

ADDITION

YEAR 5

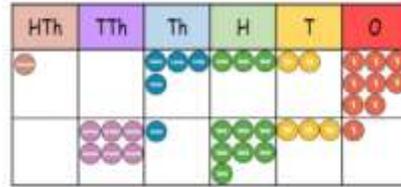
Objective & Strategy

Add numbers with at least 4 digits

$$104,328 + 61,731$$

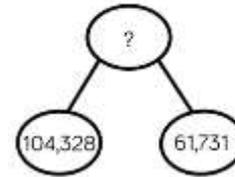
By Year 5, most children are encouraged to work in the abstract using the column method to add large numbers. Some children may be able to work mentally

Concrete

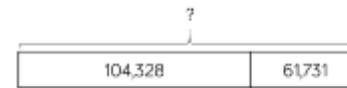


Place value counters on a place value grid

Pictorial



Part, Part Whole Models



Bar Model

Abstract

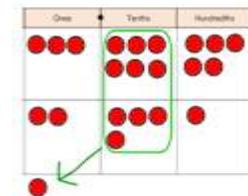
1	0	4	3	2	8
+	6	1	7	3	1
1	6	6	0	5	9

1

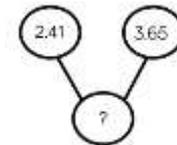
Add with up to 2 decimal places

$$3.65 + 2.41$$

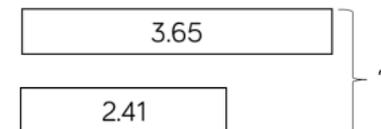
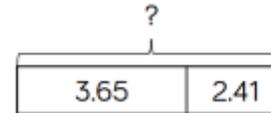
At this stage, most children are encouraged to work in the abstract using the column method to add large numbers. Some children may be able to work mentally. Decimals are put into context: eg: money & measure



Place value counters or plain counters on a place value grid



Part, Part Whole Model



Bar Models

$$\begin{array}{r} 3.65 \\ + 2.41 \\ \hline 6.06 \\ \hline 1 \end{array}$$

SUBTRACTION YEAR 5

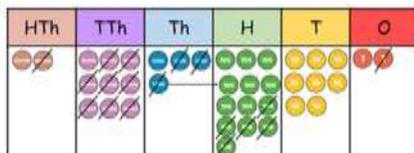
Objective & Strategy

Subtract numbers with at least 4 digits.

$$294,382 - 182,501$$

By Year 5, most children are encouraged to work in the abstract using the column method to subtract to subtract numbers efficiently.

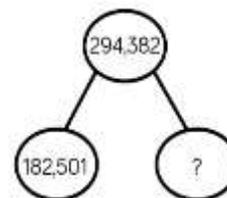
Concrete



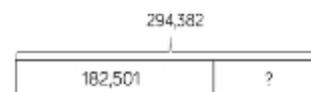
Place value counters or plain counters on a place value grid.

This reinforces the idea of exchanging. For example, by changing a hundreds counter for 10 tens counters to give sufficient 'tens' to enable the subtraction.

Pictorial



Part, Part Whole Model



Bar Model

Abstract

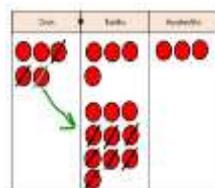
	2	9	3	13	8	2
-	1	8	2	5	0	1
	1	1	1	8	8	1

Subtract numbers with up to 2 decimal places

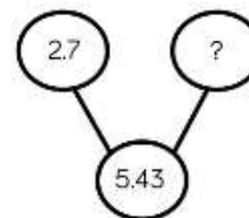
$$5.43 - 2.7 = 2.73$$

At this stage, most children are encouraged to work in the abstract using the column method to subtract to subtract numbers efficiently.

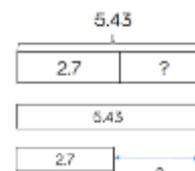
Children are given opportunities to subtract decimal numbers in the context of money and measure.



Place value counters or plain counters on a place value grid



Part, Part Whole Model



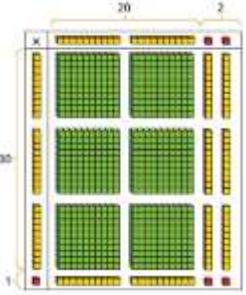
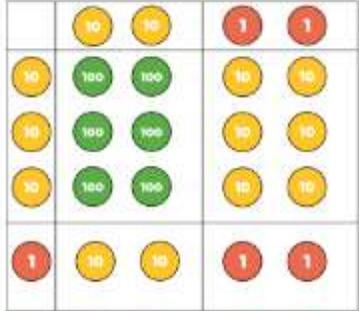
Bar Models

$$\begin{array}{r} ^4 ^1 \\ 5.43 \\ - 2.7 \\ \hline 2.73 \end{array}$$

When writing the columns, children are taught to ensure the decimal points all line up.

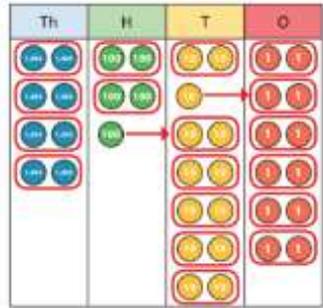
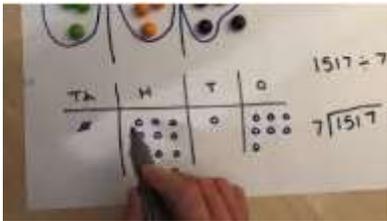
MULTIPLICATION YEAR 5

Objective & Strategy	Concrete	Pictorial	Abstract																				
<p>Multiply a 2,3 or 4-digit number by a 1-digit number.</p> <p>$1826 \times 3 = 5,478$</p> <p>For children who continue to benefit from using manipulatives, place value counters provide the best support.</p> <p>By Year 5, children should have a rapid and accurate recall of the times tables facts, but some children may still need to use a times tables square for support.</p> <p>Most children are encouraged to use the short multiplication method for accuracy.</p>	<p>Place Value counters on a Place Value grid</p>  		<table border="1" data-bbox="1662 373 2074 703"> <thead> <tr> <th></th> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td></td> <td>1</td> <td>8</td> <td>2</td> <td>6</td> </tr> <tr> <td>×</td> <td></td> <td></td> <td></td> <td>3</td> </tr> <tr> <td></td> <td>5</td> <td>4</td> <td>7</td> <td>8</td> </tr> </tbody> </table> <p style="text-align: center;">2 1</p>		Th	H	T	O		1	8	2	6	×				3		5	4	7	8
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	1	8	2	6																			
×				3																			
	5	4	7	8																			

Objective & Strategy	Concrete	Pictorial	Abstract																																	
<p data-bbox="203 177 622 320">Multiply a 2 or 3-digit number by a 2-digit number</p> <p data-bbox="309 384 551 424">$22 \times 31 = 682$</p> <p data-bbox="203 480 656 754">Some children may benefit from using Dienes blocks and sticks to help them visualise the calculation. This links to finding the area of a rectangle as the Dienes blocks fill the space covered.</p> <p data-bbox="203 818 656 930">However, place value counters and a place value grid are a more efficient concrete method.</p> <p data-bbox="203 983 656 1134">Grids are not encouraged in Year 5, but may still be used to help children picture the calculation.</p> <p data-bbox="203 1187 656 1385">Most children by Year 5 are encouraged to use abstract methods and develop a confident and accurate use of formal long multiplication</p>	<p data-bbox="819 124 985 161">Concrete</p>  <p data-bbox="936 233 1099 376">Dienes (base 10) blocks.</p>  <p data-bbox="680 946 1124 1042">Place Value counters on a Place Value grid.</p>	<p data-bbox="1294 124 1447 161">Pictorial</p> <table border="1" data-bbox="1189 236 1572 491"> <tr> <td>×</td> <td>20</td> <td>2</td> </tr> <tr> <td>30</td> <td>600</td> <td>60</td> </tr> <tr> <td>1</td> <td>20</td> <td>2</td> </tr> </table>	×	20	2	30	600	60	1	20	2	<p data-bbox="1778 124 1944 161">Abstract</p> <table border="1" data-bbox="1711 225 1989 643"> <tr> <td></td> <td>H</td> <td>T</td> <td>O</td> </tr> <tr> <td></td> <td></td> <td>2</td> <td>2</td> </tr> <tr> <td>×</td> <td></td> <td>3</td> <td>1</td> </tr> <tr> <td></td> <td></td> <td>2</td> <td>2</td> </tr> <tr> <td></td> <td>6</td> <td>6</td> <td>0</td> </tr> <tr> <td></td> <td>6</td> <td>8</td> <td>2</td> </tr> </table>		H	T	O			2	2	×		3	1			2	2		6	6	0		6	8	2
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Objective & Strategy	Concrete	Pictorial	Abstract																																								
<p>Multiply a 4-digit number by a 2-digit number</p> <p>$2739 \times 28 = 76,692$</p> <p>When multiplying a 4 digit number by a 2 digit number children should be confident in using a formal method of long multiplication.</p> <p>A times tables square may still be used if children have not yet secured a sound working knowledge of the tables.</p> <p>It is important that children are taught to consistently place exchanged digits. This will avoid confusion.</p>			<table border="1" data-bbox="1632 272 2047 804"> <thead> <tr> <th>TTh</th> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr> <td></td> <td>2</td> <td>7</td> <td>3</td> <td>9</td> </tr> <tr> <td>x</td> <td></td> <td></td> <td>2</td> <td>8</td> </tr> <tr> <td>2</td> <td>1</td> <td>9</td> <td>1</td> <td>2</td> </tr> <tr> <td>2</td> <td>5</td> <td>3</td> <td>7</td> <td></td> </tr> <tr> <td>1</td> <td>5</td> <td>4</td> <td>7</td> <td>0</td> </tr> <tr> <td></td> <td>1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>7</td> <td>6</td> <td>6</td> <td>9</td> <td>2</td> </tr> </tbody> </table> <p style="text-align: center;">1</p>	TTh	Th	H	T	O		2	7	3	9	x			2	8	2	1	9	1	2	2	5	3	7		1	5	4	7	0		1				7	6	6	9	2
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7	6	6	9	2																																							

DIVISION YEAR 6

Objective & Strategy	Concrete	Pictorial	Abstract										
<p>Divide a 4-digit number by 1-digit number</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $8,532 \div 2 = 4,266$ </div> <p>Place value counters or plain counters can be used on a Place Value grid to support children in visualising the calculation.</p> <p>Children could also draw counters on an empty Place Value grid through a pictorial method.</p> <p>However, in upper Key Stage 2, children are taught to use a more formal method of short division - especially where multiple exchanges are required.</p>		 <p style="text-align: center;">Pictorial method</p>	<table border="1" style="margin: 10px auto;"> <tr> <td></td> <td>4</td> <td>2</td> <td>6</td> <td>6</td> </tr> <tr> <td style="border-right: 2px solid black;">2</td> <td>8</td> <td>5</td> <td>13</td> <td>12</td> </tr> </table> <p style="text-align: center;">Formal short division method using the division symbol which resembles a 'bus stop'.</p>		4	2	6	6	2	8	5	13	12
	4	2	6	6									
2	8	5	13	12									

