84 \\ -56 \\ \hline \end{array}$  <p>Term 3 - could extend to vertical method. <math>20 \rightarrow 80</math> <math>4 \rightarrow 84</math> <math>\underline{28}</math></p>	<p><b>- = signs and missing numbers</b> Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><b>Find a small difference by counting up</b> e.g. <math>5003 - 4996 = 7</math> This can be modelled on an empty number line (see complementary addition below).</p> <p><b>Subtract the nearest multiple of 10, then adjust.</b> Continue as in Year 2 and 3 but with appropriate numbers.</p> <p><b>Use known number facts and place value to subtract</b> <math>92 - 15 = 77</math></p>  <p><b>Pencil and paper procedures</b> Complementary addition - continue as year 3 with number line and/or vertical method. <math>754 - 86 = 668</math></p>  <p><b>Expanded Method of decomposition</b> <math>572 - 58 = 514</math> <math>500 + 70 + 2</math> <math>\frac{50 + 8}{500 + 10 + 4} = 514</math></p> <p>Extend to decimals using 3 digit sums of money, with or without adjustment from pence to pounds.</p>
<p><b>- = signs and missing numbers</b> Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><b>Find a difference by counting up</b> e.g. <math>8006 - 2993 = 5013</math> This can be modelled on an empty number line (see complementary addition below).</p> <p><b>Subtract the nearest multiple of 10, then adjust.</b> Continue as in Year 2, 3 and 4 but with appropriate numbers.</p> <p><b>Use known number facts and place value to subtract</b> <math>6.1 - 0.4 = 5.7</math></p>  <p><b>Pencil and paper procedures</b> Complementary addition including vertical method. <math>754 - 286 = 468</math></p>  <p><b>Expanded method of decomposition leading to compact recording.</b> <math>757 - 259 = 498</math> <math>600 \quad 140 \quad 17</math> <math>700 + 50 + 7</math> <math>\frac{200 + 50 + 9}{400 + 90 + 8} = 498</math></p> <p>Extend to decimals using the chosen method using decimal fractions with 3 digits and the same number of decimal places. E.g. <math>\pounds 42 - 6.78</math> or <math>72.5\text{km} - 4.6\text{km}</math></p>	<p><b>- = signs and missing numbers</b> Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><b>Find a difference by counting up</b> e.g. <math>0.5 - 0.31 = 0.19</math> This can be modelled on an empty number line (see complementary addition below).</p>  <p><b>Subtract the nearest multiple of 10, 100, then adjust</b> Continue as in Year 2, 3, 4 and 5 but with appropriate numbers. Use known number facts and place value to subtract Continue as year 5</p> <p><b>Pencil and paper procedures</b> Complementary addition including vertical method <math>6467 - 2684 = 3783</math></p>  <p><b>Compact decomposition</b> <math>6467 - 2684 = 3783</math> <math>\frac{51316}{-2684} = 3783</math></p> <p>Extend to decimals using decimal fractions with up to 3 digits and either 1 or 2 decimal places. E.g. <math>324.9 - 7.25</math> or <math>14.24 - 8.7</math></p>

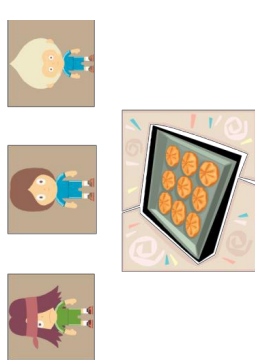
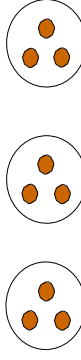

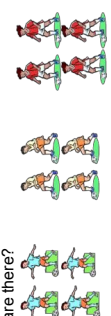
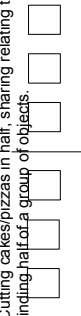
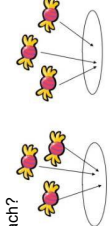


**PRIMARY MATHS CALCULATION**

Multiplication		
Foundation	Year 1	Year 2
<p><b>Practical and oral</b> Circle time Games Songs and rhymes Counting in ones, twos and tens Matching pairs, e.g socks</p>  <p><b>Repeated addition</b> Groups of objects with the same number, counting how many in each group and finding how many altogether.</p>  <p><b>Recording</b> Drawing, e.g. petals on flowers – draw 3 petals on each flower.</p> <p>Term 3 – may record numerals to show how many in each group.</p>	<p><b>Practical and Oral</b> Continue as foundation but including counting fives Knowing doubles of numbers to 10</p> <p><b>Pictures and symbols</b> There are 3 sweets in one bag. How many sweets are there in 5 bags? <i>(Recording on a number line modelled by the teacher when solving problems)</i></p> <p><b>Numicon to count sets</b></p>  <p><b>Use of bead strings to model groups of</b></p> <p><b>Repeated addition</b> Teacher models <math>3 + 3 + 3 = 9</math> for sets of objects Use of coins</p>  <p>Teacher models number line</p> <p>0 1 2 3 4 5 6</p>	<p><b>x = signs and missing numbers</b> <math>7 \times 2 = \bullet</math> <math>7 \times \bullet = 14</math> <math>\bullet \times 2 = 14</math> <math>\bullet \times \nabla = 14</math></p> <p><b>Arrays and repeated addition</b></p>  <p><math>4 \times 2</math> or <math>4 + 4</math></p> <p>or repeated addition using numicon</p>  <p>or a number line: <math>2 + 2 + 2 + 2</math></p>  <p>0 1 2 3 4 5 6 7 8</p> <p><b>Doubling multiples of 5 up to 50</b> <math>15 \times 2 = 30</math></p> <p><b>Partition</b></p>  <p>OR</p> <p><math>15 \times 2</math> <math>10 + 5</math> <math>20 + 10 = 30</math></p> <p><math>20 + 10 = 30</math></p>

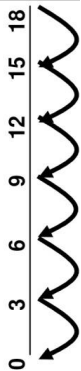
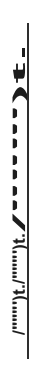

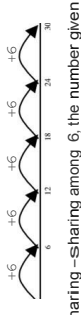



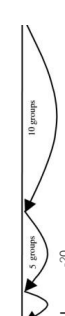




## PRIMARY MATHS CALCULATION POLICY

Multiplication			
Year 3	Year 4	Year 5	Year 6
<p><b>x = signs and missing numbers</b> Continue using a range of equations as in Year 2 but with appropriate numbers.</p> <p>Number lines <math>6 \times 3</math></p>  <p><math>0 \quad 6 \quad 12 \quad 18</math></p> <p><b>Arrays and repeated addition</b> Continue to understand multiplication as repeated addition and continue to use arrays (as in Year 2).</p> <p><b>Doubling multiples of 5 up to 50</b> <math>35 \times 2 = 70</math>. (Partition) <math>\rightarrow 30 + 5</math></p> <p><math>60 + 10 = 70</math></p> <p><b>Pencil and paper procedures</b> Use known facts and place value to carry out simple multiplications partitioning using grid method, e.g. <math>32 \times 3 = 96</math></p> $\begin{array}{r l} \times & 30 & 2 \\ 3 & 90 & 6 \\ \hline & 96 & \end{array}$	<p><b>x = signs and missing numbers</b> Continue using a range of equations as in Year 2 but with appropriate numbers</p> <p><b>Partition</b> <math>23 \times 4 = 92</math> <math>23 \times 4 = (20 \times 4) + (3 \times 4)</math> <math>= (80) + (12)</math> <math>= 92</math></p> <p><b>OR</b> Use the grid method of multiplication (as below)</p> <p><b>Pencil and paper procedures</b> Grid method (TU x U)</p> $\begin{array}{r l} \times & 20 & 3 \\ 7 & 140 & 21 \\ \hline & 140 & 21 \\ & 70 & 2 \\ \hline & 100 & 70 & 2 \\ 6 & 600 & 420 & 12 \\ \hline & 1032 & & \end{array}$ <p>Extend more able children to HTU x U <math>172 \times 6</math> is approximately <math>200 \times 6 = 1200</math></p>	<p><b>x = signs and missing numbers</b> Continue using a range of equations as in Year 2 but with appropriate numbers</p> <p><b>Partition</b> <math>47 \times 6 = 92</math> <math>47 \times 6 = (40 \times 6) + (7 \times 6)</math> <math>= (240) + (42)</math> <math>= 282</math></p> <p><b>Pencil and paper procedures</b> Grid method (HTU x U and TU x TU) <math>72 \times 38</math> is approximately <math>70 \times 40 = 2800</math></p> $\begin{array}{r l} \times & 70 & 2 \\ 0 & 2100 & 60 \\ 38 & 560 & 16 \\ \hline & 2160 & 576 \\ & 2736 & \\ \hline & 2736 & \\ & 346 & 9 \\ \hline & 2700 & (300 \times 9) & \text{leading to } 3114 \\ & 360 & (40 \times 9) & \\ & 54 & (6 \times 9) & \\ \hline & 3114 & & \end{array}$ <p>Standard method: (HTU x U and TU x TU) <math>346 \times 9</math> is approximately <math>350 \times 10 = 3500</math></p> <p><math>72 \times 38</math> is approximately <math>70 \times 40 = 2800</math></p> <p><math>x \quad 38</math> <math>2160 \quad (72 \times 30)</math> <math>576 \quad (72 \times 8)</math> <math>\hline 2736</math></p> <p>4.9 Extend to simple <u>x.3</u> decimals with 12.0 (4.0 x 3) one decimal <u>2.7</u> (0.9 x 3)</p> $\begin{array}{r} 12.0 \\ \times 3 \\ \hline 36.0 \end{array}$	<p><b>x = signs and missing numbers</b> Continue using a range of equations as in Year 2 but with appropriate numbers</p> <p><b>Partition</b> <math>87 \times 6 = 522</math> <math>87 \times 6 = (80 \times 6) + (7 \times 6)</math> <math>= (480) + (42)</math> <math>= 522</math></p> <p><b>Pencil and paper procedures</b> <b>Grid method (HTU x U and HTU x TU)</b> <math>372 \times 24</math> is approximately <math>400 \times 20 = 8000</math></p> $\begin{array}{r l} \times & 300 & 70 & 2 \\ -20 & 6000 & 1400 & 40 \\ \hline & 4 & 1200 & 280 & 8 \end{array}$ <p>Standard method continue as Year 5: (THU x U and HTU x TU) <math>352 \times 27</math> is approximately <math>350 \times 30 = 10500</math></p> $\begin{array}{r} 352 \\ \times 27 \\ \hline 2464 \\ 7040 \\ \hline 9504 \end{array}$ <p>Extend to decimals with up to two decimal places, 12.5 <u>x2.5</u> <math>25.0 \quad (2.5 \times 10.0)</math> <math>5.0 \quad (2.5 \times 2.0)</math> <math>1.25 \quad (2.5 \times 0.5)</math> <math>31.25</math></p> <p>Moving to formal methods of multiplication for decimals. Carrying numbers underneath.</p>

Division		Year 2
<p><b>Foundation</b></p> <p><b>Practical and oral</b></p> <p>Songs and rhymes            Making groups/piles of 2 using objects (relate to x)            Finding partners, e.g. getting into 2's in PE, how many pairs are there?            Extend more able by asking how many balls do I need to get out if each pair will have 1?</p> <p>Sharing out between people by giving 1 each – is there an easier way to do this? E.g. 2 at a time.</p>  <p>Each friend gets 3 cookies</p> 	<p><b>Year 1</b></p> <p><b>Practical and oral</b>            Continue as foundation</p> <p><b>Numicon to make number using equal groups</b></p>  <p><b>Pictures / marks</b>            12 children get into teams of 4 to play a game. How many teams are there?</p>  <p>Cutting cakes/pizzas in half, sharing relating to fractions, e.g. finding half of a group of objects</p>  <p>Knowing halves of even numbers to 20.</p>	<p><b>Year 2</b></p> <p><b>± signs and missing numbers</b></p> <p><math>6 + 2 = \bullet</math>  <math>6 + \bullet = 3</math>  <math>\bullet + 2 = 3</math>  <math>\bullet + \nabla = 3</math></p> <p><math>\bullet = 6 + 2</math>  <math>3 = 6 + \bullet</math>  <math>3 = \bullet + 2</math>  <math>3 = \bullet + \nabla</math></p> <p><b>Understand division as sharing and grouping</b></p> <p>Sharing – 6 sweets are shared between 2 people. How many do they have each?</p>  <p><math>6 \div 2</math> can be modelled as:</p> <p>Grouping – There are 6 sweets. How many people can have 2 each? (How many 2's make 6?)</p>  <p><b>Understanding the relationship between x and ± (using the inverse)</b></p>  <p><math>4 \times 3 = 12</math>  <math>12 \div 3 = 4</math>  <math>12 \div 4 = 3</math></p>

**PRIMARY MATHS CALCULATION POLICY**

Division	
Year 3	Year 4
<p><b>+ = signs and missing numbers</b> Continue using a range of equations as in Year 2 but with appropriate numbers.</p> <p><b>Understand division as sharing and grouping</b> 18 ÷ 3 can be modelled as: Sharing - 18 shared between 3 (see Year 2 @Diagram)</p>  <p>0 3 6 9 12 15 18</p> <p>Or Grouping - How many 3's make 18?</p>  <p>0 3 6 9 12 15 18</p> <p>Remainders 16 ÷ 3 = 5 r1 Sharing - 16 shared between 3, how many left over? Grouping - How many 3's make 16, how many left over? e.g.</p>  <p>0 3 6 9 12 15 16</p>	<p><b>+ = signs and missing numbers</b> Continue using a range of equations as in Year 2 but with appropriate numbers.</p> <p><b>Sharing and grouping</b> 30 ÷ 6 can be modelled as: grouping-groups of 6 taken away and the number of groups counted e.g.</p>  <p>0 6 12 18 24 30</p> <p>sharing - sharing among 6, the number given to each person</p> <p>Remainders 41 ÷ 4 = 10 r1</p>  <p>OR 0 1 10 x 4 41</p> <p>Remainders -1 -40</p> <p>OR 41 = (10 x 4) + 1</p> <p><b>Pencil and paper procedures</b> 72 ÷ 5 lies between 50 ÷ 5 = 10 and 100 ÷ 5 = 20</p> <p>72 50 (10 groups) or (10 x 5) 22 20 (4 groups) or (4 x 5)</p> <p>Answer : 14 remainder 2</p>
<p><b>+ = signs and missing numbers</b> Continue using a range of equations as in Year 2 but with appropriate numbers.</p> <p><b>Sharing and grouping</b> Continue to understand division as both sharing and grouping (repeated subtraction).</p> <p><b>Remainders</b> Quotients expressed as fractions or decimal fractions 676 ÷ 8 = 84.5</p>  <p>OR 4 36 676 -4 -32 80,000 -640</p> <p><b>Pencil and paper procedures</b> 977 ÷ 36 is approximately 1000 ÷ 40 = 25</p> <p>977 977 360 (10 x 36) - 720 (20 x 36) 617 257 250 (10 x 36) 100 (1 x 36)</p> <p>257 to 77 180 (5 x 36) - 72 (2 x 36) 77 7 7 (2 x 36) 5</p> <p>Answer: 27 <sup>5</sup>/<sub>36</sub></p>	<p><b>+ = signs and missing numbers</b> Continue using a range of equations as in Year 2 but with appropriate numbers.</p> <p><b>Sharing and grouping</b> Continue to understand division as both sharing and grouping (repeated subtraction).</p> <p><b>Remainders</b> Quotients expressed as fractions or decimal fractions 61 ÷ 4 = 15 % or 15.25</p>  <p>OR 0 21 61</p>  <p><b>Pencil and paper procedures</b> 256 ÷ 7 lies between 210 ÷ 7 = 30 and 280 ÷ 7 = 40</p> <p>256 ...210/; 186 (10 groups) or (10 x 7) 140 (20 groups) or (20 x 7) 46 (6 groups) or 4 (36 groups) or (36)</p> <p>Answer: 36 remainder 4</p>
<p><b>+ = signs and missing numbers</b> Continue using a range of equations as in Year 2 but with appropriate numbers.</p> <p><b>Sharing and grouping</b> Continue to understand division as both sharing and grouping (repeated subtraction).</p> <p><b>Remainders</b> Quotients expressed as fractions or decimal fractions 676 ÷ 8 = 84.5</p>  <p>OR 4 36 676 -4 -32 80,000 -640</p> <p><b>Pencil and paper procedures</b> 977 ÷ 36 is approximately 1000 ÷ 40 = 25</p> <p>977 977 360 (10 x 36) - 720 (20 x 36) 617 257 250 (10 x 36) 100 (1 x 36)</p> <p>257 to 77 180 (5 x 36) - 72 (2 x 36) 77 7 7 (2 x 36) 5</p> <p>Answer: 27 <sup>5</sup>/<sub>36</sub></p>	<p><b>+ = signs and missing numbers</b> Continue using a range of equations as in Year 2 but with appropriate numbers.</p> <p><b>Sharing and grouping</b> Continue to understand division as both sharing and grouping (repeated subtraction).</p> <p><b>Remainders</b> Quotients expressed as fractions or decimal fractions 676 ÷ 8 = 84.5</p>  <p>OR 4 36 676 -4 -32 80,000 -640</p> <p><b>Pencil and paper procedures</b> 977 ÷ 36 is approximately 1000 ÷ 40 = 25</p> <p>977 977 360 (10 x 36) - 720 (20 x 36) 617 257 250 (10 x 36) 100 (1 x 36)</p> <p>257 to 77 180 (5 x 36) - 72 (2 x 36) 77 7 7 (2 x 36) 5</p> <p>Answer: 27 <sup>5</sup>/<sub>36</sub></p>