



# St Peter's School

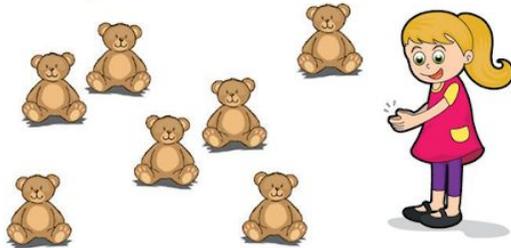
# Maths Guide

<b>Written by:</b>	Headteacher	<b>This version</b>	June 2020
		<b>Next review due:</b>	June 2021

Reception

Counting

How many in a set?

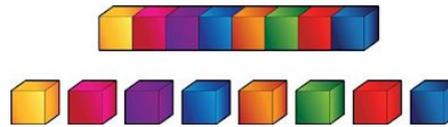


Seven hand claps

Estimate, and encourage estimation, within a range



Count, matching one-to-one



Conservation of number

Match numerals to a set of objects, sounds or images



Subitise



e.g. know there are 4 without counting

Numbers in a line or sequence

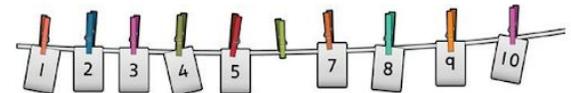
Recognise numerals



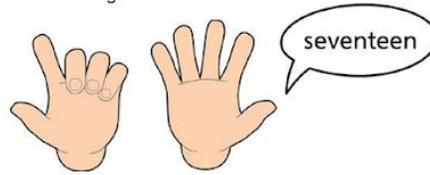
Count along a number line or track



Spot missing numbers in the line



Chant numbers in order to 10 and 20  
Match the units to fingers



Chant numbers in order to 100

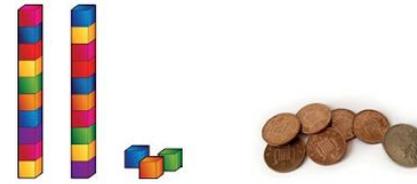
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

**Place value**

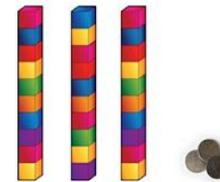
Understand 'teen' numbers  
(10 to 20)



Begin to recognise 2-digit numbers



Begin to count in 10s



+

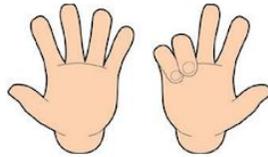
**Counting on**

Count on one more, saying the next number



$$7 + 1 = 8$$

Count on 2 or 3 or 4 more from any number up to 10



$$5 + 3 = 8$$

**Number bonds**

Subitise



Split sets into bonds



$$4 + 2 = 6$$



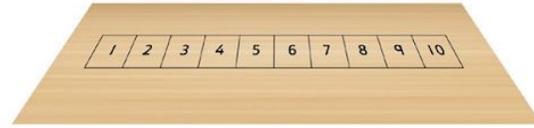
$$4 + 3 = 7$$

Make small amounts



**Counting back**

Count back 1 less, saying the number before



$$7 - 1 = 6$$

Take away 2 or 3 or 4 from any number up to 10



$$5 - 2 = 3$$



$$7 - 1 = 6$$

**Number bonds**

Subitise



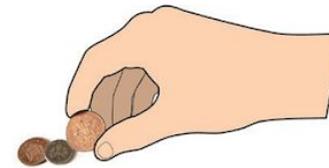
Split sets into bonds



$$6 - 2 = 4$$



$$7 - 4 = 3$$

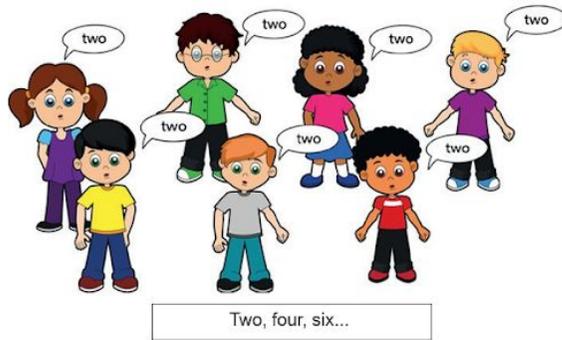


Use money

x/÷

**Counting in steps ('clever counting')**

Begin to count in 2s



Begin to count in 5s



Five, ten, fifteen, twenty...

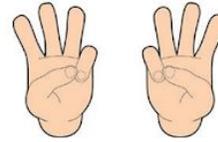
Begin to count in 10s



Ten, twenty, thirty...

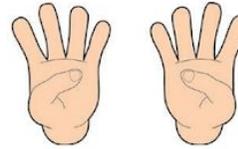
**Doubling and halving**

Double numbers to 5



Double 3 is 6

Halve even numbers to 10

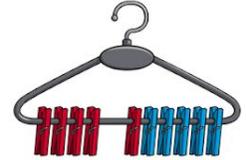
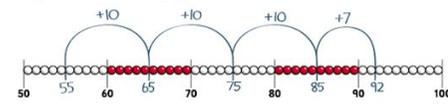
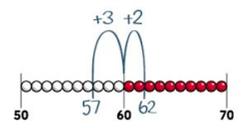
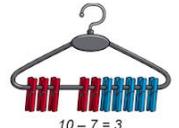
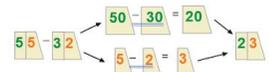
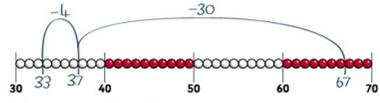
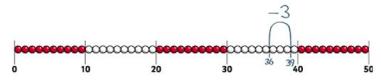
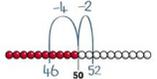


Half of 8 is 4

**Sharing**

Share multiples of 2 and 4 into halves and quarters

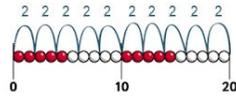


	Year 1	Year 2									
<b>Mental</b> <b>+</b>	<p><b>Using place value</b> Count in 1s e.g. <math>45 + 1</math> Count in 10s e.g. <math>45 + 10</math> without counting on in 1s</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>34</td><td>35</td><td>36</td></tr> <tr><td>44</td><td>45</td><td>46</td></tr> <tr><td>54</td><td>55</td><td>56</td></tr> </table> <p>Add 10 to any given 2-digit number</p> <p><b>Counting on</b> Count on in 1s e.g. <math>8 + 3</math> as 8, 9, 10, 11</p>  <p style="margin-left: 20px;"><i>8, 9, 10, 11...</i></p> <p>Add, putting the larger number first Count on in 10s e.g. <math>45 + 20</math> as 45, 55, 65</p> <p><b>Using number facts</b> 'Story' of 4, 5, 6, 7, 8 and 9 e.g. <math>7 = 7 + 0, 6 + 1, 5 + 2, 4 + 3</math> Number bonds to 10 e.g. <math>5 + 5, 6 + 4, 7 + 3, 8 + 2, 9 + 1, 10 + 0</math></p>  <p style="text-align: center;"><math>4 + 6 = 10</math></p> <p>Use patterns based on known facts when adding e.g. <math>4 + 3 = 7</math> so we know <math>24 + 3, 44 + 3, 74 + 3</math></p>	34	35	36	44	45	46	54	55	56	<p><b>Using place value</b> Know 1 more or 10 more than any number e.g. 1 more than 67 e.g. 10 more than 85 Partitioning e.g. <math>55 + 37</math> as <math>50 + 30</math> and <math>5 + 7</math>, then finally combine the two totals: <math>80 + 12</math></p>  <p><b>Counting on</b> Add 10 and multiples of 10 to a given 1- or 2-digit number e.g. <math>76 + 20</math> as 76, 86, 96 or in one hop: <math>76 + 20 = 96</math> Add two 2-digit numbers by counting on in 10s, then in 1s e.g. <math>55 + 37</math> as <math>55 + 30</math> (85) + 7 = 92</p>  <p>Add near multiples of 10 e.g. <math>46 + 19</math> e.g. <math>63 + 21</math></p> <p><b>Using number facts</b> Know pairs of numbers which make the numbers up to and including 12 e.g. <math>8 = 4 + 4, 3 + 5, 2 + 6, 1 + 7, 0 + 8</math> e.g. <math>10 = 5 + 5, 4 + 6, 3 + 7, 2 + 8, 1 + 9, 0 + 10</math> Use patterns based on known facts when adding e.g. <math>6 + 3 = 9</math>, so we know <math>36 + 3 = 39, 66 + 3 = 69, 56 + 3 = 59</math></p> <p>Bridging 10 e.g. <math>57 + 5 = 57 + 3</math> (60) + 2 = 62</p>  <p>Add three or more 1-digit numbers, spotting bonds to 10 or doubles e.g. <math>3 + 5 + 3 = 6 + 5 = 11</math> e.g. <math>8 + 2 + 4 = 10 + 4 = 14</math></p>
34	35	36									
44	45	46									
54	55	56									
<b>Mental</b> <b>-</b>	<p><b>Using place value</b> Count back in 1s e.g. Know <math>53 - 1</math> Count back in 10s e.g. Know <math>53 - 10</math> without counting back in 1s</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>32</td><td>33</td><td>34</td></tr> <tr><td>42</td><td>43</td><td>44</td></tr> <tr><td>52</td><td>53</td><td>54</td></tr> </table> <p><b>Taking away</b> Count back in 1s e.g. <math>11 - 3</math> as 11, 10, 9, 8 e.g. <math>14 - 3</math> as 14, 13, 12, 11</p>  <p style="margin-left: 20px;"><i>14, 13, 12, 11</i></p> <p><b>Using number facts</b> 'Story' of 4, 5, 6, 7, 8 and 9 e.g. 'Story' of 7 is <math>7 - 1 = 6, 7 - 2 = 5, 7 - 3 = 4</math> Number bonds to 10 e.g. <math>10 - 1 = 9, 10 - 2 = 8, 10 - 3 = 7</math></p>  <p style="text-align: center;"><math>10 - 7 = 3</math></p> <p>Subtract using patterns of known facts e.g. <math>7 - 3 = 4</math> so we know <math>27 - 3 = 24, 47 - 3 = 44, 77 - 3 = 74</math></p>	32	33	34	42	43	44	52	53	54	<p><b>Using place value</b> Know 1 less or 10 less than any number e.g. 1 less than 74 e.g. 10 less than 82 Partitioning e.g. <math>55 - 32</math> as <math>50 - 30</math> and <math>5 - 2</math> and combine the answers: <math>20 + 3</math></p>  <p><b>Taking away</b> Subtract 10 and multiples of 10 e.g. <math>76 - 20</math> as 76, 66, 56 or in one hop: <math>76 - 20 = 56</math> Subtract two 2-digit numbers by counting back in 10s, then in 1s e.g. <math>67 - 34</math> as 67 subtract 30 (37) then count back 4 (33)</p>  <p>Subtract near multiples of 10 e.g. <math>74 - 21</math> e.g. <math>57 - 19</math></p> <p><b>Using number facts</b> Know pairs of numbers which make the numbers up to and including 12 and derive related subtraction facts e.g. <math>10 - 6 = 4, 8 - 3 = 5, 5 - 2 = 3</math> Subtract using patterns of known facts e.g. <math>9 - 3 = 6</math>, so we know <math>39 - 3 = 36, 69 - 3 = 66, 89 - 3 = 86</math></p>  <p>Bridging 10 e.g. <math>52 - 6</math> as <math>52 - 2</math> (50) - 4 = 46</p>  <p><b>Counting up</b> Find a difference between two numbers on a line where the numbers are close together e.g. <math>51 - 47</math></p>
32	33	34									
42	43	44									
52	53	54									

**Mental**  
**x**

**Counting in steps ('clever' counting)**

Count in 2s

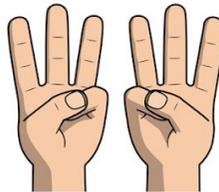


Count in 10s

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

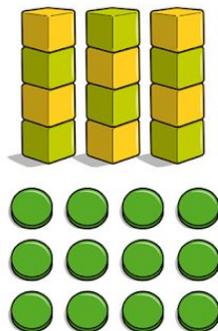
**Doubling and halving**

Find doubles to double 5 using fingers  
e.g. *double 3*



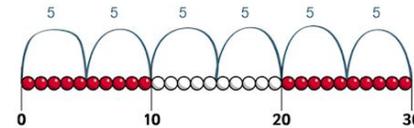
**Grouping**

Begin to use visual and concrete arrays and sets of objects to find the answers to 'three lots of four' or 'two lots of five'  
e.g. *three lots of four*



**Counting in steps ('clever' counting)**

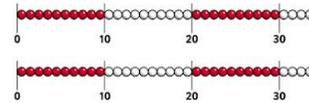
Count in 2s, 5s and 10s



Begin to count in 3s

**Doubling and halving**

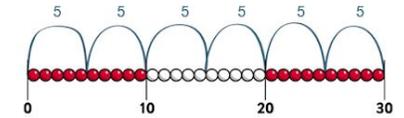
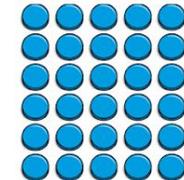
Begin to know doubles of multiples of 5 to 100  
e.g. *double 35 is 70*



Begin to double 2-digit numbers less than 50 with 1s digits of 1, 2, 3, 4 or 5

**Grouping**

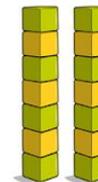
Use arrays to find answers to multiplication and relate to 'clever' counting  
e.g.  $3 \times 4$  as *three lots of four things*  
e.g.  $6 \times 5$  as *six steps in the 5s count as well as six lots of five*



Understand that  $5 \times 3$  can be worked out as three 5s or five 3s

**Using number facts**

Know doubles to double 20  
e.g. *double 7 is 14*



Start learning  $\times 2$ ,  $\times 5$ ,  $\times 10$  tables, relating these to 'clever' counting in 2s, 5s, and 10s

e.g.  $5 \times 10 = 50$ , and *five steps in the 10s count = 10, 20, 30, 40, 50*

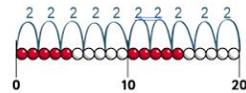


**Mental**



**Counting in steps ('clever' counting)**

Count in 2s



Count in 10s

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

**Doubling and halving**

Find half of even numbers up to 12, including realising that it is hard to halve an odd number



**Grouping**

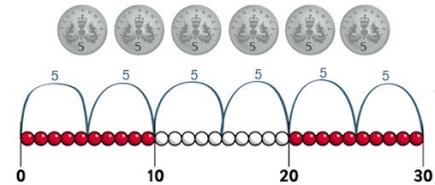
Begin to use visual and concrete arrays and 'sets of' objects to find the answers to questions such as 'How many towers of three can I make with twelve cubes?'

**Sharing**

Begin to find half of a quantity using sharing  
e.g. find half of 16 cubes by giving one each repeatedly to two children

**Counting in steps ('clever' counting)**

Count in 2s, 5s and 10s

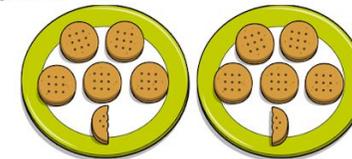


Begin to count in 3s

**Doubling and halving**

Find half of numbers up to 40, including realising that half of an odd number gives a remainder of 1 or an answer containing a 1/2

e.g.  $\frac{1}{2}$  of 11 = 5  $\frac{1}{2}$



Begin to know half of multiples of 10 to 100  
e.g. half of 70 is 35

**Grouping**

Relate division to multiplication by using arrays or towers of cubes to find answers to division

e.g. 'How many towers of five cubes can I make from twenty cubes?' as  $\_\_ \times 5 = 20$  and also as  $20 \div 5 = \_\_$



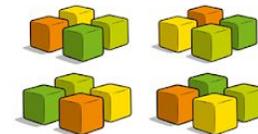
Relate division to 'clever' counting and hence to multiplication

e.g. 'How many fives do I count to get to twenty?'

**Sharing**

Begin to find half or a quarter of a quantity using sharing

e.g. find a quarter of 16 cubes by sorting the cubes into four piles

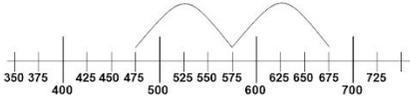
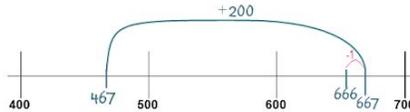


Find  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$  of small quantities

$\frac{1}{2}$		$\frac{1}{2}$	
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$

**Using number facts**

Know half of even numbers to 24  
Know  $\times 2$ ,  $\times 5$  and  $\times 10$  division facts  
Begin to know  $\times 3$  division facts

	Year 3	Year 4
<p><b>Mental</b></p> <p><b>+</b></p>	<p><b>Using place value</b> Count in 100s e.g. Know <math>475 + 200</math> as 475, 575, 675</p>  <p>Add multiples of 10, 100 and £1 e.g. <math>746 + 200</math> e.g. <math>746 + 40</math> e.g. <math>£6.34 + £5</math> as <math>£6 + £5</math> and 34p</p> <p>Partitioning e.g. <math>£8.50 + £3.70</math> as <math>£8 + £3</math> and <math>50p + 70p</math> and combine the totals: <math>£11 + £1.20</math> e.g. <math>347 + 36</math> as <math>300 + 40 + 30</math> and <math>7 + 6</math> and combine the totals: <math>370 + 13 = 383</math> e.g. <math>68 + 74</math> as <math>60 + 70</math> and <math>8 + 4</math> and combine the totals: <math>130 + 12 = 142</math></p>  <p><b>Counting on</b> Add two 2-digit numbers by adding the multiple of 10, then the 1s e.g. <math>67 + 55</math> as <math>67 + 50 (117) + 5 = 122</math> Add near multiples of 10 and 100 e.g. <math>67 + 39</math> e.g. <math>364 + 199</math> Add pairs of 'friendly' 3-digit numbers e.g. <math>548 + 120</math> Count on from 3-digit numbers e.g. <math>247 + 34</math> as <math>247 + 30 (277) + 4 = 281</math></p> <p><b>Using number facts</b> Know pairs which total each number to 20 e.g. <math>7 + 8 = 15</math> e.g. <math>12 + 6 = 18</math> Number bonds to 100 e.g. <math>35 + 65</math> e.g. <math>46 + 54</math> e.g. <math>73 + 27</math></p> <hr style="border-top: 1px dashed #000;"/> <p>Add to the next 10 and the next 100 e.g. <math>176 + 4 = 180</math> e.g. <math>435 + 65 = 500</math></p>	<p><b>Using place value</b> Count in 1000s e.g. Know <math>3475 + 2000</math> as 3475, 4475, 5475 Partitioning e.g. <math>746 + 40</math> e.g. <math>746 + 203</math> as <math>700 + 200</math> and <math>40</math> and <math>6 + 3</math> e.g. <math>134 + 707</math> as <math>100 + 700</math> and <math>30</math> and <math>4 + 7</math></p> <p><b>Counting on</b> Add 2-digit numbers to 2-, 3- and 4-digit numbers by adding the multiple of 10 then the 1s e.g. <math>167 + 55</math> as <math>167 + 50 (217) + 5 = 222</math> Add near multiples of 10, 100 and 1000 e.g. <math>467 + 199</math> e.g. <math>3462 + 2999</math></p>  <p><b>Using number facts</b> Number bonds to 100 and to the next multiple of 100 e.g. <math>288 + 12 = 300</math> e.g. <math>1353 + 47 = 1400</math> e.g. <math>463 + 37 = 500</math></p>  <p>Number bonds to £1 and to the next whole pound e.g. <math>63p + 37p = £1</math> e.g. <math>£3.45 + 55p = £4</math> Add to the next whole number e.g. <math>4.6 + 0.4</math> e.g. <math>7.2 + 0.8</math></p>

**Written**  
+

Build on partitioning to develop expanded column addition with two 3-digit numbers

e.g.  $466 + 358$

$$\begin{array}{r} 400 \quad 60 \quad 6 \\ + 300 \quad 50 \quad 8 \\ \hline 700 \quad 110 \quad 14 = 824 \end{array}$$

Use expanded column addition where digits in a column add to more than the column value

e.g.  $466 + 358$

$$\begin{array}{r} 400 \quad 60 \quad 6 \\ 300 \quad 50 \quad 8 \\ + 100 \quad 10 \\ \hline 800 \quad 20 \quad 4 \end{array}$$

Compact column addition with two or more 3-digit numbers or towers of 2-digit numbers

e.g.  $347 + 286 + 495$

$$\begin{array}{r} 347 \\ 286 \\ + 495 \\ 21 \\ \hline 1128 \end{array}$$

Compact column addition with 3- and 4-digit numbers

Recognise like fractions that add to 1

e.g.  $1/4 + 3/4$

- -

e.g.  $3/5 + 2/5$

- -

Build on expanded column addition to develop compact column addition with larger numbers

e.g.  $1466 + 4868$

$$\begin{array}{r} 1000 \quad 400 \quad 60 \quad 6 \\ 4000 \quad 800 \quad 60 \quad 8 \\ + 1000 \quad 100 \quad 10 \\ \hline 6000 \quad 300 \quad 30 \quad 4 \end{array}$$

Compact column addition with larger numbers

e.g.  $5347 + 2286 + 1495$

$$\begin{array}{r} 5347 \\ 2286 \\ + 1495 \\ 121 \\ \hline 9128 \end{array}$$

Use expanded and compact column addition to add amounts of money

Add like fractions

- - -

e.g.  $3/8 + 1/8 + 1/8$

**Mental**

**Taking away**

Use place value to subtract

e.g.  $348 - 300$

e.g.  $348 - 40$

e.g.  $348 - 8$



Take away multiples of 10, 100 and £1

e.g.  $476 - 40 = 436$

e.g.  $476 - 300 = 176$

e.g.  $£4.76 - £2 = £2.76$

Partitioning

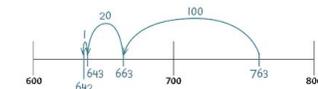
e.g.  $68 - 42$  as  $60 - 40$  and  $8 - 2$

e.g.  $£6.84 - £2.40$  as  $£6 - £2$  and  $80p - 40p$



Count back in 100s, 10s then 1s

e.g.  $763 - 121$  as  $763 - 100$  ( $663$ )  $- 20$  ( $643$ )  $- 1 = 642$



Subtract near multiples of 10 and 100

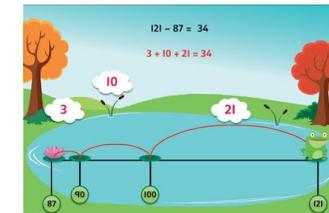
e.g.  $648 - 199$

e.g.  $86 - 39$

**Counting up**

Find a difference between two numbers by counting up from the smaller to the larger

e.g.  $121 - 87$



**Using number facts**

Know pairs which total each number to 20

e.g.  $20 - 14 = 6$

Number bonds to 100

e.g.  $100 - 48 = 52$

e.g.  $100 - 35 = 65$



Subtract using number facts to bridge back through a 10

e.g.  $42 - 5 = 42 - 2$  ( $40$ )  $- 3 = 37$

**Taking away**

Use place value to subtract

e.g.  $4748 - 4000$



Take away multiples of 10, 100, 1000, £1, 10p or 0.1

e.g.  $8392 - 50$

e.g.  $6723 - 3000$

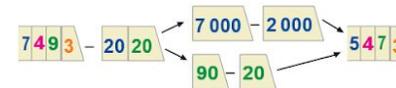
e.g.  $£3.74 - 30p$

e.g.  $5.6 - 0.2$

Partitioning

e.g.  $£5.87 - £3.04$  as  $£5 - £3$  and  $7p - 4p$

e.g.  $7493 - 2020$  as  $7000 - 2000$  and  $90 - 20$



Count back

e.g.  $6482 - 1301$  as  $6482 - 1000$  ( $5482$ )  $- 300$  ( $5182$ )  $- 1 = 5181$

Subtract near multiples of 10, 100, 1000 or £1

e.g.  $3522 - 1999$

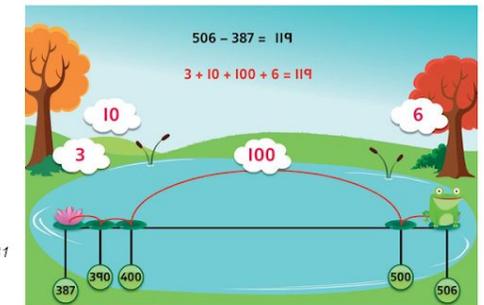
e.g.  $£34.86 - £19.99$

**Counting up**

Find a difference between two numbers by counting up from the smaller to the larger

e.g.  $506 - 387$

e.g.  $4000 - 2693$

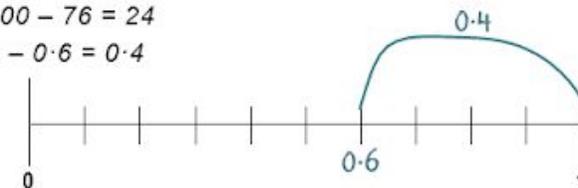


**Using number facts**

Number bonds to 10 and 100 and derived facts

e.g.  $100 - 76 = 24$

e.g.  $1 - 0.6 = 0.4$



Number bonds to £1 and £10

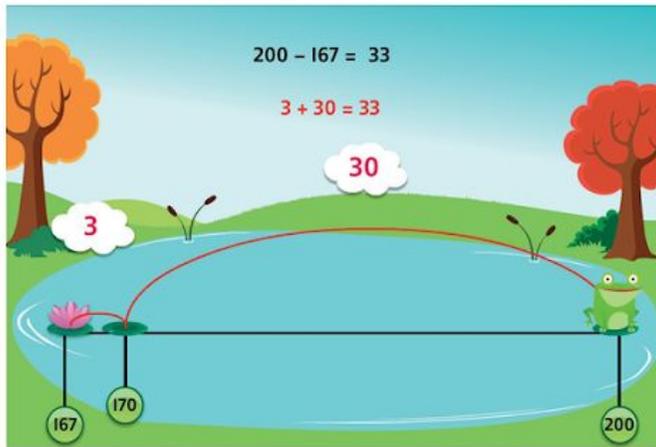
e.g.  $£1.00 - 86p = 14p$

e.g.  $£10.00 - £3.40 = £6.60$

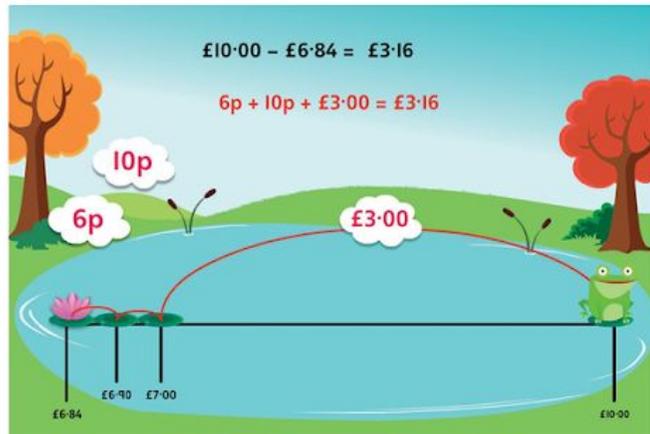
Written

-

Develop counting up subtraction  
e.g.  $200 - 167$



Use counting up subtraction to find change from £1, £5 and £10  
e.g.  $£10.00 - £6.84$



Recognise complements of any fraction to 1

- - e.g.  $1 - 1/4 = 3/4$
- - e.g.  $1 - 3/5 = 2/5$

Expanded column subtraction with 3- and 4-digit numbers  
e.g.  $726 - 358$

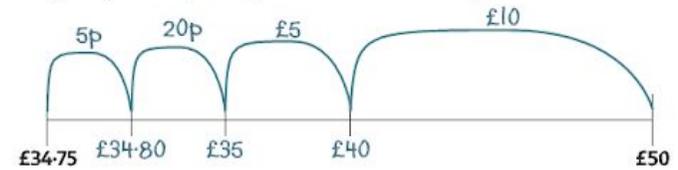
$$\begin{array}{r} 600 \quad 110 \quad 16 \\ \cancel{700} \quad \cancel{20} \quad \cancel{8} \\ - 300 \quad 50 \quad 8 \\ \hline 300 \quad 60 \quad 8 \end{array}$$

Begin to develop compact column subtraction  
e.g.  $726 - 358$

$$\begin{array}{r} 6 \quad 11 \quad 16 \\ \cancel{7} \quad \cancel{2} \quad \cancel{8} \\ - 3 \quad 5 \quad 8 \\ \hline 3 \quad 6 \quad 8 \end{array}$$

Use counting up subtraction to find change from £10, £20, £50 and £100

e.g. Buy a computer game for £34.75 using £50



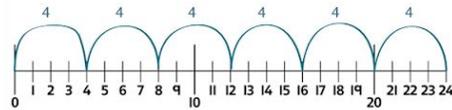
Subtract like fractions

- - - e.g.  $3/8 - 1/8 = 2/8$

**Mental  
x**

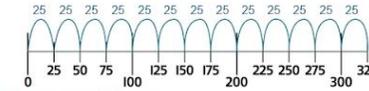
**Counting in steps ('clever' counting)**  
Count in 2s, 3s, 4s, 5s, 8s and 10s

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



**Counting in steps (sequences)**

Count in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s, 11s, 12s, 25s, 50s, 100s and 1000s



**Doubling and halving**

Find doubles to double 100 and beyond using partitioning  
e.g. *double 126*



Begin to double amounts of money  
e.g. *£3.50 doubled is £7*



Use doubling as a strategy in multiplying by 2, 4 and 8  
e.g. *34 x 4 is double 34 (68) doubled again = 136*

**Written  
x**

Build on partitioning to develop grid multiplication  
e.g.  $23 \times 4$

x	20	3
4	80	12

= 92

Use grid multiplication to multiply 3-digit numbers by 1-digit numbers  
e.g.  $253 \times 6$

x	200	50	3
6	1200	300	18

= 1518

Use a vertical written algorithm (ladder) to multiply 3-digit numbers by 1-digit numbers  
e.g.  $253 \times 6$

$$\begin{array}{r}
 253 \\
 \times 6 \\
 \hline
 1200 \leftarrow 6 \times 200 \\
 300 \leftarrow 6 \times 50 \\
 + 18 \leftarrow 6 \times 3 \\
 \hline
 1518
 \end{array}$$

Use grid multiplication to multiply 2-digit numbers by 2-digit numbers  
e.g.  $16 \times 48$

x	10	6
40	400	240
8	80	48

= 640  
= 128  

---

768



**Written**  
÷

Perform divisions just above the 10th multiple using written jottings, understanding how to give a remainder as a whole number

Use division facts to find unit and simple non-unit fractions of amounts within the times-tables

- e.g.  $\frac{3}{4}$  of 48 is  $3 \times (48 \div 4) = 36$

Use a written version of a mental method to divide 2- and 3-digit numbers by 1-digit numbers

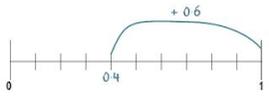
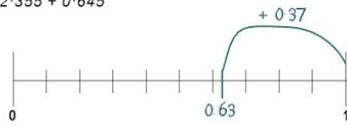
e.g.  $86 \div 3$  as  $20 \times 3$  (60) and  $8 \times 3$  (24), remainder 2

$$86 \div 3 = \square$$

$$\begin{array}{r} \square \times 3 = 86 \\ \underline{20 \times 3 = 60} \\ 26 \\ \underline{8 \times 3 = 24} \\ 2 \\ 28 \end{array} \quad 86 \div 3 = 28 \text{ r}2$$

Use division facts to find unit and non-unit fractions of amounts within the times-tables

- e.g.  $\frac{7}{8}$  of 56 is  $7 \times (56 \div 8) = 48$

	Year 5	Year 6																																																																																																												
<b>Mental</b> +	<p><b>Using place value</b> Count in 0.1s, 0.01s e.g. Know what 0.1 more than 0.51 is</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="background-color: #d9e1f2;">10s</td> <td style="background-color: #d9e1f2;">1s</td> <td style="background-color: #d9e1f2;">0.1s</td> <td style="background-color: #d9e1f2;">0.01s</td> </tr> <tr> <td></td> <td style="background-color: #d9e1f2;">0</td> <td style="background-color: #d9e1f2;">5</td> <td style="background-color: #d9e1f2;">1</td> </tr> </table> <p><b>Partitioning</b> e.g. <math>2.4 + 5.8</math> as <math>2 + 5</math> and <math>0.4 + 0.8</math> and combine the totals: <math>7 + 1.2 = 8.2</math></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>0.1</td><td>0.2</td><td>0.3</td><td>0.4</td><td>0.5</td><td>0.6</td><td>0.7</td><td>0.8</td><td>0.9</td><td>1</td></tr> <tr><td>1.1</td><td>1.2</td><td>1.3</td><td>1.4</td><td>1.5</td><td>1.6</td><td>1.7</td><td>1.8</td><td>1.9</td><td>2</td></tr> <tr><td>2.1</td><td>2.2</td><td>2.3</td><td>2.4</td><td>2.5</td><td>2.6</td><td>2.7</td><td>2.8</td><td>2.9</td><td>3</td></tr> <tr><td>3.1</td><td>3.2</td><td>3.3</td><td>3.4</td><td>3.5</td><td>3.6</td><td>3.7</td><td>3.8</td><td>3.9</td><td>4</td></tr> <tr><td>4.1</td><td>4.2</td><td>4.3</td><td>4.4</td><td>4.5</td><td>4.6</td><td>4.7</td><td>4.8</td><td>4.9</td><td>5</td></tr> <tr><td>5.1</td><td>5.2</td><td>5.3</td><td>5.4</td><td>5.5</td><td>5.6</td><td>5.7</td><td>5.8</td><td>5.9</td><td>6</td></tr> <tr><td>6.1</td><td>6.2</td><td>6.3</td><td>6.4</td><td>6.5</td><td>6.6</td><td>6.7</td><td>6.8</td><td>6.9</td><td>7</td></tr> <tr><td>7.1</td><td>7.2</td><td>7.3</td><td>7.4</td><td>7.5</td><td>7.6</td><td>7.7</td><td>7.8</td><td>7.9</td><td>8</td></tr> <tr><td>8.1</td><td>8.2</td><td>8.3</td><td>8.4</td><td>8.5</td><td>8.6</td><td>8.7</td><td>8.8</td><td>8.9</td><td>9</td></tr> <tr><td>9.1</td><td>9.2</td><td>9.3</td><td>9.4</td><td>9.5</td><td>9.6</td><td>9.7</td><td>9.8</td><td>9.9</td><td>10</td></tr> </table> <p><b>Counting on</b> Add two decimal numbers by adding the 1s, then the 0.1s/0.01s e.g. <math>5.72 + 3.05</math> as <math>5.72 + 3 (8.72) + 0.05 = 8.77</math> Add near multiples of 1 e.g. <math>6.34 + 0.99</math> e.g. <math>5.63 + 0.9</math> Count on from large numbers e.g. <math>6834 + 3005</math> as <math>9834 + 5</math></p> <p><b>Using number facts</b> Number bonds to 1 and to the next whole number e.g. <math>5.7 + 0.3</math> e.g. <math>0.4 + 0.6</math></p>  <p>Add to the next 10 from a decimal number e.g. <math>7.8 + 2.2 = 10</math></p>	10s	1s	0.1s	0.01s		0	5	1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	10	<p><b>Using place value</b> Count in 0.1s, 0.01s, 0.001s e.g. Know what 0.001 more than 6.725 is Partitioning e.g. <math>9.54 + 3.23</math> as <math>9 + 3</math>, <math>0.5 + 0.2</math> and <math>0.04 + 0.03</math>, to give 12.77</p> <p><b>Counting on</b> Add two decimal numbers by adding the 1s, then the 0.1s/0.01s/0.001s e.g. <math>6.314 + 3.006</math> as <math>6.314 + 3 (9.314) + 0.006 = 9.32</math> Add near multiples of 1 e.g. <math>6.345 + 0.999</math> e.g. <math>5.673 + 0.9</math> Count on from large numbers e.g. <math>16\,375 + 12\,003</math> as <math>28\,375 + 3</math></p> <p><b>Using number facts</b> Number bonds to 1 and to the next multiple of 1 e.g. <math>0.63 + 0.37</math> e.g. <math>2.355 + 0.645</math></p>  <p>Add to the next 10 e.g. <math>4.62 + 5.38</math></p>
10s	1s	0.1s	0.01s																																																																																																											
	0	5	1																																																																																																											
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9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	10																																																																																																					
<b>Written</b> +	<p>Expanded column addition for money leading to compact column addition for adding several amounts of money e.g. <math>£14.64 + £28.78 + £12.26</math></p> <table style="margin-left: auto; margin-right: auto;"> <tr><td>£14</td><td>60p</td><td>4p</td></tr> <tr><td>£28</td><td>70p</td><td>8p</td></tr> <tr><td>+ £12</td><td>20p</td><td>6p</td></tr> <tr><td>£1</td><td>10p</td><td></td></tr> <tr><td>£55</td><td>60p</td><td>8p</td></tr> </table> <p>Compact column addition to add pairs of 5-digit numbers Continue to use column addition to add towers of several larger numbers Use compact addition to add decimal numbers with up to 2 decimal places e.g. <math>15.68 + 27.86</math></p> <table style="margin-left: auto; margin-right: auto;"> <tr><td>15.68</td></tr> <tr><td>+ 27.86</td></tr> <tr><td>11.1</td></tr> <tr><td>43.54</td></tr> </table> <p>Add related fractions - - - e.g. <math>3/4 + 1/8 = 7/8</math></p>	£14	60p	4p	£28	70p	8p	+ £12	20p	6p	£1	10p		£55	60p	8p	15.68	+ 27.86	11.1	43.54	<p>Compact column addition for adding several large numbers and decimal numbers with up to 2 decimal places Compact column addition with money e.g. <math>£14.64 + £28.78 + £12.26</math></p> <table style="margin-left: auto; margin-right: auto;"> <tr><td>£14.64</td></tr> <tr><td>+ £28.78</td></tr> <tr><td>£12.26</td></tr> <tr><td>11.1</td></tr> <tr><td>£55.68</td></tr> </table> <p>Add unlike fractions, including mixed numbers - - - e.g. <math>1/4 + 2/3 = 11/12</math> - - - e.g. <math>2\ 1/4 + 1\ 1/3 = 3\ 7/12</math></p>	£14.64	+ £28.78	£12.26	11.1	£55.68																																																																																				
£14	60p	4p																																																																																																												
£28	70p	8p																																																																																																												
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£55.68																																																																																																														

**Mental**

**Taking away**

Use place value to subtract decimals

e.g.  $4.58 - 0.08$

e.g.  $6.26 - 0.2$

Take away multiples of powers of 10

e.g.  $15\ 672 - 300$

e.g.  $4.82 - 2$  e.g.  $2.71 - 0.5$

e.g.  $4.68 - 0.02$

Partitioning or counting back

e.g.  $3964 - 1051$

e.g.  $5.72 - 2.01$

Subtract near multiples of 1, 10, 100, 1000, 10 000 or £1

e.g.  $86\ 456 - 9999$

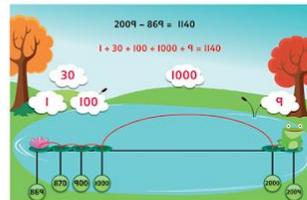
e.g.  $3.58 - 1.99$

**Counting up**

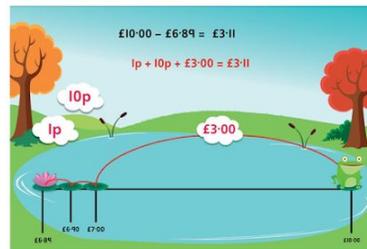
Find a difference between two numbers by counting up from the smaller to the larger

e.g.  $£12.05 - £9.59$

e.g.  $2009 - 869$



Find change using shopkeepers' addition  
e.g. Buy a toy for £6.89 using £10.00



Find a difference between two amounts of money by counting up

**Using number facts**

Derived facts from number bonds to 10 and 100

e.g.  $2 - 0.45$  using  $45 + 55 = 100$

e.g.  $3 - 0.86$  using  $86 + 14 = 100$



Number bonds to £1, £10 and £100

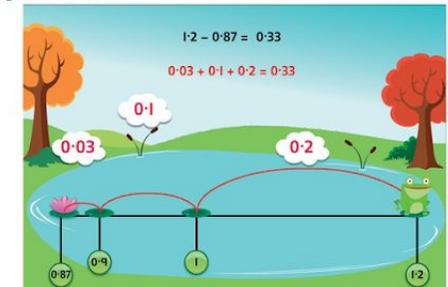
e.g.  $£4.00 - £3.86$

e.g.  $£100 - £66$  using  $66 + 34 = 100$

**Counting up**

Find a difference between two decimal numbers by counting up from the smaller to the larger

e.g.  $1.2 - 0.87$

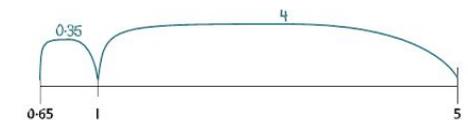


**Using number facts**

Derived facts from number bonds to 10 and 100

e.g.  $0.1 - 0.075$  using  $75 + 25 = 100$

e.g.  $5 - 0.65$  using  $65 + 35 = 100$



Number bonds to £1, £10 and £100

e.g.  $£7.00 - £4.37$

e.g.  $£100 - £66.20$  using  $20p + 80p = £1$  and  $£67 + £33 = £100$

**Taking away**

Use place value to subtract decimals

e.g.  $7.782 - 0.08$

e.g.  $16\ 263 - 0.2$

Take away multiples of powers of 10

e.g.  $132\ 956 - 400$

e.g.  $686\ 109 - 40\ 000$

e.g.  $7.823 - 0.5$

Partitioning or counting back

e.g.  $3964 - 1051$

e.g.  $5.72 - 2.01$

Subtract near multiples of powers of 10

e.g.  $360\ 078 - 99\ 998$

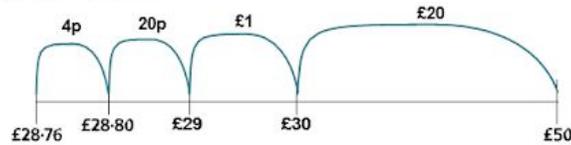
e.g.  $12\ 831 - 0.99$

Written

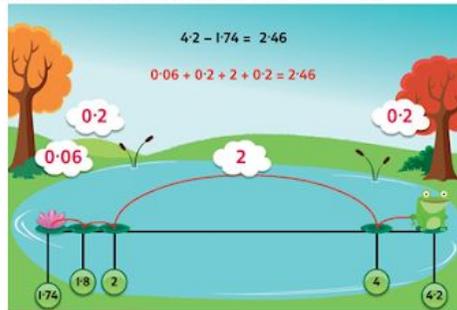
Compact column subtraction for numbers with up to 5 digits  
e.g.  $16\ 324 - 8516$

$$\begin{array}{r} 0\ 15\ 13\ 1\ 14 \\ \cancel{1}\ \cancel{6}\ \cancel{3}\ \cancel{2}\ \cancel{4} \\ -\ 8\ 5\ 1\ 6 \\ \hline 7\ 8\ 0\ 8 \end{array}$$

Continue to use counting up subtraction for subtractions involving money, including finding change  
e.g.  $£50 - £28.76$



Use counting up subtraction to subtract decimal numbers



e.g.  $4.2 - 1.74$

Subtract related fractions

--- e.g.  $\frac{3}{4} - \frac{1}{8} = \frac{5}{8}$

**NB** Counting up subtraction provides a default method for ALL children

Compact column subtraction for large numbers  
e.g.  $34\ 685 - 16\ 458$

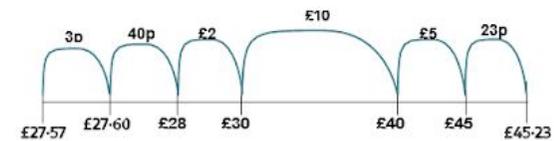
$$\begin{array}{r} 2\ 14\ 7\ 15 \\ \cancel{3}\ \cancel{4}\ \cancel{6}\ \cancel{8}\ \cancel{5} \\ -\ 1\ 6\ 4\ 5\ 8 \\ \hline 1\ 8\ 2\ 2\ 7 \end{array}$$

Use counting up for subtractions where the larger number is a multiple or near multiple of 1000 or 10 000

Use counting up subtraction when dealing with money

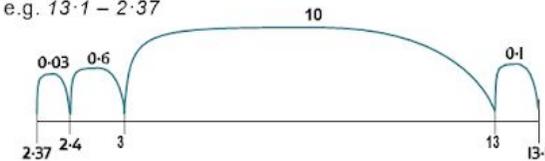
e.g.  $£100 - £78.56$

e.g.  $£45.23 - £27.57$



Use counting up subtraction to subtract decimal numbers

e.g.  $13.1 - 2.37$



Subtract unlike fractions, including mixed numbers

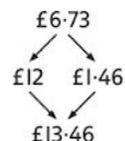
--- e.g.  $\frac{3}{4} - \frac{1}{3} = \frac{5}{12}$   
--- e.g.  $2\ \frac{3}{4} - 1\ \frac{1}{3} = 1\ \frac{5}{12}$

**NB** Counting up subtraction provides a default method for ALL children

**Mental  
x**

**Doubling and halving**

Double amounts of money using partitioning  
e.g. *double* £6.73



Use doubling and halving as a strategy in multiplying by 2, 4, 8, 5 and 20

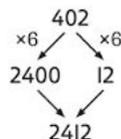
e.g.  $58 \times 5$  is half of  $58 \times 10$  ( $580$ ) = 290

**Grouping**

Multiply whole numbers and decimals by 10, 100, 1000  
e.g.  $3.4 \times 100 = 340$

Use partitioning to multiply 'friendly' 2- and 3-digit numbers by 1-digit numbers

e.g.  $402 \times 6$  as  $400 \times 6$  (2400) and  $2 \times 6$  (12) = 2412



Use partitioning to multiply decimal numbers by 1-digit numbers

e.g.  $4.5 \times 3$  as  $4 \times 3$  (12) and  $0.5 \times 3$  (1.5) = 13.5

Multiply near multiples by rounding e.g.

$32 \times 29$  as  $(32 \times 30) - 32 = 928$

**Using number facts**

Use times-tables facts up to  $12 \times 12$  to multiply multiples of 10/100 of the multiplier

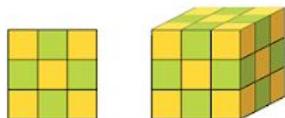
e.g.  $4 \times 6 = 24$  so  $40 \times 6 = 240$  and  $400 \times 6 = 2400$

Use knowledge of factors and multiples in multiplication

e.g.  $43 \times 6$  is double  $43 \times 3$

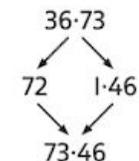
e.g.  $28 \times 50$  is half of  $28 \times 100$  (2800) = 1400

Know square numbers and cube numbers



**Doubling and halving**

Double decimal numbers with up to 2 places using partitioning  
e.g. *double* 36.73



Use doubling and halving as strategies in mental multiplication

**Grouping**

Use partitioning as a strategy in mental multiplication, as appropriate

e.g.  $3060 \times 4$  as  $3000 \times 4$  (12 000) and  $60 \times 4$  (240) = 12 240

e.g.  $8.4 \times 8$  as  $8 \times 8$  (64) and  $0.4 \times 8$  (3.2) = 67.2

Use factors in mental multiplication

e.g.  $421 \times 6$  as  $421 \times 3$  (1263) doubled = 2526

e.g.  $3.42 \times 5$  as half of  $3.42 \times 10 = 17.1$

Multiply decimal numbers using near multiples by rounding

e.g.  $4.3 \times 19$  as  $(4.3 \times 20) - 4.3 = 81.7$

**Using number facts**

Use times-tables facts up to  $12 \times 12$  in mental multiplication of large numbers or numbers with up to 2 decimal places

e.g.  $6 \times 4 = 24$  and  $0.06 \times 4 = 0.24$

**Written  
x**

Short multiplication of 2-, 3- and 4-digit numbers by 1-digit numbers  
e.g.  $435 \times 8$

$$\begin{array}{r} 435 \\ \times 8 \\ \hline 24 \\ \hline 3480 \end{array}$$

Long multiplication of 2-, 3- and 4-digit numbers by 'teen' numbers  
e.g.  $48 \times 16$

$$\begin{array}{r} 48 \\ \times 16 \\ \hline 480 \\ 288 \\ \hline 768 \end{array}$$

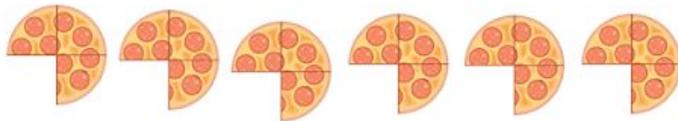
Grid multiplication of numbers with up to 2 decimal places by 1-digit numbers

e.g.  $1.34 \times 6$

x	1	0.3	0.04	
6	6	1.8	0.24	= 8.04

Multiply fractions by 1-digit numbers

e.g.  $\frac{3}{4} \times 6 = \frac{18}{4} = 4 \frac{2}{4} = 4 \frac{1}{2}$



**NB Grid multiplication provides a default method for ALL children**

Short multiplication of 2-, 3- and 4-digit numbers by 1-digit numbers  
e.g.  $3743 \times 6$

$$\begin{array}{r} 3743 \\ \times 6 \\ \hline 421 \\ \hline 22458 \end{array}$$

Long multiplication of 2-, 3- and 4-digit numbers by 2-digit numbers

$$\begin{array}{r} 456 \\ \times 38 \\ \hline 13680 \\ 3648 \\ \hline 17328 \end{array}$$

e.g.  $456 \times 38$

Short multiplication of decimal numbers using  $\times 100$  and  $\div 100$

e.g.  $13.72 \times 6$  as  $(1372 \times 6) \div 100 = 82.32$

Short multiplication of money

e.g.  $\text{£}13.72 \times 6$

$$\begin{array}{r} \text{£ } 13.72 \\ \times 6 \\ \hline 241 \\ \hline \text{£ } 82.32 \end{array}$$

Grid multiplication of numbers with up to 2 decimal places by 1-digit numbers

e.g.  $6.76 \times 4$

x	6	0.7	0.06	
4	24	2.8	0.24	= 27.04

Multiply simple pairs of proper fractions

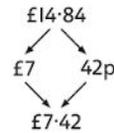
e.g.  $\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$

**NB Grid multiplication provides a default method for ALL children**

**Mental**  
÷

**Doubling and halving**

Halve amounts of money using partitioning  
e.g. half of £14.84 is half of £14 (£7) plus half of 84p (42p)



Use doubling and halving as a strategy in dividing by 2, 4, 8, 5 and 20  
e.g.  $115 \div 5$  as double 115 ( $230 \div 10 = 23$ )

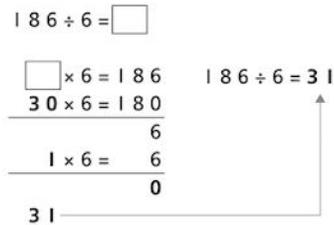
**Grouping**

Divide numbers by 10, 100, 1000 to obtain decimal answers with up to 3 decimal places

e.g.  $340 \div 100 = 3.4$

Use the 10th, 20th, 30th ... multiple of the divisor to divide 'friendly' 2- and 3-digit numbers by 1-digit numbers

e.g.  $186 \div 6$  as  $30 \times 6$  (180) and  $1 \times 6$  (6)

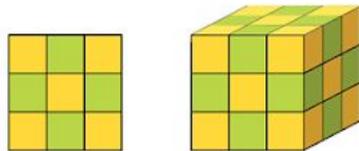


**Using number facts**

Use division facts from the times-tables up to  $12 \times 12$  to divide multiples of powers of 10 of the divisor

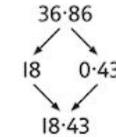
e.g.  $3600 \div 9$  using  $36 \div 9$

Know square numbers and cube numbers



**Doubling and halving**

Halve decimal numbers with up to 2 places using partitioning  
e.g. half of 36.86 is half of 36 (18) plus half of 0.86 (0.43)

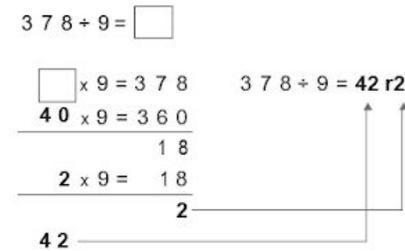


Use doubling and halving as strategies in mental division

**Grouping**

Use the 10th, 20th, 30th, ... or 100th, 200th, 300th ... multiples of the divisor to divide large numbers

e.g.  $378 \div 9$  as  $40 \times 9$  (360) and  $2 \times 9$  (18), remainder 2



Use tests for divisibility

e.g. 135 divides by 3, as  $1 + 3 + 5 = 9$  and 9 is in the  $\times 3$  table

**Using number facts**

Use division facts from the times-tables up to  $12 \times 12$  to divide decimal numbers by 1-digit numbers

e.g.  $1.17 \div 3$  is  $1/100$  of  $117 \div 3$  (39)

Know tests of divisibility for numbers divisible by 2, 3, 4, 5, 9, 10 and 25

**Written**  
÷

Use a written version of a mental strategy to divide 3-digit numbers by 1-digit numbers

e.g.  $326 \div 6$  as  $50 \times 6$  (300) and  $4 \times 6$  (24), remainder 2

$$326 \div 6 = \square$$

$$\begin{array}{r} \square \times 6 = 326 \\ 50 \times 6 = 300 \\ \hline 26 \\ 4 \times 6 = 24 \\ \hline 2 \\ 54 \end{array} \quad \begin{array}{l} 326 \div 6 = 54 \text{ r}2 \\ \uparrow \uparrow \\ \uparrow \uparrow \end{array}$$

Short division of 3- and 4-digit numbers by 1-digit numbers  
e.g.  $139 \div 3$

$$3 \overline{) 139} \begin{array}{l} 46 \text{ r}1 \\ 139 \end{array}$$

Give remainders as whole numbers or as fractions

Find unit and non-unit fractions of large amounts

- e.g.  $3/5$  of 265 is  $3 \times (265 \div 5) = 159$

Turn improper fractions into mixed numbers and vice versa

Short division of 3- and 4-digit numbers by 1-digit numbers

e.g.  $139 \div 3$

$$3 \overline{) 139} \begin{array}{l} 46 \text{ r}1 \\ 139 \end{array}$$

Long division of 3- and 4-digit numbers by 2-digit numbers

e.g.  $4176 \div 13$

$$\begin{array}{r} 300 + 20 + 1, \text{ r}3 \\ 13 \overline{) 4176} \\ \underline{-3900} \\ 276 \\ \underline{-260} \\ 16 \\ \underline{-13} \\ 3 \end{array} \quad 4176 \div 13 = 321 \text{ r}3$$

Give remainders as whole numbers, fractions or decimals

Use place value to divide 1- and 2-place decimals by numbers  $\leq 12$

e.g.  $3.65 \div 5$  as  $(365 \div 5) \div 100 = 0.73$

Divide proper fractions by whole numbers