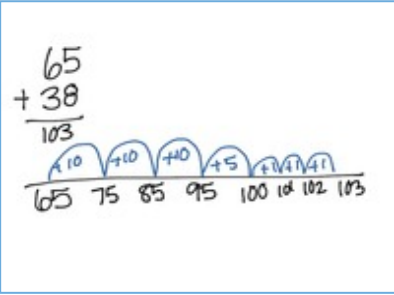
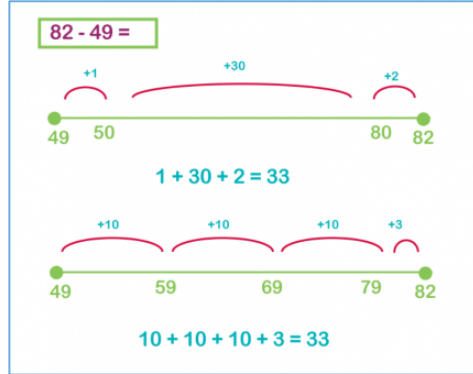


## Year 3 Calculation Policy

<b>Year 3</b>	In year 3 your child will continue to use mental strategies, number lines and partitioning to continue to add and subtract whole numbers before moving on to learn more formal written methods of addition and subtraction (the column methods).	
	<b>Addition</b>	<b>Subtraction</b>
	<p><b>Adding using a number line</b></p> <div style="display: flex; align-items: flex-start;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">  </div> <div> <p>Children can add <math>65 + 38</math> together by using an 'empty' number line (it doesn't have any numbers on it at the start).</p> <p>Children put 65 down on the line first. To add 38, they jump up in steps ... they add <math>10 + 10 + 10 + 5 + 1 + 1 + 1</math></p> </div> </div> <p>So <math>65 + 38 = 103</math> !</p> <p><b>The partitioning method</b></p> <p>Partitioning is a way of working out maths problems that involve large numbers by splitting them into smaller units so they're easier to work with.</p> <p><b>An example of using the partitioning method to solve an addition problem</b></p> <p><b><math>35 + 24 = 59</math></b></p> <p>Split the units and tens up</p> <p>Add units together first <math>5 + 4 = 9</math></p> <p>Then add tens together <math>30 + 20 = 50</math></p> <p>Recombine (add the two answers together) <math>50 + 9 = 59</math></p>	
		<p>Subtraction is finding the difference between two numbers.</p> <p>A number line is an important image to help children develop mental methods for subtraction.</p> <p>Subtraction is taught using the vocabulary 'How much more?' and 'Find the difference'. It is best taught 'counting on' using a number line.</p> <div style="display: flex; align-items: flex-start; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">  </div> <div> <p>You can jump forwards like this!</p> <p>Or like this!</p> </div> </div> <p><math>82 - 49</math></p> <p>Children start with the 49, then jump up in steps until they reach 82. They add the steps together (<math>1 + 30 + 2 = 33</math>) or (<math>10 + 10 + 10 + 3 = 33</math>) to give them the difference between 49 and 82. They can then see that 82 is 33 more than 49.</p> <p>So <math>82 - 49 = 33</math></p>



## Year 3 Calculation Policy

<b>Year 3</b>	Adding and subtracting whole numbers with up to 3 digits using the written column methods.																																														
	Here are some examples of what these look like and the kind of real life problems children are asked to solve using these methods.																																														
	<b>Addition</b>	<b>Subtraction</b>																																													
	Add whole numbers with up to 3 digits using formal written methods (column addition).	Subtract whole numbers with up to 3 digits using formal written methods (column subtraction).																																													
	<p>Column addition <b>Use the column method for addition</b></p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px; width: 150px;"> <p>Write the numbers one above the other. Make sure you line them up using place value</p> </div> <div style="text-align: center;"> <p>789 + 642 becomes</p> <table style="margin: auto;"> <tr><td></td><td>7</td><td>8</td><td>9</td><td></td></tr> <tr><td>+</td><td>6</td><td>4</td><td>2</td><td></td></tr> <tr><td colspan="5"><hr/></td></tr> <tr><td></td><td>1</td><td>4</td><td>3</td><td>1</td></tr> <tr><td></td><td>1</td><td>1</td><td></td><td></td></tr> </table> <p>Answer: 1431</p> </div> <div style="margin-left: 10px;"> <p>Start with the units (or smallest). 4 + 2 = 6. Place the answer 6 in the units column.</p> <p>Next, 8 + 4 = 12. 2 is added to the next column.</p> <p>Finally, 7 + 6 = 13. 3 is added to the next column.</p> <p>Answer – 1431</p> </div> </div> <p><b>Examples of real life problems</b></p> <p>We sold 98 packets of crisps on Monday. We sold 39 more than that on Tuesday. How many crisps did we sell on Tuesday?</p> <p>378 children went to the zoo in April and 293 went in May. How many children visited the zoo altogether?</p>		7	8	9		+	6	4	2		<hr/>						1	4	3	1		1	1			<p>Column subtraction <b>Use the column method for subtraction</b></p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px; width: 150px;"> <p>Write the numbers one above the other. Make sure you line them up using place</p> </div> <div style="text-align: center;"> <p>874 – 523 becomes</p> <table style="margin: auto;"> <tr><td></td><td>8</td><td>7</td><td>4</td><td></td></tr> <tr><td>-</td><td>5</td><td>2</td><td>3</td><td></td></tr> <tr><td colspan="5"><hr/></td></tr> <tr><td></td><td>3</td><td>5</td><td>1</td><td></td></tr> </table> <p>Answer: 351</p> </div> <div style="margin-left: 10px;"> <p>Start with the units (or smallest). 4 – 3 = 1. Place the answer 1 in the units column.</p> <p>Next, 7 – 2 = 5.</p> <p>Finally, 8 – 5 = 3.</p> <p>Answer – 351</p> </div> </div> <p><b>Examples of real life problems</b></p> <p>If 785 loaves of bread were delivered to the supermarket and 224 were sold, how many loaves of bread were left?</p> <p>The football ground holds 576 fans. If 342 fans buy tickets to watch the game, how many seats remain empty?</p>		8	7	4		-	5	2	3		<hr/>						3	5	1	
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## Year 3 Calculation Policy

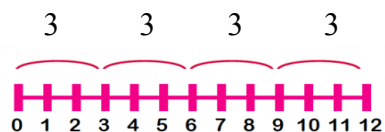
In year 3 your child will practice multiplying and dividing using mental strategies, knowledge of times tables, number lines and partitioning before progressing to more formal written methods to work out multiplication and division problems. Here are examples of how they might use a number line or partition to work out these kinds of number problems.

### Multiplication

#### Using a number line

Count up in groups and use a number line to work out simple multiplication problems e.g.  $4 \times 3$  is like saying 4 lots of 3

So children can do multiplication as **repeated addition** using a number line. For example, for  $4 \times 3$  they start on zero and make leaps of 3 four times to get to 12.



**Partitioning** to work out a simple multiplication problem.

Children in Year 3 will be taught to multiply two-digit numbers by a one-digit number by using the partitioning method before moving on to more formal written methods (i.e. short multiplication)

e.g.  $37 \times 4$

$$30 \times 4 = 120$$

$$7 \times 4 = 28$$

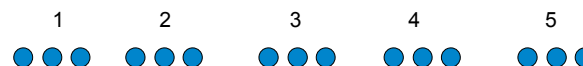
Add both answers together...

$$120 + 28 = 148$$

### Division

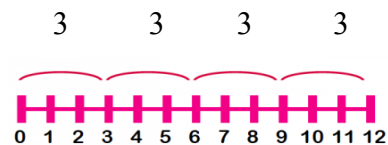
#### Sharing or grouping

Division can be thought of as splitting into groups.  
e.g.  $15 \div 3 = 5$  How many groups of 3 are in 15?



#### Using a number line

Grouping or splitting into groups is taught using a number line. Children count forwards using this method.



So for  $12 \div 3$ , children can count on in groups of 3 until they get to 12, i.e. 3, 6, 9, 12. It takes 4 jumps of groups of 3 to get to 12, so we know that  $12 \div 3 = 4$ .

Children will be taught how to use an **'empty' number line** to divide.

e.g.  $15 \div 3$  They draw an empty number line and jump along it in 3's using their 3 times table.



jumps! So  $15 \div 3$

How many jumps have you made?

= 5



## Year 3 Calculation Policy

In year 3 your child will progress to more formal written methods to work out multiplication and division problems including 2-digit numbers multiplied or divided by 1-digit numbers e.g.  $15 \times 5$ ,  $24 \div 2$ . They will also understand that division sums can have a 'remainder' (something left over).

Multiplication	Division
Multiply 2-digit numbers by a one-digit number using a formal written method.	Divide 2-digit numbers by a one-digit number, with no remainder, using the formal written method of short division.
<p><b>Short multiplication (multiplying 2 numbers by one number)</b> e.g. <math>24 \times 6</math></p> <p><math>24 \times 6</math> becomes</p> $\begin{array}{r} 24 \\ \times 6 \\ \hline 144 \\ \hline \end{array}$ <p>Answer: 144</p> <p><b>Method</b></p> <p>Multiply the units first e.g. <math>4 \times 6 = 24</math> Place the 4 in the units column Carry the 2 to underneath the tens column Next – multiply the 2 (from the 24) by 6 So <math>2 \times 6 = 12</math> Add the 2 you have carried forward to this 12 <math>12 + 2 = 14</math>. Place the 14 in the answer line next to the 4. So the answer is 144!</p> <p><b>Examples of real life problems</b></p> <p>Parveen buys 4 bags of peanuts. Each bag costs her 58p. How much did she spend?</p> <p>One length of the swimming pool is 34 metres. Jane swims 8 lengths. How far does she swim?</p> <p>I gave 5 chocolates to 18 of my friends. How many chocolates did I have to start off with?</p>	<p><b>Short division (with no remainder)</b>. This is where the bigger number can be divided exactly by the smaller number e.g. <math>96 \div 3 = 32</math></p> $\begin{array}{r} 32 \\ 3 \overline{)96} \end{array}$ <p>Does 3 go into 9? Yes. 3 times. So put the answer 3 above the 9. Next – does 3 go into 6? Yes. 2 times. So put the answer 2 above the 6. So <math>96 \div 3 = 32</math></p> <p>Slightly trickier!</p> $\begin{array}{r} 18 \\ 4 \overline{)72} \end{array}$ <p>Does 4 go into 7? Yes, but only once with 3 left over. So put a 1 above the 7 and put the 3 left over next to the 2 to make 32. Next - does 4 go into 32? Yes – 8 times. So put the 8 above the 2. So <math>72 \div 4 = 18</math></p> <p><b>Examples of real life problems</b></p> <p>A square has a perimeter of 96cm. What is the length of one side?</p> <p>Paul's football team scored 87 goals in 3 years. They scored the same number of goals every year. How many goals did they score each year?</p>

## Year 3 Calculation Policy

