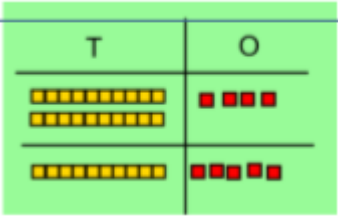
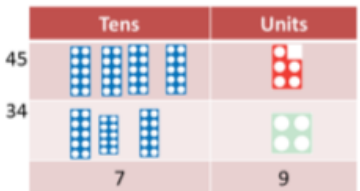
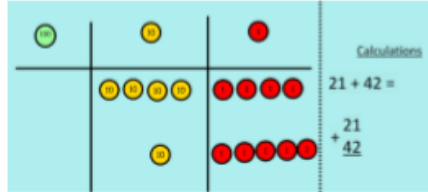


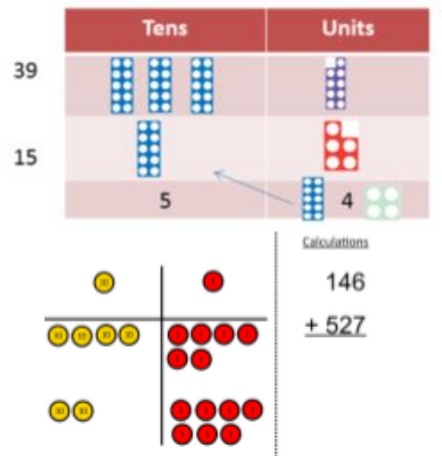


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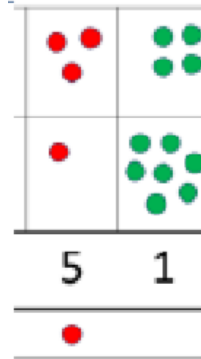
Addition Year 3			
<u>Objective and Strategy</u>	<u>Concrete</u>	<u>Pictorial</u>	<u>Abstract</u>
<p>Column addition, no regrouping</p>	<div style="display: flex; flex-direction: column; gap: 10px;"> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>Model using base ten or Numicon. Start by adding the ones, then tens.</p> </div> </div> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>Move to place value counters</p> </div> </div> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>Calculations</p> $\begin{array}{r} 21 + 42 = \\ 21 \\ + 42 \\ \hline \end{array}$ </div> </div> </div>	<div style="display: flex; justify-content: space-around; align-items: center; margin-bottom: 10px;"> <div style="text-align: center;"> <p>tens</p>  </div> <div style="text-align: center;"> <p>ones</p>  </div> </div> <p>Children draw counters on a frame and count out the answer.</p>	<div style="text-align: center; margin-bottom: 10px;"> $\begin{array}{r} 223 \\ + 114 \\ \hline 337 \end{array}$ </div> <p>Always start by adding the ones and move along left.</p>

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**Column addition,
with regrouping**



Write the formal calculation by the side of the resources.



Children draw their representation to show their understanding and carry the tens over.

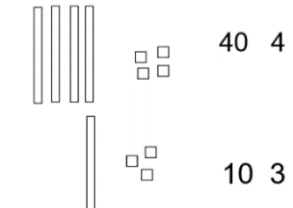


$$\begin{array}{r} 20 + 5 \\ 40 + 8 \\ \hline 60 + 13 = 73 \end{array}$$

This may need to be the starting point for some children although some may straight away progress to this....

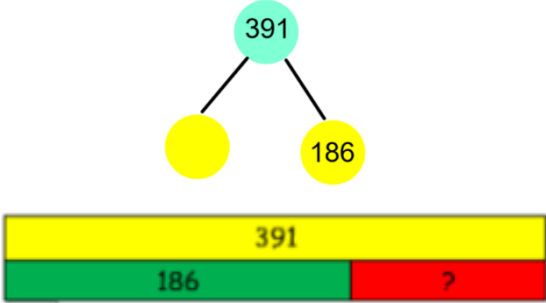
$$\begin{array}{r} 536 \\ + 185 \\ \hline 621 \end{array}$$

The numbers carried over should be added above the line so as not to confuse when using other operations eg long multiplication

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Subtraction Year 3			
<u>Objective and Strategy</u>	<u>Concrete</u>	<u>Pictorial</u>	<u>Abstract</u>
Consolidate formal methods learnt in Year 2 so all children are confident with exchanging – <i>using the language of exchanging not borrowing</i>			
Partitioning without regrouping	<p>44 - 13</p>  <p>40 4</p> <p>10 3</p>	 <p>43 - 21</p> <p>Children cross off the number after drawing base ten.</p>	<p>43 - 21</p> $\begin{array}{r} 40 + 3 \\ - 20 + 1 \\ \hline 20 + 2 = 22 \end{array}$
Partitioning with regrouping	<p>45-26</p>  <ol style="list-style-type: none"> 1) Start by partitioning 45 2) Exchange one ten for ten more ones 3) Subtract the ones, then the tens. 	<p>Represent pictorially – children cross off or draw Base Ten/Numicon</p>	<p>67 - 19</p> $\begin{array}{r} 60 + 17 \\ 10 + 9 \\ \hline 50 + 8 = 48 \end{array}$ $\begin{array}{r} 5 \cancel{6} 7 \\ - 28 \\ \hline 39 \end{array}$

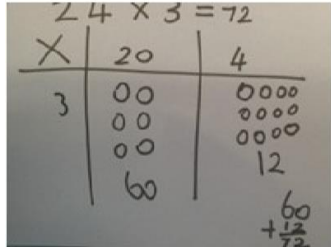
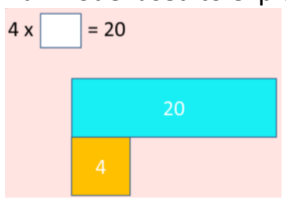
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<p>Exchanging with HTO</p>	<p>As above</p>	<p>As above</p>	<p>Children become confident when calculating with 3 digit numbers.</p> $ \begin{array}{r} \text{H} \quad \text{T} \quad \text{O} \\ \overset{700}{\cancel{800}} \quad \overset{1}{30} \quad 6 \\ - \quad \underline{200 \quad 50 \quad 4} \\ \underline{500 \quad 80 \quad 2} \end{array} $ <p>Partition initially then move onto the formal method.</p> $ \begin{array}{r} \text{H} \quad \text{T} \quad \text{O} \\ \overset{7}{8} \quad \overset{1}{3} \quad 6 \\ - \quad \underline{2 \quad 5 \quad 4} \\ \underline{5 \quad 8 \quad 2} \end{array} $
<p>Conceptual Understanding</p> <p>Various ways to ask children to solve 391 - 186</p>			<p>Raj spent £391, Timmy spent £186. How much more did Raj spend?</p> <p>Calculate the difference between 391 and 186.</p> <p>What is 186 less than 391?</p>

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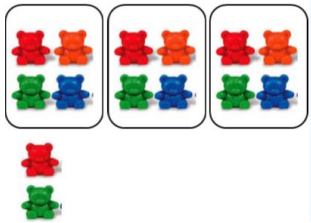


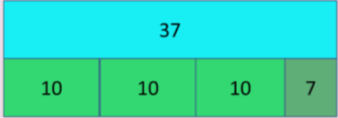
Multiplication Year 3

<u>Objective and Strategy</u>	<u>Concrete</u>	<u>Pictorial</u>	<u>Abstract</u>																																	
<p>Grid Method</p> <p>Show the links with creating arrays to help children understand the layout of the grid method.</p> <p>13 x 3</p> <table border="1" style="margin-left: 20px;"> <tr><td style="padding: 2px;">x</td><td style="padding: 2px;">10</td><td style="padding: 2px;">3</td></tr> <tr><td style="padding: 2px;">3</td><td style="text-align: center;">●●●●●●●●●●</td><td style="text-align: center;">●●●●</td></tr> </table> <p style="margin-left: 20px;">30 9</p> <p>Repeat the same with base ten</p> <p>13 x 3</p> <table border="1" style="margin-left: 20px;"> <tr><td style="padding: 2px;">x</td><td style="padding: 2px;">T</td><td style="padding: 2px;">O</td></tr> <tr><td style="padding: 2px;">3</td><td style="text-align: center;">■■■■■■■■■■</td><td style="text-align: center;">■■■■</td></tr> </table> <p style="margin-left: 20px;">30 9</p>	x	10	3	3	●●●●●●●●●●	●●●●	x	T	O	3	■■■■■■■■■■	■■■■	<p>Children can represent their work with pictures so show understanding.</p>  <p>Bar model used to explore missing numbers.</p> <p>4 x <input style="width: 30px;" type="text"/> = 20</p> 	<p>Start with multiplying with one digit numbers and show the addition linked next to the calculation.</p> <p>35 x 7</p> <table border="1" style="margin-left: 20px;"> <tr><td style="padding: 2px;">x</td><td style="padding: 2px;">30</td><td style="padding: 2px;">5</td></tr> <tr><td style="padding: 2px;">7</td><td style="text-align: center;">210</td><td style="text-align: center;">35</td></tr> </table> <p style="margin-left: 20px;">210 + 35 <u>245</u></p> <p>Progress to multiplying by 2 digits.</p> <p>18 x 13</p> <table border="1" style="margin-left: 20px;"> <tr><td></td><td style="padding: 2px;">10</td><td style="padding: 2px;">8</td><td></td></tr> <tr><td style="padding: 2px;">10</td><td style="text-align: center;">100</td><td style="text-align: center;">80</td><td style="text-align: right;">180</td></tr> <tr><td style="padding: 2px;">3</td><td style="text-align: center;">30</td><td style="text-align: center;">24</td><td style="text-align: right;">+ 54</td></tr> <tr><td></td><td></td><td></td><td style="text-align: right;"><u>234</u></td></tr> </table>	x	30	5	7	210	35		10	8		10	100	80	180	3	30	24	+ 54				<u>234</u>
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	10	8																																		
10	100	80	180																																	
3	30	24	+ 54																																	
			<u>234</u>																																	



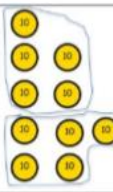
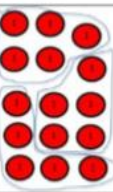

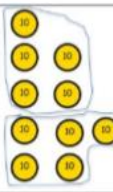
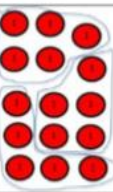
Conceptual understanding

<p>Various ways to ask 23 x 6</p>	<table border="1" style="margin-left: 20px; text-align: center;"> <tr><td style="padding: 5px;">23</td><td style="padding: 5px;">23</td><td style="padding: 5px;">23</td><td style="padding: 5px;">23</td><td style="padding: 5px;">23</td><td style="padding: 5px;">23</td></tr> </table> <p style="text-align: center; margin-left: 20px;">?</p> <p>With counters, prove that 23 x 6 = 138</p>	23	23	23	23	23	23	<p>Mai had to swim 23 lengths, 6 times a week. How many lengths did she swim in one week?</p> <p>Tom saved 23p three days a week. How much did he save in 2 weeks?</p>
23	23	23	23	23	23			

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Division Year 3			
<u>Objective and Strategy</u>	<u>Concrete</u>	<u>Pictorial</u>	<u>Abstract</u>
<p>Division with remainders</p>	<p>$14 \div 3 =$ Divide objects between groups and see how much is left over – <i>call this the remainder.</i></p> 	<p>Jump forward in equal groups on a blank number line and see what is left over - <i>call this the remainder.</i></p> <p>$13 \div 4 = 3$ remainder 1</p>  <p>Draw dots and group them to divide an amount, showing the remainder.</p>  <p>Use bar models to show remainders</p> 	<p>Complete written divisions giving the answer with the remainder shown as 'r'</p> <p>Eg $29 \div 4 = 7$ r1</p>

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<p>Short division introduction</p>	<p><i>When beginning on the formal methods, children should be familiar and confident with division as sharing, grouping and the inverse of multiplication.</i></p>		$\begin{array}{r} 24 \text{ r}1 \\ 4 \overline{)917} \end{array}$							
<p>Conceptual Understanding</p>										
<p>Various ways to ask the question $615 \div 5$</p>	<p>Using the part whole model below, how can you divide 615 by 5 without using the 'bus stop' method?</p> <div style="text-align: center;">  </div>	<p>I have £615 and I split it between 5 bank accounts. How much will be in each account?</p> <p>615 pupils need to be put into 5 groups. How many will be in each group?</p>	<div style="text-align: center;"> $5 \overline{)615}$ </div> <p>$615 \div 5 =$</p> <p><input style="width: 40px; height: 20px; border: 1px dashed black;" type="text"/> $= 615 \div 5$</p> <p>How many 5's go into 615?</p>	<p>What's the calculation? What's the answer?</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th style="width: 33%;">H</th> <th style="width: 33%;">T</th> <th style="width: 33%;">O</th> </tr> </thead> <tbody> <tr> <td>  </td> <td>  </td> <td>  </td> </tr> </tbody> </table>	H	T	O			
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