



# Stages of Addition Y2 – Y6

Stages	Examples
Partition numbers into tens and ones – informal method ‘Dragon’s teeth’	$\begin{array}{r} 3 \quad 5 \quad + \quad 4 \quad 7 \\ 30+ \quad 40 \quad + \quad 5+7 \\ 70 \quad + \quad 12 \\ 82 \end{array}$
Partition numbers into tens and ones - columns	$\begin{array}{r} 3 \quad 5 \\ + \quad 4 \quad 7 \\ \hline \end{array} \quad \longrightarrow \quad \begin{array}{r} 3 \quad 0 \quad + \quad 5 \\ 4 \quad 0 \quad + \quad 7 \\ \hline 7 \quad 0 \quad + \quad 12 = 8 \quad 2 \end{array}$
Partition numbers and write in columns – expanded method	$\begin{array}{r} 3 \quad 5 \\ 4 \quad 7 \\ 1 \quad 2 \quad 5+7 \\ 7 \quad 0 \quad 30+ \quad 40 \\ 8 \quad 2 \end{array}$
This then becomes the shorter method where numbers get carried into the next column	$\begin{array}{r} 7 \quad 3 \quad 8 \\ 5 \quad 8 \quad 7 \\ 1 \quad 1 \quad 1 \\ 1 \quad 3 \quad 2 \quad 5 \end{array}$
Moving to adding three two digit numbers and two three digit numbers and numbers with amounts of digits.	$\begin{array}{r} £ \quad 1 \quad 3 \quad 2 \quad 5 \quad 7 \\ £ \quad 4 \quad 8 \quad 3 \quad 6 \quad 9 \\ 1 \quad 1 \quad 1 \\ £ \quad 6 \quad 1 \quad 6 \quad 2 \quad 6 \end{array}$




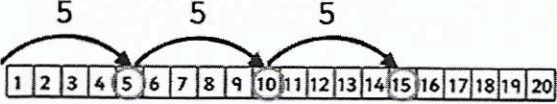


# Stages of Subtraction Y2 – Y6

Stages	Examples
<p>Use a numberline.</p> <p>Work by counting back.</p> <p>Also work out the difference by counting on.</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <math>73 - 39 = 34</math>  </div> <div style="text-align: center;"> <p>Work out the difference between 47 and 86 = 39</p> </div> </div>
<p>Expanded method</p> <p>Partition numbers into tens and ones. Write these under one another. This is how we start introducing the column subtraction method</p>	$77 - 25 =$ $\begin{array}{r} 70 + 7 \\ - 20 + 5 \\ \hline 50 + 2 = 52 \end{array}$
<p>(Replace with 2 digit numbers) These show the two steps that lead to the shortened version of the column subtraction method. Always start with the units number.</p>	$73 - 26 =$ $\begin{array}{r} 70 + 3 \\ - 20 + 6 \\ \hline \end{array} \rightarrow \begin{array}{r} \overset{60}{\cancel{70}} + \overset{13}{\cancel{3}} \\ - 20 + 6 \\ \hline 40 + 7 \end{array} \rightarrow \begin{array}{r} \overset{6}{\cancel{7}} \overset{13}{\cancel{3}} \\ - 26 \\ \hline 47 \end{array}$
<p>(Replace with 3 digit numbers)</p> <p>These show the two steps that lead to the shortened version of the column subtraction method. Always start with the units number.</p>	$\begin{array}{r} 573 - 428 = \\ 500 \overset{60}{\cancel{70}} \overset{3}{\cancel{3}} \\ 400 \overset{20}{\cancel{20}} \overset{8}{\cancel{8}} \\ \hline 100 + 40 + 5 = 145 \end{array} \rightarrow \begin{array}{r} 5 \overset{6}{\cancel{7}} \overset{3}{\cancel{3}} \\ - 428 \\ \hline 145 \end{array}$
<p>(Replace with 4 digit numbers including 0)</p>	$\begin{array}{r} \overset{6}{\cancel{7}} \overset{9}{\cancel{0}} \overset{4}{\cancel{4}} \overset{2}{\cancel{2}} \\ - 4381 \\ \hline 2661 \end{array}$

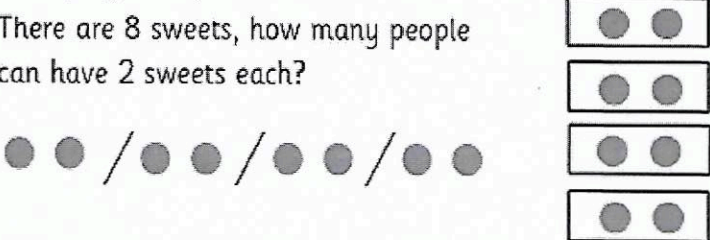
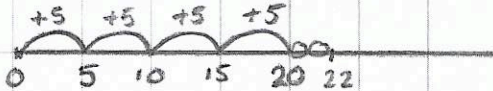
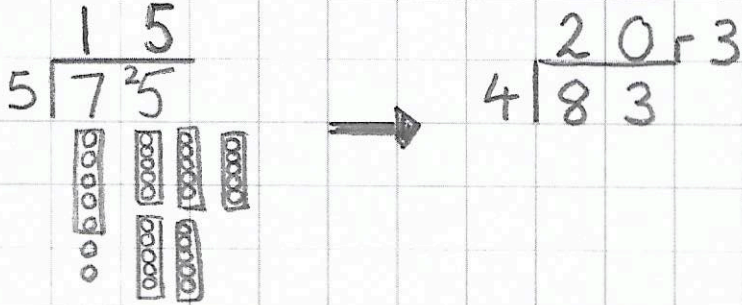
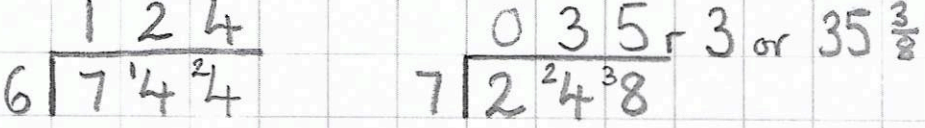


# Stages of Multiplication Y2 – Y6

Stages	Examples																														
Grouping and Arrays	$4 \times 2 = 8$  $4 \times 2 = 8$ or $2 \times 4 = 8$  																														
Repeated Addition  Repeated addition can be shown easily on a numberline	$5 \times 3$ is $5 + 5 + 5 = 15$ or 3 lots of 5  																														
Partitioning – informal method (Y2/3) leading to formal column method (Y3/4) as an expanded method	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 30%;"><math>63 \times 4</math></td> <td style="width: 10%;"></td> <td style="text-align: center; width: 30%;"><math>63</math></td> <td style="width: 10%;"></td> <td style="text-align: center; width: 10%;"><math>63</math></td> <td style="width: 10%;"></td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;"><math>\times 4</math></td> <td></td> <td style="text-align: center;"><math>\times 4</math></td> <td></td> </tr> <tr> <td style="text-align: center;"><math>60 \times 4 = 240</math></td> <td style="text-align: center;"><math>\rightarrow</math></td> <td style="text-align: center;"><math>12</math></td> <td></td> <td style="text-align: center;"><math>12</math></td> <td style="text-align: center;"><math>3 \times 4</math></td> </tr> <tr> <td style="text-align: center;"><math>3 \times 4 = 12</math></td> <td></td> <td style="text-align: center;"><math>240</math></td> <td></td> <td style="text-align: center;"><math>240</math></td> <td style="text-align: center;"><math>60 \times 4</math></td> </tr> <tr> <td style="text-align: center;"><math>240 + 12 = 252</math></td> <td></td> <td style="text-align: center;"><math>252</math></td> <td></td> <td style="text-align: center;"><math>252</math></td> <td></td> </tr> </table>	$63 \times 4$		$63$		$63$				$\times 4$		$\times 4$		$60 \times 4 = 240$	$\rightarrow$	$12$		$12$	$3 \times 4$	$3 \times 4 = 12$		$240$		$240$	$60 \times 4$	$240 + 12 = 252$		$252$		$252$	
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Short multiplication – The method above is shortened by carrying numbers to the left – please note the position of the digits that have been carried.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 30%;"><math>76</math></td> <td style="width: 10%;"></td> <td style="text-align: center; width: 30%;"><math>148</math></td> <td style="width: 10%;"></td> <td style="text-align: center; width: 10%;"><math>148</math></td> <td style="width: 10%;"></td> </tr> <tr> <td style="text-align: center;"><math>\times 5</math></td> <td></td> <td style="text-align: center;"><math>\times 6</math></td> <td></td> <td style="text-align: center;"><math>\times 6</math></td> <td></td> </tr> <tr> <td style="text-align: center;"><math>38^30</math></td> <td></td> <td style="text-align: center;"><math>8^28^48</math></td> <td></td> <td style="text-align: center;"><math>8^28^48</math></td> <td></td> </tr> </table>	$76$		$148$		$148$		$\times 5$		$\times 6$		$\times 6$		$38^30$		$8^28^48$		$8^28^48$													
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Long multiplication (beginning in Y5 with 3 digit x teen number)  please note the positions of the digits that have been carried	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 30%;"><math>275</math></td> <td style="width: 10%;"></td> <td style="text-align: center; width: 30%;"><math>1473</math></td> <td style="width: 10%;"></td> <td style="text-align: center; width: 10%;"><math>1473</math></td> <td style="width: 10%;"></td> </tr> <tr> <td style="text-align: center;"><math>\times 16</math></td> <td></td> <td style="text-align: center;"><math>\times 28</math></td> <td></td> <td style="text-align: center;"><math>\times 28</math></td> <td></td> </tr> <tr> <td style="text-align: center;"><math>16^45^30</math></td> <td></td> <td style="text-align: center;"><math>11^7^8^4</math></td> <td></td> <td style="text-align: center;"><math>11^7^8^4</math></td> <td></td> </tr> <tr> <td style="text-align: center;"><math>2750</math></td> <td></td> <td style="text-align: center;"><math>29^460</math></td> <td></td> <td style="text-align: center;"><math>29^460</math></td> <td></td> </tr> <tr> <td style="text-align: center;"><math>4400</math></td> <td></td> <td style="text-align: center;"><math>41244</math></td> <td></td> <td style="text-align: center;"><math>41244</math></td> <td></td> </tr> </table>	$275$		$1473$		$1473$		$\times 16$		$\times 28$		$\times 28$		$16^45^30$		$11^7^8^4$		$11^7^8^4$		$2750$		$29^460$		$29^460$		$4400$		$41244$		$41244$	
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# Stages of Division Y2 – Y6

Stages	Examples
Grouping Arrays Visual representation are important at this stage	<p>Grouping or repeated addition</p> <p>There are 8 sweets, how many people can have 2 sweets each?</p>  <p>Arrays can also be used.</p>
Children develop their use of repeated addition	$22 \div 5 = 4 \text{ r } 2$ 
Tens and ones $\div$ ones Including remainders	
Hundreds, tens and ones $\div$ ones Including remainders	
Long division Dividing by 2 digit number	