


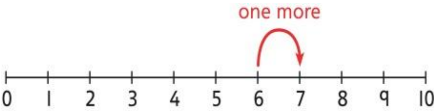
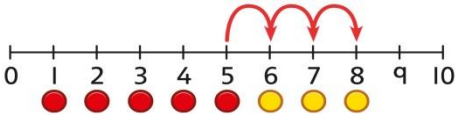

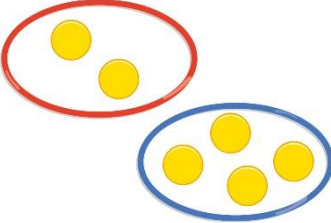
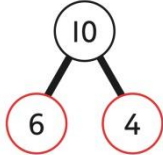


# Calculation policy

## Year 1 and 2

## Year 1 Addition and Subtraction

Objectives	Key Skills
<ul style="list-style-type: none"> <li>• read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs</li> <li>• represent and use number bonds and related subtraction facts within 20</li> <li>• add and subtract one-digit and two-digit numbers to 20, including zero</li> <li>• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>7 = \square - 9</math>.</li> </ul>	<p><b>Addition</b></p> <ul style="list-style-type: none"> <li>• Read and write numbers to 100 in numerals, incl. 1—20 in words</li> <li>• Recall bonds to 10 and 20, and addition facts within 20</li> <li>• Count to and across 100</li> <li>• Count in multiples of 1 2, 5 and 10</li> <li>• Solve simple 1-step problems involving addition, using objects, number lines and pictorial representations.</li> </ul> <p><b>Subtraction</b></p> <ul style="list-style-type: none"> <li>• Given a number, say one more or one less.</li> <li>• Count to and over 100, forward and back, from any number.</li> <li>• Represent and use subtraction facts to 20 and within 20.</li> <li>• Subtract with one-digit and two-digit numbers to 20, including zero.</li> <li>• Solve one-step problems that involve addition and subtraction, using concrete objects (ie bead string, objects, cubes) and pictures, and missing number problems.</li> <li>• Read and write numbers from 0 to 20 in numerals and words.</li> </ul>
Vocabulary	
<p><b>Addition</b></p> <p>add, more, plus, and, put together, make, altogether, total, equal to, equals, double, most, count on, number line</p> <p><b>Subtraction</b></p> <p>equal to, take, take away, less, subtract, leaves, difference, how many more, how many fewer / less than, most, least, count back , how many left, how much less is_?</p>	

Year 1			
Year 1 Addition			
	Concrete	Pictorial	Abstract
<b>Counting and adding more</b>	<p>Children add one more person or object to a group to find one more.</p> 	<p>Children add one more cube or counter to a group to represent one more.</p>  <p><i>One more than 4 is 5.</i></p>	<p>Use a number line to understand how to link counting on with finding one more.</p>   <p><i>One more than 6 is 7. 7 is one more than 6.</i></p> <p>Learn to link counting on with adding more than one.</p>  <p><math>5 + 3 = 8</math></p>
<b>Understanding part-part-whole relationship</b>	<p>Sort people and objects into parts and understand the relationship with the whole.</p>  <p><i>The parts are 2 and 4. The whole is 6.</i></p>	<p>Children draw to represent the parts and understand the relationship with the whole.</p>  <p><i>The parts are 1 and 5. The whole is 6.</i></p>	<p>Use a part-whole model to represent the numbers.</p>  <p><math>6 + 4 = 10</math></p> <p><math>6 + 4 = 10</math></p>

# Knowing and finding number bonds within 10

Break apart a group and put back together to find and form number bonds.

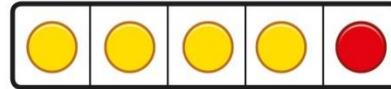


$$3 + 4 = 7$$

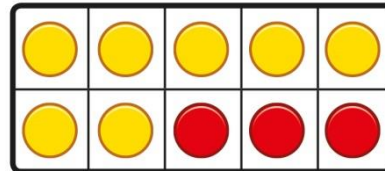


$$6 = 2 + 4$$

Use five and ten frames to represent key number bonds.



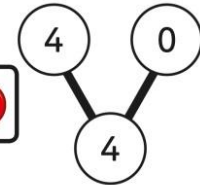
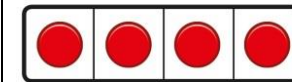
$$5 = 4 + 1$$



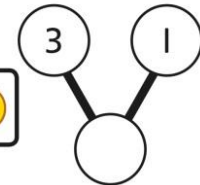
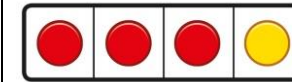
$$10 = 7 + 3$$

Use a part-whole model alongside other representations to find number bonds. Make sure to include examples where one of the parts is zero.

a)

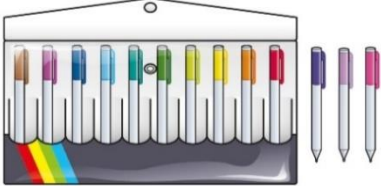
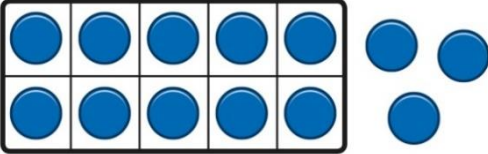
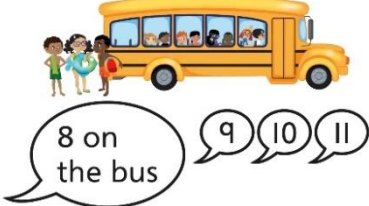
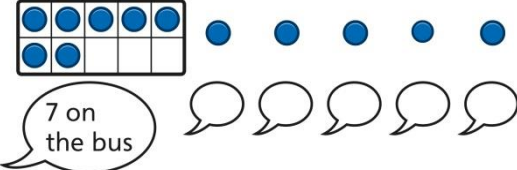
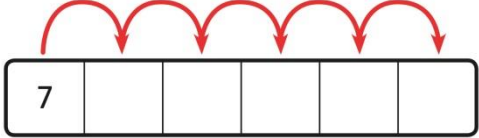

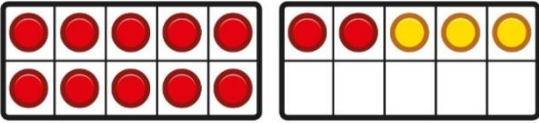



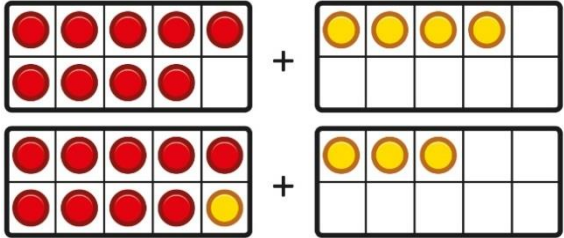
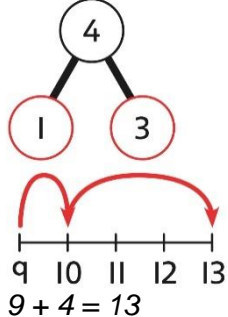
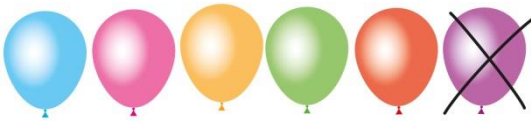
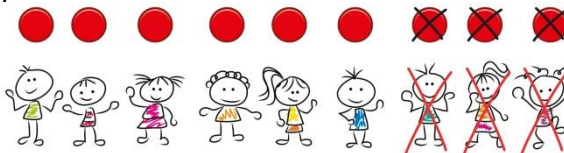

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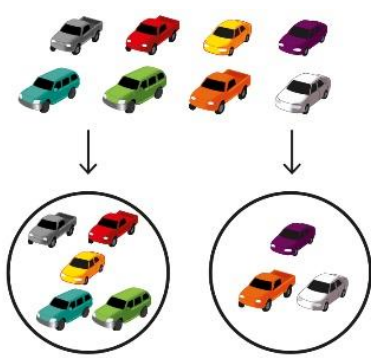
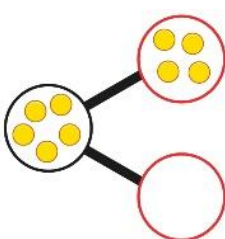
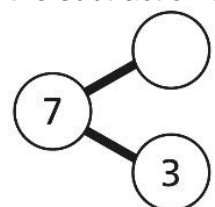
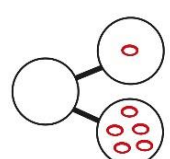

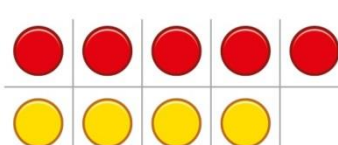



$$4 + 0 = 4$$




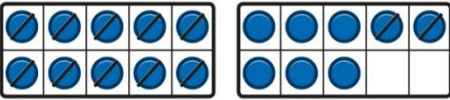
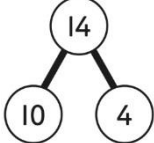
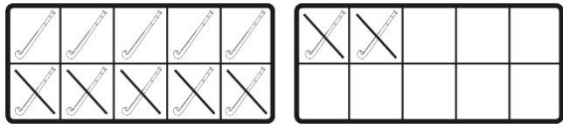
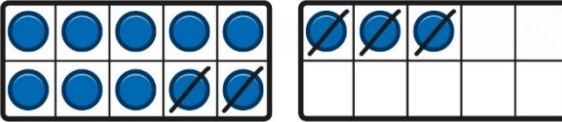
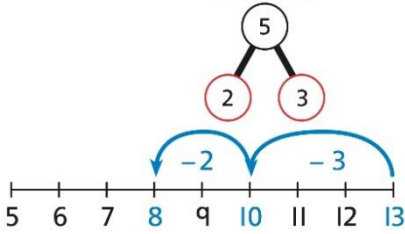
$$3 + 1 = 4$$

<b>Understanding teen numbers as a complete 10 and some more</b>	<p>Complete a group of 10 objects and count more.</p>  <p>13 is 10 and 3 more.</p>	<p>Use a ten frame to support understanding of a complete 10 for teen numbers.</p>  <p>13 is 10 and 3 more.</p>	<p>1 ten and 3 ones equal 13.  <math>10 + 3 = 13</math></p>
<b>Adding by counting on</b>	<p>Children use knowledge of counting to 20 to find a total by counting on using people or objects.</p> 	<p>Children use counters to support and represent their counting on strategy.</p> 	<p>Children use number lines or number tracks to support their counting on strategy.</p>  <p><math>7 + 5 = \square</math></p>
<b>Adding the 1s</b>	<p>Children use bead strings to recognise how to add the 1s to find the total efficiently.</p>  <p><math>2 + 3 = 5</math>  <math>12 + 3 = 15</math></p>	<p>Children represent calculations using ten frames to add a teen and 1s.</p>  <p><math>2 + 3 = 5</math>  <math>12 + 3 = 15</math></p>	<p>Children recognise that a teen is made from a 10 and some 1s and use their knowledge of addition within 10 to work efficiently.</p> <p><math>3 + 5 = 8</math>          So, <math>13 + 5 = 18</math></p>

<b>Bridging the 10 using number bonds</b>	<p>Children use a bead string to complete a 10 and understand how this relates to the addition.</p>  <p>7 add 3 makes 10. So, 7 add 5 is 10 and 2 more.</p>	<p>Children use counters to complete a ten frame and understand how they can add using knowledge of number bonds to 10.</p> 	<p>Use a part-whole model and a number line to support the calculation.</p>  <p>9 + 4 = 13</p>
<b>Year 1 Subtraction</b>			
	<b>Concrete</b>	<b>Pictorial</b>	<b>Abstract</b>
<b>Counting back and taking away</b>	<p>Children arrange objects and remove to find how many are left.</p>  <p>1 less than 6 is 5. 6 subtract 1 is 5.</p>	<p>Children draw and cross out or use counters to represent objects from a problem.</p>  <p>9 - <input type="text"/> = <input type="text"/></p> <p>There are <input type="text"/> children left.</p>	<p>Children count back to take away and use a number line or number track to support the method.</p>  <p>9 - 3 = 6</p>





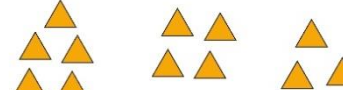

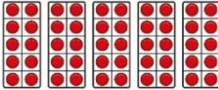

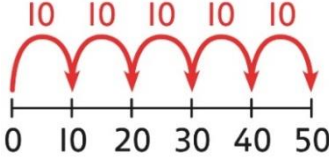
<p><b>Finding a missing part, given a whole and a part</b></p>	<p>Children separate a whole into parts and understand how one part can be found by subtraction.</p>  <p><math>8 - 5 = ?</math></p>	<p>Children represent a whole and a part and understand how to find the missing part by subtraction.</p>  <p><math>5 - 4 = \square</math></p>	<p>Children use a part-whole model to support the subtraction to find a missing part.</p>  <p><math>7 - 3 = ?</math></p> <p>Children develop an understanding of the relationship between addition and subtraction facts in a part-whole model.</p>  <p> <math>\square - \square = \square</math>  <math>\square - \square = \square</math>  <math>\square + \square = \square</math>  <math>\square + \square = \square</math> </p>
<p><b>Finding the difference</b></p>	<p>Arrange two groups so that the difference between the groups can be worked out.</p>  <p>             8 is 2 more than 6.              6 is 2 less than 8.              The difference between 8 and 6 is 2.         </p>	<p>Represent objects using sketches or counters to support finding the difference.</p>  <p> <math>5 - 4 = 1</math>              The difference between 5 and 4 is 1.         </p>	<p>Children understand 'find the difference' as subtraction.</p>  <p> <math>10 - 4 = 6</math>              The difference between 10 and 6 is 4.         </p>


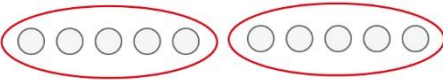
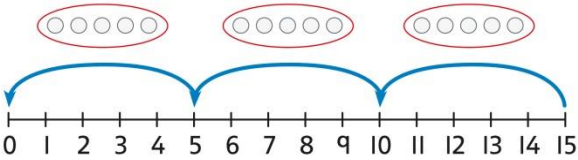
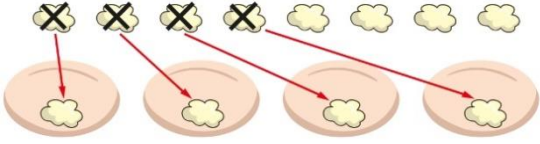



<b>Subtraction within 20</b>	<p>Understand when and how to subtract 1s efficiently.</p> <p>Use a bead string to subtract 1s efficiently.</p>  $5 - 3 = 2$ $15 - 3 = 12$	<p>Understand when and how to subtract 1s efficiently.</p>  $5 - 3 = 2$ $15 - 3 = 12$	<p>Understand how to use knowledge of bonds within 10 to subtract efficiently.</p> $5 - 3 = 2$ $15 - 3 = 12$
<b>Subtracting 10s and 1s</b>	<p>For example: <math>18 - 12</math></p> <p>Subtract 12 by first subtracting the 10, then the remaining 2.</p>  <p><i>First subtract the 10, then take away 2.</i></p>	<p>For example: <math>18 - 12</math></p> <p>Use ten frames to represent the efficient method of subtracting 12.</p>  <p><i>First subtract the 10, then subtract 2.</i></p>	<p>Use a part-whole model to support the calculation.</p>  $19 - 14$ $19 - 10 = 9$ $9 - 4 = 5$ <p>So, <math>19 - 14 = 5</math></p>
<b>Subtraction bridging 10 using number bonds</b>	<p>For example: <math>12 - 7</math></p> <p>Arrange objects into a 10 and some 1s, then decide on how to split the 7 into parts.</p>  <p><i>7 is 2 and 5, so I take away the 2 and then the 5.</i></p>	<p>Represent the use of bonds using ten frames.</p>  <p><i>For <math>13 - 5</math>, I take away 3 to make 10, then take away 2 to make 8.</i></p>	<p>Use a number line and a part-whole model to support the method.</p> $13 - 5$ 



Year 1 Multiplication and Division	
Objectives	Key Skills
<ul style="list-style-type: none"> <li>solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.</li> </ul>	<p><b>Multiplication</b></p> <ul style="list-style-type: none"> <li>Count in multiples of 2, 5 and 10.</li> <li>Solve one-step problems involving multiplication, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.</li> <li>Make connections between arrays, number patterns, and counting in twos, fives and tens.</li> <li>Begin to understand doubling using concrete objects and pictorial representations.</li> </ul> <p><b>Division</b></p> <ul style="list-style-type: none"> <li>Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations arrays with the support of the teacher</li> <li>Through grouping and sharing small quantities, pupils begin to understand, division, and finding simple fractions of objects, numbers and quantities.</li> <li>They make connections between arrays, number patterns, and counting in twos, fives and tens.</li> </ul>
Vocabulary	
<p><b>Multiplication</b></p> <p>groups of, lots of, times, array, altogether, multiply, count</p> <p><b>Division</b></p> <p>share, share equally, one each, two each..., group, groups of, lots of, array</p>	

Year 1			
Year 1 Multiplication			
	Concrete	Pictorial	Abstract
<b>Recognising and making equal groups</b>	<p>Children arrange objects in equal and unequal groups and understand how to recognise whether they are equal.</p> <p>A  B  C </p>	<p>Children draw and represent equal and unequal groups.</p> <p>A  B </p>	<p>Three equal groups of 4. Four equal groups of 3.</p>
<b>Finding the total of equal groups by counting in 2s, 5s and 10s</b>	<p></p> <p>There are 5 pens in each pack ... 5...10...15...20...25...30...35...40...</p>	<p>100 squares and ten frames support counting in 2s, 5s and 10s.</p> <p> </p>	<p>Use a number line to support repeated addition through counting in 2s, 5s and 10s.</p> <p></p>

	Year 1 Division		
	Concrete	Pictorial	Abstract
<b>Grouping</b>	<p>Learn to make equal groups from a whole and find how many equal groups of a certain size can be made.</p> <p>Sort a whole set people and objects into equal groups.</p>  <p><i>There are 10 children altogether. There are 2 in each group. There are 5 groups.</i></p>	<p>Represent a whole and work out how many equal groups.</p>  <p><i>There are 10 in total. There are 5 in each group. There are 2 groups.</i></p>	<p>Children may relate this to counting back in steps of 2, 5 or 10.</p> 
<b>Sharing</b>	<p>Share a set of objects into equal parts and work out how many are in each part.</p> 	<p>Sketch or draw to represent sharing into equal parts. This may be related to fractions.</p> 	<p><i>10 shared into 2 equal groups gives 5 in each group.</i></p>

## Year 2 Addition and Subtraction

Objectives	Key Skills
<ul style="list-style-type: none"> <li>• solve problems with addition and subtraction:               <ul style="list-style-type: none"> <li>- using concrete objects and pictorial representations, including those involving numbers, quantities and measures</li> <li>- applying their increasing knowledge of mental and written methods</li> </ul> </li> <li>• recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</li> <li>• add and subtract numbers using concrete objects, pictorial representations, and mentally, including:               <ul style="list-style-type: none"> <li>- a two-digit number and ones</li> <li>- a two-digit number and tens</li> <li>- a two two-digit numbers</li> <li>- adding three one-digit numbers</li> </ul> </li> <li>• show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot</li> <li>• recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</li> </ul>	<p><b>Addition</b></p> <ul style="list-style-type: none"> <li>• Add a 2-digit number and ones (e.g. <math>27 + 6</math>)</li> <li>• Add a 2-digit number and tens (e.g. <math>23 + 40</math>)</li> <li>• Add pairs of 2-digit numbers (e.g. <math>35 + 47</math>) and add three single-digit numbers (e.g. <math>5 + 9 + 7</math>)</li> <li>• Show that adding can be done in any order (the commutative law).</li> <li>• Recall bonds to 20 and bonds of tens to 100 (<math>30 + 70</math> etc.)</li> <li>• Count in steps of 2, 3 and 5 and count in tens from any number.</li> <li>• Understand the place value of 2-digit numbers (tens and ones)</li> <li>• Compare and order numbers to 100 using <math>&lt;</math> <math>&gt;</math> and <math>=</math> signs.</li> <li>• Read and write numbers to at least 100 in numerals and words.</li> <li>• Solve problems with addition, using concrete objects, pictorial representations, involving numbers, quantities and measures, and applying mental and written methods.</li> </ul> <p><b>Subtraction</b></p> <ul style="list-style-type: none"> <li>• Recognise the place value of each digit in a two-digit number.</li> <li>• Recall and use subtraction facts to 20 fluently, and derive and use related facts up to 100.</li> </ul>

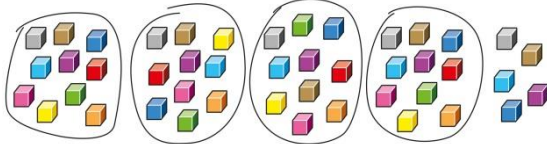

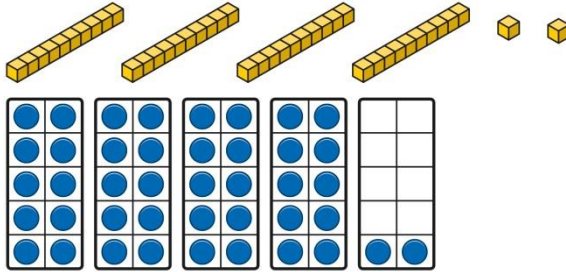

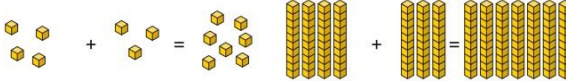
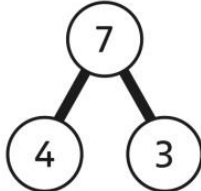

## Vocabulary

### Addition

add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, column, tens boundary

### Subtraction

equal to, take, take away, less, minus, subtract, leaves, distance between, how many more, how many fewer / less than, most, least, count back, how many left, how much less is\_? difference, count on, strategy, partition, tens, units

Year 2 Addition													
	Concrete	Pictorial	Abstract										
Understanding 10s and 1s	<p>Group objects into 10s and 1s.</p>  <p>Bundle straws to understand unitising of 10s.</p> 	<p>Understand 10s and 1s equipment, and link with visual representations on ten frames.</p> 	<p>Represent numbers on a place value grid, using equipment or numerals.</p> <table border="1" data-bbox="1541 379 1850 611"><thead><tr><th>Tens</th><th>Ones</th></tr></thead><tbody><tr><td></td><td></td></tr><tr><td>3</td><td>2</td></tr></tbody></table> <p>=30+2= 32</p> <table border="1" data-bbox="1541 627 1850 715"><thead><tr><th>Tens</th><th>Ones</th></tr></thead><tbody><tr><td>4</td><td>3</td></tr></tbody></table> <p>=40+3=43</p>	Tens	Ones			3	2	Tens	Ones	4	3
	Tens	Ones											
3	2												
Tens	Ones												
4	3												
Adding 10s	<p>Use known bonds and unitising to add 10s.</p>  <p><i>I know that 4 + 3 = 7. So, I know that 4 tens add 3 tens is 7 tens.</i></p>	<p>Use known bonds and unitising to add 10s.</p>  <p><i>I know that 4 + 3 = 7. So, I know that 4 tens add 3 tens is 7 tens.</i></p>	<p>Use known bonds and unitising to add 10s.</p>  <p>4 + 3 = </p> <p>4 + 3 = 7 4 tens + 3 tens = 7 tens 40 + 30 = 70</p>										



### Adding a 1-digit number to a 2-digit number not bridging a 10

Add the 1s to find the total. Use known bonds within 10.

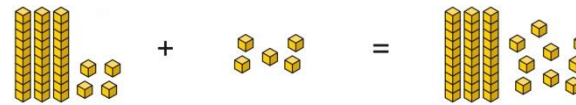


*41 is 4 tens and 1 one.  
41 add 6 ones is 4 tens and 7 ones.*

This can also be done in a place value grid.

T	O

Add the 1s.



*34 is 3 tens and 4 ones.  
4 ones and 5 ones are 9 ones.  
The total is 3 tens and 9 ones.*

T	O

Add the 1s.

Understand the link between counting on and using known number facts. Children should be encouraged to use known number bonds to improve efficiency and accuracy.

This can be represented horizontally or vertically.

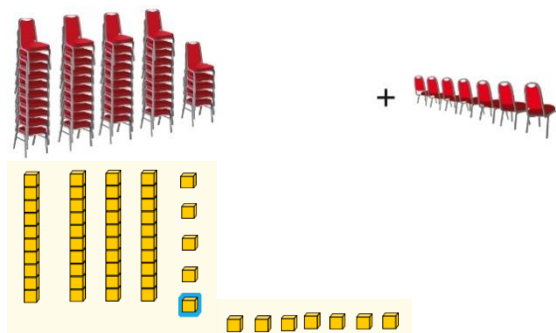
$$34 + 5 = 39$$

or

T	O
3	4
+	5
	9

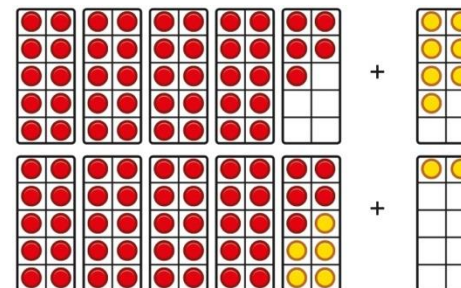
### Adding a 1-digit number to a 2-digit number bridging 10

Complete a 10 using number bonds.

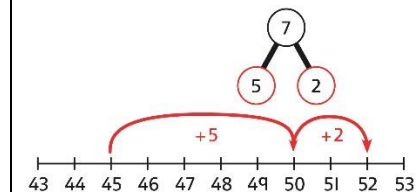


*There are 4 tens and 5 ones.  
I need to add 7. I will use 5 to complete a 10, then add 2 more.*

Complete a 10 using number bonds.



Complete a 10 using number bonds.

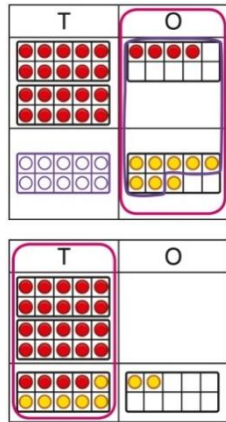


$$7 = 5 + 2$$

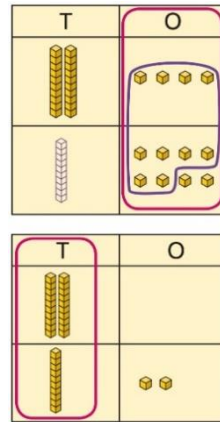
$$45 + 5 + 2 = 52$$

### Adding a 1-digit number to a 2-digit number using exchange

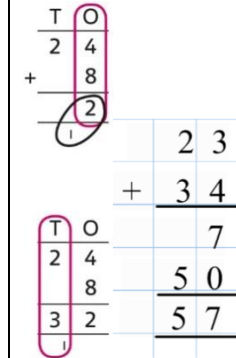
Exchange 10 ones for 1 ten.



Exchange 10 ones for 1 ten.

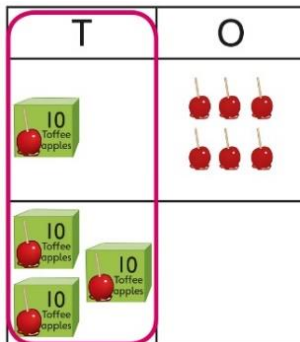


Exchange 10 ones for 1 ten.



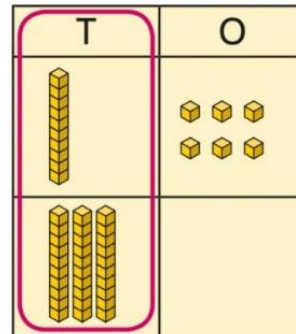
### Adding a multiple of 10 to a 2-digit number using columns

Add the 10s using a place value grid to support.



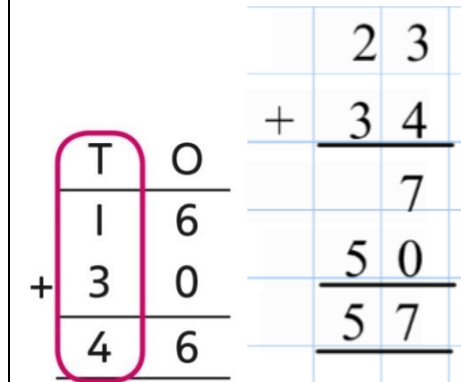
16 is 1 ten and 6 ones.  
30 is 3 tens.  
There are 4 tens and 6 ones in total.

Add the 10s using a place value grid to support.

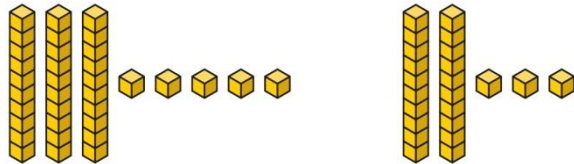
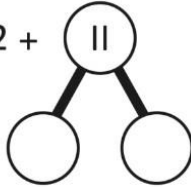

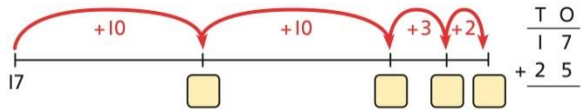
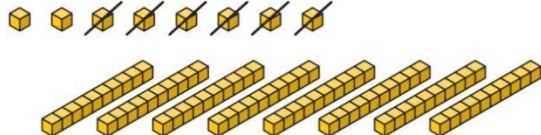
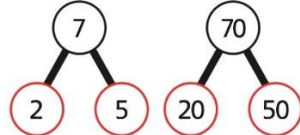


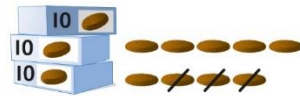
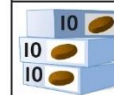
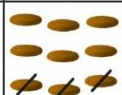
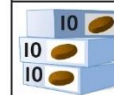
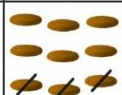
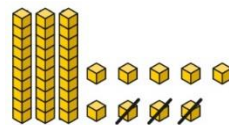
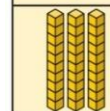
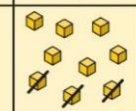
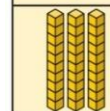
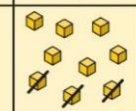
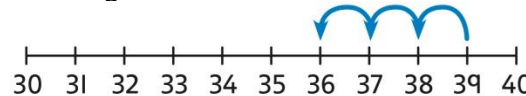
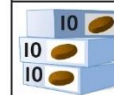
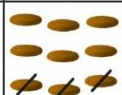
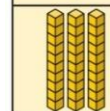
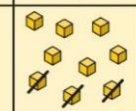
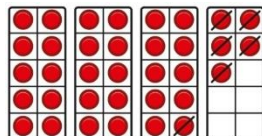
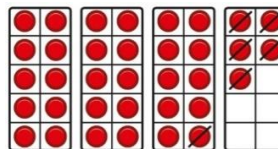
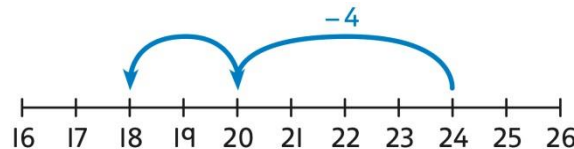
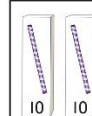


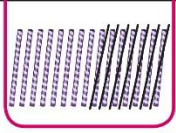
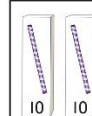


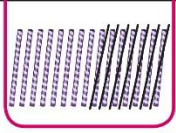
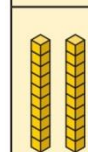

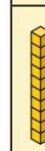

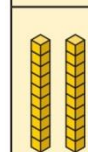

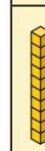

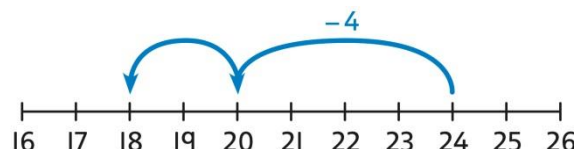
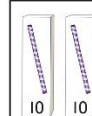


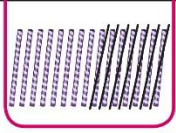
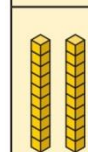

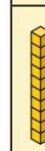

16 is 1 ten and 6 ones.  
30 is 3 tens.  
There are 4 tens and 6 ones in total.

Add the 10s represented vertically. Children must understand how the method relates to unitising of 10s and place value.



$1 + 3 = 4$   
 $1 \text{ ten} + 3 \text{ tens} = 4 \text{ tens}$   
 $16 + 30 = 46$

Adding two 2-digit numbers	<p>Add the 1s and then the 10s.</p>  <p><math>5 + 3 = 8</math> There are 8 ones in total.</p> <p><math>3 + 2 = 5</math> There are 5 tens in total.</p> <p><math>35 + 23 = 58</math></p>	<p>Add the 10s and 1s separately. Use a part-whole model to support.</p>  <p><math>11 = 10 + 1</math> <math>32 + 10 = 42</math> <math>42 + 1 = 43</math></p> <p><math>32 + 11 = 43</math></p> 	<p>Add the 10s and the 1s separately, bridging 10s where required. A number line can support the calculations.</p>  <p><math>17 + 25</math></p> <table border="1" data-bbox="1536 499 1655 691"><tr><td></td><td>2</td><td>3</td></tr><tr><td>+</td><td>3</td><td>4</td></tr><tr><td></td><td>7</td><td></td></tr><tr><td></td><td>5</td><td>0</td></tr><tr><td></td><td>5</td><td>7</td></tr></table>		2	3	+	3	4		7			5	0		5	7
		2	3															
	+	3	4															
		7																
	5	0																
	5	7																
Year 2 Subtraction																		
	Concrete	Pictorial	Abstract															
Subtracting multiples of 10	<p>Use known number bonds and unitising to subtract multiples of 10.</p>  <p>8 subtract 6 is 2. So, 8 tens subtract 6 tens is 2 tens.</p>	<p>Use known number bonds and unitising to subtract multiples of 10.</p> <table border="1" data-bbox="936 1010 1285 1099"><tr><td colspan="2">100</td></tr><tr><td></td><td>30</td></tr></table> <p><math>10 - 3 = 7</math> So, 10 tens subtract 3 tens is 7 tens.</p>	100			30	<p>Use known number bonds and unitising to subtract multiples of 10.</p>  <p>7 tens subtract 5 tens is 2 tens. <math>70 - 50 = 20</math></p>											
100																		
	30																	

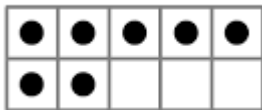
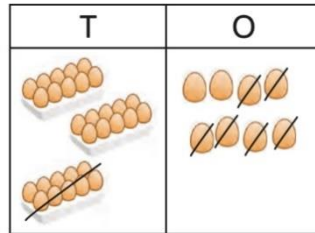
<b>Subtracting a single-digit number</b>	<p>Subtract the 1s. This may be done in or out of a place value grid.</p> <div></div> <div><table><tr><th>T</th><th>O</th></tr><tr><td></td><td></td></tr></table></div>	T	O			<p>Subtract the 1s. This may be done in or out of a place value grid.</p> <div></div> <div><table><tr><th>T</th><th>O</th></tr><tr><td></td><td></td></tr></table></div>	T	O			<p>Subtract the 1s. Understand the link between counting back and subtracting the 1s using known bonds.</p> <div></div> <div><table><tr><td>T</td><td>O</td></tr><tr><td>3</td><td>9</td></tr><tr><td>-</td><td>3</td></tr><tr><td>3</td><td>6</td></tr></table><div><math>9 - 3 = 6</math> <math>39 - 3 = 36</math></div></div>	T	O	3	9	-	3	3	6
T	O																		
																			
T	O																		
																			
T	O																		
3	9																		
-	3																		
3	6																		
<b>Subtracting a single-digit number bridging 10</b>	<p>Bridge 10 by using known bonds.</p> <div></div> <div><math>35 - 6</math> <i>I took away 5 counters, then 1 more.</i></div>	<p>Bridge 10 by using known bonds.</p> <div></div> <div><math>35 - 6</math> <i>First, I will subtract 5, then 1.</i></div>	<p>Bridge 10 by using known bonds.</p> <div></div> <div><math>24 - 6 = ?</math> <math>24 - 4 - 2 = ?</math></div>																
<b>Subtracting a single-digit number using exchange</b>	<p>Exchange 1 ten for 10 ones. This may be done in or out of a place value grid.</p> <div><table><tr><th>T</th><th>O</th></tr><tr><td></td><td></td></tr></table><table><tr><th>T</th><th>O</th></tr><tr><td></td><td></td></tr></table></div>	T	O			T	O			<p>Exchange 1 ten for 10 ones.</p> <div><table><tr><th>T</th><th>O</th></tr><tr><td></td><td></td></tr></table><table><tr><th>T</th><th>O</th></tr><tr><td></td><td></td></tr></table></div>	T	O			T	O			<p>Bridge 10 by using known bonds.</p> <div></div> <div><math>24 - 6 = ?</math> <math>24 - 4 - 2 = ?</math></div>
T	O																		
																			
T	O																		
																			
T	O																		
																			
T	O																		
																			

## Subtracting a 2-digit number

$$61 - 18$$

I took away 1 ten and 8 ones.

Subtract the 1s. Then subtract the 10s. This may be done in or out of a place value grid.



Subtract the 10s and the 1s.

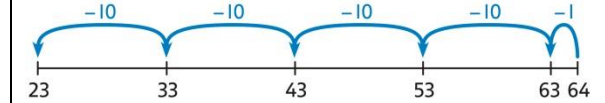
This can be represented on a 100 square.

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

Subtract the 1s. Then subtract the 10s.

Subtract the 10s and the 1s.

This can be represented on a number line.

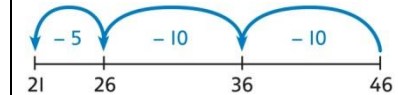


$$64 - 41 = ?$$

$$64 - 1 = 63$$

$$63 - 40 = 23$$

$$64 - 41 = 23$$

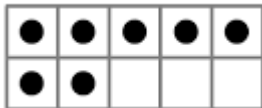


$$46 - 20 = 26$$

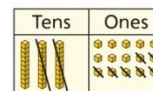
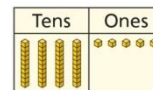
$$26 - 5 = 21$$

$$46 - 25 = 21$$

## Subtracting a 2-digit number with exchange

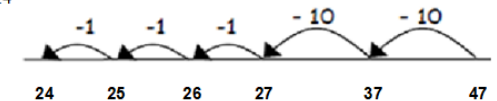


Exchange 1 ten for 10 ones. Then subtract the 1s. Then subtract the 10s.



Using number line. Partition the number into tens and ones. Count back in 1s or bridging through the tens number.

$$47 - 23 = 24$$


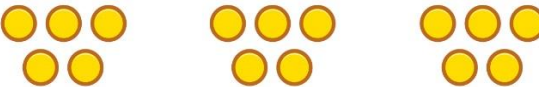
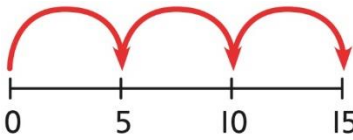

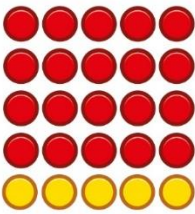
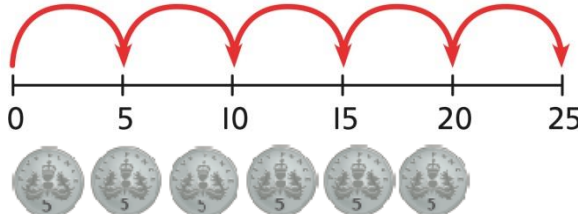




## Year 2 Multiplication and Division

Objectives	Key Skills
<ul style="list-style-type: none"> <li>recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</li> <li>calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (<math>=</math>) signs</li> <li>show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</li> <li>solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</li> </ul>	<p><b>Multiplication</b></p> <ul style="list-style-type: none"> <li>Count in steps of 2, 3 and 5 from zero, and in 10s from any number.</li> <li>Recall and use multiplication facts from the <b>2, 5 and 10</b> multiplication tables, including recognising odds and evens.</li> <li>Write and calculate number statements <b>using the <math>\times</math> and <math>=</math> signs</b>.</li> <li>Show that multiplication can be done in any order (commutative).</li> <li>Solve a range of problems involving multiplication, using concrete objects, arrays, repeated addition, mental methods, and multiplication facts.</li> <li>Pupils use a variety of language to discuss and describe multiplication.</li> </ul> <p><b>Division</b></p> <ul style="list-style-type: none"> <li>Count in steps of 2, 3, and 5 from 0</li> <li>Recall and use multiplication and division facts for the <b>2, 5 and 10</b> multiplication tables, including recognising odd and even numbers.</li> <li>Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the <math>\times</math>, <math>\div</math> and <math>=</math> signs.</li> <li>Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.</li> </ul>
Vocabulary	
<p><b>Multiplication</b></p> <p>groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times</p> <p><b>Division</b></p> <p>share, share equally, one each, two each..., group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over</p>	



	Year 2 Multiplication		
	Concrete	Pictorial	Abstract
<b>Equal groups and repeated addition</b>	<p>Recognise equal groups and write as repeated addition and as multiplication.</p>  <p><i>3 groups of 4 chairs 12 chairs altogether</i></p>	<p>Recognise equal groups using standard objects such as counters and write as repeated addition and multiplication.</p>  <p><i>3 groups of 4 12 in total</i></p>	<p>Use a number line and write as repeated addition and as multiplication.</p>  <p><math>4 + 4 + 4 = 12</math> <math>3 \times 4 = 12</math></p>
<b>Using arrays to represent multiplication and support understanding</b>	<p>Understand the relationship between arrays, multiplication and repeated addition.</p>  <p><i>4 groups of 3</i></p>	<p>Understand the relationship between arrays, multiplication and repeated addition.</p>  <p><i>4 groups of 5 ... 5 groups of 4</i></p>	<p>Understand the relationship between arrays, multiplication and repeated addition.</p>  <p><math>5 \times 5 = 25</math></p>

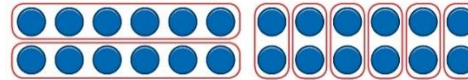
## Understanding commutativity

Use arrays to visualise commutativity.



*I can see 6 groups of 3.  
I can see 3 groups of 6.*

Form arrays using counters to visualise commutativity. Rotate the array to show that orientation does not change the multiplication.



*This is 2 groups of 6 and also 6 groups of 2.*

Use arrays to visualise commutativity.



$4 + 4 + 4 + 4 + 4 = 20$   
 $5 + 5 + 5 + 5 = 20$   
 $4 \times 5 = 20$  and  $5 \times 4 = 20$

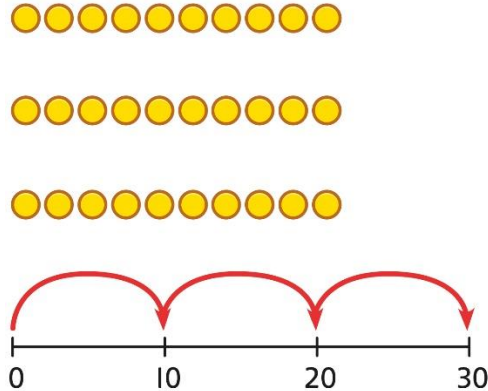
# **Learning $\times 2$ , $\times 5$ and $\times 10$ table facts**

Develop an understanding of how to unitise groups of 2, 5 and 10 and learn corresponding times-table facts.



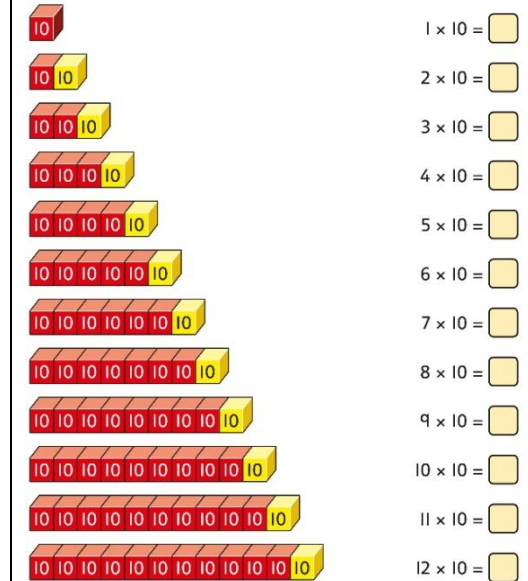
3 groups of 10 ... 10, 20, 30  
 $3 \times 10 = 30$

Understand how to relate counting in unitised groups and repeated addition with knowing key times-table facts.

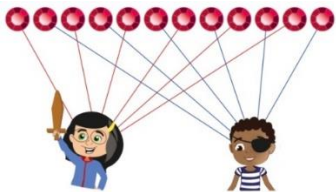
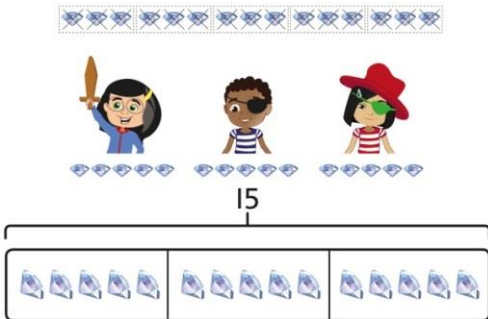


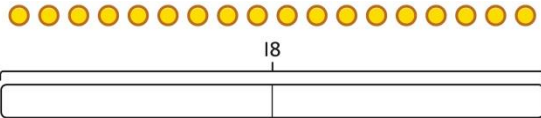







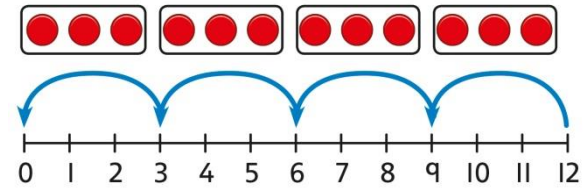
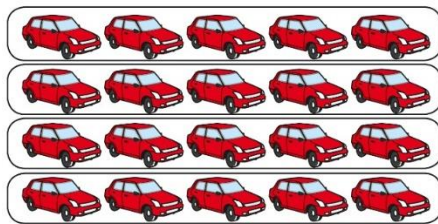
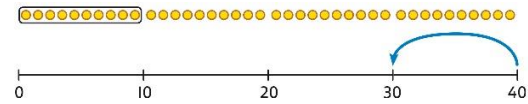
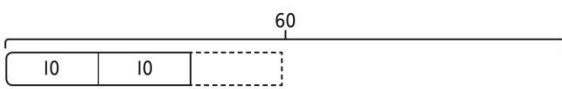
$10 + 10 + 10 = 30$   
 $3 \times 10 = 30$

Understand how the times-tables increase and contain patterns.



$5 \times 10 = 50$   
 $6 \times 10 = 60$

	Year 2 Division		
	Concrete	Pictorial	Abstract
Sharing equally	<p>Start with a whole and share into equal parts, one at a time.</p>  <p><i>12 shared equally between 2. They get 6 each.</i></p> <p>Start to understand how this also relates to grouping. To share equally between 3 people, take a group of 3 and give 1 to each person. Keep going until all the objects have been shared</p>  <p><i>They get 5  each.</i></p> <p><i>15 shared equally between 3. They get 5 each.</i></p>	<p>Represent the objects shared into equal parts using a bar model.</p>  <p><i>20 shared into 5 equal parts. There are 4 in each part.</i></p>	<p>Use a bar model to support understanding of the division.</p>  <p><i>18 ÷ 2 = 9</i></p>

<p><b>Grouping equally</b></p>	<p>Understand how to make equal groups from a whole.</p>  <p><i>8 divided into 4 equal groups. There are 2 in each group.</i></p>	<p>Understand the relationship between grouping and the division statements.</p> <p><math>12 \div 3 = 4</math></p>  <p><math>12 \div 4 = 3</math></p>  <p><math>12 \div 6 = 2</math></p>  <p><math>12 \div 2 = 6</math></p> 	<p>Understand how to relate division by grouping to repeated subtraction.</p>  <p>There are 4 groups now.</p> <p><i>12 divided into groups of 3. <math>12 \div 3 = 4</math></i></p> <p><i>There are 4 groups.</i></p>
<p><b>Using known times-tables to solve divisions</b></p>	<p>Understand the relationship between multiplication facts and division.</p>  <p><i>4 groups of 5 cars is 20 cars in total. 20 divided by 4 is 5.</i></p>	<p>Link equal grouping with repeated subtraction and known times-table facts to support division.</p>  <p><i>40 divided by 4 is 10.</i></p> <p>Use a bar model to support understanding of the link between times-table knowledge and division.</p> 	<p>Relate times-table knowledge directly to division.</p> <p> <math>1 \times 10 = 10</math>  <math>2 \times 10 = 20</math>  <math>3 \times 10 = 30</math>  <math>4 \times 10 = 40</math>  <math>5 \times 10 = 50</math>  <math>6 \times 10 = 60</math>  <math>7 \times 10 = 70</math>  <math>8 \times 10 = 80</math> </p> <div data-bbox="1702 869 1937 1093" style="border: 1px solid orange; border-radius: 15px; padding: 10px; width: fit-content;"> <p>I used the 10 times-table to help me. <math>3 \times 10 = 30</math>.</p> </div> <p><i>I know that 3 groups of 10 makes 30, so I know that 30 divided by 10 is 3.</i></p> <p><math>3 \times 10 = 30</math> so <math>30 \div 10 = 3</math></p>