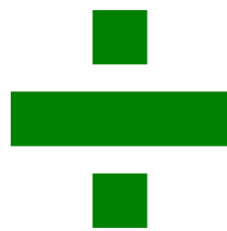


Ysgol Carrog



Calculation Methods



Addition Steps

Progression Step 1

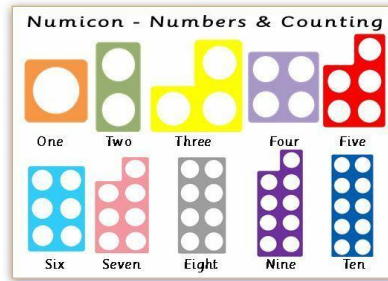
Identify and name numbers from 0 - 5, then 0 - 10.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10



(Scan the QR code to see a pupil demonstration Video)

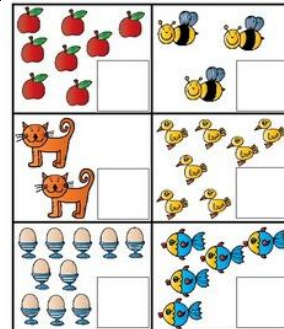
Use Numicon.



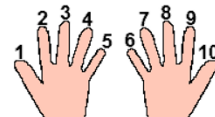
Count objects one by one to 10 and beyond.



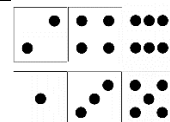
(Scan the QR code to see a pupil demonstration Video)


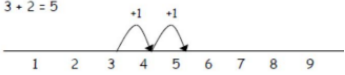
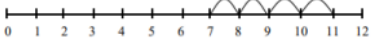

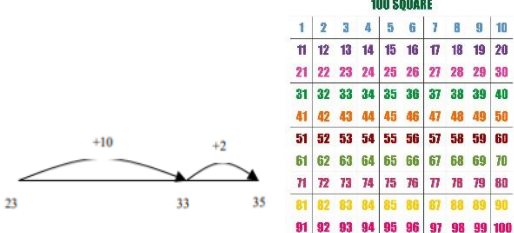
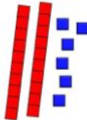
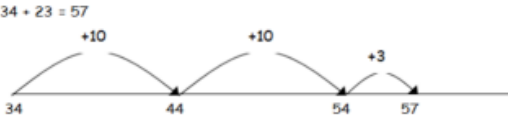
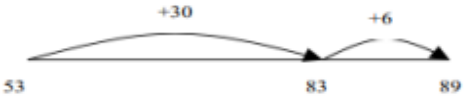





Use fingers to count from 1-10.



Count sets of objects and develop ways to record numbers in a range of ways e.g symbols, pictures, words or dots.



	<p>Use a number line to 10 to count one by one.</p>  <p>(Scan the QR code to see a pupil demonstration Video)</p>	<p>$3 + 2 = 5$</p> 
	<p>Use a number line to 20 to count one by one e.g $8 + 3 =$</p>	
	<p>$8 + 7 = 15$ First add 2 to make 10 and then add 5 to make 15.</p>	
	<p>Use a number line or 100 hundred square to count onwards in tens and ones. $25 + 14 = 39$ First of all jump 10 then 4.</p>	
	<p>Add 9 or 11, using 10 and adjust 1.</p>	<p>$(20 + 9 = 29) 20 + 10 - 1 = 29$ $(20 + 11 = 31) 20 + 10 + 1 = 31$</p>
	<p>Identify number bonds to 10, then to 20 in your head.</p>	<p>$6 + 2 = 8$ $16 + 2 = 18$ $60 + 20 = 80$</p>
<p>Progression Step 2</p>	<p>Partition tens and units. 21 $20 + 1$</p>	<p>tens units 26</p> 
	<p>Partition tens and units. $34 + 23 = 57$</p>	<p>$34 + 23 = 57$</p> 
	<p>Partition tens and units. $36 + 53 =$ $53 + 30 + 6 =$ $83 + 6 = 89$</p>	

	<p>$37 + 15 =$</p>  <p>(Scan the QR code to see a pupil demonstration Video)</p>	<p>Add the tens: $30 + 10 = 40$ Add the units: $7 + 5 = 12$ Add the tens and units: $40 + 12 = 52$</p>
	<p>Column and Written Addition Ensure understanding of place value. Start with adding the units.</p>	$\begin{array}{r} 73 \\ + 22 \\ \hline 95 \end{array}$
	<p>Once the first method is understood, start counting from the units and carry over if needed.</p>  <p>(Scan the QR code to see a pupil demonstration Video)</p>	<p>C : use 'carrying'</p> $\begin{array}{r} 587 \\ + 475 \\ \hline 1062 \\ \text{ii} \end{array} \qquad + \qquad \begin{array}{r} 3587 \\ + 675 \\ \hline 4262 \\ \text{iii} \end{array}$
<p>Progression Step 3</p>	<p>Decimal Addition Always line up the decimal point when setting out the sum.</p>  <p>(Scan the QR code to see a pupil demonstration Video)</p>	$\begin{array}{r} 23.56 \\ + 19.75 \\ \hline 43.31 \\ \text{iii} \end{array}$

Subtraction Steps

**Progression
Step 1**

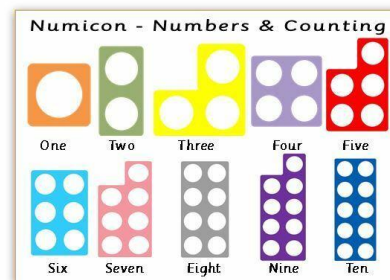
Count back one by one
from 5 - 0 then 10 - 0.

10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0

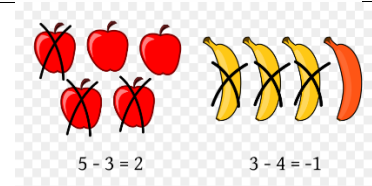


(Scan the QR code to see a
pupil demonstration Video)

Use Numicon.

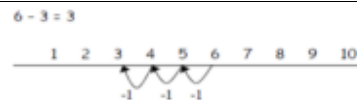


Count sets of objects and
develop ways to record
numbers in a range of
ways e.g symbols, pictures,
words and dots.

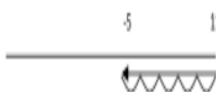

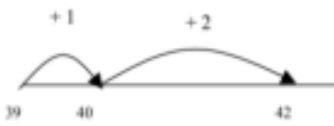
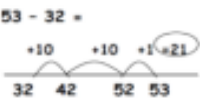
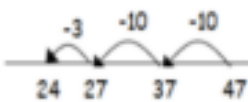
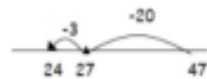




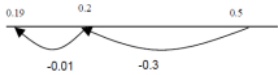

(Scan the QR code to see a
pupil demonstration Video)

Use a number line to 10 to
count back one by one.



(Scan the QR code to see a
pupil demonstration Video)

	Use a number line or 100 square to count back over 10.	 
	Subtract 9 or 11, using 10 and adjust 1.	$(45 - 9 = 36)$ $45 - 10 + 1 = 36$ $(45 - 11 = 34)$ $45 - 10 - 1 = 34$
	Use a number line or 100 square to count forwards to discover the difference. $42 - 39 = 3$	
	Discover the difference by counting forwards. $53 - 32 = 21$	
Progression Step 2	Discover the difference by subtracting and counting backwards in steps. $47 - 23 = 24$	
	Discover the difference by subtracting and counting backwards in steps of tens. $47 - 23 = 24$	
	Column and Written Method Ensure largest number on top. Line up the units. Start with the units.	$\begin{array}{r} 28 \\ -5 \\ \hline 23 \end{array}$
	 (Scan the QR code to see a pupil demonstration Video)	

	<p>Ensure largest number on top. Units lined up. Borrow ten from previous column when not possible to complete the calculation. Subtract starting with the units.</p>  <p>(Scan the QR code to see a pupil demonstration Video)</p>	$ \begin{array}{r} 6\ 14\ 1 \\ \cancel{7}54 \\ - 297 \\ \hline 457 \end{array} $
<p>Progression Step 3</p>	<p>Decimal Subtraction Use knowledge of number bonds and place value to subtract. (Count back).</p>	$0.5 - 0.31 = 0.19$ 
	<p>Column and Written Methods Always keep the decimal point lined up. Start on the last column.</p>  <p>(Scan the QR code to see a pupil demonstration Video)</p>	$ \begin{array}{r} 0\ 1\ 5\ 1 \\ \cancel{1}76.48 \\ - 93.72 \\ \hline 82.76 \end{array} $

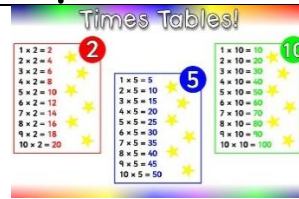
Multiplication Steps

Progression Step 1

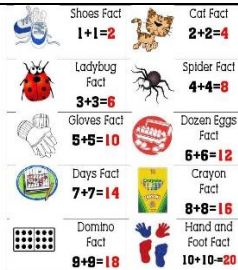
Count every 2, 5, or 10 (times tables).



(Scan the QR code to see a pupil demonstration Video)



Recognise doubles to 5, then 10.



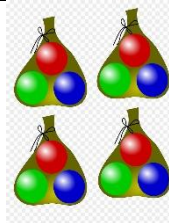
Count sets of objects.



Draw pictures / markings.



(Scan the QR code to see a pupil demonstration Video)






There are 3 balls in 1 bag.
How many balls are there in 4 bags?

Recognise doubles to 20.

$$5 \times 2 = 10$$

$$10 \times 2 = 20$$

<p>Progression Step 2</p>	<p>Use multiplication 2, 3, 4, 5 and 10.</p>																																																																																																					
	<p>Introduce that multiplication is repetitive addition.</p>	<p>repeated addition 5 added together three times is 5+5+5, or 3 lots of 5, or 3 times 5, or 5x3 (or 3x5)</p>																																																																																																				
	<p>Use symbols = and x to complete number sentences.</p>	$2 \times 2 = 4$ $3 \times 10 = 30$																																																																																																				
	<p>Grid method to partition tens and units.</p> <p>Then to partition hundreds, tens and units.</p>	<p>A: grid method (TU x U)</p> <p>Eg: 23×8 is approximately $20 \times 10 = 200$</p> $\begin{array}{r} \times 20 \quad 3 \\ \hline 160 \quad 24 \quad 8 \end{array} = 184$ <p>A: grid method (HTU x U and TU x TU)</p> <p>346×9 is approximately $350 \times 10 = 3500$</p> $\begin{array}{r} \times 300 \quad 40 \quad 6 \\ \hline 9 \quad 2700 \quad 360 \quad 54 \end{array} = 3114$																																																																																																				
<p>Progression Step 3</p>	<p>Know all times tables 1 - 12</p>	<p>MULTIPLICATION TABLE</p> <table border="1"> <tbody> <tr> <td>1 x 1 = 1</td><td>2 x 1 = 2</td><td>3 x 1 = 3</td><td>4 x 1 = 4</td><td>5 x 1 = 5</td></tr> <tr> <td>1 x 2 = 2</td><td>2 x 2 = 4</td><td>3 x 2 = 6</td><td>4 x 2 = 8</td><td>5 x 2 = 10</td></tr> <tr> <td>1 x 3 = 3</td><td>2 x 3 = 6</td><td>3 x 3 = 9</td><td>4 x 3 = 12</td><td>5 x 3 = 15</td></tr> <tr> <td>1 x 4 = 4</td><td>2 x 4 = 8</td><td>3 x 4 = 12</td><td>4 x 4 = 16</td><td>5 x 4 = 20</td></tr> <tr> <td>1 x 5 = 5</td><td>2 x 5 = 10</td><td>3 x 5 = 15</td><td>4 x 5 = 20</td><td>5 x 5 = 25</td></tr> <tr> <td>1 x 6 = 6</td><td>2 x 6 = 12</td><td>3 x 6 = 18</td><td>4 x 6 = 24</td><td>5 x 6 = 30</td></tr> <tr> <td>1 x 7 = 7</td><td>2 x 7 = 14</td><td>3 x 7 = 21</td><td>4 x 7 = 28</td><td>5 x 7 = 35</td></tr> <tr> <td>1 x 8 = 8</td><td>2 x 8 = 16</td><td>3 x 8 = 24</td><td>4 x 8 = 32</td><td>5 x 8 = 40</td></tr> <tr> <td>1 x 9 = 9</td><td>2 x 9 = 18</td><td>3 x 9 = 27</td><td>4 x 9 = 36</td><td>5 x 9 = 45</td></tr> <tr> <td>1 x 10 = 10</td><td>2 x 10 = 20</td><td>3 x 10 = 30</td><td>4 x 10 = 40</td><td>5 x 10 = 50</td></tr> <tr> <td>6 x 1 = 6</td><td>7 x 1 = 7</td><td>8 x 1 = 8</td><td>9 x 1 = 9</td><td>10 x 1 = 10</td></tr> <tr> <td>6 x 2 = 12</td><td>7 x 2 = 14</td><td>8 x 2 = 16</td><td>9 x 2 = 18</td><td>10 x 2 = 20</td></tr> <tr> <td>6 x 3 = 18</td><td>7 x 3 = 21</td><td>8 x 3 = 24</td><td>9 x 3 = 27</td><td>10 x 3 = 30</td></tr> <tr> <td>6 x 4 = 24</td><td>7 x 4 = 28</td><td>8 x 4 = 32</td><td>9 x 4 = 36</td><td>10 x 4 = 40</td></tr> <tr> <td>6 x 5 = 30</td><td>7 x 5 = 35</td><td>8 x 5 = 40</td><td>9 x 5 = 45</td><td>10 x 5 = 50</td></tr> <tr> <td>6 x 6 = 36</td><td>7 x 6 = 42</td><td>8 x 6 = 48</td><td>9 x 6 = 54</td><td>10 x 6 = 60</td></tr> <tr> <td>6 x 7 = 42</td><td>7 x 7 = 49</td><td>8 x 7 = 56</td><td>9 x 7 = 63</td><td>10 x 7 = 70</td></tr> <tr> <td>6 x 8 = 48</td><td>7 x 8 = 56</td><td>8 x 8 = 64</td><td>9 x 8 = 72</td><td>10 x 8 = 80</td></tr> <tr> <td>6 x 9 = 54</td><td>7 x 9 = 63</td><td>8 x 9 = 72</td><td>9 x 9 = 81</td><td>10 x 9 = 90</td></tr> <tr> <td>6 x 10 = 60</td><td>7 x 10 = 70</td><td>8 x 10 = 80</td><td>9 x 10 = 90</td><td>10 x 10 = 100</td></tr> </tbody> </table>	1 x 1 = 1	2 x 1 = 2	3 x 1 = 3	4 x 1 = 4	5 x 1 = 5	1 x 2 = 2	2 x 2 = 4	3 x 2 = 6	4 x 2 = 8	5 x 2 = 10	1 x 3 = 3	2 x 3 = 6	3 x 3 = 9	4 x 3 = 12	5 x 3 = 15	1 x 4 = 4	2 x 4 = 8	3 x 4 = 12	4 x 4 = 16	5 x 4 = 20	1 x 5 = 5	2 x 5 = 10	3 x 5 = 15	4 x 5 = 20	5 x 5 = 25	1 x 6 = 6	2 x 6 = 12	3 x 6 = 18	4 x 6 = 24	5 x 6 = 30	1 x 7 = 7	2 x 7 = 14	3 x 7 = 21	4 x 7 = 28	5 x 7 = 35	1 x 8 = 8	2 x 8 = 16	3 x 8 = 24	4 x 8 = 32	5 x 8 = 40	1 x 9 = 9	2 x 9 = 18	3 x 9 = 27	4 x 9 = 36	5 x 9 = 45	1 x 10 = 10	2 x 10 = 20	3 x 10 = 30	4 x 10 = 40	5 x 10 = 50	6 x 1 = 6	7 x 1 = 7	8 x 1 = 8	9 x 1 = 9	10 x 1 = 10	6 x 2 = 12	7 x 2 = 14	8 x 2 = 16	9 x 2 = 18	10 x 2 = 20	6 x 3 = 18	7 x 3 = 21	8 x 3 = 24	9 x 3 = 27	10 x 3 = 30	6 x 4 = 24	7 x 4 = 28	8 x 4 = 32	9 x 4 = 36	10 x 4 = 40	6 x 5 = 30	7 x 5 = 35	8 x 5 = 40	9 x 5 = 45	10 x 5 = 50	6 x 6 = 36	7 x 6 = 42	8 x 6 = 48	9 x 6 = 54	10 x 6 = 60	6 x 7 = 42	7 x 7 = 49	8 x 7 = 56	9 x 7 = 63	10 x 7 = 70	6 x 8 = 48	7 x 8 = 56	8 x 8 = 64	9 x 8 = 72	10 x 8 = 80	6 x 9 = 54	7 x 9 = 63	8 x 9 = 72	9 x 9 = 81	10 x 9 = 90	6 x 10 = 60	7 x 10 = 70	8 x 10 = 80	9 x 10 = 90	10 x 10 = 100
1 x 1 = 1	2 x 1 = 2	3 x 1 = 3	4 x 1 = 4	5 x 1 = 5																																																																																																		
1 x 2 = 2	2 x 2 = 4	3 x 2 = 6	4 x 2 = 8	5 x 2 = 10																																																																																																		
1 x 3 = 3	2 x 3 = 6	3 x 3 = 9	4 x 3 = 12	5 x 3 = 15																																																																																																		
1 x 4 = 4	2 x 4 = 8	3 x 4 = 12	4 x 4 = 16	5 x 4 = 20																																																																																																		
1 x 5 = 5	2 x 5 = 10	3 x 5 = 15	4 x 5 = 20	5 x 5 = 25																																																																																																		
1 x 6 = 6	2 x 6 = 12	3 x 6 = 18	4 x 6 = 24	5 x 6 = 30																																																																																																		
1 x 7 = 7	2 x 7 = 14	3 x 7 = 21	4 x 7 = 28	5 x 7 = 35																																																																																																		
1 x 8 = 8	2 x 8 = 16	3 x 8 = 24	4 x 8 = 32	5 x 8 = 40																																																																																																		
1 x 9 = 9	2 x 9 = 18	3 x 9 = 27	4 x 9 = 36	5 x 9 = 45																																																																																																		
1 x 10 = 10	2 x 10 = 20	3 x 10 = 30	4 x 10 = 40	5 x 10 = 50																																																																																																		
6 x 1 = 6	7 x 1 = 7	8 x 1 = 8	9 x 1 = 9	10 x 1 = 10																																																																																																		
6 x 2 = 12	7 x 2 = 14	8 x 2 = 16	9 x 2 = 18	10 x 2 = 20																																																																																																		
6 x 3 = 18	7 x 3 = 21	8 x 3 = 24	9 x 3 = 27	10 x 3 = 30																																																																																																		
6 x 4 = 24	7 x 4 = 28	8 x 4 = 32	9 x 4 = 36	10 x 4 = 40																																																																																																		
6 x 5 = 30	7 x 5 = 35	8 x 5 = 40	9 x 5 = 45	10 x 5 = 50																																																																																																		
6 x 6 = 36	7 x 6 = 42	8 x 6 = 48	9 x 6 = 54	10 x 6 = 60																																																																																																		
6 x 7 = 42	7 x 7 = 49	8 x 7 = 56	9 x 7 = 63	10 x 7 = 70																																																																																																		
6 x 8 = 48	7 x 8 = 56	8 x 8 = 64	9 x 8 = 72	10 x 8 = 80																																																																																																		
6 x 9 = 54	7 x 9 = 63	8 x 9 = 72	9 x 9 = 81	10 x 9 = 90																																																																																																		
6 x 10 = 60	7 x 10 = 70	8 x 10 = 80	9 x 10 = 90	10 x 10 = 100																																																																																																		

	<p>Column and Written Methods Partition 2 digit numbers.</p>  <p>(Scan the QR code to see a pupil demonstration Video)</p>	<p>Eg:</p> $\begin{array}{r} 20 \times 7 \\ 3 \times 7 \\ \hline 161 \end{array}$ <p style="text-align: right;">23 x 7 <u>161</u> 2</p> <p>leading to</p>
	<p>Partition numbers into tens and units. (2 digits x 1 digit.)</p>	<p>346 x 9 is approximately 350 x 10 = 3500</p> $\begin{array}{r} 300 \times 9 \\ 40 \times 9 \\ 6 \times 9 \\ \hline 2700 \\ 360 \\ 54 \\ \hline \end{array}$ <p style="text-align: right;">346 x 9 <u>3114</u> 45</p> <p>leading to</p>
	<p>Partition numbers into tens and units. (2 digits x 2 digits.) or when multiplying by the tens, place the 0 ready)</p>  <p>(Scan the QR code to see a pupil demonstration Video)</p>	<p>72 x 38 is approximately 70 x 40 = 2800</p> $\begin{array}{r} 72 \times 30 \\ 72 \times 8 \\ \hline 2160 \\ 576 \\ \hline 2736 \end{array}$

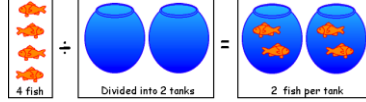
Division Steps

Progression Step 1

Divide objects equally.



(Scan the QR code to see a pupil demonstration Video)



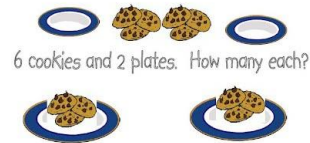
Count every 2, 5, and 10.

Count by 2s										
2	4	6	8	10	12	14	16	18	20	
22	24	26	28	30	32	34	36	38	40	
42	44	46	48	50	52	54	56	58	60	
62	64	66	68	70	72	74	76	78	80	
82	84	86	88	90	92	94	96	98	100	

Count by 5s										
5	10	15	20	25	30	35	40	45	50	
55	60	65	70	75	80	85	90	95	100	

Count by 10s										
10	20	30	40	50	60	70	80	90	100	

Count confidently to share objects.



Group objects into sets of 2, 5 or 10.



Progression Step 2

Use 2, 3, 4, 5 and 10 times tables.

Times Tables!

2

1 x 2 = 2
2 x 2 = 4
3 x 2 = 6
4 x 2 = 8
5 x 2 = 10
6 x 2 = 12
7 x 2 = 14
8 x 2 = 16
9 x 2 = 18
10 x 2 = 20

5

1 x 5 = 5
2 x 5 = 10
3 x 5 = 15
4 x 5 = 20
5 x 5 = 25
6 x 5 = 30
7 x 5 = 35
8 x 5 = 40
9 x 5 = 45
10 x 5 = 50

10

1 x 10 = 10
2 x 10 = 20
3 x 10 = 30
4 x 10 = 40
5 x 10 = 50
6 x 10 = 60
7 x 10 = 70
8 x 10 = 80
9 x 10 = 90
10 x 10 = 100

3 TIMES TABLE

3 x 1 = 3
3 x 2 = 6
3 x 3 = 9
3 x 4 = 12
3 x 5 = 15
3 x 6 = 18
3 x 7 = 21
3 x 8 = 24
3 x 9 = 27
3 x 10 = 30
3 x 11 = 33
3 x 12 = 36

4 Times Table

4 x 0 = 0
4 x 1 = 4
4 x 2 = 8
4 x 3 = 12
4 x 4 = 16
4 x 5 = 20
4 x 6 = 24
4 x 7 = 28
4 x 8 = 32
4 x 9 = 36
4 x 10 = 40
4 x 11 = 44
4 x 12 = 48


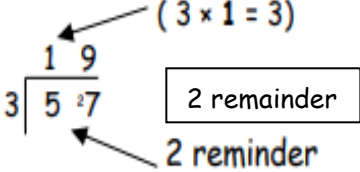

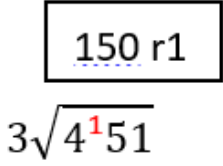
Group numbers using a number line.



(Scan the QR code to see a pupil demonstration Video)

How many groups of 3 in 18?



	Use the symbols = and \div to complete number sentences.	$10 \div 2 = 5$ $20 \div 2 = 10$
	Using multiples of the divisor. Subtract familiar multiples in steps then add the amount.	$72 \div 5$ $\begin{array}{r} 72 \\ - 50 \\ \hline 22 \\ - 20 \\ \hline 2 \end{array}$ 10×5 4×5 Answer : 14 remainder 2
	Subtract familiar multiples in steps then add the amount and remember the remainder.	HTU \div U Eg: $256 \div 7$ lies between $210 \div 7 = 30$ and $280 \div 7 = 40$ $256 \div 7$ $\begin{array}{r} 256 \\ - 70 \\ \hline 186 \\ - 140 \\ \hline 46 \\ - 42 \\ \hline 4 \end{array}$ 10×7 20×7 6×7 Answer : 36 remainder 4
Progression Step 3	Short Written Method Use multiplication knowledge to divide numbers into specific numbers.  (Scan the QR code to see a pupil demonstration Video)	eg. $57 \div 3 = 19$ 
	Long Written Method  (Scan the QR code to see a pupil demonstration Video)	

Additional Online Resources



<https://www.rmeasimaths.com>



<https://trockstars.com>



[j2blast \(j2e.com\)](https://www.j2e.com)



<https://www.topmarks.co.uk>



<https://www.teachyourmonster.org>