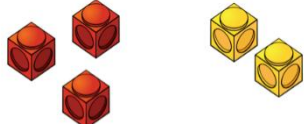
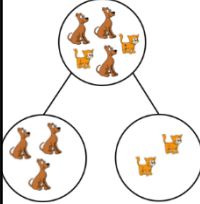
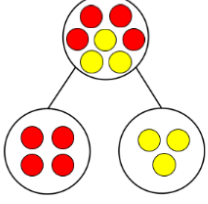
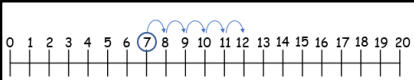


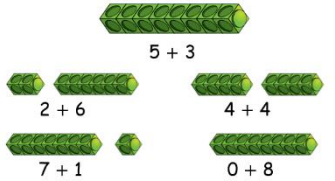
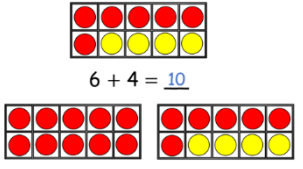

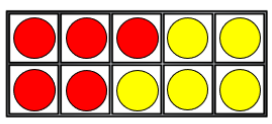
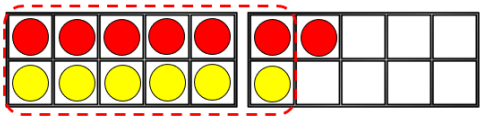
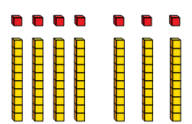

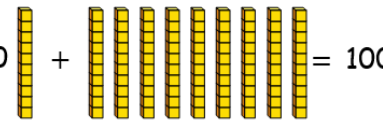
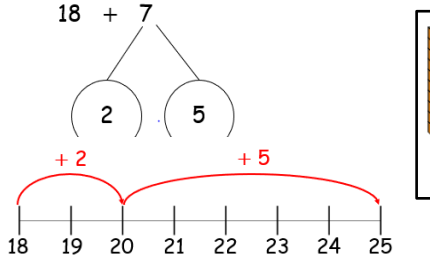
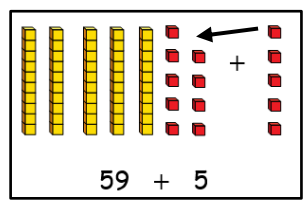
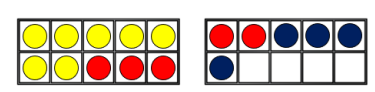
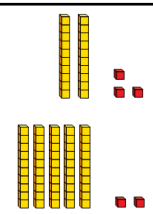
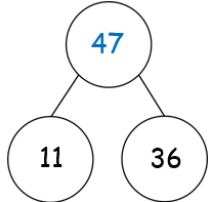


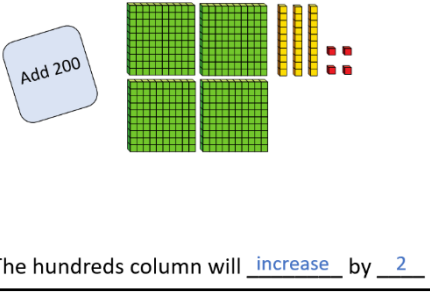
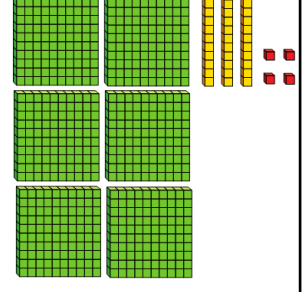




































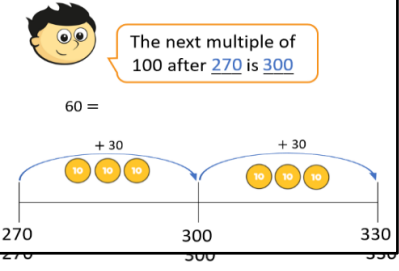
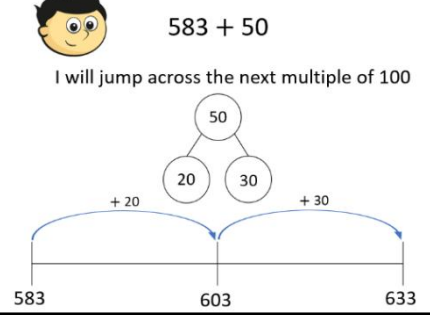
# Addition - Year 1

Method	Example
<p><b>Combining two parts to make a whole: a part whole model.</b></p> <p>Understand that the whole is bigger than the part.</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p><u>2</u> is a part. <u>3</u> is a part. The whole is <u>5</u></p> </div> <div style="text-align: center;"> <p>There are 5 animals altogether. There are <u>3</u> dogs and <u>2</u> cats.</p>  <p><u>5</u> is the whole. <u>3</u> is a part. <u>2</u> is a part.</p> </div> <div style="text-align: center;">  <p><u>4</u> plus <u>3</u> is equal to <u>7</u> <u>4</u> + <u>3</u> = <u>7</u></p> </div> </div>
<p><b>Starting with the bigger number and counting on.</b></p> <p>They will choose the larger number (even when it is not first) and count on from there. Use number lines or store mentally and count on fingers.</p>	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 20px;">  <p>To work out <math>7 + 5</math>, I will count on from <u>7</u> <math>7 + 5 = \underline{12}</math></p> </div> <div style="margin-right: 20px;"> <p style="color: red; font-size: 24px; margin-bottom: 0;">5</p>  </div> <div style="margin-right: 20px;"> <p style="color: red; font-size: 24px; margin-bottom: 0;">3</p>  </div> <div style="margin-left: 20px;"> <p style="color: red; font-size: 24px; margin-bottom: 0;"><math>5 + 3 = 8</math></p> </div> </div>
<p><b>Finding and using number bonds to 10.</b></p> <p>Use these number bonds to work out addition questions within 20.</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p><math>5 + 3</math> <math>2 + 6</math> <math>7 + 1</math> <math>4 + 4</math> <math>0 + 8</math></p> </div> <div style="text-align: center;">  <p><math>6 + 4 = \underline{10}</math> <math>16 + 4 = \underline{20}</math></p> </div> <div style="text-align: center;">  <p><math>15 + 4 = \underline{19}</math> <u>5</u> and <u>4</u> are a number bond to <u>9</u>. So <u>15</u> and <u>4</u> are a number bond to <u>19</u></p> </div> </div>
<p><b>Using doubles and near doubles for addition.</b></p> <p>Know doubles for numbers to 10. Use near doubles to work out addition problems.</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p style="color: red; font-size: 24px;"><math>5 + 5 = 10</math></p> <p>Double 5 is <u>10</u></p> </div> <div style="text-align: center;">  <p><math>7 + 6</math> is equal to double <u>6</u> plus 1 Double <u>6</u> = <u>12</u> <math>7 + 6 = \underline{13}</math></p> </div> </div>

# Addition – Year 2

Method	Example									
<p><b>Use related facts to add tens.</b></p> <p>Use related facts to learn number bonds to 100 (using tens).</p>	<p><math>4 + 3 = 7</math>  <math>40 + 30 = 70</math></p>  <p><u>4</u> ones + <u>3</u> ones = <u>7</u> ones,            So <u>4</u> tens + <u>3</u> tens = <u>7</u> tens            This means that <u>40</u> + <u>30</u> = <u>70</u></p>	<p><math>1 + 9 = 10</math></p>  <p><math>10 + 90 = 100</math></p> 								
<p><b>Using partitioning to add across 10.</b></p> <p>Partition the smaller number using knowledge of number bonds to 10.</p>	<p><math>18 + 7</math></p> 	 <p><math>59 + 5</math></p> <p><math>60 + 4 = 64</math>  <math>59 + 5 = 64</math></p>								
<p><b>Adding 3 one-digit numbers. Use different coloured counters to add 3 one-digit numbers.</b></p> <p>Use number bonds to add 3 one-digit numbers.</p>	<p>Use counters to calculate <math>7 + 5 + 4</math></p> <p><math>7 + 5 + 4 = 16</math></p> 	<p><math>7 + 6 + 3 = 16</math></p> <p><math>7 + 3 = 10</math></p> <p><math>10 + 6 = 16</math></p>								
<p>Adding 2 two-digit numbers not across 10. Partition the tens and ones first. Then, add the ones first and then then tens.</p>	 <table border="1" data-bbox="622 1422 861 1545"> <thead> <tr> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>5</td> </tr> </tbody> </table> <p><math>23 + 52 = 75</math></p>	Tens	Ones	7	5	 <table border="1" data-bbox="1101 1400 1436 1500"> <thead> <tr> <th colspan="2">99</th> </tr> <tr> <th>43</th> <th>56</th> </tr> </thead> </table> <p><math>11 + 36 = 47</math>  <math>43 + 56 = 99</math></p>	99		43	56
Tens	Ones									
7	5									
99										
43	56									
<p>Adding 2 two-digit numbers across 10. If a column goes across 10, we must exchange. In the example, <math>5 \text{ ones} + 7 \text{ ones} = 12 \text{ ones}</math>. Ten ones will be exchanged for one ten.</p>	<p>Use base 10 to calculate <math>45 + 37</math></p> <table border="1" data-bbox="438 1691 869 1960"> <thead> <tr> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>	T	O							<p>There are 8 tens and 2 ones.</p> <p><math>80 + 2 = 82</math></p> <p><math>45 + 37 = 82</math></p>
T	O									

# Addition – Year 3

Method	Example																																													
<p>Add 10 and 100 by adding the correct number of digits to the specific column.</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>The hundreds column will <u>increase</u> by <u>2</u></p> </div> <div style="text-align: center;">  <p><math>434 + 200 = 634</math></p> </div> </div>																																													
<p>Add using the column method when there is no exchanging needed.</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><math>212 + 147 = 359</math></p> <table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="background-color: #d9ead3;">Hundreds</th> <th style="background-color: #fff2cc;">Tens</th> <th style="background-color: #f4cccc;">Ones</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>5</td> <td>9</td> </tr> </tbody> </table> <table border="1" style="border-collapse: collapse; text-align: center; margin-left: 10px;"> <thead> <tr><th>H</th><th>T</th><th>O</th></tr> </thead> <tbody> <tr><td>2</td><td>1</td><td>2</td></tr> <tr><td>+</td><td>1</td><td>4</td><td>7</td></tr> <tr><td>3</td><td>5</td><td>9</td></tr> </tbody> </table> </div> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr><th>H</th><th>T</th><th>O</th></tr> </thead> <tbody> <tr><td>3</td><td>5</td><td>1</td></tr> <tr><td>+</td><td>2</td><td>1</td><td>3</td></tr> <tr><td>5</td><td>6</td><td>4</td></tr> </tbody> </table> </div> </div>		Hundreds	Tens	Ones							3	5	9	H	T	O	2	1	2	+	1	4	7	3	5	9	H	T	O	3	5	1	+	2	1	3	5	6	4						
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+	2	1	3																																											
5	6	4																																												
<p>Add three-digit numbers together using the column method.</p> <p>Use diennes to embed the concrete before moving onto the pictorial (counters) and abstract. When a column goes beyond 10, we <b>exchange</b> the digits e.g. 10 ones becomes 1 ten.</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><math>243 + 172 = 415</math></p> <table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="background-color: #d9ead3;">Hundreds</th> <th style="background-color: #fff2cc;">Tens</th> <th style="background-color: #f4cccc;">Ones</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>1</td> <td>5</td> </tr> </tbody> </table> <table border="1" style="border-collapse: collapse; text-align: center; margin-left: 10px;"> <thead> <tr><th>H</th><th>T</th><th>O</th></tr> </thead> <tbody> <tr><td>2</td><td>4</td><td>3</td></tr> <tr><td>+</td><td>1</td><td>7</td><td>2</td></tr> <tr><td>4</td><td>1</td><td>5</td></tr> <tr><td>1</td><td></td><td></td></tr> </tbody> </table> </div> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr><th>H</th><th>T</th><th>O</th></tr> </thead> <tbody> <tr><td>3</td><td>7</td><td>1</td></tr> <tr><td>+</td><td>2</td><td>6</td><td>3</td></tr> <tr><td>6</td><td>3</td><td>4</td></tr> <tr><td>1</td><td></td><td></td></tr> </tbody> </table> </div> </div>		Hundreds	Tens	Ones							4	1	5	H	T	O	2	4	3	+	1	7	2	4	1	5	1			H	T	O	3	7	1	+	2	6	3	6	3	4	1		
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3	7	1																																												
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6	3	4																																												
1																																														
<p>Add tens that go across 100.</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><math>270 + 60</math></p>  </div> <div style="text-align: center;"> <p><math>583 + 50</math></p> <p>I will jump across the next multiple of 100</p>  </div> </div>																																													

Add a two-digit number and a three-digit number using the column method.

Reinforce the importance of lining the place value columns correctly.

$$252 + 23 = 275$$

	H	T	O
	2	5	2
+		2	3
	2	7	5

$$105 + 87 = 192$$

	H	T	O
	1	0	5
+		8	7
	1	9	2
		1	

	H	T	O
	1	0	5
+		8	7
	1	9	2
		1	

# Addition – Year 4

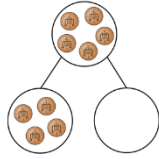

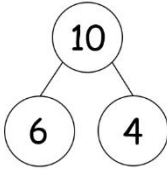
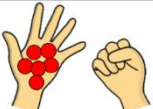
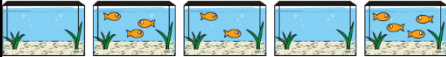
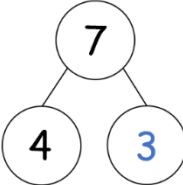



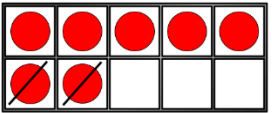
Method	Example																																																				
<p><b>Adding two four-digit numbers with no exchanging.</b></p> <p>Using place value counters to reinforce lining the columns correctly.</p>	<p><math>2,151 + 4,312 = 6,463</math></p> <table border="1" style="display: inline-table; margin-right: 20px;"> <thead> <tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr> </thead> <tbody> <tr><td>1000 1000</td><td>100</td><td>10 10</td><td>1</td></tr> <tr><td>1000 1000</td><td>100 100</td><td>10 10</td><td>1 1</td></tr> <tr><td>6</td><td>4</td><td>6</td><td>3</td></tr> </tbody> </table> <table border="1" style="display: inline-table; margin-right: 20px;"> <tbody> <tr><td>2</td><td>1</td><td>5</td><td>1</td></tr> <tr><td>+</td><td>4</td><td>3</td><td>1</td></tr> <tr><td>6</td><td>4</td><td>6</td><td>3</td></tr> </tbody> </table> <table border="1" style="display: inline-table;"> <tbody> <tr><td>5</td><td>2</td><td>3</td><td>1</td></tr> <tr><td>+</td><td>3</td><td>5</td><td>8</td></tr> <tr><td>5</td><td>5</td><td>8</td><td>9</td></tr> </tbody> </table>	Th	H	T	O	1000 1000	100	10 10	1	1000 1000	100 100	10 10	1 1	6	4	6	3	2	1	5	1	+	4	3	1	6	4	6	3	5	2	3	1	+	3	5	8	5	5	8	9												
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<p><b>Adding two four-digit numbers with exchanging.</b></p>	<p><math>3,635 + 4,572 = 8,206</math></p> <table border="1" style="display: inline-table; margin-right: 20px;"> <thead> <tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr> </thead> <tbody> <tr><td>1000 1000</td><td></td><td></td><td>1</td></tr> <tr><td>1000 1000</td><td></td><td>10 10</td><td></td></tr> <tr><td>1000</td><td>100 100</td><td>10 10</td><td></td></tr> <tr><td>6</td><td>2</td><td>6</td><td>1</td></tr> </tbody> </table> <table border="1" style="display: inline-table; margin-right: 20px;"> <tbody> <tr><td>4</td><td>8</td><td>0</td><td>3</td></tr> <tr><td>+</td><td>1</td><td>4</td><td>5</td></tr> <tr><td>6</td><td>2</td><td>6</td><td>1</td></tr> <tr><td>1</td><td>1</td><td></td><td></td></tr> </tbody> </table> <table border="1" style="display: inline-table;"> <tbody> <tr><td>3</td><td>6</td><td>3</td><td>5</td></tr> <tr><td>+</td><td>4</td><td>5</td><td>7</td></tr> <tr><td>8</td><td>2</td><td>0</td><td>6</td></tr> <tr><td>1</td><td>1</td><td></td><td></td></tr> </tbody> </table>	Th	H	T	O	1000 1000			1	1000 1000		10 10		1000	100 100	10 10		6	2	6	1	4	8	0	3	+	1	4	5	6	2	6	1	1	1			3	6	3	5	+	4	5	7	8	2	0	6	1	1		
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<p><b>Using rounding to estimate addition questions.</b></p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>£437 rounded to the nearest 100 is <u>£400</u></p> <p>£266 rounded to the nearest 100 is <u>£300</u></p> <p>The estimated answer is</p> <p>£400 + £300 = <u>£700</u></p> <table border="1" style="display: inline-table; margin-left: 20px;"> <tbody> <tr><td>4</td><td>3</td><td>7</td></tr> <tr><td>+</td><td>2</td><td>6</td></tr> <tr><td>7</td><td>0</td><td>3</td></tr> <tr><td>1</td><td>1</td><td></td></tr> </tbody> </table> </div> <div style="border: 1px solid black; padding: 5px;"> <p><math>2,138 + 1,279</math></p> <p><math>2,100 + 1,300 = 3,400</math></p> </div>	4	3	7	+	2	6	7	0	3	1	1																																									
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# Addition – Year 5 and 6

Method	Example																																																																													
<p><b>Add numbers with more than four digits with and without exchanging.</b></p> <p>Always with the place value column with the smallest value.</p>	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse; width: 150px;"> <tr><th>TTh</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr> <tr><td>10000</td><td>1000</td><td>100</td><td>10</td><td>1</td></tr> <tr><td>3</td><td>9</td><td>7</td><td>8</td><td>5</td></tr> </table> <p>In column addition we start with the place value column that has the <u>smallest</u> value.</p> </div> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse; width: 100px;"> <tr><td></td><td>2</td><td>6</td><td>5</td><td>8</td><td>4</td></tr> <tr><td>+</td><td>1</td><td>3</td><td>2</td><td>0</td><td>1</td></tr> <tr><td></td><td>3</td><td>9</td><td>7</td><td>8</td><td>5</td></tr> </table> </div> <div style="text-align: center;"> <table border="1" style="border-collapse: collapse; width: 150px;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td>2</td><td>6</td><td>5</td><td>8</td><td>4</td></tr> <tr><td>+</td><td>1</td><td>3</td><td>2</td><td>3</td><td>1</td></tr> <tr><td></td><td>3</td><td>9</td><td>8</td><td>1</td><td>5</td></tr> <tr><td></td><td></td><td></td><td>1</td><td></td><td></td></tr> </table> </div> </div>	TTh	Th	H	T	O	10000	1000	100	10	1	3	9	7	8	5		2	6	5	8	4	+	1	3	2	0	1		3	9	7	8	5								2	6	5	8	4	+	1	3	2	3	1		3	9	8	1	5				1																
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<p><b>Add decimals with the same number of digits and with different numbers of digits.</b></p> <p>Line up the place value columns correctly and starting with the place value column with the smallest value.</p>	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p><math>2.5 + 3.16 = 5.66</math></p> <table border="1" style="border-collapse: collapse; width: 150px;"> <tr><th>Ones</th><th>Tenths</th><th>Hundredths</th></tr> <tr><td>2</td><td>5</td><td></td></tr> <tr><td>+</td><td>3</td><td>16</td></tr> <tr><td></td><td>5</td><td>66</td></tr> </table> </div> <div style="text-align: center;"> <p><math>25.45 + 6.76 = 32.21</math></p> <table border="1" style="border-collapse: collapse; width: 150px;"> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td>2</td><td>5</td><td>4</td><td>5</td></tr> <tr><td>+</td><td></td><td>6</td><td>7</td><td>6</td></tr> <tr><td></td><td>3</td><td>2</td><td>2</td><td>1</td></tr> <tr><td></td><td>1</td><td>1</td><td>1</td><td></td></tr> </table> </div> </div> <div style="text-align: center; margin-top: 20px;"> <p><math>3.108 + 2.154 = 5.262</math></p> <p>Which columns will involve an exchange?</p> <table border="1" style="border-collapse: collapse; width: 150px;"> <tr><th>O</th><th>Tth</th><th>Hth</th><th>Thth</th></tr> <tr><td>3</td><td>1</td><td>0</td><td>8</td></tr> <tr><td>+</td><td>2</td><td>1</td><td>5</td></tr> <tr><td></td><td>5</td><td>2</td><td>6</td></tr> <tr><td></td><td></td><td></td><td>2</td></tr> </table> </div> <div style="text-align: center; margin-top: 20px;"> <p><math>34.35 + 22.64 = 56.99</math></p> <table border="1" style="border-collapse: collapse; width: 150px;"> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td>3</td><td>4</td><td>3</td><td>5</td></tr> <tr><td>+</td><td>2</td><td>2</td><td>6</td><td>4</td></tr> <tr><td></td><td>5</td><td>6</td><td>9</td><td>9</td></tr> </table> </div>	Ones	Tenths	Hundredths	2	5		+	3	16		5	66							2	5	4	5	+		6	7	6		3	2	2	1		1	1	1		O	Tth	Hth	Thth	3	1	0	8	+	2	1	5		5	2	6				2							3	4	3	5	+	2	2	6	4		5	6	9	9
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# Subtraction Year 1

Method	Example	
<p><b>Find a part – understand that whole is made up of parts.</b></p> <p>If we have the whole and one part, we can find the missing part. This will be done using number bonds rather than formal subtraction.</p>	 <p>If the whole is <u>5</u> and <u>4</u> is a part, then the other part is <u>   </u></p> 	 <p>If the whole is <u>10</u> and <u>6</u> is a part, then the other part is <u>4</u></p> $6 + 4 = 10$ 
<p><b>Finding a part as subtraction.</b></p> <p>Still using number bonds to find a part, they will represent them using a subtraction symbol. Children will understand that whole – part = part.</p>	<p>There are 5 tanks in a shop. 3 of the tanks have fish in them. How many tanks do <b>not</b> have fish in?</p>  $5 - 3 = 2$ <p>"Five minus three is equal to two"</p>	 $7 - 4 = 3$ <p>whole – part = part</p>
<p><b>Subtraction as taking away.</b></p> <p>This will be the first time they're introduced to subtraction as 'taking away'. This will be done first without the subtraction symbol. Children will be taught to 'cross out' what they are taking away.</p> <p>In step 2, the subtraction symbol will be formally used.</p>	<p><b>Step 1</b></p>  <p>First there were <u>6</u> children in the pool. Then <u>3</u> children got out. Now there are <u>3</u> children in the pool.</p>  <p>First there were <u>9</u> bottles of water. Then <u>4</u> bottles were drunk. Now there are <u>5</u> bottles of water.</p>	<p><b>Step 2</b></p>  <p>First there were <u>5</u> birds. Then <u>3</u> birds flew away. Now there are <u>2</u> birds on the tree.</p> $5 - 3 = 2$  <p>First there were <u>7</u> counters. Then <u>2</u> counters were taken away. Now there are <u>5</u> counters.</p> $7 - 2 = 5$

**Subtraction using a number line –**

Children will be taught to count back from the bigger number.

$7 - 3 = 4$

I need to start from 7  
I need to make 3 jumps backwards.  
I land on 4

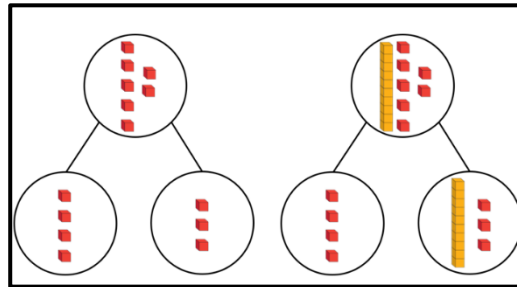
Sam has 4 stickers.  
She gives 2 of them to a friend.  
How many stickers does Sam have left?

$4 - 2 = 2$

**Using number bonds to subtract within 20.**

$8 - 3 = 5$

$18 - 3 = 15$



**Subtracting by finding the difference.**

The children will be introduced to vocabulary such as **how many fewer**, **how many more** and **find the difference**.

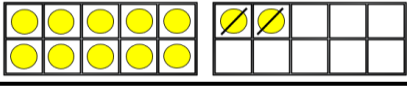
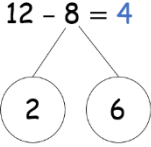
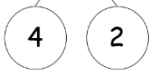
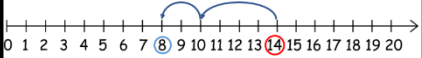
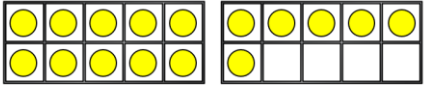
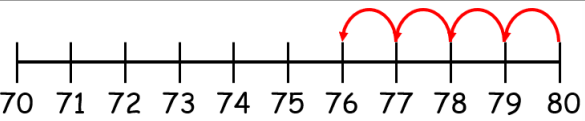
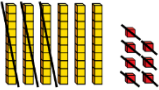
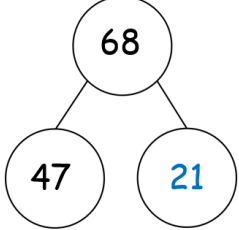
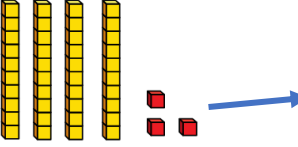
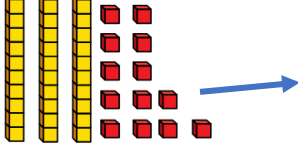
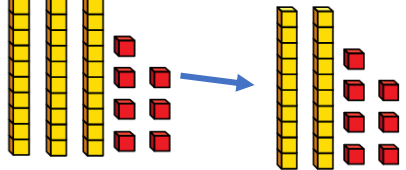
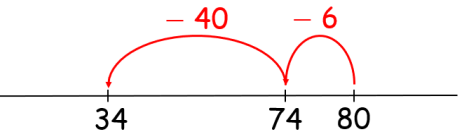
How many more cakes does Sam have than Max?

Sam has 2 more cakes than Max.

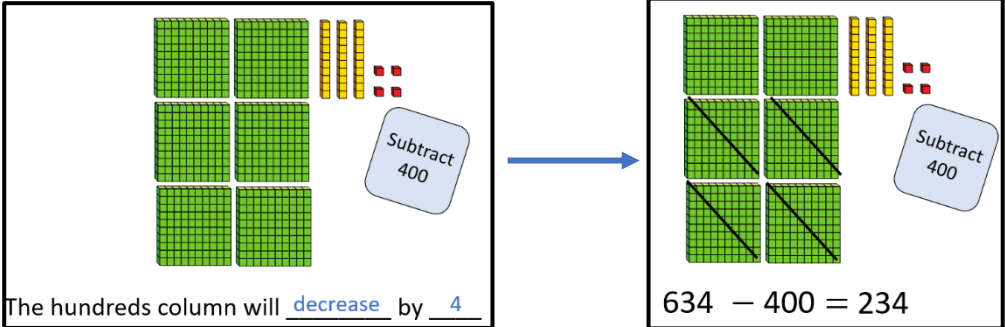
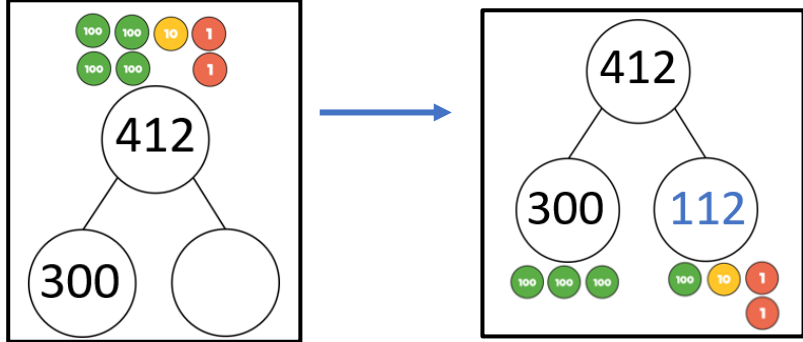

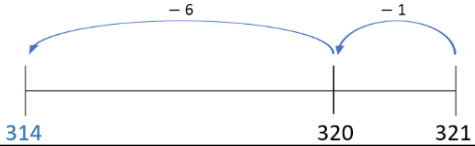

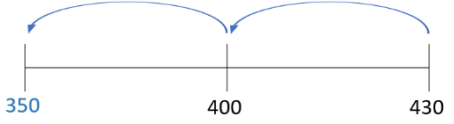
How many fewer beanbags does Alex have than Tommy?

Alex has 4 fewer beanbags than Tommy.

# Subtraction Year 2

Method	Example												
<p><b>Subtract across 10.</b></p> <p>Children will use their number bonds to partition numbers subtract across 10.</p> <p><math>12 - 4 =</math></p> <p><math>12 - 2 = 10</math></p> <p><math>10 - 2 = 8</math></p>	<div style="display: flex; justify-content: space-around;"> <div data-bbox="432 436 858 900"> <p><math>12 - 4 = \square</math></p>  <p><math>12 - 8 = 4</math></p>  <p>I can partition 8 into <u>2</u> and <u>6</u></p> <p>I need to subtract <u>2</u> to get to 10</p> <p>I need to subtract <u>6</u> more</p> <p><math>12 - 8 = \underline{4}</math></p> </div> <div data-bbox="967 454 1396 741"> <p><math>14 - 6 = 8</math></p> <p><math>14 - 4 = 10</math> <math>10 - 2 = 8</math></p>  <p>I can partition 6 into <u>4</u> and <u>2</u></p>  </div> </div>												
<p><b>Subtract from 10 – Use number bonds to ten to subtract from multiples of ten.</b></p>	<div style="display: flex; justify-content: space-around;"> <div data-bbox="432 947 890 1167">  <p><math>20 - 4 = 16</math></p> <p>Complete the sentence.</p> <p>If <math>10 - \underline{4} = \underline{6}</math>, then <math>20 - \underline{4} = \underline{16}</math></p> </div> <div data-bbox="914 954 1533 1133">  <p><math>80 - 4 = 76</math></p> </div> </div>												
<p><b>Subtract two 2-digit numbers without crossing ten – do this by partitioning the number into tens and ones (always start subtracting with the ones)</b></p>	<div style="display: flex; justify-content: space-around;"> <div data-bbox="432 1227 842 1547"> <p>Use base 10 to calculate <math>67 - 37</math></p>  <p>Complete the sentences.</p> <p><u>7</u> ones – <u>7</u> ones = <u>0</u> ones</p> <p><u>6</u> tens – <u>3</u> tens = <u>3</u> tens</p> <table border="1" data-bbox="616 1473 826 1541"> <thead> <tr> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>0</td> </tr> </tbody> </table> </div> <div data-bbox="855 1227 1525 1541"> <p>Work out the missing part.</p>  <table border="1" data-bbox="1166 1283 1517 1536"> <tr> <td colspan="2">97</td> </tr> <tr> <td>35</td> <td>62</td> </tr> <tr> <td colspan="2">62</td> </tr> <tr> <td>21</td> <td>41</td> </tr> </table> </div> </div>	Tens	Ones	3	0	97		35	62	62		21	41
Tens	Ones												
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<p><b>Subtract two 2-digit numbers across ten.</b></p> <p>To do this, you will need to exchange a ten into 10 ones.</p> <p>This can be done practically using base ten (diennes).</p> <p>Use a number line to subtract the ones of the smaller number before then subtracting the tens.</p>	<div style="display: flex; justify-content: space-around;"> <div data-bbox="448 1619 762 1816">  <p><math>43 - 16 =</math></p> </div> <div data-bbox="791 1619 1090 1816">  <p><math>43 - 16 =</math></p> </div> <div data-bbox="1110 1619 1517 1843">  <p>Subtract the ones      Subtract the tens</p> </div> </div> <div data-bbox="432 1843 943 2018"> <p><math>80 - 46 = 34</math></p>  </div>												

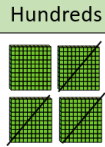


Year 3 – Subtraction

Method	Example
<p><b>Subtract 100 from a given number.</b></p> <p>Children will understand that only the hundreds column will change. Encourage them to use their number bonds to subtract (e.g. <math>5-3=2</math> so <math>500-300=200</math>)</p>	 <p>The hundreds column will <u>decrease</u> by <u>4</u></p> <p><math>634 - 400 = 234</math></p> 
<p><b>Subtract 1 across ten in a 3-digit number.</b></p> <p>Use a number line and knowledge of number bonds.</p>	<p><math>321 - 7</math></p> <p>The previous multiple of 10 before <u>321</u> is <u>320</u></p>  <p>7 can be partitioned into <u>1</u> and <u>6</u></p> 
<p><b>Subtract 10 across 100.</b></p> <p>Use number lines and knowledge of number bonds.</p> <p><math>430 - 60</math>.</p> <p>The previous 100 is 400.</p> <p><math>430 - 30 = 400</math></p> <p><math>60 - 30 = 30</math></p> <p><math>400 - 30 = 370</math></p>	<p><math>430 - 80</math></p> <p>The previous multiple of 100 before <u>430</u> is <u>400</u></p>  

**Subtract two numbers without exchanging using a formal written method.**

Place value columns must be lined up and always begin subtracting at the ones.

$438 - 325 =$

Hundreds	Tens	Ones
		
1	1	3

H	T	O
4	3	8
-	3	25
1	1	3

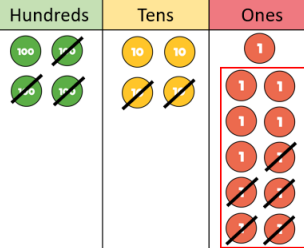
**Subtracting with exchanging.**

Children must know to start with the ones.

If the digit in the top number is smaller than the digit below, you must exchange.

Use this method to subtract a 2-digit number from a 3-digit number.

$451 - 325 = 126$

Hundreds	Tens	Ones
		
1	2	6

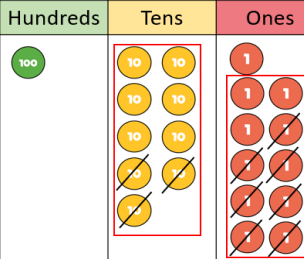
H	T	O
4	5	1
-	3	25
1	2	6

1 - 5 we cannot do.  
So we must exchange one of the tens into 10 ones.  
Now we do 11 - 5 = 6.

Then 4 tens - 2 tens = 2 tens.

4 hundreds - 3 hundreds = 1 hundred.

$201 - 37 =$

Hundreds	Tens	Ones
		
1	6	4

H	T	O
2	0	1
-	3	7
1	6	4

When there is a place holder on the top line, you exchange from the next digit on the left.

# Year 4 – Subtraction

Method	Example														
<p>Subtract two four-digit numbers without exchanging, with exchanging and with more than one exchange.</p>	$4,562 - 3,152 = 1,410$	<table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr> <tr> <td>4 1000 5 100 6 10 2 1</td> <td>5 100 1 100 5 10 2 1</td> <td>6 10 2 10 2 1</td> <td>2 1 1</td> </tr> <tr> <td>1</td><td>4</td><td>1</td><td>0</td></tr> </table>		Th	H	T	O	4 1000 5 100 6 10 2 1	5 100 1 100 5 10 2 1	6 10 2 10 2 1	2 1 1	1	4	1	0
	Th	H	T	O											
	4 1000 5 100 6 10 2 1	5 100 1 100 5 10 2 1	6 10 2 10 2 1	2 1 1											
1	4	1	0												
$4,154 - 1,522 = 2,632$	<table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr> <tr> <td>4 1000 1 100 5 10 4 1</td> <td>1 100 5 100 2 10 2 1</td> <td>2 10 2 10 2 1</td> <td>2 1 1</td> </tr> <tr> <td>2</td><td>6</td><td>3</td><td>2</td></tr> </table>		Th	H	T	O	4 1000 1 100 5 10 4 1	1 100 5 100 2 10 2 1	2 10 2 10 2 1	2 1 1	2	6	3	2	
Th	H	T	O												
4 1000 1 100 5 10 4 1	1 100 5 100 2 10 2 1	2 10 2 10 2 1	2 1 1												
2	6	3	2												
$4,065 - 2,128 = 1,937$	<table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr><th>Th</th><th>H</th><th>T</th><th>O</th></tr> <tr> <td>4 1000 0 100 6 10 5 1</td> <td>2 100 1 100 2 10 8 1</td> <td>1 10 2 10 2 1</td> <td>8 1 1</td> </tr> <tr> <td>1</td><td>9</td><td>3</td><td>7</td></tr> </table>		Th	H	T	O	4 1000 0 100 6 10 5 1	2 100 1 100 2 10 8 1	1 10 2 10 2 1	8 1 1	1	9	3	7	
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4 1000 0 100 6 10 5 1	2 100 1 100 2 10 8 1	1 10 2 10 2 1	8 1 1												
1	9	3	7												

# Year 5 and 6 – Subtraction

Method	Example																																																														
<p><b>Subtract whole numbers with more than four digits with and without exchanging.</b></p> <p>Line the place value columns up correctly and begin subtracting in the place value column with the smallest value.</p>	<div style="display: flex; flex-direction: column; align-items: center;"> <table border="1" style="margin-bottom: 10px;"> <tr> <th>TTh</th> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> <tr> <td><del>1000</del> <del>1000</del></td> <td>1000 1000 <del>1000</del> <del>1000</del></td> <td>100 100 <del>100</del> <del>100</del></td> <td>10 10 10 10 10 10</td> <td>1 <del>1</del></td> </tr> <tr> <td>2</td> <td>3</td> <td>3</td> <td>8</td> <td>1</td> </tr> </table> <table border="1" style="margin-bottom: 10px;"> <tr><td>3</td><td>6</td><td>5</td><td>8</td><td>2</td></tr> <tr><td>-</td><td>1</td><td>3</td><td>2</td><td>0</td><td>1</td></tr> <tr><td>2</td><td>3</td><td>3</td><td>8</td><td>1</td></tr> </table> <table border="1" style="margin-bottom: 10px;"> <tr> <th>TTh</th> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> <tr> <td><del>1000</del> <del>1000</del></td> <td>1000 1000 <del>1000</del> <del>1000</del></td> <td>100 100 <del>100</del> <del>100</del></td> <td>10 10 10 10 10 10</td> <td>1 1 1 1 1 1 1 1 <del>1</del> <del>1</del></td> </tr> <tr> <td>2</td> <td>3</td> <td>3</td> <td>7</td> <td>7</td> </tr> </table> <table border="1" style="margin-bottom: 10px;"> <tr><td>3</td><td>6</td><td>5</td><td>8</td><td>2</td></tr> <tr><td>-</td><td>1</td><td>3</td><td>2</td><td>0</td><td>5</td></tr> <tr><td>2</td><td>3</td><td>3</td><td>7</td><td>7</td></tr> </table> </div>	TTh	Th	H	T	O	<del>1000</del> <del>1000</del>	1000 1000 <del>1000</del> <del>1000</del>	100 100 <del>100</del> <del>100</del>	10 10 10 10 10 10	1 <del>1</del>	2	3	3	8	1	3	6	5	8	2	-	1	3	2	0	1	2	3	3	8	1	TTh	Th	H	T	O	<del>1000</del> <del>1000</del>	1000 1000 <del>1000</del> <del>1000</del>	100 100 <del>100</del> <del>100</del>	10 10 10 10 10 10	1 1 1 1 1 1 1 1 <del>1</del> <del>1</del>	2	3	3	7	7	3	6	5	8	2	-	1	3	2	0	5	2	3	3	7	7
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<p><b>Subtract decimals with the same number of decimal places.</b></p>	<div style="display: flex; justify-content: space-around;"> <table border="1" style="margin-bottom: 10px;"> <tr><td></td><td></td><td><del>7</del> 1 9</td></tr> <tr><td>-</td><td></td><td>4 4 3</td></tr> <tr><td></td><td></td><td>3 7 6</td></tr> </table> <table border="1" style="margin-bottom: 10px;"> <tr><td></td><td><del>0</del> 1 2 0 1 5</td></tr> <tr><td>-</td><td></td><td>7 0 6</td></tr> <tr><td></td><td></td><td>5 0 9</td></tr> </table> </div>			<del>7</del> 1 9	-		4 4 3			3 7 6		<del>0</del> 1 2 0 1 5	-		7 0 6			5 0 9																																													
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<p><b>Subtract decimals with different numbers of digits.</b></p>	<div style="display: flex; align-items: flex-start;"> <div style="margin-right: 20px;"> <p>6.73 - 1.3 =</p> <table border="1" style="margin-bottom: 10px;"> <tr> <th>Ones</th> <th>Tenths</th> <th>Hundredths</th> </tr> <tr> <td>6</td> <td>7</td> <td>3</td> </tr> <tr> <td>5</td> <td>4</td> <td>3</td> </tr> </table> <table border="1" style="margin-bottom: 10px;"> <tr><td>6</td><td>.</td><td>7</td><td>3</td></tr> <tr><td>1</td><td>.</td><td>3</td><td>0</td></tr> <tr><td>5</td><td>.</td><td>4</td><td>3</td></tr> </table> </div> <div> <p>Fill the empty columns with a placeholder.</p> </div> </div> <div style="margin-top: 20px;"> <p>7.2 - 2.27 = 4.93</p> <table border="1" style="margin-bottom: 10px;"> <tr><td><del>6</del> 7</td><td>.</td><td><del>11</del> 2</td><td>10</td></tr> <tr><td>-</td><td></td><td>2</td><td>7</td></tr> <tr><td></td><td></td><td>4</td><td>9</td><td>3</td></tr> </table> <table border="1" style="margin-bottom: 10px;"> <tr> <th>Ones</th> <th>Tenths</th> <th>Hundredths</th> </tr> <tr> <td>4</td> <td>9</td> <td>3</td> </tr> </table> </div>	Ones	Tenths	Hundredths	6	7	3	5	4	3	6	.	7	3	1	.	3	0	5	.	4	3	<del>6</del> 7	.	<del>11</del> 2	10	-		2	7			4	9	3	Ones	Tenths	Hundredths	4	9	3																						
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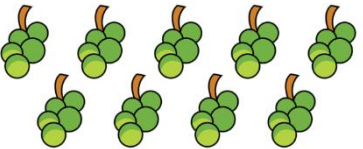

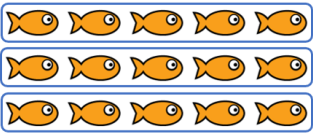
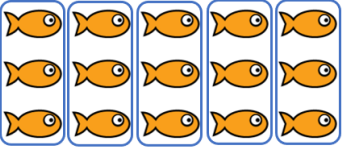
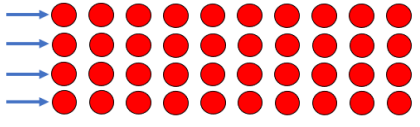
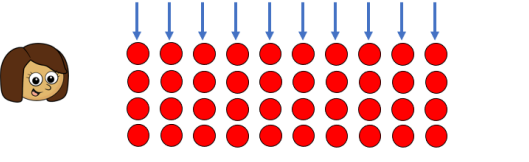
**Subtract decimals from a whole number.**

Put placeholders into the empty columns so that there is an even number of digits.

When there are multiple zeros, you must continue to exchange until you can subtract in the smallest value place value column.

7	-	3	.	5	6	2	=	3	.	4	3	8
		<sup>6</sup> 7	.	<del>0</del> <sup>9</sup>	<del>0</del> <sup>9</sup>	<sup>1</sup> 0						
	-	3	.	5	6	2						
		<u>3</u>	.	<u>4</u>	<u>3</u>	<u>8</u>						

# Year 1 – Multiplication

Method	Example	
<p>Children will count in groups of the same number of objects and add them.</p>	<p>How many socks?</p>  <p>There are <u>12</u> equal groups of 2 There are <u>24</u> socks altogether.</p>	<p>How many grapes?</p>  <p>There are <u>9</u> groups of 5 There are <u>45</u> grapes altogether.</p>
<p>Make arrays to support multiplication and to show multiplication as repeated addition.</p>	<p>How many flowers?</p>  <p>There are <u>10</u> flowers in each bunch. There are <u>5</u> bunches. There are <u>50</u> flowers altogether.</p>	 <p>There are <u>3</u> rows of <u>5</u> There are <u>15</u> altogether.</p>  <p>There are <u>5</u> columns of <u>3</u> There are <u>15</u> altogether.</p>
 <p><math>10 + 10 + 10 + 10 = 40</math></p>	 <p><math>4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 40</math></p>	

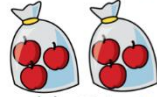
Making doubles and seeing them as two equal groups.



Double 1 is 2



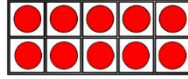
Double 2 is 4



Double 3 is 6



Double 4 is 8


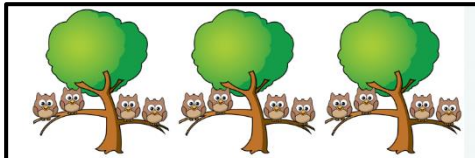

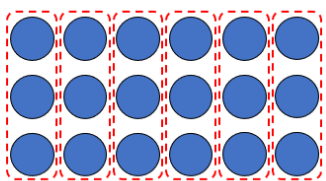


Double 5 is 10

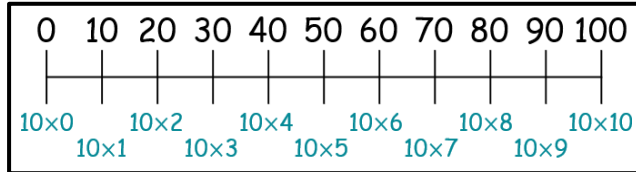
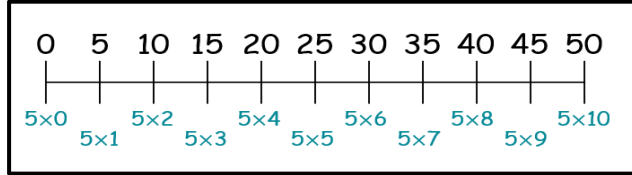
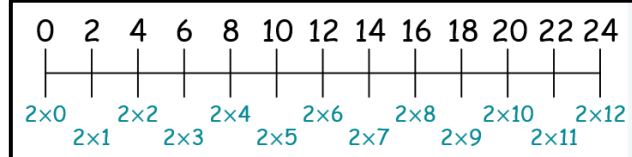


$\underline{10} + \underline{10} = \underline{20}$   
Double 10 is 20

## Year 2 multiplication

Method	Example
<p><b>Identify and make equal groups.</b></p> <p>Know that 3 groups of 4 and 4 groups of 3 lead to the same total – introducing the concept of commutativity.</p>	<div style="display: flex; justify-content: space-around; align-items: center;">  <div style="border: 1px solid black; padding: 10px; text-align: center;"> <math display="block">6 + 6 + 6 = 18</math> <p>There are <u>3</u> equal groups with <u>6</u> in each group.</p> <p>There are <u>18</u> cubes altogether.</p> <math display="block">3 + 3 + 3 + 3 + 3 + 3 = 18</math> </div> </div> <div style="border: 1px solid black; padding: 10px; margin-top: 10px; text-align: center;"> <p>There are <u>3</u> equal groups with <u>6</u> in each group.</p> <p>There are <u>18</u> altogether.</p> </div>
<p><b>Using the multiplication symbol making the links between multiplication and repeated addition.</b></p> <p>Both repeated addition and multiplication sentences will be written.</p>	<div style="display: flex; justify-content: space-around; align-items: center;">  <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>There are <u>3</u> equal groups with <u>4</u> in each group.</p> <math display="block">4 + 4 + 4 = 12</math> <math display="block">3 \times 4 = 12</math> </div> </div> <div style="border: 1px solid black; padding: 10px; margin-top: 10px; text-align: center;">  <math display="block">3 \times 4 = 12</math> <p>"3 lots of 4 is equal to 12"</p> <p>"3 groups of 4 is equal to 12"</p> <p>"3 multiplied by 4 is equal to 12"</p> </div>
<p><b>Using arrays to show that multiplication is commutative.</b></p>	<div style="border: 1px solid black; padding: 10px; text-align: center;">  <math display="block">6 + 6 + 6 = 18</math> <math display="block">3 \times 6 = 18</math> <math display="block">3 + 3 + 3 + 3 + 3 + 3 = 18</math> <math display="block">6 \times 3 = 18</math> </div>

Learn the 2-, 5- and 10-times tables as multiplication.



# Year 3 – Multiplication

## Method

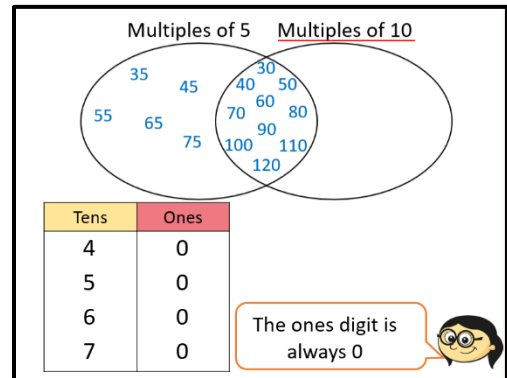
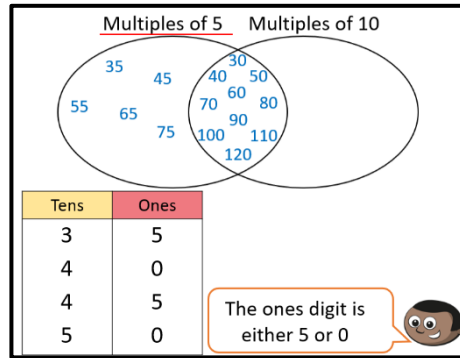
### Identifying multiples of 2, 5 and 10.

Know that a multiple of 2 can be divided into 2 equal groups.

Recognise that all even numbers are multiples of 2.

Recognise that all numbers with a 5 or 0 in the ones column are multiples of 5.  
Recognise that all numbers with 0 in the ones column are multiples of 10.

## Example



### Multiply by 3 and 4.

Learning the 3- and 4-times tables.

There are 3 groups.

There are 3 in each group.

There are 9 altogether.

3 × 3 = 9

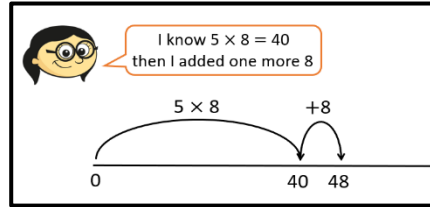
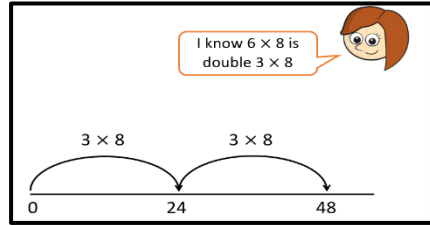
4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 32

8 × 4 = 32

4 × 8 = 32

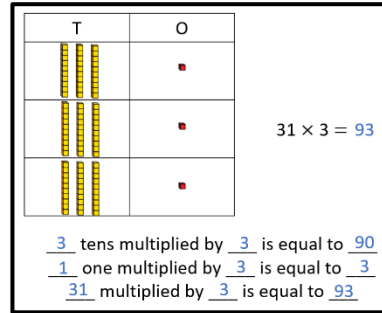
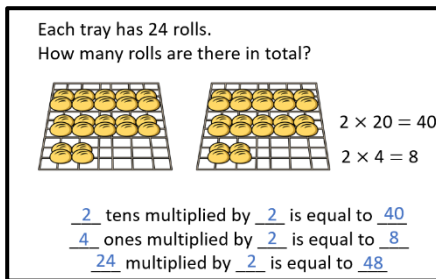
**Multiplying by 8 and learning the 8 times tables.**

Use links to other times tables to learn the 8 times tables. Knowing the 8 times tables are double the 4 times tables.



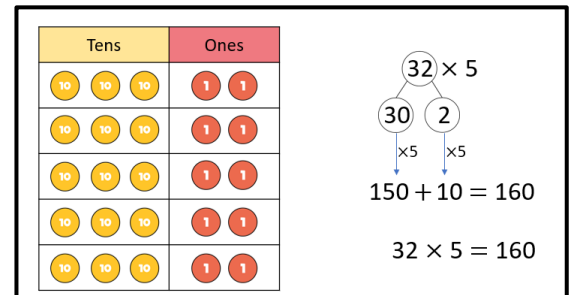
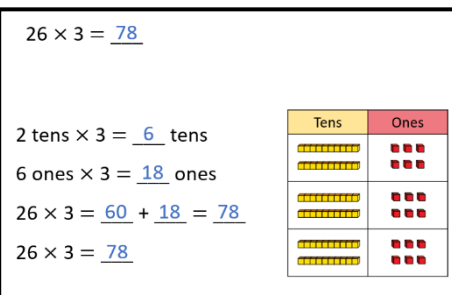
**Multiply a 2-digit number by a 1-digit number with no exchanging.**

This will be done by partitioning the two-digit number and multiplying the tens and ones separately.



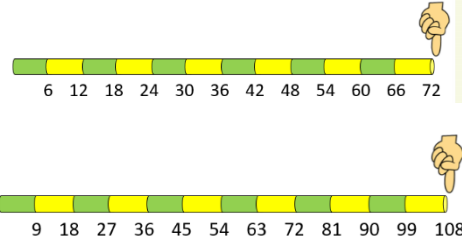
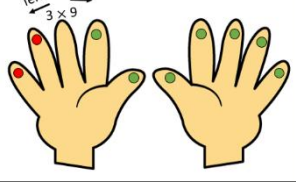





**Multiply a 2-digit number by a 1-digit number with exchanging.**

This will be done by partitioning the two-digit number and multiplying the tens and ones separately. The answers will then need adding together.



# Multiplication – Year 4

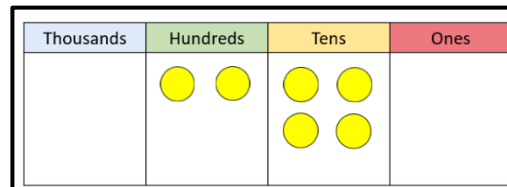
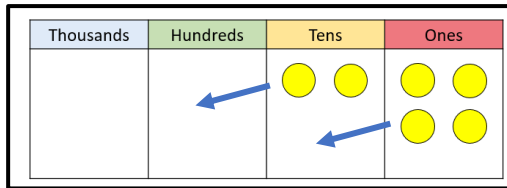
Method	Example																																				
<p><b>Multiply by 6 and 9 and learn the 6- and 9-times tables.</b></p> <p>Counting sticks to be used in the teaching of the times tables. Introduce the children to the finger trick for the 9 times tables.</p>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px; width: 45%;">  <p>There are <u>6</u> equal groups of <u>3</u></p> <math display="block">3 + 3 + 3 + 3 + 3 + 3 = 18</math> <math display="block">3 \times 6 = 18 \quad 6 \times 3 = 18</math> </div> <div style="border: 1px solid black; padding: 5px; width: 45%;">  <p>There are <u>4</u> cookies. There are <u>9</u> chocolate chips in each cookie. There are <u>36</u> chocolate chips altogether.</p> <math display="block">9 + 9 + 9 + 9 = 36</math> <math display="block">4 \times 9 = 36</math> <math display="block">9 \times 4 = 36</math> </div> </div> <div style="margin-top: 10px;">  <p>6 12 18 24 30 36 42 48 54 60 66 72</p> <p>9 18 27 36 45 54 63 72 81 90 99 108</p> </div> <div style="margin-top: 10px;"> <p style="text-align: center;">Tens    Ones           2    7</p> <p>0 × 9 = 0 1 × 9 = 9 2 × 9 = 18 3 × 9 = 27</p>  </div>																																				
<p><b>Learn the 7, 11 and 12 timetables.</b></p>	<table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <td style="width: 10%;">7</td><td>14</td><td style="color: blue;">21</td><td>28</td><td>35</td><td>42</td><td style="color: blue;">49</td><td style="color: blue;">56</td><td>63</td><td>70</td><td>77</td><td>84</td> </tr> <tr> <td>11</td><td>22</td><td>33</td><td>44</td><td>55</td><td>66</td><td style="color: blue;">77</td><td style="color: blue;">88</td><td style="color: blue;">99</td><td style="color: blue;">110</td><td style="color: blue;">121</td><td style="color: blue;">132</td> </tr> <tr> <td>12</td><td>24</td><td>36</td><td>48</td><td>60</td><td>72</td><td>84</td><td>96</td><td>108</td><td>120</td><td>132</td><td>144</td> </tr> </table>	7	14	21	28	35	42	49	56	63	70	77	84	11	22	33	44	55	66	77	88	99	110	121	132	12	24	36	48	60	72	84	96	108	120	132	144
7	14	21	28	35	42	49	56	63	70	77	84																										
11	22	33	44	55	66	77	88	99	110	121	132																										
12	24	36	48	60	72	84	96	108	120	132	144																										
<p><b>Multiply by 1 and 0.</b></p> <p>Know that when multiplying by 0 the answer is always 0.</p> <p>Know that when we multiply by 1, the answer remains the same.</p>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px; width: 45%;">  <p>There are 4 plates. <math>0 \times 4 = 0</math> Each plate has 0 doughnuts on it. <math>4 \times 0 = 0</math> There are 0 doughnuts altogether.</p>  <p>There are 3 plates. <math>0 \times 3 = 0</math> Each plate has 0 doughnuts on it. <math>3 \times 0 = 0</math> There are 0 doughnuts altogether.</p> </div> <div style="border: 1px solid black; padding: 5px; width: 45%;">  <p>Complete the missing numbers and number sentences.</p> <p>There is <u>1</u> tree. The tree has <u>5</u> birds on it. <math>1 \times 5 = 5</math> There are <u>5</u> birds altogether. <math>5 \times 1 = 5</math></p> </div> </div>																																				

**Multiply by 10 and 100**

Know that when we multiply by 10, the digits shift **one** place value column to the left.

When multiplying by 100, the digits shift **two** place value columns to the left.

$$24 \times 10 = 240$$

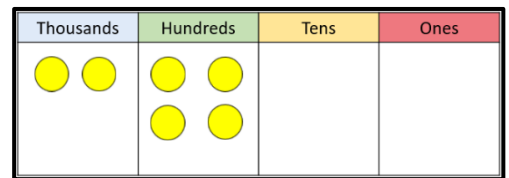
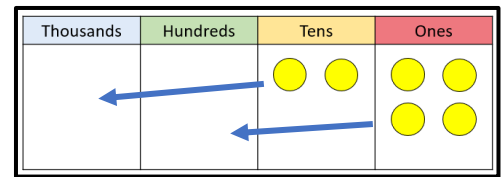


$$20 \times 10 = 200$$

$$4 \times 10 = 40$$

$$200 + 40 = 240$$

$$24 \times 100 = 2400$$



$$20 \times 100 = 2,000$$

$$4 \times 100 = 400$$

$$2,000 + 400 = 2,400$$

**Multiply a 2-digit number by a 1-digit number.**

Children to be taught the expanded method where each digit is partitioned and multiplied separately. Children also to be taught short multiplication with exchanging required.

	T	O	
	2	4	
×		4	
	1	6	(4 × 4)
	8	0	(4 × 20)
	9	6	

$$4 \times 4 = 16$$

$$4 \times 20 = 80$$

$$16 + 80 = 96$$

	T	O
	2	4
×		4
	9	6
	1	

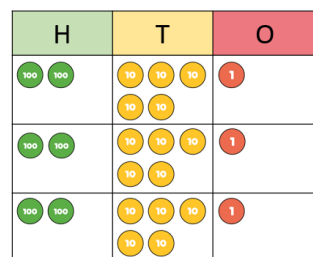
4 × 4 = 16 (6 goes into the ones column and 1 ten is exchanged)

4 × 2 = 8 (now add the exchanged digit.)

$$8 + 1 = 9$$

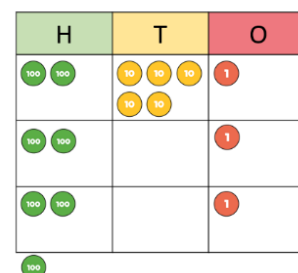
**Multiply a 3-digit number by a 1-digit number.**

$$251 \times 3 =$$



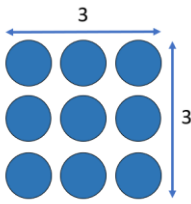
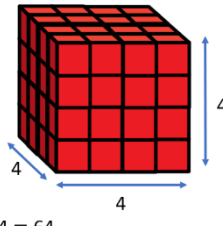




	H	T	O
	2	5	1
×			3

$$251 \times 3 = 753$$



	H	T	O
	2	5	1
×			3
	7	5	3
	1		

## Multiplication years 5 and 6

Method	Example																																				
<p><b>Understand square numbers.</b></p> <p>Use concrete objects to identify square numbers.</p> <p>Know that a square number is the result of multiplying a number by itself.</p> <p>Learn the square numbers up to 12 x 12.</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>3 rows of 3 are equal to 9 3 is a factor of 9</p>  <p>It is possible to make a square with 9 counters. <b>9 is a square number.</b></p> <p>A square number is the result of multiplying a number by <u>itself</u>.</p> <p><math>3 \times 3 = 9</math> <math>3^2 = 9</math> "3 squared is equal to 9"</p> </div> <div style="width: 45%; border: 1px solid black; padding: 5px;"> <table border="1" style="width: 100%; text-align: center;"> <tr><td><math>1^2</math></td><td><math>1 \times 1</math></td><td>1</td></tr> <tr><td><math>2^2</math></td><td><math>2 \times 2</math></td><td>4</td></tr> <tr><td><math>3^2</math></td><td><math>3 \times 3</math></td><td>9</td></tr> <tr><td><math>4^2</math></td><td><math>4 \times 4</math></td><td>16</td></tr> <tr><td><math>5^2</math></td><td><math>5 \times 5</math></td><td>25</td></tr> <tr><td><math>6^2</math></td><td><math>6 \times 6</math></td><td>36</td></tr> <tr><td><math>7^2</math></td><td><math>7 \times 7</math></td><td>49</td></tr> <tr><td><math>8^2</math></td><td><math>8 \times 8</math></td><td>64</td></tr> <tr><td><math>9^2</math></td><td><math>9 \times 9</math></td><td>81</td></tr> <tr><td><math>10^2</math></td><td><math>10 \times 10</math></td><td>100</td></tr> <tr><td><math>11^2</math></td><td><math>11 \times 11</math></td><td>121</td></tr> <tr><td><math>12^2</math></td><td><math>12 \times 12</math></td><td>144</td></tr> </table> </div> </div>	$1^2$	$1 \times 1$	1	$2^2$	$2 \times 2$	4	$3^2$	$3 \times 3$	9	$4^2$	$4 \times 4$	16	$5^2$	$5 \times 5$	25	$6^2$	$6 \times 6$	36	$7^2$	$7 \times 7$	49	$8^2$	$8 \times 8$	64	$9^2$	$9 \times 9$	81	$10^2$	$10 \times 10$	100	$11^2$	$11 \times 11$	121	$12^2$	$12 \times 12$	144
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$12^2$	$12 \times 12$	144																																			
<p><b>Understand cube numbers.</b></p> <p>Know that a cube number is the result of multiplying a number by itself twice.</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">  <p><math>4 \times 4 \times 4 = 64</math> 16 <b>64 is a cube number.</b></p> </div> <div style="width: 45%; border: 1px solid black; padding: 5px;"> <p><math>1^3 = 1 \times 1 \times 1 = 1</math> </p> <p><math>2^3 = 2 \times 2 \times 2 = 8</math> </p> <p><math>3^3 = 3 \times 3 \times 3 = 27</math> </p> <p><math>4^3 = 4 \times 4 \times 4 = 64</math> </p> </div> </div>																																				
<p><b>Multiply by 1,000.</b></p> <p>Know that when we multiply by 1000, we move the digits three place value columns to the left.</p>	<p><math>52 \times 1,000 = 52,000</math></p> <table border="1" style="width: 100%; text-align: center; margin-bottom: 10px;"> <tr> <td style="background-color: #e0e0ff;">TTh</td> <td style="background-color: #e0e0ff;">Th</td> <td style="background-color: #e0ffe0;">H</td> <td style="background-color: #fff0e0;">T</td> <td style="background-color: #ffe0e0;">O</td> </tr> <tr> <td></td> <td></td> <td></td> <td>5</td> <td>2</td> </tr> </table> <table border="1" style="width: 100%; text-align: center;"> <tr> <td style="background-color: #e0e0ff;">TTh</td> <td style="background-color: #e0e0ff;">Th</td> <td style="background-color: #e0ffe0;">H</td> <td style="background-color: #fff0e0;">T</td> <td style="background-color: #ffe0e0;">O</td> </tr> <tr> <td>5</td> <td>2</td> <td>0</td> <td>0</td> <td>0</td> </tr> </table>	TTh	Th	H	T	O				5	2	TTh	Th	H	T	O	5	2	0	0	0																
TTh	Th	H	T	O																																	
			5	2																																	
TTh	Th	H	T	O																																	
5	2	0	0	0																																	

**Multiply a 4-digit number by a 1-digit number.**

Use the formal written method to multiply the 4-digit and 1-digit numbers together.

Calculate  $3,223 \times 3$

Thousands	Hundreds	Tens	Ones
1000 1000 1000	100 100	10 10	1 1 1
1000 1000 1000	100 100	10 10	1 1 1
1000 1000 1000	100 100	10 10	1 1 1

	3	2	2	3	
×				3	
	9	6	6	9	

	2	1	1	4	
×				3	
	6	3	4	2	
			1		

**Multiply 2-digit, 3-digit and 4-digit numbers by a 2-digit number.**

Multiply the ones by the top number and then the tens by the top number. **A place holder must always be in the one's column of the second row.**

Using different colours per row can help when introducing the method.

$35 \times 16$

	H	T	O
		3	5
×		1	6
	2	1	0
+	3	5	0
	5	6	0

(35 × 6)  
(35 × 10)

$326 \times 32 = 10,432$

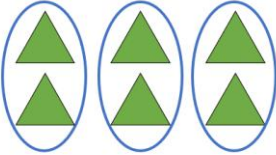


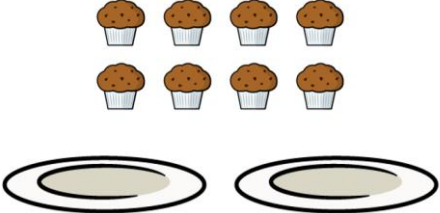

	Th	H	T	O
		3	2	6
×			3	2
		6	5	2
+	9	7	8	0
	1	0	4	3
		1	1	

(326 × 2)  
(326 × 30)



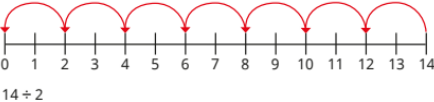
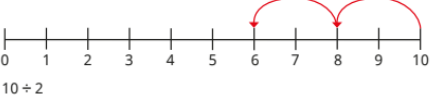
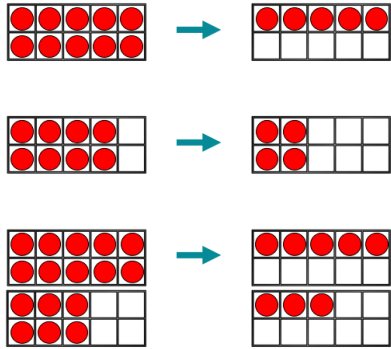

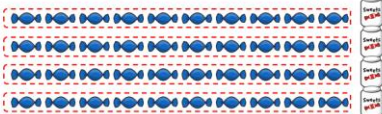
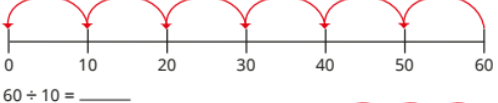
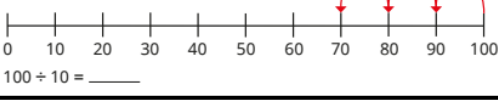
$4562 \times 36 = 164,232$

			4	5	6	2
			×		3	6
			2	7	3	7
			+	1	3	6
			1	6	4	2
				1	1	1

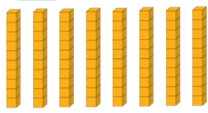
Division- Year 1

Method	Example
<p><b>Making equal groups – grouping</b></p> <p>Children will be given a total amount and be asked to make groups of an equal amount.</p>	<div data-bbox="440 506 916 842"><p>There are <u>6</u> altogether. There are <u>3</u> equal groups of <u>2</u></p></div> <div data-bbox="954 528 1516 940"><p>Each gingerbread cookie needs 3 buttons.</p><p>Use 15 buttons to decorate the cookies. How many cookies can you decorate?</p></div>
<p><b>Making equal groups – sharing</b></p> <p>Children will be given a total amount and be asked to physically share them into equal groups.</p>	<div data-bbox="440 1032 938 1368"><p>Share the muffins equally between 2 groups.</p><p>There are <u>8</u> muffins. They are shared equally between <u>2</u> plates. There are <u>4</u> muffins on each plate.</p></div> <div data-bbox="970 1032 1445 1368"><p>There are <u>8</u> muffins. They are shared equally between <u>2</u> plates. There are <u>4</u> muffins on each plate.</p></div>

# Division – Year 2

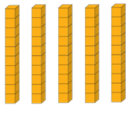
Method	Example	
<p><b>Divide by 2</b></p> <p>Children to use their knowledge of the 2 times tables to divide by 2.</p>	<p>The apples are put into bags with 2 apples in each bag.</p>  <p>There are <u>8</u> apples altogether.            There are <u>2</u> in each group.            There are <u>4</u> groups.</p> $\boxed{8} \div \boxed{2} = \boxed{4}$	<ul style="list-style-type: none"> <li>Use the arrays to complete the number sentences.</li> </ul>  $\underline{\quad} \times 2 = 16$ $16 \div 2 = \underline{\quad}$ $\underline{\quad} \times 2 = \underline{\quad}$ $\underline{\quad} \div 2 = \underline{\quad}$ <ul style="list-style-type: none"> <li>Use the number lines to work out the divisions.</li> </ul>  $14 \div 2$  $10 \div 2$
<p><b>Halving</b></p> <p>Children to understand that when we halve, we are dividing by 2.</p>	<p>Halve the amounts.</p> 	 $\boxed{10} \div \boxed{2} = \boxed{5}$ <p>Half of 10 = <math>\boxed{5}</math></p>
<p><b>Dividing by 10</b></p> <p>Children to use their knowledge of the 10 times tables and counting in 10 to divide by 10.</p>	<p>Here are 40 sweets.</p>  <p>They are put in jars with 10 sweets inside.            How many jars are needed?            There are <u>40</u> sweets altogether.            There are <u>10</u> in each group.            There are <u>4</u> groups.</p> $\boxed{40} \div \boxed{10} = \boxed{4}$	<ul style="list-style-type: none"> <li>Use the number lines to complete the divisions.</li> </ul>  $60 \div 10 = \underline{\quad}$  $100 \div 10 = \underline{\quad}$

$80 \div 10 = 8$




There are 8 tens in 80

$50 \div 10 = 5$

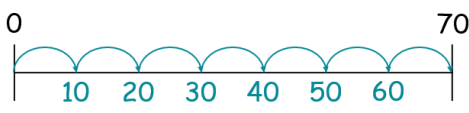


There are 5 tens in 50

Ron has 70 footballs.  
10 footballs can fit in a bag.  
How many bags does Ron need? 7



I'm going to use a number line.

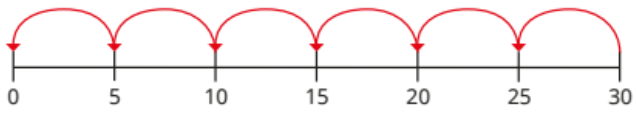


### Divide by 5

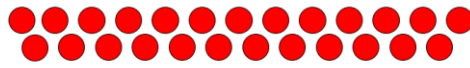

Children to use their knowledge of the 5 times tables and counting in 5 to divide by 5.

Use the number line to work out the division.

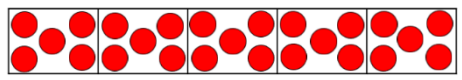
$30 \div 5$



$25 \div 5 = \square$

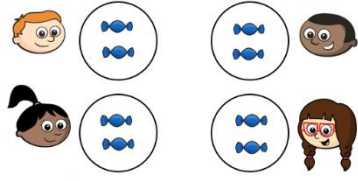



$25 \div 5 = 5$



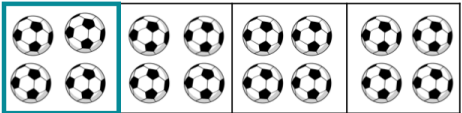
### Finding a quarter

Children will be encouraged to share totals into four equal groups in order to see the link between finding a quarter and dividing by 4.



There are 8 sweets altogether.  
The sweets have been shared between 4 equal groups.  
There are 2 in each group.  
 $\frac{1}{4}$  of 8 is 2

There are 16 footballs in a bag.  
Jo takes  $\frac{1}{4}$  of the footballs out.  
How many footballs does she take out? 4



# Division – Year 3

## Divide by 3, 4 and 8

Children will explore dividing by 3, 4 and 8 by sharing into equal groups and by grouping.

A party has 21 cakes. They are shared equally between 3 plates.



There will be 7 cakes on each plate.  
 $21 \div 3 = 7$

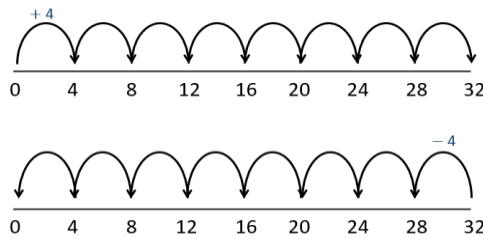
The 21 cakes are divided into into groups of 3.



There will be 7 plates of 3 cakes.  
 $21 \div 3 = 7$

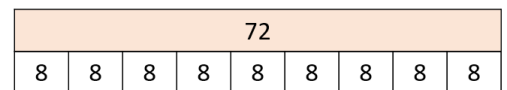
The baker has 32 bread rolls. He puts them into packs of 4. How many packs can he fill?

$$32 \div 4 = 8$$



72 stickers are put into packs of 8

How many packs of stickers will be made?



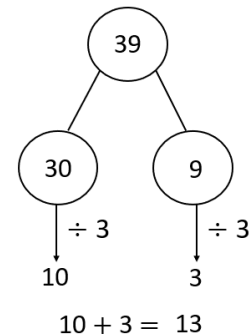
## Divide a 2-digit number by a 1-digit number – no exchange

Children will focus on partitioning a number into tens and ones and sharing into equal groups.

Tens	Ones
10	1 1 1
10	1 1 1
10	1 1 1

39 divided by 3 is equal to 13

$$39 \div 3 = 13$$



**Divide a 2-digit number by a 1-digit number – flexible partitioning**

Children will partition the 2-digit number into two numbers that are a multiple of the divisor.

In the example to the right, 96 has been partitioned into 80 and 16 because they are both multiples of 4 and can now be divided by 4.

$42 \div 3 = 14$

$42$  can be flexibly partitioned into  $30$  and  $12$  as these numbers are both multiples of  $3$ .

$30 \div 3 = 10$   
 $12 \div 3 = 4$   
 $10 + 4 = 14$

$96 \div 4 =$

Tens	Ones
9	6

**Divide a 2-digit number by a 1-digit number with remainders**

Mo has 9 lolly sticks.  
 What if Mo used his sticks to make squares?

Each square uses 4 sticks.  
 Mo can make 2 squares with 9 sticks.  
 There is one stick remaining.

$9 \div 4 = 2 \text{ remainder } 1$

$25 \div 3 = 8 \text{ r } 1$

0 3 6 9 12 15 18 21 24 25

0 1 4 7 10 13 16 19 22 25

# Division – Year 4

## Divide by 6, 7 and 9

Children will use their knowledge of the 6-, 7- and 9-times tables to divide.

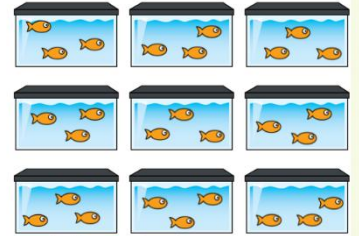
24 eggs are shared equally into 6 bowls  
How many eggs will be in each bowl?



$$24 \div 6 = 4$$

There are 27 fish.

An equal amount are put into each of the 9 tanks.  
How many fish are put in each tank?



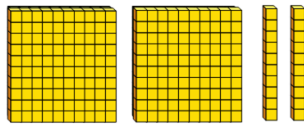
$$27 \div 9 = 3$$

Total number of fish      Number of fish tanks      Number of fish in each tank

## Divide by 10

Children will know that when we divide by 10, the number gets ten times smaller.  
The digits in the number will shift one place value column to the right.

$$220 \div 10 = 22$$



$$220 = 2 \text{ hundreds} + 2 \text{ tens}$$

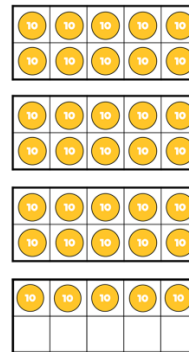
$$1 \text{ hundred} = 10 \text{ tens}$$

$$2 \text{ hundreds} = 20 \text{ tens}$$

There are 22 tens altogether.

$$220 = 22 \text{ groups of } 10$$

$$350 \div 10 = 35$$



Ten 10s = 1 hundred

Hundreds	Tens	Ones
● ●	●	
●		

$$310 \div 10 =$$

Hundreds	Tens	Ones
	● ●	●
	●	

$$310 \div 10 = 3$$



## Division - Year 5

### Divide by 1,000

Children will know that when we divide by 1,000, the number gets one thousand times smaller.  
The digits in the number will shift three place value columns to the right.

TTh	Th	H	T	O
4	7	0	0	0

TTh	Th	H	T	O
			4	7

$47,000 \div 1,000 = 47$

### Divide a 4-digit number by a 1-digit number with and without remainders.

Children will be introduced to the bus stop short division method for the first time.

$9,306 \div 3 =$

Thousands	Hundreds	Tens	Ones
<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid red; padding: 2px;">1000</div> <div style="border: 1px solid red; padding: 2px;">1000</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid red; padding: 2px;">1000</div> <div style="border: 1px solid red; padding: 2px;">1000</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid red; padding: 2px;">1000</div> <div style="border: 1px solid red; padding: 2px;">1000</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid red; padding: 2px;">1000</div> <div style="border: 1px solid red; padding: 2px;">1000</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid red; padding: 2px;">100</div> <div style="border: 1px solid red; padding: 2px;">100</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid red; padding: 2px;">100</div> </div>		<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid red; padding: 2px;">1</div> <div style="border: 1px solid red; padding: 2px;">1</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid red; padding: 2px;">1</div> <div style="border: 1px solid red; padding: 2px;">1</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid red; padding: 2px;">1</div> <div style="border: 1px solid red; padding: 2px;">1</div> </div>

3	1	0	2	
3	9	3	0	6

There are 3 groups of 3 thousands.  
There is 1 group of 3 hundreds.  
There are 0 groups of 3 tens.  
There are 2 groups of 3 ones.

$6,115 \div 5 =$

Thousands	Hundreds	Tens	Ones
<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid red; padding: 2px;">1000</div> <div style="border: 1px solid red; padding: 2px;">1000</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid red; padding: 2px;">1000</div> <div style="border: 1px solid red; padding: 2px;">1000</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid red; padding: 2px;">1000</div> <div style="border: 1px solid red; padding: 2px;">1000</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid red; padding: 2px;">100</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid red; padding: 2px;">100</div> <div style="border: 1px solid red; padding: 2px;">100</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid red; padding: 2px;">100</div> <div style="border: 1px solid red; padding: 2px;">100</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid red; padding: 2px;">10</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid red; padding: 2px;">10</div> <div style="border: 1px solid red; padding: 2px;">10</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid red; padding: 2px;">10</div> <div style="border: 1px solid red; padding: 2px;">10</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid red; padding: 2px;">1</div> <div style="border: 1px solid red; padding: 2px;">1</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid red; padding: 2px;">1</div> <div style="border: 1px solid red; padding: 2px;">1</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid red; padding: 2px;">1</div> <div style="border: 1px solid red; padding: 2px;">1</div> </div>

1	2	2	3	
5	6	1	1	5

		1	2	0	3
	8	9	6	2	4

		2	4	1	4r2
	4	9	6	5	8

# Division - Year 6

## Long division by chunking

Using multiples of the divisor, begin taking away large chunks until you get to 0 or a remainder.

Key multiples are: 1, 2, 5 and 10.

Calculate:  $741 \div 13 = 57$

$13 \times 1 = 13$	$13 \times 10 = 130$
$13 \times 2 = 26$	$13 \times 20 = 260$
$13 \times 3 = 39$	$13 \times 30 = 390$
$13 \times 4 = 52$	$13 \times 40 = 520$
$13 \times 5 = 65$	$13 \times 50 = 650$
$13 \times 6 = 78$	$13 \times 60 = 780$
$13 \times 7 = 91$	$13 \times 70 = 910$

		5	7
13	<del>6</del>	14	1
-	6	5	0
		9	1
-		9	1
			0

( $\times 50$ )

( $\times 7$ )

		0	4	8	9	
15		7	3	3	5	
		6	0	0	0	
		1	3	3	5	
		1	2	0	0	
			1	3	5	
				1	3	5
					0	

( $15 \times 400$ )

( $15 \times 80$ )

( $15 \times 9$ )

## Long Division

Calculate  $4,320 \div 32 = 135$

32 64 96 128 160 192

		1	3	5
32	4	3	2	0
-	3	2		
	1	1	2	
-		9	6	
		1	6	0
-		1	6	0
				0

		0	3	6
12	4	3	2	
	3	6		
		7	2	
		7	2	
			0	

