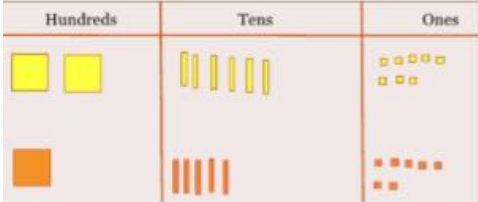
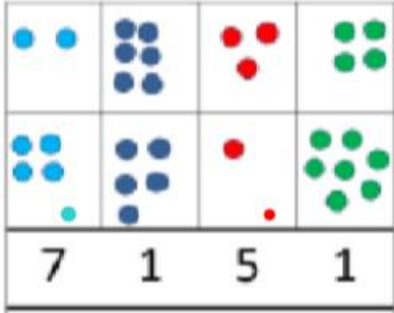
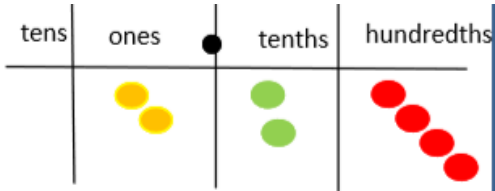
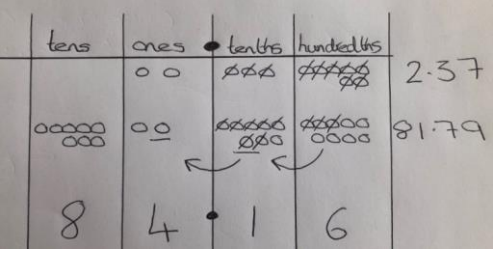


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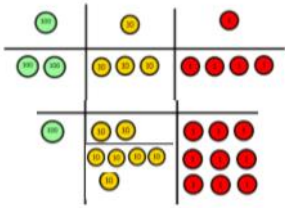
Addition Years 4 - 6			
<u>Objective and Strategy</u>	<u>Concrete</u>	<u>Pictorial</u>	<u>Abstract</u>
<p><u>Year 4</u> Add numbers with up to 4 digits</p>	<p>Children continue to use base ten to practise adding and regrouping.</p> 	<p>Children draw representations using a place value grid.</p> 	$\begin{array}{r} 3517 \\ + 396 \\ \hline 3913 \end{array}$ <p>Children continue to regroup / carry numbers into 4 digits.</p> <p>Relate to money and measures.</p>
<p><u>Year 5</u> Add numbers with more than 4 digits</p> <p>Add decimals with 2 decimal places, including money.</p>	<p>As Year 4. Introduce decimal place value counters and model exchange linking to prior knowledge of whole numbers.</p> 		$\begin{array}{r} 76.8 \\ + 54.6 \\ \hline 131.4 \end{array}$ $\begin{array}{r} \text{£}23.59 \\ + \text{£}7.55 \\ \hline \text{£}31.14 \end{array}$

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<p><u>Year 6</u> Add several number of increasing complexity</p> <p>Including adding money, measure and decimals with different numbers of decimal points</p>	<p>As Year 5</p>	<p>As Year 5</p>	$ \begin{array}{r} 81059 \\ 3668 \\ 15301 \\ + 20551 \\ \hline 120579 \end{array} $ <p>Insert zeros for place holders</p> $ \begin{array}{r} 23.361 \\ 9.080 \\ 59.770 \\ + 21.300 \\ \hline 93.511 \end{array} $
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Subtraction Years 4 - 6			
<u>Objective and Strategy</u>	<u>Concrete</u>	<u>Pictorial</u>	<u>Abstract</u>
<p>Year 4 Subtract with up to 4 digits.</p> <p><i>Introduce decimal subtraction through context of money</i></p>	<p>234 - 179</p>  <p>Model using Numicon, base ten or place value counters to ensure understanding of exchange</p>	<p>Draw exchanges</p>	<p>2754 - 1562 = 1192</p> $\begin{array}{r} 2\overset{6}{\cancel{7}}54 \\ - 1562 \\ \hline 1192 \end{array}$
<p>Year 5 Subtract with at least 4 digits, including money and measures.</p> <p>Subtract with decimal values, including mixtures of integers and decimals and aligning the decimal</p>	<p>As above</p>	<p>As above</p>	$\begin{array}{r} \overset{6}{\cancel{7}}\overset{10}{\cancel{6}}\overset{1}{\cancel{9}}\overset{8}{\cancel{0}}.10 \\ - 372.5 \\ \hline 6796.5 \end{array}$ <p>Include zero as a place holder</p> $\begin{array}{r} 3 \quad 9 \quad \square \\ - \square \quad \square \quad 6 \\ \hline \square \quad 0 \quad 5 \end{array}$ <p>Move onto more complex missing digit calculations.</p>

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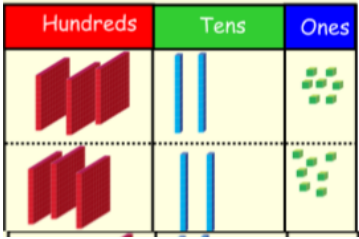
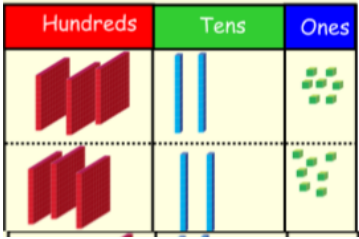
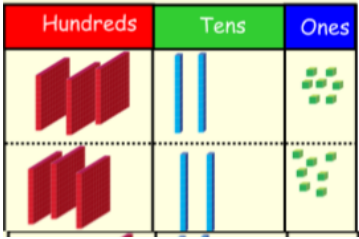


			$ \begin{array}{r} \overset{2}{\cancel{3}}\overset{0}{\cancel{1}}\overset{4}{\cancel{0}}\overset{1}{\cancel{5}}6 \\ - \quad 2128 \\ \hline 28928 \end{array} $
<p><u>Year 6 Subtract</u> with increasingly large and more complex numbers and decimal values.</p>	As above	As above	$ \begin{array}{r} \overset{0}{\cancel{1}}\overset{4}{\cancel{5}}\overset{9}{\cancel{0}}\overset{1}{\cancel{6}}99 \\ - \quad 89949 \\ \hline 60,750 \end{array} $ <p>Encourage children to not use the comma in the calculation, only in the answer.</p> $ \begin{array}{r} \overset{0}{\cancel{1}}\overset{9}{\cancel{0}}\overset{1}{\cancel{4}}.\overset{3}{\cancel{4}}\overset{1}{\cancel{1}}9 \\ - \quad 36.080 \\ \hline 68.339 \end{array} $ <p>Include zero as a place holder</p>

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Multiplication Years 4 - 6

Multiplication Years 4 - 6																							
<u>Objective and Strategy</u>	<u>Concrete</u>	<u>Pictorial</u>	<u>Abstract</u>																				
Column Multiplication	<p>Children continue to be supported by base ten at this stage to ensure understanding of layout. Link to doubling and their understanding of partitioning to complete simple calculations.</p> <p>327 x 2</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="background-color: #ffcccc; padding: 2px;">Hundreds</td> <td style="background-color: #ccffcc; padding: 2px;">Tens</td> <td style="background-color: #ccccff; padding: 2px;">Ones</td> <td style="padding: 0 10px;"></td> </tr> <tr> <td style="text-align: center;">  </td> <td style="text-align: center;"> $\begin{array}{r} 327 \\ + 327 \\ \hline 654 \end{array}$ </td> <td style="padding: 0 10px;"></td> <td></td> </tr> </table>	Hundreds	Tens	Ones			$\begin{array}{r} 327 \\ + 327 \\ \hline 654 \end{array}$			<p>Children draw grids and alongside the teacher completes the formal written method to link the 2 together.</p> <p>327 x 4</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px;">x</td> <td style="border: 1px solid black; padding: 2px;">300</td> <td style="border: 1px solid black; padding: 2px;">20</td> <td style="border: 1px solid black; padding: 2px;">7</td> <td style="padding: 0 10px;"></td> <td style="padding: 0 10px;">327</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">4</td> <td style="border: 1px solid black; padding: 2px;">1200</td> <td style="border: 1px solid black; padding: 2px;">80</td> <td style="border: 1px solid black; padding: 2px;">28</td> <td style="padding: 0 5px;">x</td> <td style="padding: 0 5px;"> $\begin{array}{r} 4 \\ \hline 1200 \\ 80 \\ 28 \\ \hline 1308 \end{array}$ </td> </tr> </table>	x	300	20	7		327	4	1200	80	28	x	$\begin{array}{r} 4 \\ \hline 1200 \\ 80 \\ 28 \\ \hline 1308 \end{array}$	<p>This should lead onto the compact method.</p> $\begin{array}{r} 327 \\ \times \quad 4 \\ \hline 1308 \end{array}$ <p><i>Note – Carry above the line</i></p>
Hundreds	Tens	Ones																					
	$\begin{array}{r} 327 \\ + 327 \\ \hline 654 \end{array}$																						
x	300	20	7		327																		
4	1200	80	28	x	$\begin{array}{r} 4 \\ \hline 1200 \\ 80 \\ 28 \\ \hline 1308 \end{array}$																		
Column multiplication with multiple	<p>Manipulatives may still be used to model the formal method for those still in need of clarification.</p>	<p>When children begin to multiply 3 digits x 3 digits and 4 digits by 2 digits, they should be confident with the abstract.</p>	<p>Ensure children understand the use of the 0 as a place holder while multiplying by the digit in the tens column.</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="padding: 0 20px;"> $\begin{array}{r} 124 \\ \times \quad 26 \\ \hline 744 \\ 2480 \\ \hline 3224 \end{array}$ </td> <td> $\begin{array}{r} 421 \\ \times \quad 624 \\ \hline 1684 \\ ,8420 \\ \hline 252600 \\ 262704 \end{array}$ </td> </tr> </table>	$\begin{array}{r} 124 \\ \times \quad 26 \\ \hline 744 \\ 2480 \\ \hline 3224 \end{array}$	$\begin{array}{r} 421 \\ \times \quad 624 \\ \hline 1684 \\ ,8420 \\ \hline 252600 \\ 262704 \end{array}$																		
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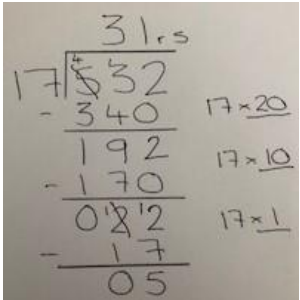
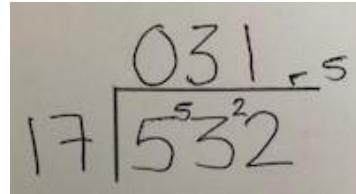
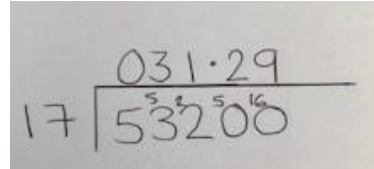
<p>Multiplying with decimals up to 2 decimal places and by a single digit</p>			<p>Encourage children to multiply the number by 10, 100 or 1000 to create a whole number.</p> <p>3.19 x 8 (multiply by 100 to make the following calculation 319 x 8)</p> $\begin{array}{r} 319 \\ \times 8 \\ \hline 2552 \end{array}$ <p>Then divide the answer by 100 = 25.52</p> <p>A good tip is to count the amount of decimal places in the Q as there should be the same amount in the answer.</p>
<p>Conceptual understanding</p>			
<p>Various ways to ask 23 x 6</p>	<p>Why is $6 \times 23 = 32 \times 6$? Find the product of 6 and 23 ____ = 6×23</p>	$\begin{array}{r} 6 \quad 23 \\ \times 23 \quad \times 6 \end{array}$ <p>Will these calculations give the same answer?</p>	

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Division Years 4 - 6			
<u>Objective and Strategy</u>	<u>Concrete</u>	<u>Pictorial</u>	<u>Abstract</u>
Formal Methods of short division	Children should be confident with sharing and grouping before moving onto the formal methods – see previous steps for Concrete and Pictorial.		$\begin{array}{r} 086 \text{ r}2 \\ 5 \overline{)432} \end{array}$ <p>Be aware that children may be asked to express their remainder as either a Fraction, Decimal or percentage</p> <p style="text-align: center;">2/5 0.4 40%</p>

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<p>Formal methods of long division</p> <p>Children may automatically choose between these methods.</p>	<p>Stage 1 – Repeated subtraction / Chunking <u>532 ÷ 17</u></p> <p>Create a fact box of key facts <i>There may be a need to work out additional facts eg x 7 or x 40</i></p> <p>1 x 17 = 17 2 x 17 = 34 3 x 17 = 51 4 x 17 = 68 5 x 17 = 85 10 x 17 = 170 20 x 17 = 340</p> <p>Repeatedly subtract groups to get as close to 0 as possible.</p>  <p>Add up the amounts of 17 subtracted altogether – they are the underlined number.</p>	<p>Bus Stop Long division <u>532 ÷ 17</u></p> <p>Create a fact box of key facts Encourage children to begin after writing out these facts and then add more along the way if needed.</p> <p>1 x 17 = 17 2 x 17 = 34 3 x 17 = 51 4 x 17 = 68 5 x 17 = 85 10 x 17 = 170 20 x 17 = 340</p> 
<p>Formal methods of long division to a number of decimal places</p>	<p>Giving an answer to a specific number of decimal place. Eg <u>532 ÷ 17 -giving your answer to 2dp</u></p>  <p>Rather than adding the remainder – add the decimal point and extend the line to add the place holder zeros and continue until you have the requested amount on decimal places</p>	

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