



## Maths and Calculations Policy

Date: June 2025

Review date: June 2026

Approved by the Advisory Board: June 2025

Signed

S. Day -

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## Version Control

Version	Date of review/change(s)	Page and paragraphs affected	Summary of update
New policy	July 2023		
V2	June 2024	P3 Implementation	[students are able to take] Functional Skills (Entry Level, Level 1 or Level 2) - <i>Replaced with</i> the Edexcel Level 1/Level2 GCSE (9 to 1) in mathematics and/or the Edexcel Entry Level Certificate in mathematics (level 1, 2 or 3).
		P3 Impact	[RAG their] 'effort and understanding' replaced with 'work'
V3	June 2025	P3 Implementation 3 <sup>rd</sup> para.	Removed: 'Students continue to learn maths based on the stage they were at the end of KS3. A further 2 stages cover GCSE maths topics for the Foundation and Higher papers. This allows'
		P3 Impact	1 <sup>st</sup> line removed: 'Students complete lesson reflections and RAG their work at the end of each lesson which allows them to reflect on what they have achieved in the lesson. Teachers also RAG the lesson objectives'  [core numeracy topics] 'as well as geometry and statistics' - added
		P12	Stage 5 changed to Stage E

**Intent**

Our vision for maths at All Saints School is for every students' maths learning to support their unique journey in education and develop their maths skills for life. Our aim is for students to have developed secure numeracy skills to allow them to access the next stage of education that they would like to follow as well as give them the mathematical and problem solving skills that will support them in adult life.

Many students starting at All Saints have gaps in their maths education and also lower reading abilities which makes accessing the reading of maths material difficult.

The teaching of maths at All Saints School is student focused to ensure students feel comfortable, confident and secure in their maths class while at the same time ensuring students follow a learning path that ensures they achieve the best possible outcome and results in their maths to help them take their next steps in both education and life.

**Implementation**

To achieve this in KS2 and KS3 maths is taught in "stages" (based on students' current mathematical understanding) rather than in year groups. This allows teaching to be focused at a level appropriate to students and allows teachers to support any gaps in understanding, misconceptions and allows for consolidation of topics.

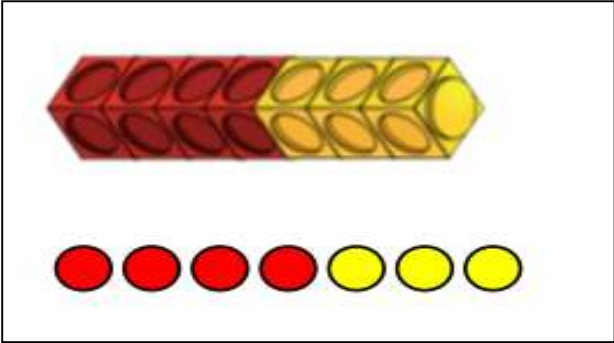
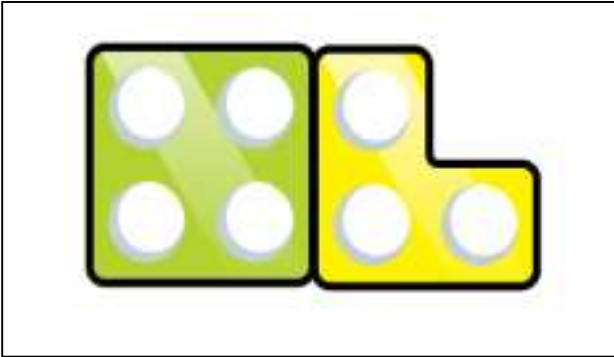
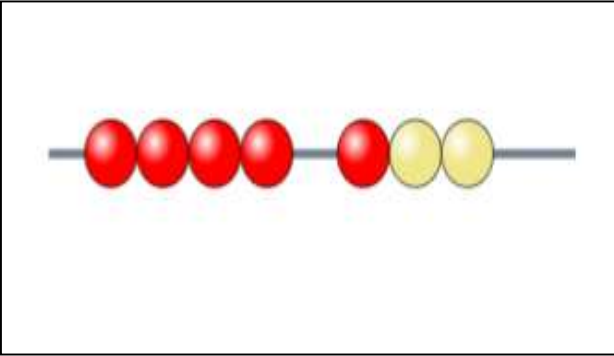
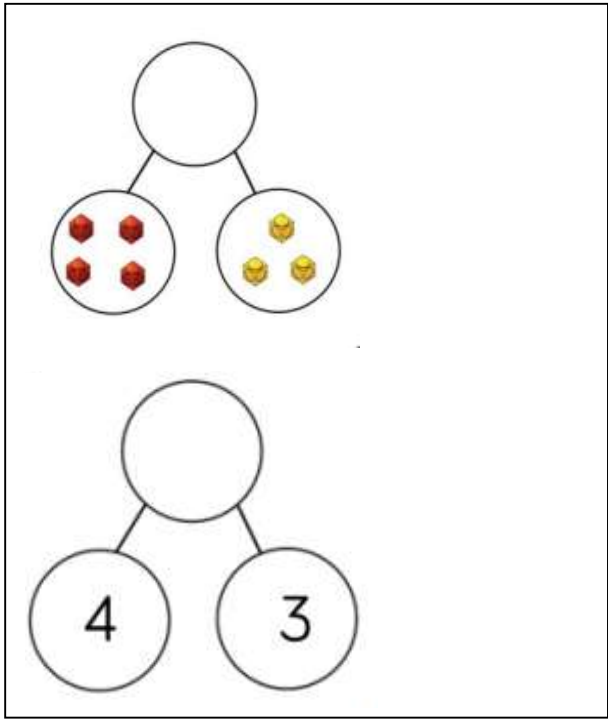
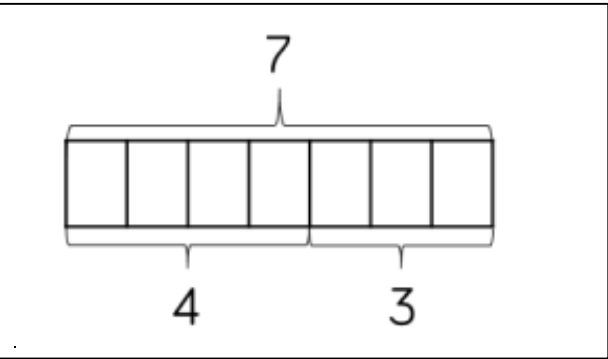
Students build on their knowledge as they move through the stages (there are 6 stages in KS2/KS3). Students begin at the school at the stage which is appropriate for them and progress through the stages based on the development of their own mathematical knowledge. This method of teaching ensures students' progress at the rate that is right for them and each student reaches their full potential.

We see Key Stage 4 as a natural continuation from KS3. Students follow the path that is right for them and are entered into the most suitable maths qualification for them. Students are able to take the Edexcel Level 1/Level2 GCSE (9 to 1) in mathematics and/or the Edexcel Entry Level Certificate in mathematics (level 1, 2 or 3).


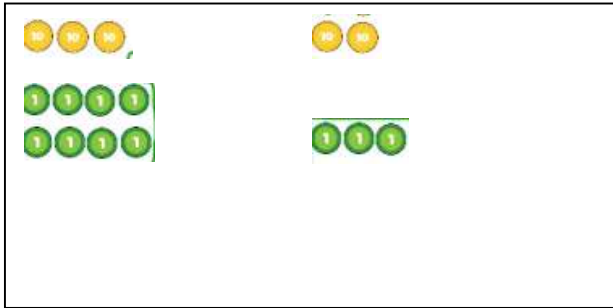
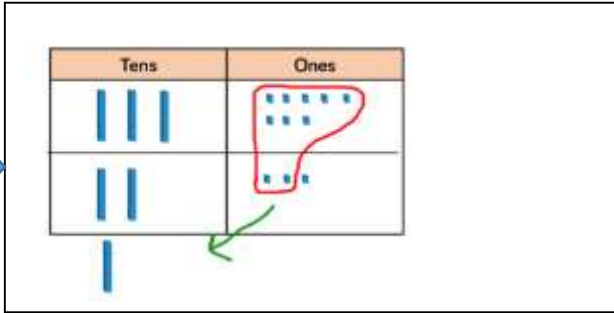
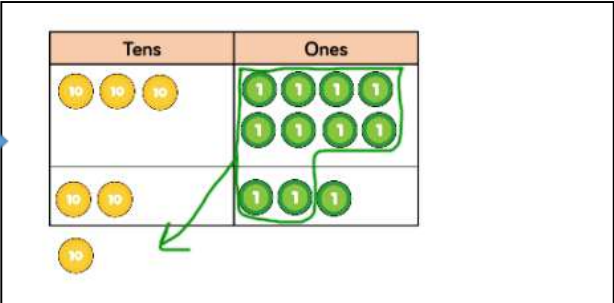
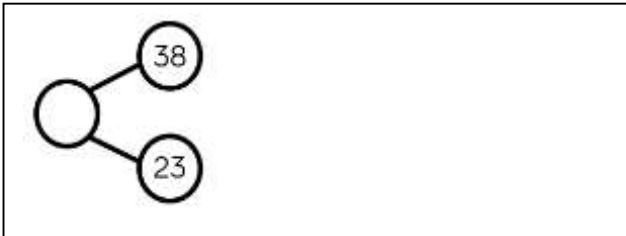
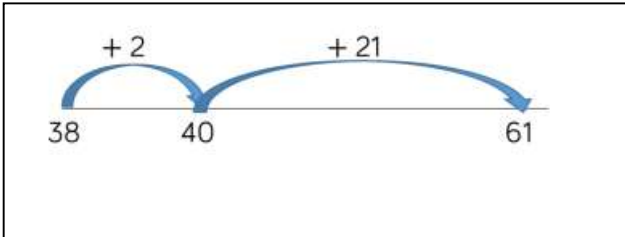
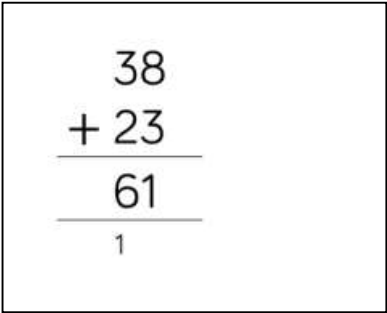
For teaching KS2 and some KS3 maths we use the White Rose Maths resources which follow a mastery approach using concrete, pictorial and abstract techniques to develop students understanding of topics. Appendix one sets out our calculation policy giving guidance on the techniques used to teach students.

**Impact:**


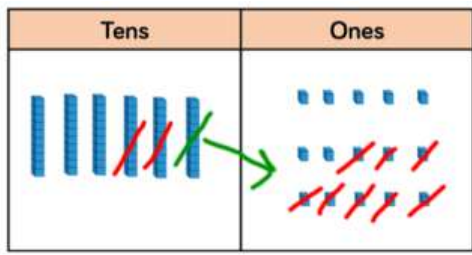
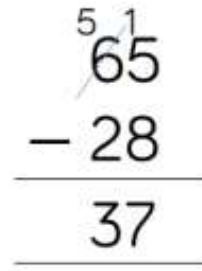

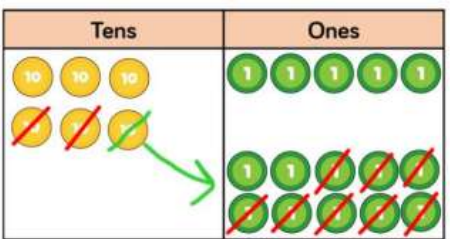

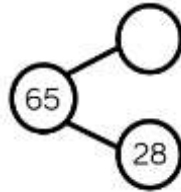
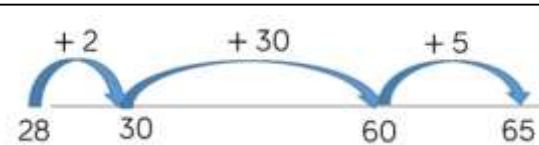
Benchmark assessments are completed by students at the beginning and the end of core numeracy topics, as well as geometry and statistics. Assessments evidence the progress that students are making. A year-end assessment will also track students' progress over the year and assess their readiness to move to the next stage.

Objective	Concrete	Pictorial	Abstract
<p>Students will understand number bonds up to 100</p> <p>Number bonds let students split number in useful ways.</p> <p>Example: <math>3 + 4 = 7</math></p>	<p>Counters/cubes</p>  <p>Numicon</p>  <p>Beads</p>  <p>Note: for 2-digit numbers dienes may also be used.</p>	<p>Part whole model</p>  <p>Bar model</p> 	<p>Seven (7) can be split different ways:</p> <p>1 and 6 2 and 5 3 and 4</p>

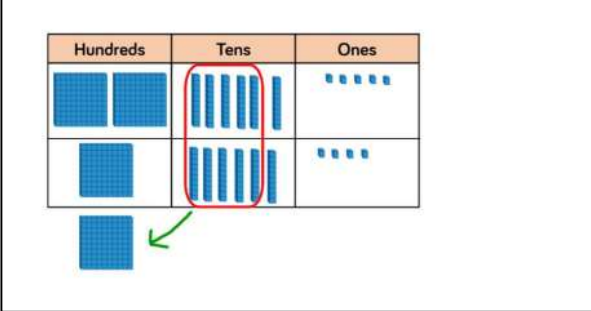
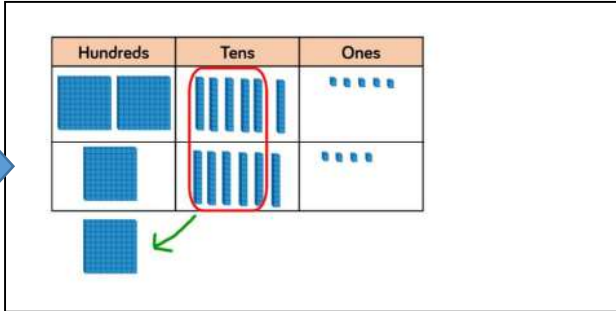
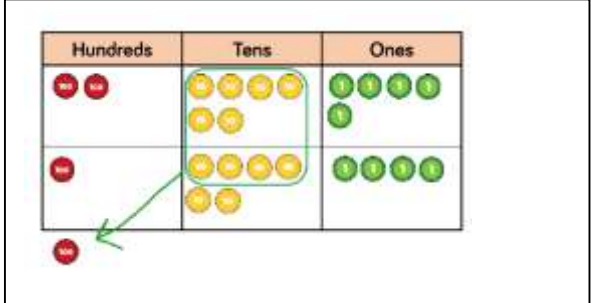
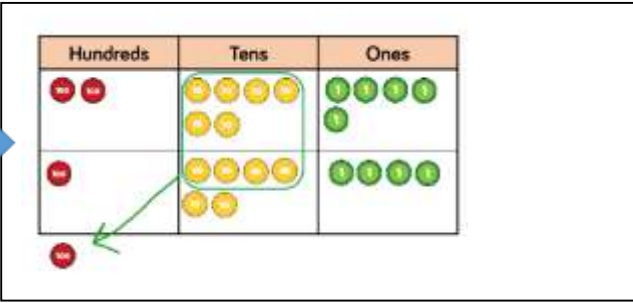
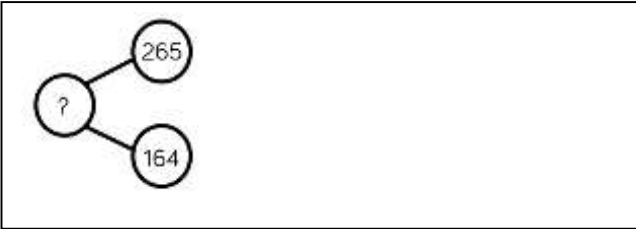
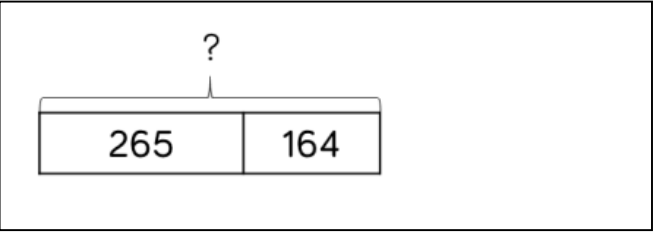
## STAGE A – Addition and Subtraction

Objective	Concrete	Pictorial	Abstract
<p>Students will be able to add up to 2 digit numbers from 2 digit numbers with 1 exchange.</p> <p>Example: <math>38 + 23 = 61</math></p>	<p><b>Dienes</b></p>  <p><b>Counters</b></p> 	<p>Draw dienes on PV chart</p>  <p>Draw counters on PV chart</p>  <p>Part Whole Model</p>  <p>Number Line</p> 	<p>Column Method</p> 

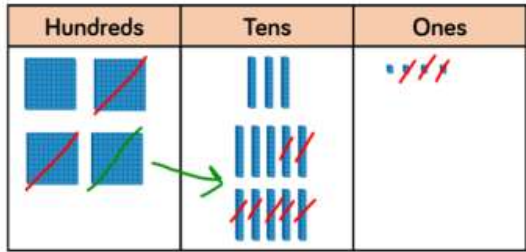
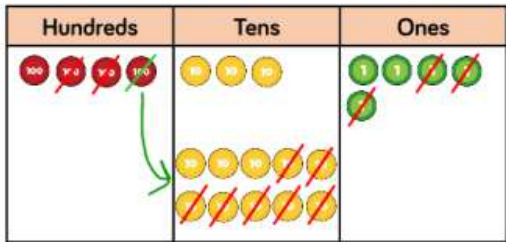
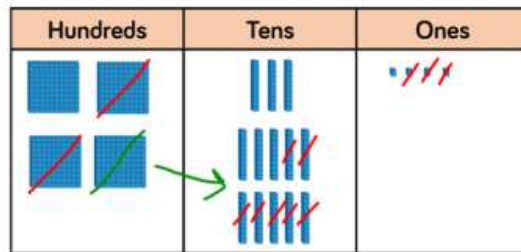
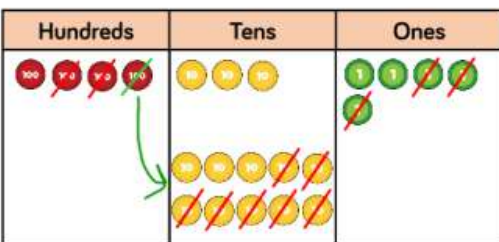
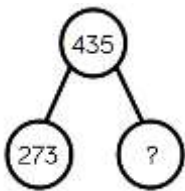
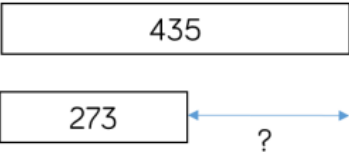
## STAGE A – Addition and Subtraction

Objective	Concrete	Pictorial	Abstract
<p>Students will be able to subtract up to 2 digit numbers from 2 digit numbers with 1 exchange.</p> <p>Example: <math>65 - 28 = 37</math></p>	<p>Dienes</p>  <p>Swap one ten block for 10 units and then subtract 28</p>	<p>Draw dienes on PV chart</p> 	<p>Column Method</p> 
	<p>Counters</p>  <p>Swap one ten counter for 10 unit counters and then subtract 28</p>	<p>Draw counters on PV chart</p> 	
	<p>Beads</p> 	<p>Part Whole Model</p>  <p>Number Line</p> 	

## STAGE B – Addition and Subtraction

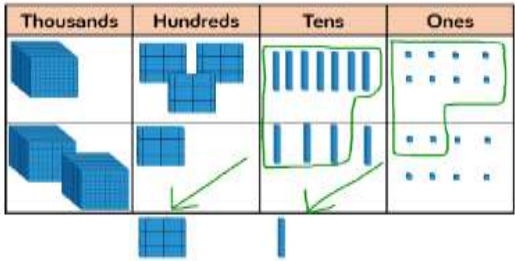
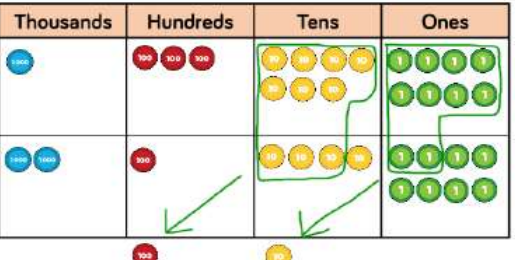
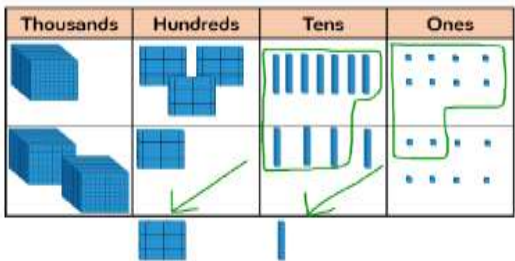
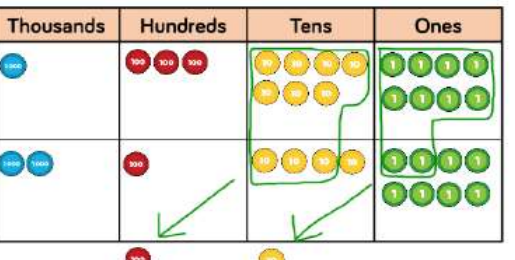
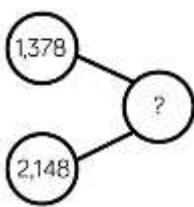
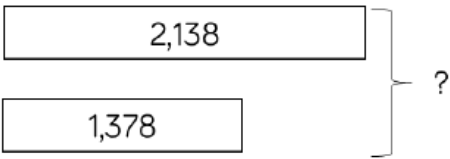
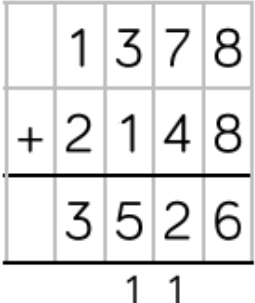
Objective	Concrete	Pictorial	Abstract
<p>Students will be able to add up to 3 digit numbers from 3 digit numbers with 1 or more exchange.</p> <p>Example 265 + 164</p>	<p>Dienes placed on PV chart</p> 	<p>Draw dienes on PV chart</p> 	<p>Column Method</p> <div style="border: 1px solid black; padding: 10px; text-align: center;"> <math display="block">\begin{array}{r} 265 \\ + 164 \\ \hline 429 \\ \hline 1 \end{array}</math> </div>
	<p>Counters placed on PV chart</p> 	<p>Draw counters on PV chart</p>  <p>Part Whole Model</p>  <p>Bar Model</p> 	

## STAGE B – Addition and Subtraction

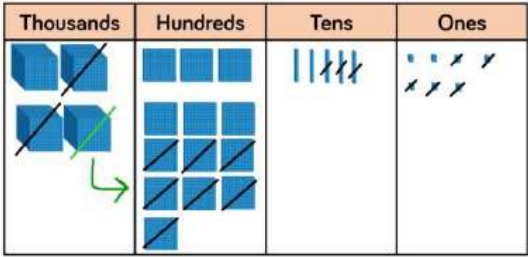
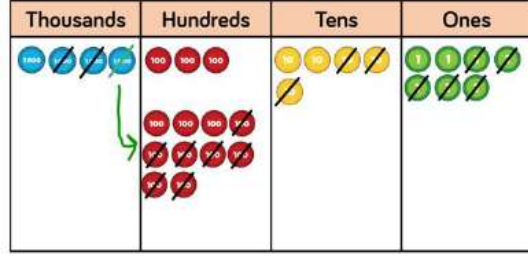
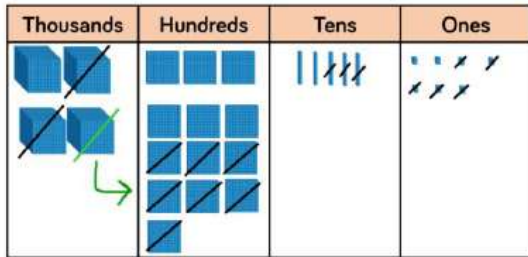
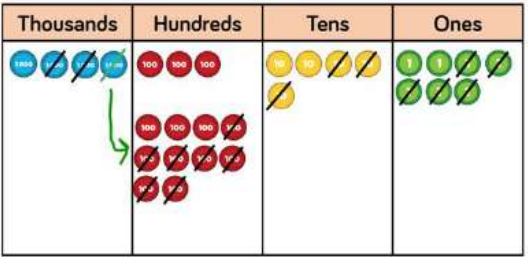
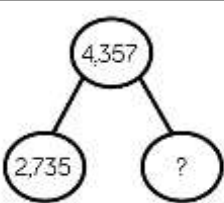
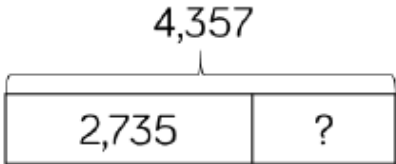
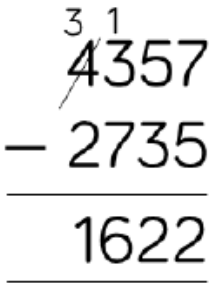
Objective	Concrete	Pictorial	Abstract
<p>Students will be able to subtract up to 3 digit numbers from 3 digit numbers with 1 or more exchange.</p> <p>Example 435 - 273</p>	<p>Dienes placed on PV chart</p>  <p>Counters placed on PV chart</p> 	<p>Draw dienes on PV chart</p>  <p>Draw counters on PV chart</p>  <p>Part Whole Model</p>  <p>Bar Model</p> 	<p>Column Method</p> $\begin{array}{r} \overset{3}{4} \overset{1}{3} 5 \\ - 273 \\ \hline 162 \end{array}$



## Stage C and D – Addition and Subtraction

Objective	Concrete	Pictorial	Abstract
<p>Students will be able to add up to 4 digit numbers from 4 digit numbers with 1 or more exchange.</p> <p>Example <math>1,378 + 2,148</math></p>	<p>Dienes placed on PV chart</p>  <p>Counters placed on PV chart</p> 	<p>Draw dienes on PV chart</p>  <p>Draw counters on PV chart</p>  <p>Part Whole Model</p>  <p>Bar Model</p> 	<p>Column Method</p> 

## Stage C and D – Addition and Subtraction

Objective	Concrete	Pictorial	Abstract
<p>Students will be able to subtract up to 4 digit numbers from 4 digit numbers with 1 or more exchange.</p> <p>Example 4,357 – 2,735</p>	<p>Dienes placed on PV chart</p>  <p>Counters placed on PV chart</p> 	<p>Draw dienes on PV chart</p>  <p>Draw counters on PV chart</p>  <p>Part Whole Model</p>  <p>Bar Model</p> 	<p>Column Method</p> 

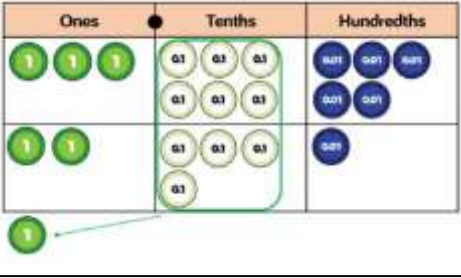
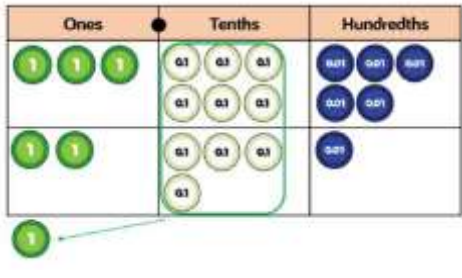
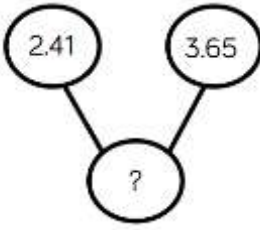
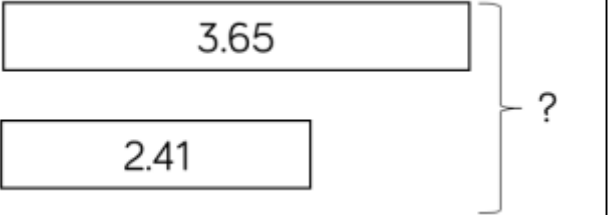
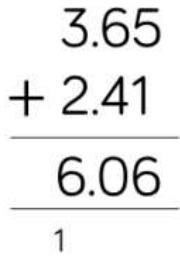
## Stage E onwards – Addition and Subtraction

Objective	Concrete	Pictorial	Abstract
<p>Students will be able to add any number of positive integers</p> <p>Example <math>104,328 + 61,731</math></p>	<p>Counters placed on PV chart</p>	<p>Draw counters on PV chart</p> <p>Part Whole Model</p> <p>Bar Model</p>	<p>Column Method</p>

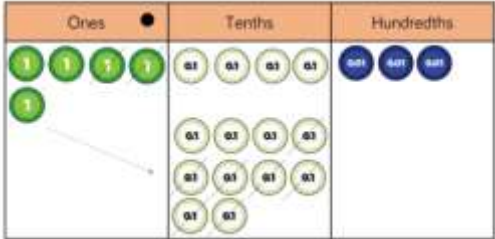
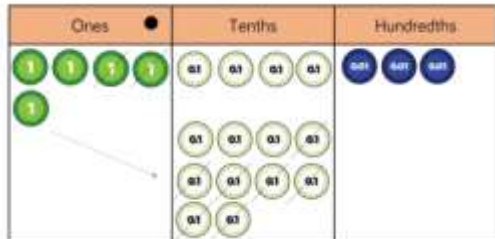
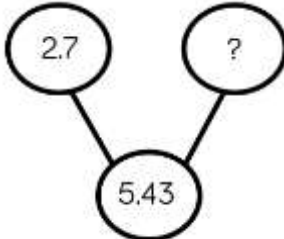
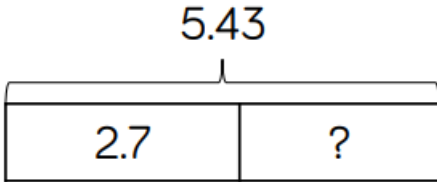
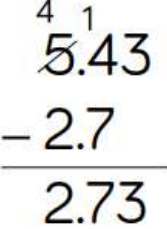
## STAGE E onwards – Addition and Subtraction

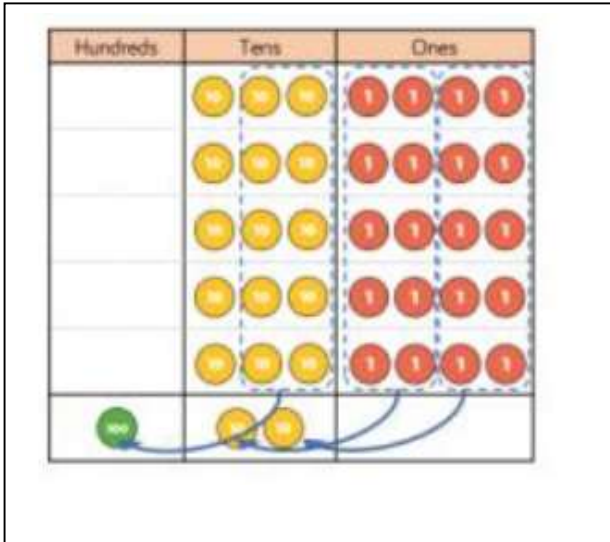
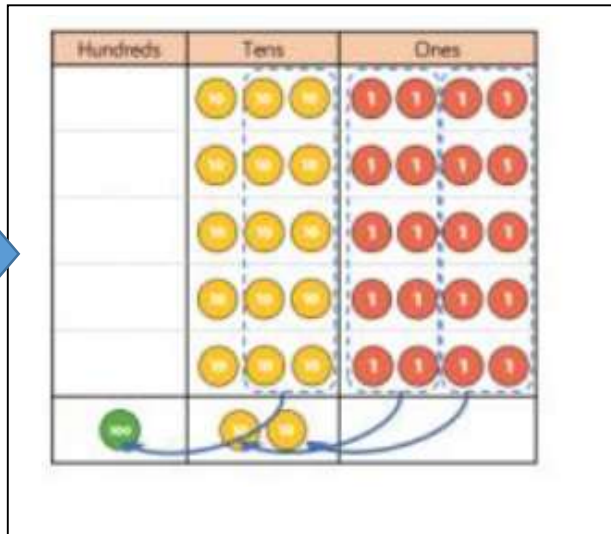
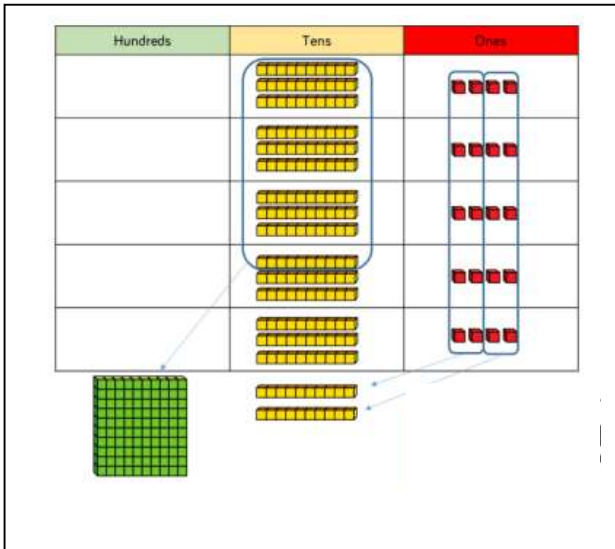
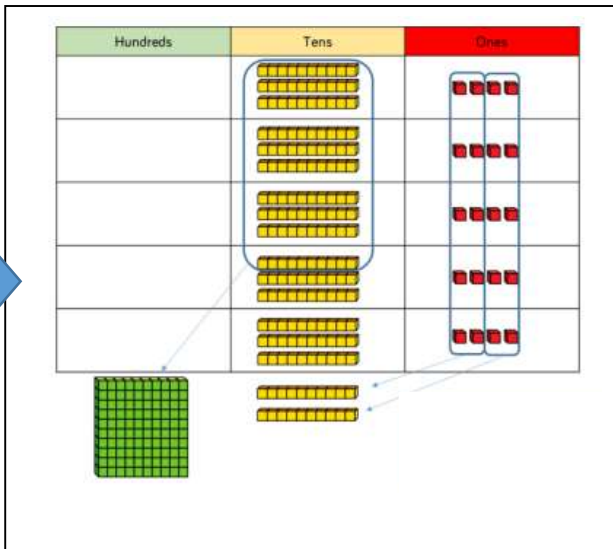
Objective	Concrete	Pictorial	Abstract
<p>Students will be able to subtract any number of positive integers</p> <p>Example 294,382 – 182,501</p>	<p>Counters placed on PV chart</p>	<p>Draw counters on PV chart</p> <p>Part Whole Model</p> <p>Bar Model</p>	<p>Column Method</p>

## STAGE E onwards – Addition and Subtraction

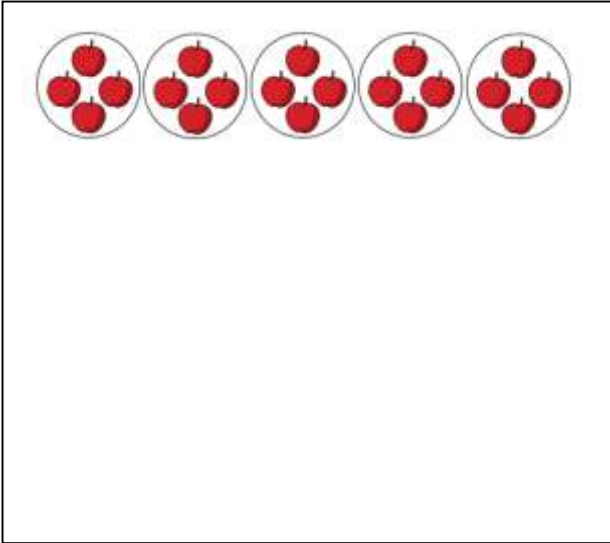
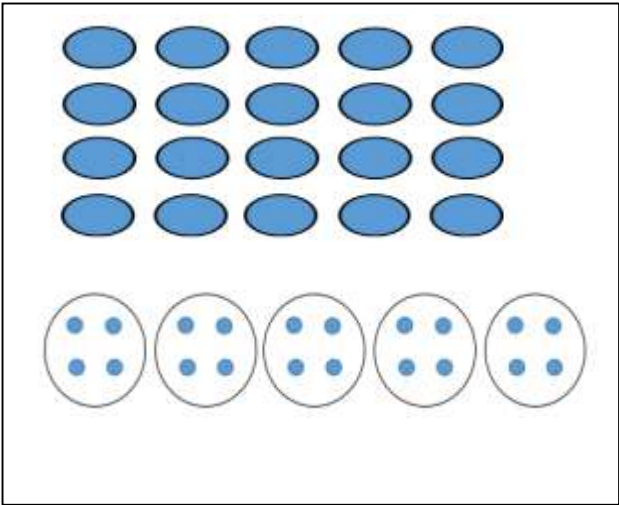
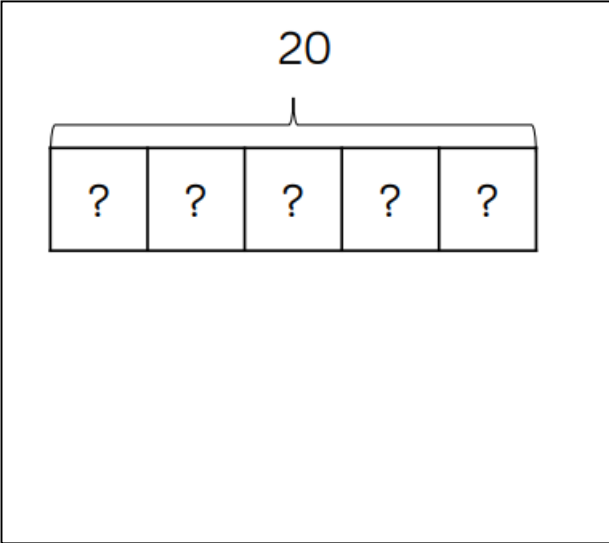
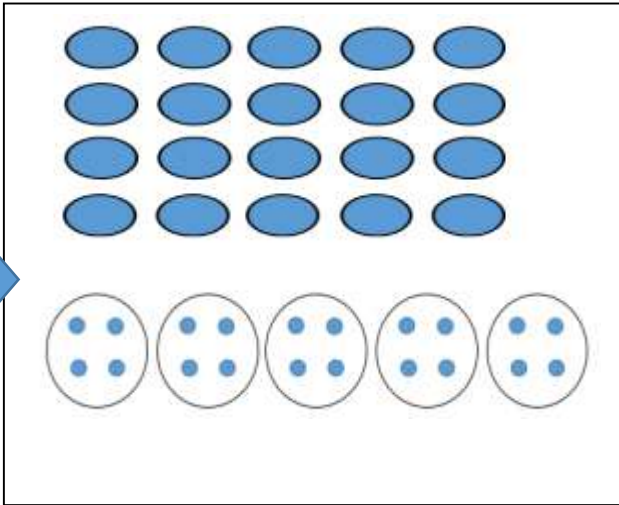
Objective	Concrete	Pictorial	Abstract
<p>Students will be able to add any number with decimal places*</p> <p>Example <math>3.65 + 2.41</math></p> <p>*Note: Stage E (up to 2 decimal places)</p> <p>Stage F onwards (any number of decimal places)</p>	<p>Counters placed on PV chart</p> 	<p>Draw counters on PV chart</p>  <p>Part Whole Model</p>  <p>Bar Model</p> 	<p>Column Method</p> 

## STAGE E onwards – Addition and Subtraction

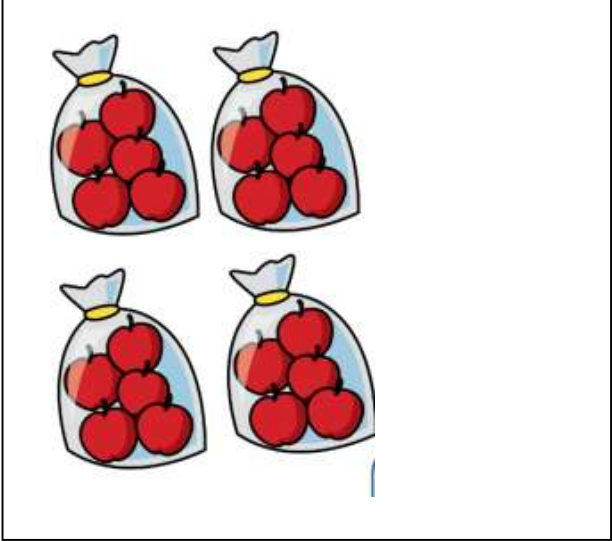
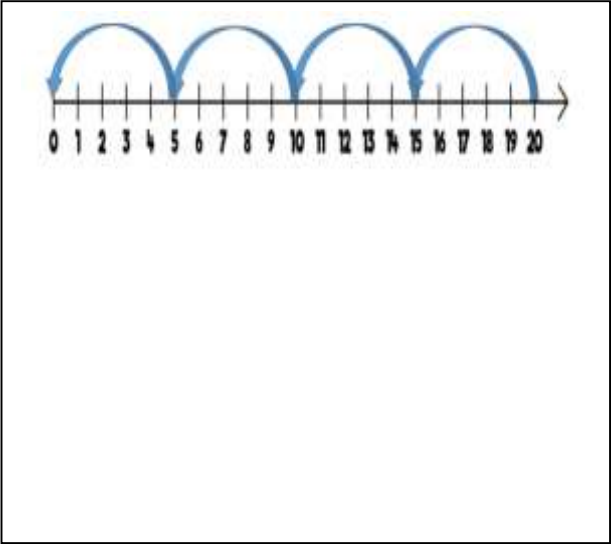
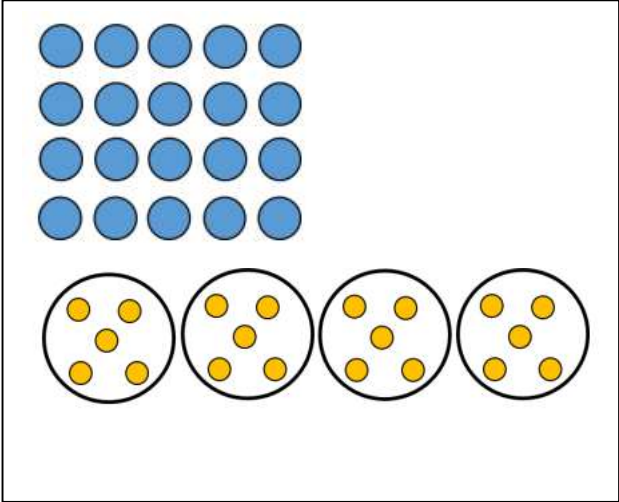
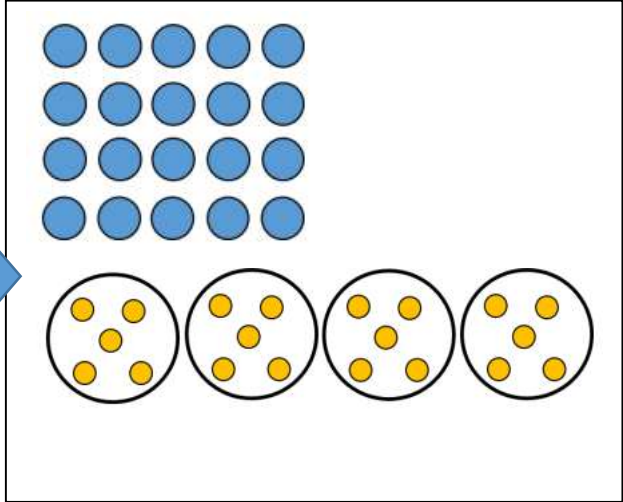
Objective	Concrete	Pictorial	Abstract
<p>Students will be able to subtract any number with decimal places*</p> <p>Example 5.43 – 2.7</p> <p>*Note: Stage E (up to 2 decimal places)</p> <p>Stage F onwards (any number of decimal places)</p>	<p>Counters</p> 	<p>Counters (PV chart)</p>  <p>Part Whole Model</p>  <p>Bar Model</p> 	<p>Column Method</p> 

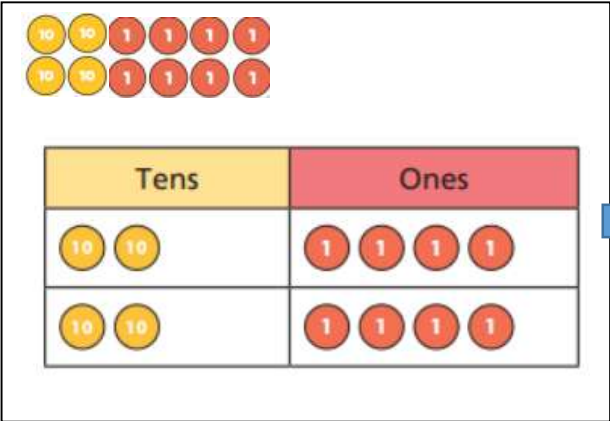
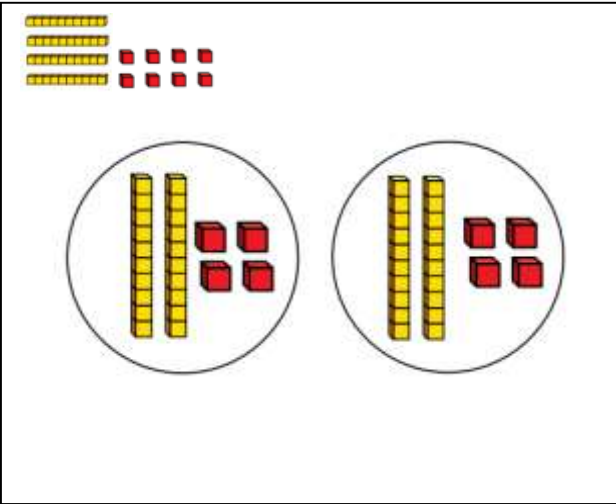
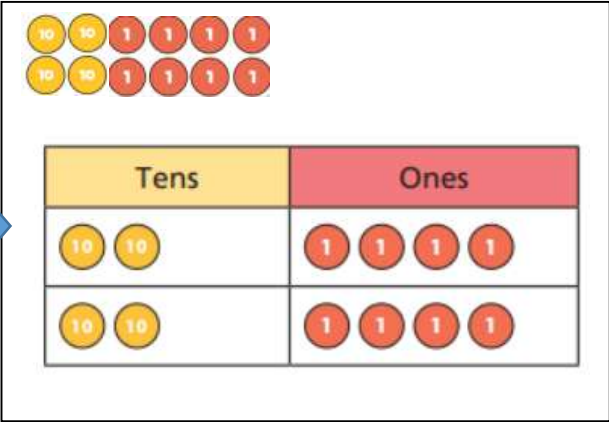
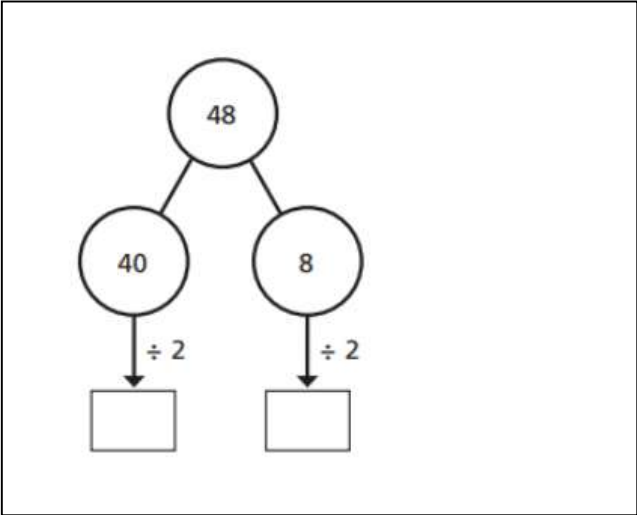
Objective	Concrete	Pictorial	Abstract																														
Students will begin to understand how to multiply two digits by one digit  Example: $34 \times 5 = 170$	Counters 	Draw counters on PV chart 	Expanded written method <table border="1" data-bbox="1792 236 2107 552"><tr><td></td><td>H</td><td>T</td><td>O</td><td></td></tr><tr><td></td><td></td><td>3</td><td>4</td><td></td></tr><tr><td><math>\times</math></td><td></td><td></td><td>5</td><td></td></tr><tr><td></td><td></td><td>2</td><td>0</td><td><math>(5 \times 4)</math></td></tr><tr><td><math>+</math></td><td>1</td><td>5</td><td>0</td><td><math>(5 \times 30)</math></td></tr><tr><td></td><td>1</td><td>7</td><td>0</td><td></td></tr></table>		H	T	O				3	4		$\times$			5				2	0	$(5 \times 4)$	$+$	1	5	0	$(5 \times 30)$		1	7	0	
		H	T	O																													
		3	4																														
$\times$			5																														
		2	0	$(5 \times 4)$																													
$+$	1	5	0	$(5 \times 30)$																													
	1	7	0																														
	Dienes 	Draw dienes on PV chart 	Short written method <table border="1" data-bbox="1792 782 2123 1098"><tr><td></td><td>H</td><td>T</td><td>O</td></tr><tr><td></td><td></td><td>3</td><td>4</td></tr><tr><td><math>\times</math></td><td></td><td></td><td>5</td></tr><tr><td></td><td>1</td><td>7</td><td>0</td></tr><tr><td></td><td>1</td><td>2</td><td></td></tr></table>		H	T	O			3	4	$\times$			5		1	7	0		1	2											
	H	T	O																														
		3	4																														
$\times$			5																														
	1	7	0																														
	1	2																															


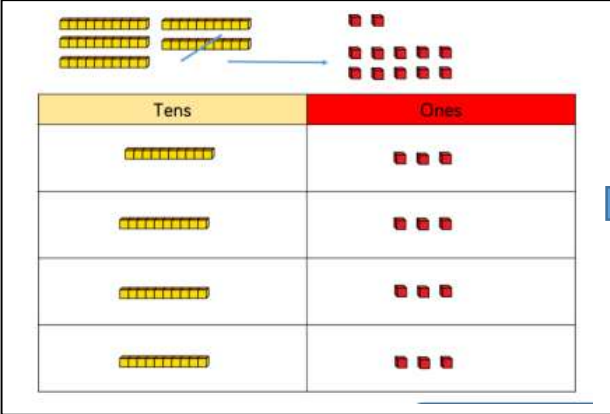


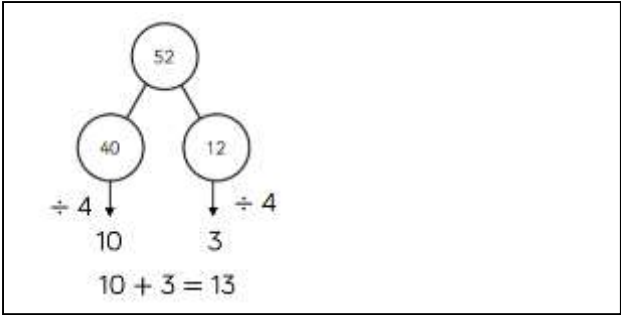


Objective	Concrete	Pictorial	Abstract
<p>Students will begin to understand how to <b>share</b> objects</p> <p>Example</p> <div>There are 20 apples altogether. They are shared equally between 5 bags. How many apples are in each bag?</div>	<p>Apples</p>  <p>Counters</p> 	<p>Bar Model</p>  <p>Draw counters</p> 	<p>Understand divide sign</p> <div><math>20 \div 5 = 4</math></div>



Objective	Concrete	Pictorial	Abstract
<p>Students will begin to understand how to <b>group</b> objects</p> <p>Example</p> <div>There are 20 apples altogether. They are put in bags of 5. How many bags are there?</div>	<p>Apples</p> 	<p>Number line</p> 	<p>Understand divide sign</p> <div><math>20 \div 5 = 4</math></div>
	<p>Counters</p> 	<p>Draw counters</p> 	

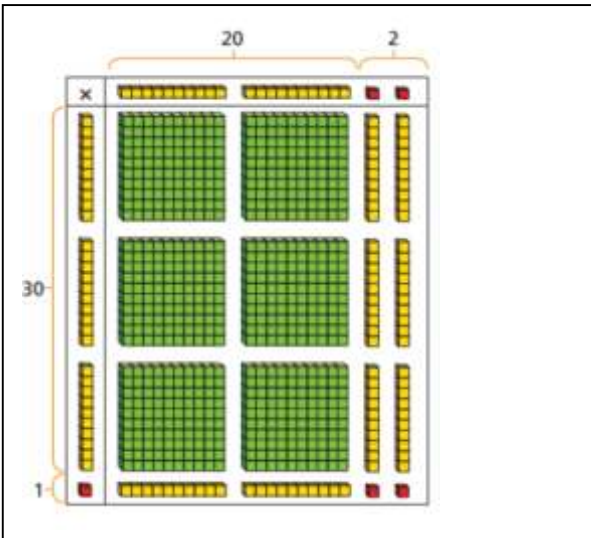
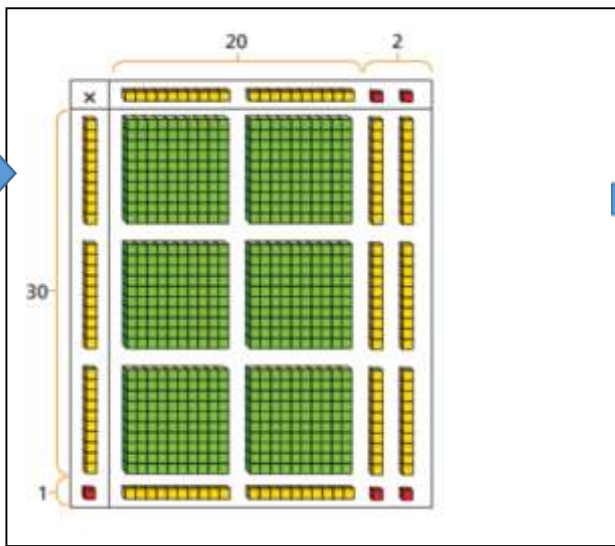

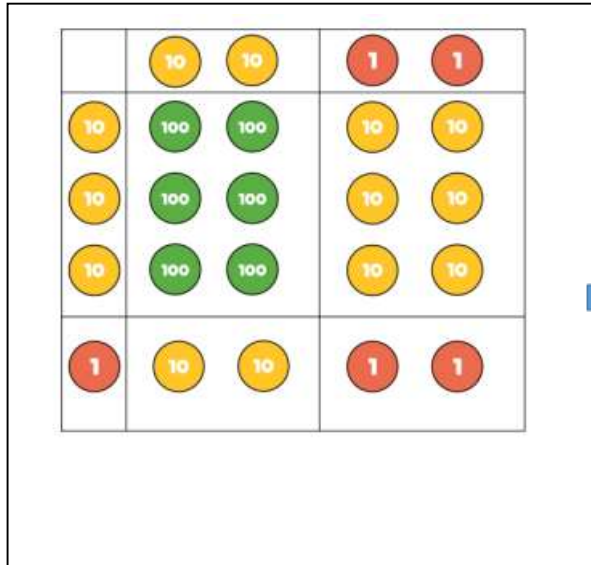
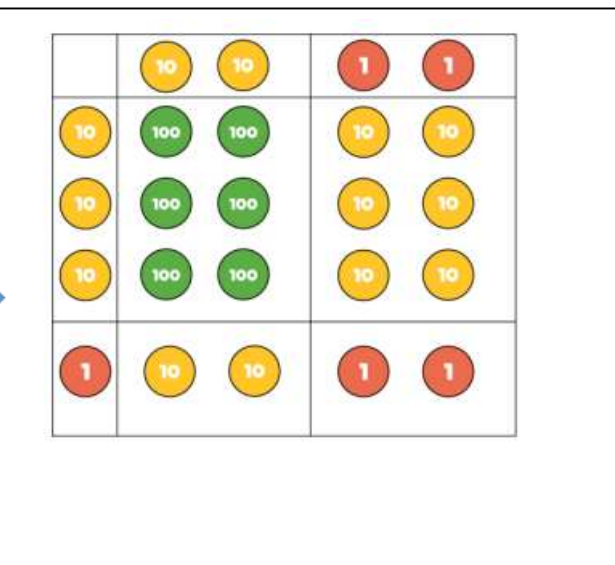
Objective	Concrete	Pictorial	Abstract
<p>Students will begin to understand how to divide 2 digits by 1 digit (<b>sharing</b> with no exchange)</p> <p>Example</p> <div data-bbox="78 478 376 547" style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content; margin: 10px auto;"> <math>48 \div 2 = 24</math> </div>	<p>Counters</p> <div data-bbox="421 225 1028 647">  </div> <p>Dienes</p> <div data-bbox="421 724 1034 1230">  </div>	<p>Draw Counters in books</p> <div data-bbox="1075 220 1682 643">  </div> <p>Part whole model</p> <div data-bbox="1075 724 1709 1241">  </div>	<p>Understand divide sign</p> <div data-bbox="1787 248 2085 317" style="border: 1px solid black; border-radius: 10px; padding: 10px; width: fit-content; margin: 10px auto;"> <math>48 \div 2 = 24</math> </div>

Objective	Concrete	Pictorial	Abstract
<p>Students will begin to understand how to divide 2 digits by 1 digit (<b>sharing</b> with exchange)</p> <p>Example</p> <div data-bbox="80 368 371 435" style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <math>52 \div 4 = 13</math> </div>	<p>Counters</p>  <p>Dienes</p> 	<p>Draw counters in books</p>  <p>Draw dienes</p>  <p>Part whole model</p> 	<p>Understand divide sign</p> <div data-bbox="1789 137 2080 204" style="border: 1px solid black; padding: 10px; width: fit-content; margin: 10px auto;"> <math>52 \div 4 = 13</math> </div>

STAGE B – Multiplication and Division

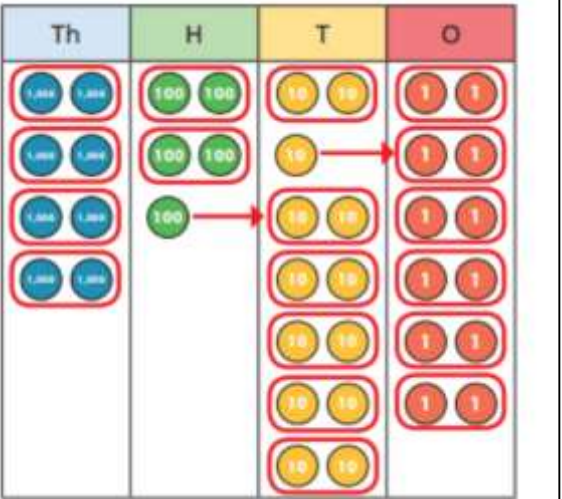
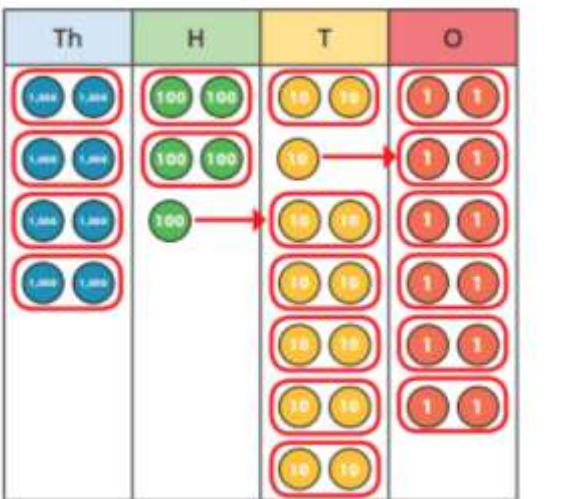
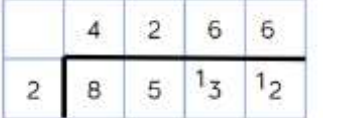
Objective	Concrete	Pictorial	Abstract
<p>Students will begin to understand how to divide 2 digits by 1 digit (<b>grouping</b>).</p> <p>Example:</p> <div>52 ÷ 4 = 13</div>	<p>Counters</p>	<p>Draw counters in books</p>	<p>Written Method</p>
<p>Students will begin to understand how to divide 3 digits by 1 digit (<b>grouping</b>).</p> <p>Example:</p> <div>856 ÷ 4 = 214</div>	<p>Counters:</p>	<p>Draw counters in books</p>	<p>Written Method</p>

## STAGE C – Multiplication and Division

Objective	Concrete	Pictorial	Abstract																							
<p>Students will begin to understand how to multiply 2 or 3 digits by 2 digits</p> <p>Example:</p> <div>22 × 31 = 682</div>	<p>Dienes (Area model)</p> 	<p>Draw dienes in books</p> 	<p>Grid Method</p> <table border="1" data-bbox="1771 274 2119 501"><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> <div></div>	×	20	2	30	600	60	1	20	2														
	×	20	2																							
30	600	60																								
1	20	2																								
<p>Counters</p> 	<p>Draw counters in books</p> 	<p>Formal Written Method</p> <table border="1" data-bbox="1758 951 2029 1353"><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
	H	T	O																							
		2	2																							
×		3	1																							
		2	2																							
	6	6	0																							
	6	8	2																							



STAGE C – Multiplication and Division

Objective	Concrete	Pictorial	Abstract
<p>Students will begin to be able to divide 4 digits by 1 digit <b>(grouping)</b>(with/without remainders)</p> <p>Example</p> <div>8,532 ÷ 2 = 4,266</div>	<p>Counters</p> 	<p>Draw counters in books</p> 	<p>Column Method</p> 

## Stage D onwards – Multiplication and Division

Objective	Concrete	Pictorial	Abstract																														
<p>Students will be able to divide any number of digits by 2 digits using <b>short division</b> (with/without remainders)</p> <p>Example</p> <div><math>432 \div 12 = 36</math></div>  <p>Example</p> <div><math>7,335 \div 15 = 489</math></div>	Not used	Not used	<p>Written Method</p> <div><table><tr><td></td><td></td><td>0</td><td>3</td><td>6</td></tr><tr><td></td><td>12</td><td>4</td><td><sup>4</sup>3</td><td><sup>7</sup>2</td></tr></table></div> <div><table><tr><td></td><td>0</td><td>4</td><td>8</td><td>9</td></tr><tr><td>15</td><td>7</td><td><sup>7</sup>3</td><td><sup>13</sup>3</td><td><sup>13</sup>5</td></tr></table></div> <p>It may help students to write out the multiples of 15 to support them in the calculations</p> <table><tr><td>15</td><td>30</td><td>45</td><td>60</td><td>75</td><td>90</td><td>105</td><td>120</td><td>135</td><td>150</td></tr></table>			0	3	6		12	4	<sup>4</sup> 3	<sup>7</sup> 2		0	4	8	9	15	7	<sup>7</sup> 3	<sup>13</sup> 3	<sup>13</sup> 5	15	30	45	60	75	90	105	120	135	150
		0	3	6																													
	12	4	<sup>4</sup> 3	<sup>7</sup> 2																													
	0	4	8	9																													
15	7	<sup>7</sup> 3	<sup>13</sup> 3	<sup>13</sup> 5																													
15	30	45	60	75	90	105	120	135	150																								

## Stage D onwards – Multiplication and Division

Objective	Concrete	Pictorial	Abstract																																																																																				
<p>Students will be able to divide any number of digits by 2 digits using <b>long division</b> (with/without remainders).</p> <p>Example</p> <div>432 ÷ 12 = 36</div> <p>Example</p> <div>7,335 ÷ 15 = 489</div>	Not used	Not used	<p>Written Method</p> <div><table><tr><td></td><td></td><td>0</td><td>3</td><td>6</td><td></td></tr><tr><td>1</td><td>2</td><td>4</td><td>3</td><td>2</td><td>(x30)</td></tr><tr><td></td><td>–</td><td>3</td><td>6</td><td>0</td><td></td></tr><tr><td></td><td></td><td></td><td>7</td><td>2</td><td>(x6)</td></tr><tr><td></td><td>–</td><td></td><td>7</td><td>2</td><td></td></tr><tr><td></td><td></td><td></td><td></td><td>0</td><td></td></tr></table><div><div>12 × 1 = 12</div><div>12 × 2 = 24</div><div>12 × 3 = 36</div><div>12 × 4 = 48</div><div>12 × 5 = 60</div><div>12 × 6 = 72</div><div>12 × 7 = 84</div><div>12 × 8 = 96</div><div>12 × 7 = 108</div><div>12 × 10 = 120</div></div></div> <div><table><tr><td></td><td>0</td><td>4</td><td>8</td><td>9</td><td></td></tr><tr><td>15</td><td>7</td><td>3</td><td>3</td><td>5</td><td>(x400)</td></tr><tr><td>–</td><td>6</td><td>0</td><td>0</td><td>0</td><td></td></tr><tr><td></td><td>1</td><td>3</td><td>3</td><td>5</td><td>(x80)</td></tr><tr><td>–</td><td>1</td><td>2</td><td>0</td><td>0</td><td></td></tr><tr><td></td><td></td><td>1</td><td>3</td><td>5</td><td>(x9)</td></tr><tr><td>–</td><td></td><td>1</td><td>3</td><td>5</td><td></td></tr><tr><td></td><td></td><td></td><td></td><td>0</td><td></td></tr></table><div><div>1 × 15 = 15</div><div>2 × 15 = 30</div><div>3 × 15 = 45</div><div>4 × 15 = 60</div><div>5 × 15 = 75</div><div>10 × 15 = 150</div></div></div>			0	3	6		1	2	4	3	2	(x30)		–	3	6	0					7	2	(x6)		–		7	2						0			0	4	8	9		15	7	3	3	5	(x400)	–	6	0	0	0			1	3	3	5	(x80)	–	1	2	0	0				1	3	5	(x9)	–		1	3	5						0	
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