

Maths

Hildenborough CE Primary School
Calculation policy

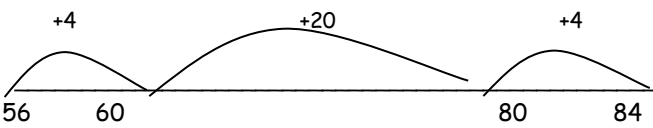
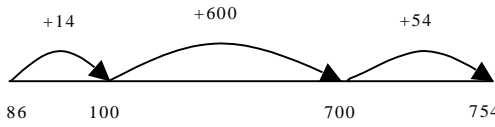
September 2013

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Addition

Year 5	Year 6
<p><u>+ = signs and missing numbers</u> Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><u>Mental partitioning-</u> Continue years 5 and 6</p> <p><u>Add or subtract the nearest multiple of 10 or 100, then adjust</u> Continue as in Year 2, 3 and 4 but with appropriate numbers e.g. $458 + 79 =$ is the same as $458 + 80 - 1$</p> <p><u>Written methods</u> Extend to numbers with at least four digits $3587 + 675 = 4262$</p> $ \begin{array}{r} 3587 \\ + 675 \\ \hline 4262 \\ 111 \end{array} $ <p>Revert to expanded methods if the children experience any difficulty. Extend to up to two places of decimals (same number of decimals places) and adding several numbers (with different numbers of digits).</p> $ \begin{array}{r} 72.8 \\ +54.6 \\ \hline 127.4 \\ 1 \quad 1 \end{array} $	<p><u>Mental partitioning</u> Partition into tens and ones and then recombine OR Partition second number, add hundreds then tens then ones.</p> <p><u>Mentalling adding and subtracting multiple of 1, 10 or 100 and then adjust.</u> Eg. $245 + 119 = 245 + (120 - 1)$</p> <p><u>Using more challenging facts-</u> Eg $11 + 23 = 34$ so $1.1 + 2.3 = 3.4$</p>

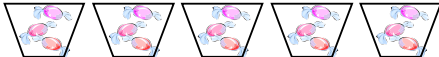
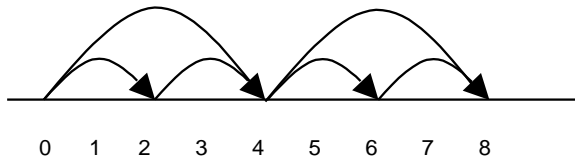
Subtraction

Year 3	Year 4		
<p>- = signs and missing numbers Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><u>Find a small difference by counting up</u> Continue as in Year 2 but with appropriate numbers e.g. $102 - 97 = 5$</p> <p><u>Subtract 'near multiple of 10' to or from a two-digit number</u> numbers e.g. $78 - 49$ is the same as $78 - 50 + 1$</p> <p><u>Use known number facts and place value to subtract</u> Continue as in Year 2 but with appropriate numbers e.g.</p> <p><u>Written methods</u> Bridging on a number line $84 - 56 = 28$</p> 	<p>- = signs and missing numbers Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><u>Find a small difference by counting up</u> e.g. $5003 - 4996 = 7$ This can be modelled on an empty number line (see complementary addition below). Children should be encouraged to use known number facts to reduce the number of steps.</p> <p><u>Subtract the nearest multiple of 10, then adjust.</u> Continue as in Year 3 but with appropriate numbers.</p> <p><u>Written methods</u> Bridging $754 - 86 = 668$</p>  <p><u>Subtraction with exchanging written method.</u></p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right; padding-right: 20px;"> $\begin{array}{r} 456 \\ -123 \\ \hline 333 \end{array}$ </td> <td> $\begin{array}{r} 4514 \\ -335 \\ \hline 119 \end{array}$ </td> </tr> </table>	$\begin{array}{r} 456 \\ -123 \\ \hline 333 \end{array}$	$\begin{array}{r} 4514 \\ -335 \\ \hline 119 \end{array}$
$\begin{array}{r} 456 \\ -123 \\ \hline 333 \end{array}$	$\begin{array}{r} 4514 \\ -335 \\ \hline 119 \end{array}$		

Subtraction

Year 5	Year 6
<p><u>- = signs and missing numbers</u> Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><u>Find a difference by counting up</u> e.g. $8006 - 2993 = 5013$ This can be modelled on an empty number line.</p> <p><u>Subtract the nearest multiple of 10 or 100, then adjust.</u> Continue as in Years 3 and 4 but with appropriate numbers.</p> <p><u>Use known number facts and place value to subtract</u> $6.1 - 2.4 = 3.7$</p> <div style="text-align: center; margin: 10px 0;"> </div> <p><u>Subtraction with exchanging written method for decimals.</u></p> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: left;"> $\begin{array}{r} 45.6 \\ -12.3 \\ \hline 33.3 \end{array}$ </div> <div style="text-align: left;"> $\begin{array}{r} 4 \cancel{5} .14 \\ -33.5 \\ \hline 11.9 \end{array}$ </div> </div>	<p><u>Mental partitioning</u> Partition into tens and ones and then recombine OR Partition second number, add hundreds then tens then ones.</p> <p><u>Mentalling adding and subtracting multiple of 1, 10 or 100 and then adjust.</u> Eg. $245 - 119 = 245 - (120 + 1)$</p> <p><u>Using more challenging facts-</u> Eg $23 - 11 = 12$ so $2.3 - 1.1 = 1.2$</p>

Multiplication

Reception	Year 1	Year 2
<p>Real life contexts and use of practical equipment to count in repeated groups of the same size:</p> <ul style="list-style-type: none">• Count in twos• Count in fives• Count in tens	<p><u>Pictures / marks</u></p> <p>There are 3 sweets in one bag. How many sweets are there in 5 bags?</p>  <p>Recording on a number line modelled by teacher when solving problems.</p> <p>Use of bead strings to model groups of.</p>	<p><u>Arrays and repeated addition</u></p> <p>● ● ● ● 4 x 2 or 4 + 4 ● ● ● ● 2 x 4 or 2 + 2 + 2 + 2</p>  <p><u>Doubling multiples of 5 up to 50</u></p> <p>$15 \times 2 = 30$</p> <p><u>Partition</u></p> <p>15×2 $20 + 10 = 30$</p>

Multiplication

Year 3	Year 4								
<p><u>x = signs and missing numbers</u> $7 \times 2 = \square$ $\square = 2 \times 7$ $7 \times \square = 14$ $14 = \square \times 7$ $\square \times 2 = 14$ $14 = 2 \times \square$ $\square \times \nabla = 14$ $14 = \square \times \nabla$</p> <p>Number lines 6×3</p> <hr style="width: 100%;"/> <p style="text-align: center;">0 6 12 18</p> <p><u>Arrays and repeated addition</u> Continue to understand multiplication as repeated addition and continue to use arrays (as in Year 2).</p> <p><u>Doubling multiples of 5 up to 50</u> $35 \times 2 = 70$</p> <p>$30 \times 2 = 60$ $5 \times 2 = 10$ $= 70$</p> <p>Use known facts and place value to carry out simple multiplications</p> <p>Use the same method as above (partitioning), e.g.</p> <p>$32 \times 3 = 96$</p>	<p><u>x = signs and missing numbers</u> Continue using a range of equations as in Year 2 but with appropriate numbers</p> <p><u>Continue to Partition</u> $35 \times 2 = 70$</p> <p>$30 \times 2 = 60$ $5 \times 2 = 10$ $= 70$</p> <p>Use the grid method of multiplication (as below)</p> <p><u>Written methods</u></p> <p>Grid method 23×7 is approximately $20 \times 10 = 200$</p> <div style="margin-left: 100px;"> <table style="border: none;"> <tr> <td style="padding-right: 10px;">x</td> <td style="padding-right: 10px;">20</td> <td style="padding-right: 10px;">3</td> <td></td> </tr> <tr> <td>7</td> <td>140</td> <td>21</td> <td>= 161</td> </tr> </table> </div>	x	20	3		7	140	21	= 161
x	20	3							
7	140	21	= 161						

Multiplication



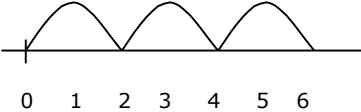

Year 5	Year 6
<p><u>x = signs and missing numbers</u> Continue using a range of equations as in Year 2 but with appropriate numbers</p> <p>or Use the grid method of multiplication (as below)</p> <p>or 47 x6 42 240 282</p> <p><u>Written method</u></p> <p>Moving onto 2 digit x 2 digit numbers etc 72 x 38 is approximately 70 x 40 = 2800</p> $ \begin{array}{r} 72 \\ \times 38 \\ \hline 2100 \\ + 560 \\ + 60 \\ + 16 \\ \hline =2736 \end{array} $ <p>Moving to formal methods of multiplication for decimals.</p> <p>High level 4+</p> $ \begin{array}{r} 426 \\ \times 17 \\ \hline 2982 \\ 14 \\ \hline \end{array} $	<p><u>Mental partitioning</u> Eg $6 \times 37 = (6 \times 30 = 180) + (6 \times 7 = 42)$ =222</p> <p><u>Using times table facts</u> Eg $2 \times 6 = 12$ so $20 \times 60 = 1200$ or $0.2 \times 6 = 1.2$</p> <p><u>Use place value facts</u> Eg $10 \times 6.5 = 65$, $100 \times 0.98 = 98$ etc</p>

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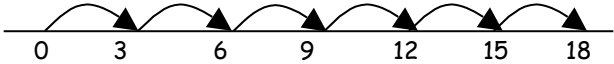

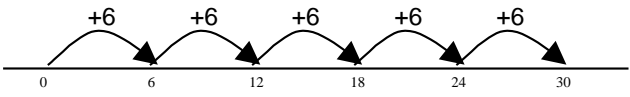
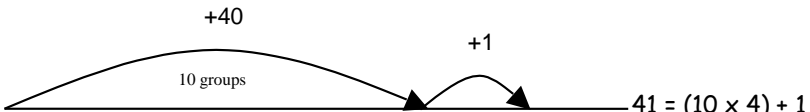
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Division

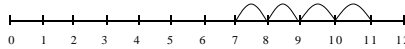
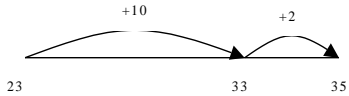
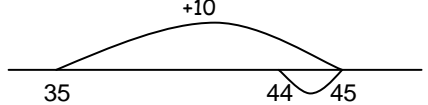
Reception	Year 1	Year 2
<p>Real life contexts and use of practical equipment to share</p>	<p><u>Sharing</u></p> <p>Requires secure counting skills -see counting and understanding number strand Develops importance of one-to-one correspondence See appendix for additional information on x and ÷ and aspects of number</p> <p>Sharing - 6 sweets are shared between 2 people. How many do they have each?</p>  <p>Practical activities involving sharing, distributing cards when playing a game, putting objects onto plates, into cups, hoops etc.</p> <p><u>Grouping</u></p> <p>Sorting objects into 2s / 3s/ 4s etc How many pairs of socks are there?</p>  <p>There are 12 crocus bulbs. Plant 3 in each pot. How many pots are there? Jo has 12 Lego wheels. How many cars can she make?</p>	<p><u>÷ = signs and missing numbers</u></p> <p>$6 \div 2 = \square$ $\square = 6 \div 2$ $6 \div \square = 3$ $3 = 6 \div \square$ $\square \div 2 = 3$ $3 = \square \div 2$ $\square \div \nabla = 3$ $3 = \square \div \nabla$</p> <p>$6 \div 2$ can be modelled as: There are 6 strawberries. How many people can have 2 each? How many 2s make 6?</p> <p>$6 \div 2$ can be modelled as:</p>  <p>Practical grouping e.g. in PE</p> <p>12 children get into teams of 4 to play a game. How many teams are there?</p> 

Division

Year 3	Year 4
<p><u>÷ = signs and missing numbers</u> Continue using a range of equations as in Year 2 but with appropriate numbers.</p> <p><u>Understand division as sharing and grouping</u> 18 ÷ 3 can be modelled as: Sharing - 18 shared between 3 (see Year 1 diagram)</p> <p>OR Grouping - How many 3's make 18?</p>  <p><u>Remainders</u> 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><u>÷ = signs and missing numbers</u> Continue using a range of equations as in Year 2 but with appropriate numbers.</p> <p><u>Sharing and grouping</u> 30 ÷ 6 can be modelled as: grouping - groups of 6 placed on no. line and the number of groups counted e.g.</p>  <p>sharing - sharing among 6, the number given to each person</p> <p><u>Remainders</u> 41 ÷ 4 = 10 r1</p>  <p><u>Written methods</u> Repeated subtraction eg 15 - 5 =</p> <p>15 -5 10 -5 5 -5 0</p>

Division

Year 5	Year 6
<p><u>÷ = signs and missing numbers</u> Continue using a range of equations as in Year 2 but with appropriate numbers.</p> <p><u>Sharing and grouping</u> Continue to understand division as both sharing and grouping (repeated subtraction).</p> <p><u>Written methods:</u></p> <p><u>Chunking method:</u></p> <p>$78 \div 4$</p> $ \begin{array}{r} =4 \overline{) 78} = 19 \text{ r } 2 \\ \underline{- 40} \quad (10 \times 4) \\ 38 \\ \underline{- 36} \quad (9 \times 4) \\ 2 \end{array} $ <p><u>Short division</u>- only works when dividing by 1-digit numbers. $92 \div 4 = 23$</p> $ \begin{array}{r} 23 \\ =4 \overline{) 92} \end{array} $	<p><u>Using the inverse of times table facts</u></p> <p>Eg $1200 \div 4$. I know $4 \times 3 = 12$ so $12 \div 4 = 3$ so $1200 \div 4 = 300$ OR $1.2 \div 4 = 0.3$</p> <p><u>Use place value facts</u></p> <p>Eg $6.5 \div 10 = 0.65$ OR $760 \div 100 = 7.6$</p>

Reception	Year 1	Year 2
<p>Begin to relate addition to combining two groups of objects</p> <ul style="list-style-type: none"> • Make a record in pictures words or symbols of addition activities already carried out • Construct number sentences to go with practical activities • Relate addition to counting on • Use of games and songs to develop vocabulary 	<p>+ = signs and missing numbers Children need to understand the concept of equality before using the '=' sign. Calculations should be written either side of the equality sign so that the sign is not just interpreted as 'the answer'.</p> <p>2 = 1 + 1 2 + 3 = 4 + 1 3 = 3 2 + 2 + 2 = 4 + 2</p> <p>Missing numbers need to be placed in all possible places.</p> <p>3 + 4 = □ □ = 3 + 4 3 + □ = 7 7 = □ + 4 □ + 4 = 7 7 = 3 + □ □ + ▽ = 7 7 = □ + ▽</p> <p>Number lines (numbered) 7 + 4</p>  <p>Recorded by - drawing jumps on prepared lines - constructing own number lines</p> <p>(Teacher models number lines with missing numbers) (Teacher models jottings appropriate for larger numbers)</p>	<p>+ = signs and missing numbers Continue using a range of equations as in Year 1 but with appropriate, larger numbers. Extend to 14 + 5 = 10 + □ and 32 + □ + □ = 100 35 = 1 + □ + 5</p> <p>Partition into tens and ones and recombine 23 + 12 =</p> <p>23 + 12</p> <p>20 3 10 2</p> <p> + +</p> <p>30 + 5 = 35</p> <p>Use number line to add tens and units.</p>  <p>(constructing and using own number line) Add 9 or 11 by adding 10 and adjusting by 1 35 + 9 = 44</p> 

Addition

Year 3

+ = signs and missing numbers

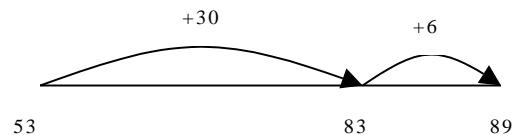
Continue using a range of equations as in Year 1 and 2 but with appropriate, larger numbers.

Partition into tens and ones and recombine.

- Partition both numbers and recombine.

$$\begin{aligned}
 &36 + 53 = \\
 &30 + 50 \quad 6 + 3 \\
 &= 80 + 9 \\
 &= 89
 \end{aligned}$$

Constructing own number line



Add a near multiple of 10 to a two-digit number

Secure mental methods by using a number line to model the method. Continue as in Year 2 but with appropriate numbers
e.g. $35 + 19$ is the same as $35 + 20 - 1$.

Year 4

+ = signs and missing numbers

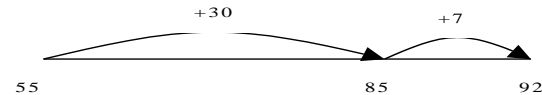
Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.

Partition into tens and ones and recombine.

- Partition both numbers and recombine.

$$\begin{aligned}
 &36 + 53 = \\
 &30 + 50 \quad 6 + 3 \\
 &= 80 + 9 \\
 &= 89
 \end{aligned}$$

Constructing own number line with appropriate numbers.



Add the nearest multiple of 10, then adjust

Continue as in Year 2 and 3 but with appropriate numbers
e.g. $63 + 29$ is the same as $63 + 30 - 1$

Written methods

Straight up to carrying method 3 and 3 whole numbers.

$$\begin{array}{r}
 345 \\
 +126 \\
 \hline
 471 \\
 1
 \end{array}$$

Written calculation methods

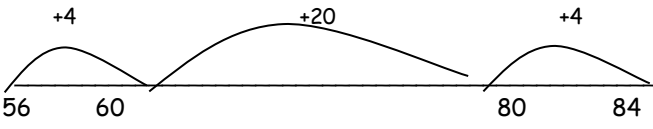
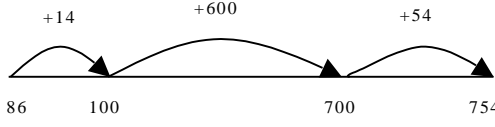
Addition

Year 5	Year 6
<p><u>+ = signs and missing numbers</u> Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><u>Mental partitioning-</u> Continue years 5 and 6</p> <p><u>Add or subtract the nearest multiple of 10 or 100, then adjust</u> Continue as in Year 2, 3 and 4 but with appropriate numbers e.g. $458 + 79 =$ is the same as $458 + 80 - 1$</p> <p><u>Written methods</u> Extend to numbers with at least four digits $3587 + 675 = 4262$</p> $ \begin{array}{r} 3587 \\ + 675 \\ \hline 4262 \\ 111 \end{array} $ <p>Revert to expanded methods if the children experience any difficulty. Extend to up to two places of decimals (same number of decimals places) and adding several numbers (with different numbers of digits).</p> $ \begin{array}{r} 72.8 \\ +54.6 \\ \hline 127.4 \\ 11 \end{array} $	<p><u>+ = signs and missing numbers</u> Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><u>Add the nearest multiple of 10, 100 or 1000, then adjust</u> 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><u>Written methods</u> Extend to numbers with any number of digits and decimals with 1, 2 and/or 3 decimal places. $13.86 + 9.481 = 23.341$</p> $ \begin{array}{r} 13.86 \\ + 9.481 \\ \hline 23.341 \\ 111 \end{array} $

Subtraction

Reception	Year 1	Year 2
<p>Begin to relate subtraction to "taking away"</p> <ul style="list-style-type: none"> Make a record in pictures, words or symbols of subtraction activities already carried out Use of songs and games to develop vocabulary Construct number sentences to go with practical activities Relate subtraction to taking away and counting how many objects are left 	<p><u>Pictures/Marks</u> Sam spent 4p. What was his change from 10p? ○ ○ ○ ○ ○ ○ ○ ○ ○ ○</p> <p><u>- = signs and missing numbers</u> $7 - 3 = \square$ $\square = 7 - 3$ $7 - \square = 4$ $4 = \square - 3$ $\square - 3 = 4$ $4 = 7 - \square$ $\square - \nabla = 4$ $4 = \square - \nabla$</p> <p>Number lines (numbered) $11 - 7$ (Counting back)</p> <p> The difference between 7 and 11 (Counting up)</p>	<p><u>- = signs and missing numbers</u> Continue using a range of calculations as in Year 1 but with appropriate numbers. Extend to $14 + 5 = 20 - \square$</p> <p><u>Find a difference by counting up</u> $42 - 39 = 3$</p> <div style="text-align: center;"> <p>+ 1 + 2</p> <p style="margin-left: 50px;">39 40 42</p> </div>

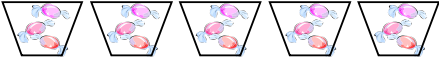

Subtraction

Year 3	Year 4		
<p><u>- = signs and missing numbers</u> Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><u>Find a small difference by counting up</u> Continue as in Year 2 but with appropriate numbers e.g. $102 - 97 = 5$</p> <p><u>Subtract 'near multiple of 10' to or from a two-digit number</u> numbers e.g. $78 - 49$ is the same as $78 - 50 + 1$</p> <p><u>Use known number facts and place value to subtract</u> Continue as in Year 2 but with appropriate numbers e.g.</p> <p><u>Written methods</u> Bridging on a number line $84 - 56 = 28$</p> 	<p><u>- = signs and missing numbers</u> Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><u>Find a small difference by counting up</u> e.g. $5003 - 4996 = 7$ This can be modelled on an empty number line (see complementary addition below). Children should be encouraged to use known number facts to reduce the number of steps.</p> <p><u>Subtract the nearest multiple of 10, then adjust.</u> Continue as in Year 3 but with appropriate numbers.</p> <p><u>Written methods</u> Bridging $754 - 86 = 668$</p>  <p><u>Subtraction with exchanging written method.</u></p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right; padding-right: 20px;">$\begin{array}{r} 456 \\ -123 \\ \hline \end{array}$</td> <td>$\begin{array}{r} 4 \cancel{4} 5 \ 14 \\ -3 \ 3 \ 5 \\ \hline 1 \ 1 \ 9 \end{array}$</td> </tr> </table>	$\begin{array}{r} 456 \\ -123 \\ \hline \end{array}$	$\begin{array}{r} 4 \cancel{4} 5 \ 14 \\ -3 \ 3 \ 5 \\ \hline 1 \ 1 \ 9 \end{array}$
$\begin{array}{r} 456 \\ -123 \\ \hline \end{array}$	$\begin{array}{r} 4 \cancel{4} 5 \ 14 \\ -3 \ 3 \ 5 \\ \hline 1 \ 1 \ 9 \end{array}$		

Subtraction

Year 5	Year 6
<p><u>- = signs and missing numbers</u> Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><u>Find a difference by counting up</u> e.g. $8006 - 2993 = 5013$ This can be modelled on an empty number line.</p> <p><u>Subtract the nearest multiple of 10 or 100, then adjust.</u> Continue as in Years 3 and 4 but with appropriate numbers.</p> <p><u>Use known number facts and place value to subtract</u> $6.1 - 2.4 = 3.7$</p> <div style="text-align: center;"> </div> <p><u>Subtraction with exchanging written method for decimals.</u></p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: right;"> $\begin{array}{r} 45.6 \\ -12.3 \\ \hline 33.3 \end{array}$ </div> <div style="text-align: left;"> $\begin{array}{r} 4 \cancel{5} .14 \\ -33.5 \\ \hline 11.9 \end{array}$ </div> </div>	<p><u>- = signs and missing numbers</u> Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.</p> <p><u>Find a difference by counting up</u> e.g. $8000 - 2785 = 5215$ To make this method more efficient, the number of steps should be reduced to a minimum through children knowing:</p> <ul style="list-style-type: none"> ▪ Complements to 1, involving decimals to two decimal places ($0.16 + 0.84$) ▪ Complements to 10, 100 and 100 ▪ <p><u>Subtract the nearest multiple of 10, 100 or 1000, then adjust</u> Continue as in Year 3, 4 and 5 but with appropriate numbers.</p> <p><u>Use known number facts and place value to subtract</u></p> <p>Vertical subtraction with decimals but with appropriate numbers and different place value decimals eg $25.6 - 3.45$</p>

Multiplication

Reception	Year 1	Year 2
<p>Real life contexts and use of practical equipment to count in repeated groups of the same size:</p> <ul style="list-style-type: none">• Count in twos• Count in fives• Count in tens	<p><u>Pictures / marks</u></p> <p>There are 3 sweets in one bag. How many sweets are there in 5 bags?</p>  <p>Recording on a number line modelled by teacher when solving problems.</p> <p>Use of bead strings to model groups of.</p>	<p><u>Arrays and repeated addition</u></p> <p>● ● ● ● 4 x 2 or 4 + 4 ● ● ● ● 2 x 4 or 2 + 2 + 2 + 2</p>  <p>0 1 2 3 4 5 6 7 8</p> <p><u>Doubling multiples of 5 up to 50</u></p> <p>$15 \times 2 = 30$</p> <p><u>Partition</u></p> <p>15×2 $20 + 10 = 30$</p>



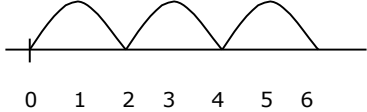

Multiplication

Year 3	Year 4												
<p><u>x = signs and missing numbers</u> $7 \times 2 = \square$ $\square = 2 \times 7$ $7 \times \square = 14$ $14 = \square \times 7$ $\square \times 2 = 14$ $14 = 2 \times \square$ $\square \times \nabla = 14$ $14 = \square \times \nabla$</p> <p>Number lines 6×3</p> <hr style="width: 100%;"/> <p style="text-align: center;">0 6 12 18</p> <p><u>Arrays and repeated addition</u> Continue to understand multiplication as repeated addition and continue to use arrays (as in Year 2).</p> <p><u>Doubling multiples of 5 up to 50</u> $35 \times 2 = 70$</p> <p>$30 \times 2 = 60$ $5 \times 2 = 10$ $= 70$ Use known facts and place value to carry out simple multiplications</p> <p>Use the same method as above (partitioning), e.g.</p> <p>$32 \times 3 = 96$</p>	<p><u>x = signs and missing numbers</u> Continue using a range of equations as in Year 2 but with appropriate numbers</p> <p><u>Continue to Partition</u> $35 \times 2 = 70$</p> <p>$30 \times 2 = 60$ $5 \times 2 = 10$ $= 70$</p> <p>Use the grid method of multiplication (as below)</p> <p><u>Written methods</u></p> <p>Grid method 23×7 is approximately $20 \times 10 = 200$</p> <div style="margin-left: 40px;"> <table style="border-collapse: collapse;"> <tr> <td style="padding-right: 10px;">x</td> <td style="padding-right: 10px;">20</td> <td style="padding-right: 10px;">3</td> <td></td> </tr> <tr> <td></td> <td>7</td> <td>140</td> <td>21</td> </tr> <tr> <td></td> <td></td> <td></td> <td>= 161</td> </tr> </table> </div>	x	20	3			7	140	21				= 161
x	20	3											
	7	140	21										
			= 161										

Multiplication

Year 5	Year 6
<p><u>x = signs and missing numbers</u> Continue using a range of equations as in Year 2 but with appropriate numbers</p> <p>or Use the grid method of multiplication (as below)</p> <p>or 47 x6 42 240 282</p> <p><u>Written method</u></p> <p>Moving onto 2 digit x 2 digit numbers etc 72 x 38 is approximately 70 x 40 = 2800</p> $ \begin{array}{r} 72 \\ \times 38 \\ \hline 2100 \\ + 560 \\ + 60 \\ + 16 \\ \hline =2736 \end{array} $ <p>Moving to formal methods of multiplication for decimals.</p> <p>High level 4+</p> $ \begin{array}{r} 426 \\ \times 17 \\ \hline 2982 \\ 14 \\ \hline 4260 \\ 7242 \end{array} $	<p><u>x = signs and missing numbers</u> Continue using a range of equations as in Year 2 but with appropriate numbers</p> <p><u>Partition mentally</u> 87 x 5 80 x 5 = 400 7 x 5 = 35 =435</p> <p><u>Written method</u></p> <p>Continued from year 5 Moving onto 2 digit x 2 digit numbers etc 72 x 38 is approximately 70 x 40 = 2800</p> $ \begin{array}{r} 72 \\ \times 38 \\ \hline 2100 \\ + 560 \\ + 60 \\ + 16 \\ \hline =2736 \end{array} $ <p>Moving to formal methods of multiplication for decimals.</p> <p>High level 4+</p> $ \begin{array}{r} 426 \\ \times 17 \\ \hline 2982 \\ 14 \\ \hline 4260 \end{array} $

Division

Reception	Year 1	Year 2
<p>Real life contexts and use of practical equipment to share</p>	<p><u>Sharing</u> Requires secure counting skills -see counting and understanding number strand Develops importance of one-to-one correspondence See appendix for additional information on x and ÷ and aspects of number</p> <p>Sharing - 6 sweets are shared between 2 people. How many do they have each?</p>  <p>Practical activities involving sharing, distributing cards when playing a game, putting objects onto plates, into cups, hoops etc.</p> <p><u>Grouping</u> Sorting objects into 2s / 3s/ 4s etc How many pairs of socks are there?</p>  <p>There are 12 crocus bulbs. Plant 3 in each pot. How many pots are there? Jo has 12 Lego wheels. How many cars can she make?</p>	<p><u>÷ = signs and missing numbers</u> $6 \div 2 = \square$ $\square = 6 \div 2$ $6 \div \square = 3$ $3 = 6 \div \square$ $\square \div 2 = 3$ $3 = \square \div 2$ $\square \div \nabla = 3$ $3 = \square \div \nabla$</p> <p>$6 \div 2$ can be modelled as: There are 6 strawberries. How many people can have 2 each? How many 2s make 6?</p> <p>$6 \div 2$ can be modelled as:</p>  <p>Practical grouping e.g. in PE</p> <p>12 children get into teams of 4 to play a game. How many teams are there?</p> 

Division

Year 3

÷ = signs and missing numbers

Continue using a range of equations as in Year 2 but with appropriate numbers.

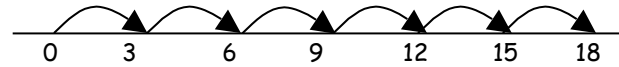
Understand division as sharing and grouping

18 ÷ 3 can be modelled as:

Sharing - 18 shared between 3 (see Year 1 diagram)

OR

Grouping - How many 3's make 18?

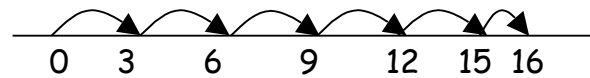


Remainders

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.



Year 4

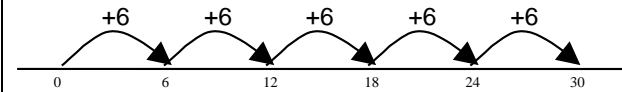
÷ = signs and missing numbers

Continue using a range of equations as in Year 2 but with appropriate numbers.

Sharing and grouping

30 ÷ 6 can be modelled as:

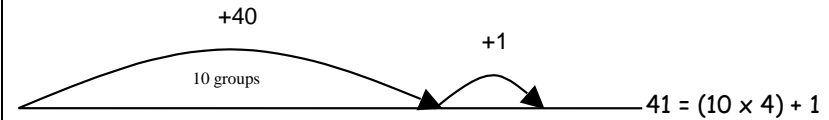
grouping - groups of 6 placed on no. line and the number of groups counted e.g.



sharing - sharing among 6, the number given to each person

Remainders

41 ÷ 4 = 10 r1



Written methods

Repeated subtraction eg 15 - 5 =

15
-5
10
-5
5
-5
0

Division

Year 5	Year 6
<p><u>÷ = signs and missing numbers</u> Continue using a range of equations as in Year 2 but with appropriate numbers.</p> <p><u>Sharing and grouping</u> Continue to understand division as both sharing and grouping (repeated subtraction).</p> <p><u>Written methods:</u></p> <p><u>Chunking method:</u></p> <p>$78 \div 4$</p> $=4 \overline{) 78} = 19 \text{ r } 2$ $\begin{array}{r} -40 \text{ (10 x 4)} \\ 38 \\ -36 \text{ (9 x 4)} \\ 2 \end{array}$ <p><u>Short division</u>- only works when dividing by 1-digit numbers.</p> $92 \div 4 = 23$ $=4 \overline{) 92}$	<p><u>÷ = signs and missing numbers</u> Continue using a range of equations as in Year 2 but with appropriate numbers.</p> <p><u>Sharing and grouping</u> Continue to understand division as both sharing and grouping (repeated subtraction).</p> <p><u>Remainders</u></p> <p>Quotients expressed as fractions or decimal fractions $676 \div 8 = 84.5$</p> <p><u>Written methods:</u></p> <p><u>Chunking method</u> For dividing 2 digit and decimal numbers.</p> <p><u>Short division method.</u> For dividing 1-digit numbers.</p>

