


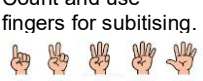
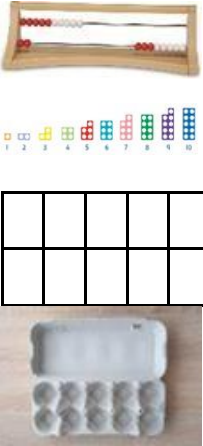
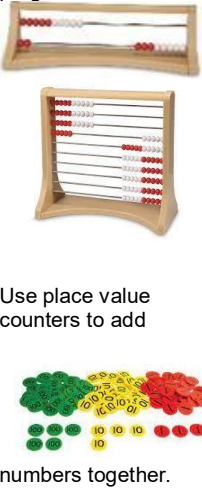




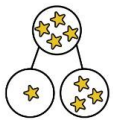

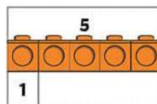

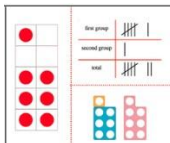

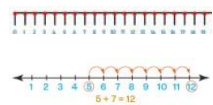
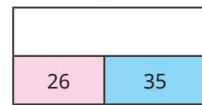
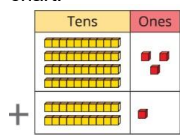
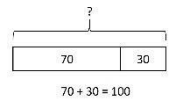
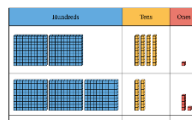
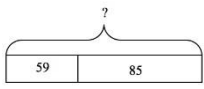
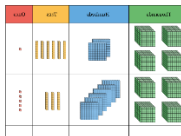
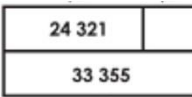
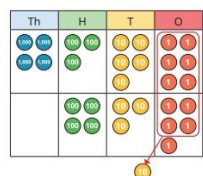
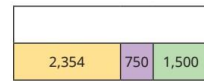
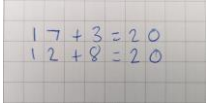
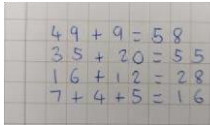
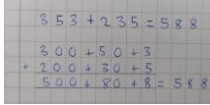
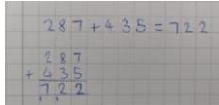
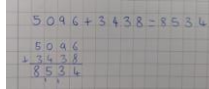
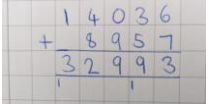

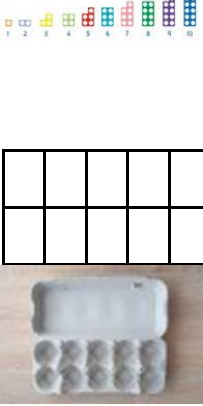









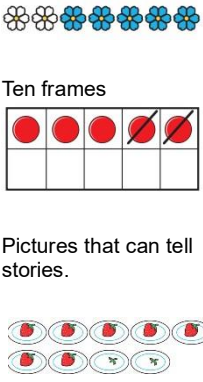
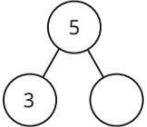
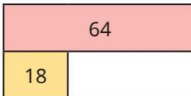
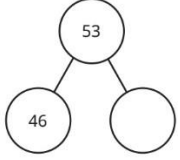

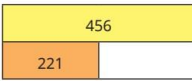
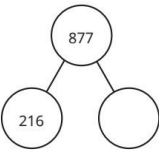
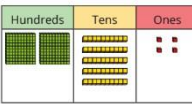
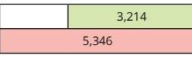
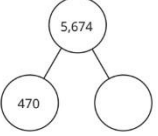

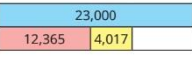
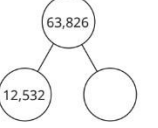

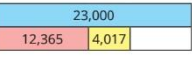
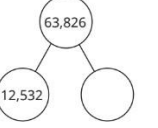



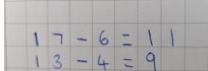
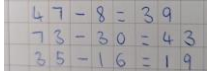

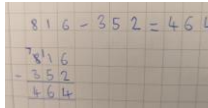
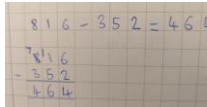
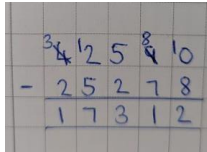
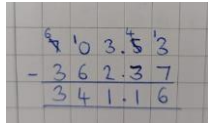
	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition								
Mentally	Subitising up to 5	Subitising up to 10 Number bonds to 10	Number bonds to 20 TO + O (to 20)	Number bonds to 20 and 100 TO + 1s TO + 10s TO + TO O + O + O	HTO + 1s HTO + 10s HTO + 100s			
Written		Using resources Read and write using the + and = signs.	Write number sentence (after using number line/ hundred square/ Numicon)	Empty number line	Expanded columnar method (Autumn Term only) Formal columnar addition (up to 3-digit)	Formal columnar addition (up to 4-digit – where appropriate)	Formal columnar addition (whole numbers more than 4-digit – where appropriate)	Formal columnar addition (numbers more than 4-digit – where appropriate)
Concrete	Use single objects to identify numbers to 5 and number bonds to 5.  Count and use fingers for subitising. 	Use single objects to identify numbers to 10 and number bonds to 10.  Count and use fingers for subitising. 	Use Numicon, a Rekenrek, egg boxes and ten frames to make bonds to 20. 	Use a Rekenrek to reinforce number bonds to 20 and then progress to 100.  Use place value counters to add numbers together.	Use base ten/dienes and place value cards to model addition. Support with the use of a NET place value chart. 	Use base ten/dienes and place value counters to model addition. Support with the use of a NET place value chart. 	Use base ten/dienes and place value counters to model addition. Support with the use of a NET place value chart. 	Use base ten/dienes and place value counters to model addition. Support with the use of a NET place value chart. 

















<p>Pictorial</p>		<p>Use a part whole model and children represent numbers as</p>  <p>dots.</p> <p>Pictures of five/ten frames, die, counters, Numicon and tally</p>  <p>marks.</p> <p>Use bar models to represent addition and</p>  <p>number bonds.</p>	<p>Use a part whole model and children represent numbers as</p>  <p>dots.</p> <p>Pictures of ten frames, Numicon and tally marks to subitise numbers and represent number</p>  <p>bonds.</p> 	<p>Use number lines and model adding using jumps along the line.</p>  <p>Use bar models to represent addition and number bonds.</p>  <p>Representations of dienes in a place value chart.</p> 	<p>Use bar models to represent addition.</p>  <p>Representations of dienes in place value charts for addition.</p> 	<p>Use bar models to represent addition.</p>  <p>Representations of dienes in place value charts for addition.</p> 	<p>Use bar models to represent addition.</p>  <p>Representations of dienes/place value counters in place value charts for addition.</p> 	<p>Use bar models to represent addition.</p>  <p>Part/whole models</p>
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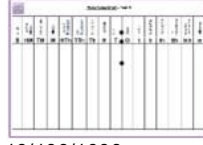



<p>Abstract</p>			<p>Number sentence e.g. $17 + 3 = 20$</p> 	<p>Number sentences e.g. $49 + 9 = 58$</p> 	<p>Number sentences, e.g. $123 + 4 = 127$ $150 + 10 = 160$ $220 + 100 = 320$</p> <p>Expanded column method</p>  <p>Formal column method</p> 	<p>Formal column method</p> 	<p>Formal column method</p> 	<p>Number sentences</p>
<p>Subtraction</p>								
<p>Mentally</p>		<p>Number bonds to 10</p>	<p>TO – O (to 20)</p> <p>Number bonds to 20</p>	<p>TO – 1s TO – 10s TO – TO</p> <p>Number bonds to 20 and 100</p>	<p>HTO – 1s HTO – 10s HTO – 100s</p>	<p>Using place value facts</p>	<p>Using place value facts</p>	<p>Using place value facts</p>
<p>Written</p>		<p>Using resources</p> <p>Read and write using the - and = signs.</p>	<p>Write number sentence (after using number line/ hundred square/ Numicon)</p>	<p>Empty number line</p>	<p>Expanded columnar method (Autumn Term only)</p> <p>Formal columnar subtraction (up to 3-digit)</p>	<p>Formal columnar subtraction (up to 4-digit – where appropriate)</p>	<p>Formal columnar subtraction (whole numbers more than 4-digit – where appropriate)</p>	<p>Formal columnar subtraction (numbers more than 4-digit – where appropriate)</p>

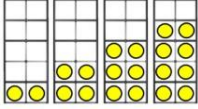
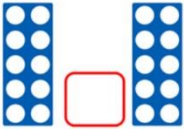
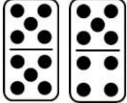

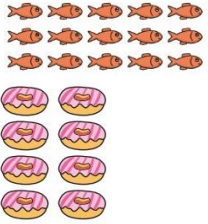
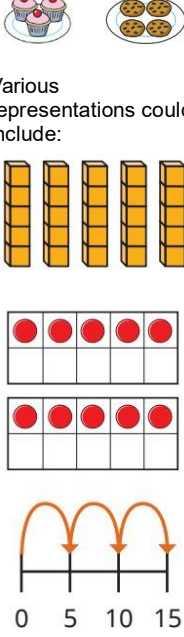
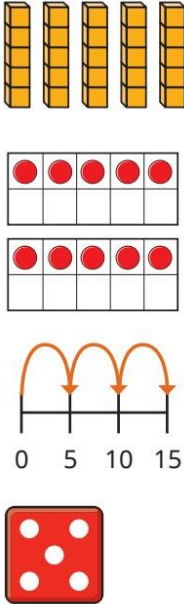
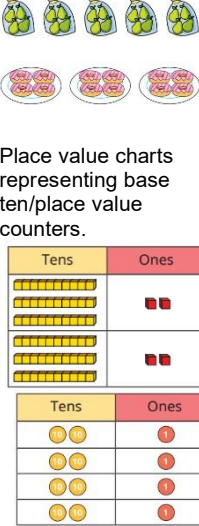
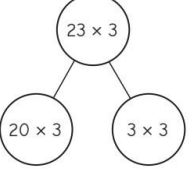
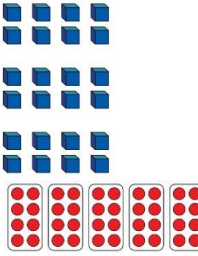
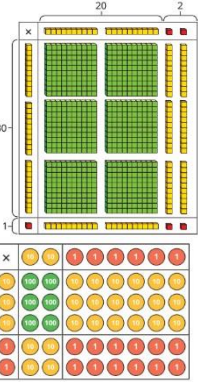
<p>Concrete</p>		<p>Use single objects to identify numbers to 10 and number bonds to 10.</p> 	<p>Use Numicon, egg boxes and ten frames to subtract numbers within 20.</p>  <p>Use a Rekenrek to subtract numbers within 20.</p> 	<p>Use a Rekenrek to subtract numbers within 20 and 100.</p>   <p>Use place value counters to subtract numbers.</p> 	<p>Use base ten/dienes and place value cards to model subtraction.</p> 	<p>Use base ten/dienes and place value counters to model subtraction.</p> 	<p>Use base ten/dienes and place value counters to model subtraction.</p> 	<p>Use base ten/dienes and place value counters to model subtraction.</p> 
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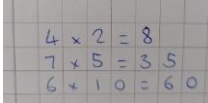

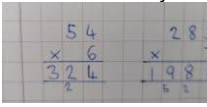
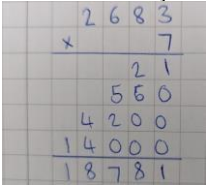

<p>Pictorial</p>		<p>Images of items that the children have available in their provision areas which can encourage counting and discussion of less than/fewer.</p> 	<p>Images that can be counted to represent two different parts and an overall total.</p>  <p>Ten frames</p> <p>Pictures that can tell stories.</p>  <p>Part/whole models</p>	<p>Use bar models to represent missing numbers to find the difference.</p>  <p>Part/whole models</p>  <p>Base ten</p> 	<p>Use bar models to represent missing numbers to find the difference.</p>  <p>Part/whole models</p>  <p>Dienes/base ten – children to cross off what is being subtracted.</p> 	<p>Use bar models to represent missing numbers to find the difference.</p>  <p>Part/whole models</p>  <p>Place value charts displaying counters – children encouraged to cross off counters to calculate the difference.</p> 	<p>Use bar models to represent missing numbers to find the difference.</p>  <p>Part/whole models</p>  <p>Place value charts displaying counters – children encouraged to cross off counters to calculate the difference.</p> 	<p>Use bar models to represent missing numbers to find the difference.</p>  <p>Part/whole models</p>  <p>Place value charts displaying counters – children encouraged to cross off counters to calculate the difference.</p> 

<p>Abstract</p>			 <p>Number sentences</p>	 <p>Number sentences</p>	<p>Expanded column method</p>  <p>method</p> <p>Formal column method</p> 	<p>Formal column method</p> 	<p>Formal column method</p> 	<p>Formal column method</p> 
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Multiplication								
Mentally		Count in 1s forwards and backwards Making equal groups	Count in 2s, 5s and 10s forwards and backwards	2x, 5x, 10x tables	3x, 4x, 8x tables $O \times O$ $TO \times O$	All 12 times tables Using place value facts $x0 \ x1 \ O \ x$ $O \ x \ O$	All 12 times tables Using place value facts $x10/100/ 1000$	All 12 times tables Using place value facts
Written			Write the repeated addition	Read and write using the x and = signs.	Read and write using the x and = signs. Formal written layout (TOxO - Summer Term only)	Formal written layout ($x10,$ $x100,$ TO x O, HTO x O)	Formal written method (ThHTO x O) Expanded columnar method Formal written method of long multiplication (ThHTO x TO)	Formal written method of long multiplication (ThHTO x TO, interpreting remainders appropriately)
Concrete		Allow children to explore doubles using real objects and practical equipment.   	Children to explore using cubes and discuss different ways of filling the containers.  Equipment to create arrays from.  	Counting sticks.  Base ten cubes and rods. 	Counting sticks. 	Counting sticks.  Base ten 	Counting sticks.  Base ten  Place value counters 	Counting sticks.  Base ten 








				<p>Various equipment to form arrays.</p>  <p>Base ten</p>  <p>Place value counters</p> 	<p>NET Place Value Chart for</p>  <p>x10/100/1000</p>	 <p>Place value counters</p>
			<p>Coins to encourage children to count in multiples and find how many lots.</p>  <p>Place value counters</p> 			



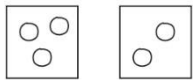
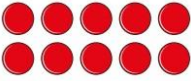

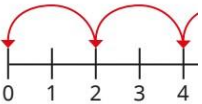
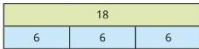
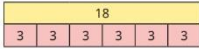

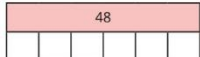
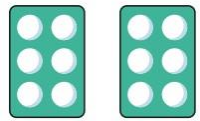
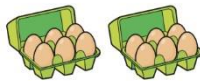

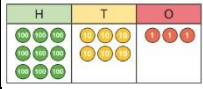
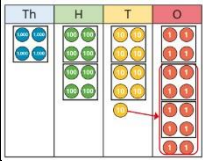

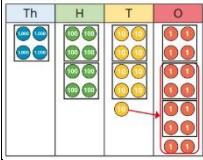
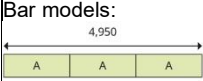
<p>Pictorial</p>		<p>Ten frames to encourage pair-wise patterns.</p>  <p>Numicon</p>  <p>Dominoes</p>  <p>Ladybirds/butterflies</p> 	<p>Images used to create arrays.</p>  <p>Patterns explore on a number grid.</p> <table border="1" data-bbox="734 616 936 715"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr> <tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr> <tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr> <tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr> <tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td></tr> </table>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	<p>Images of items to encourage the phrase 'lots of'.</p>  <p>Various representations could include:</p> 	<p>Images of items to encourage the phrase 'lots of'.</p>  <p>Place value charts representing base ten/place value counters.</p> <table border="1" data-bbox="1205 513 1402 651"> <thead> <tr><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr><td>10</td><td>2</td></tr> <tr><td>10</td><td>2</td></tr> <tr><td>10</td><td>2</td></tr> </tbody> </table> <table border="1" data-bbox="1205 657 1402 788"> <thead> <tr><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr><td>10</td><td>1</td></tr> <tr><td>10</td><td>1</td></tr> <tr><td>10</td><td>1</td></tr> <tr><td>10</td><td>1</td></tr> </tbody> </table> <p>Part/whole models to represent partitioning for TO x O.</p> 	Tens	Ones	10	2	10	2	10	2	Tens	Ones	10	1	10	1	10	1	10	1	<p>Arrays to show O x O x O.</p>  <p>Place value counters</p> <table border="1" data-bbox="1447 641 1644 769"> <thead> <tr><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr><td>10</td><td>1</td></tr> <tr><td>10</td><td>1</td></tr> <tr><td>10</td><td>1</td></tr> <tr><td>10</td><td>1</td></tr> </tbody> </table> <p>in place value charts.</p> <table border="1" data-bbox="1429 951 1626 1104"> <thead> <tr><th>H</th><th>T</th><th>O</th></tr> </thead> <tbody> <tr><td>100</td><td>10</td><td>1</td></tr> <tr><td>100</td><td>10</td><td>1</td></tr> <tr><td>100</td><td>10</td><td>1</td></tr> </tbody> </table>	Tens	Ones	10	1	10	1	10	1	10	1	H	T	O	100	10	1	100	10	1	100	10	1	<p>Area model using base ten/place value counters</p>  <p>Emphasis should be using the formal written method but the Grid method may support those who need it.</p> <table border="1" data-bbox="1899 322 2101 363"> <tr><td>x</td><td>1,000</td><td>100</td><td>10</td><td>1</td></tr> <tr><td>20</td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td></tr> </table>	x	1,000	100	10	1	20					6				
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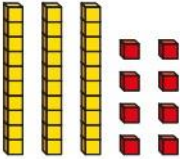
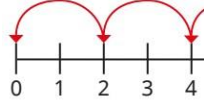

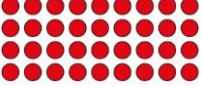
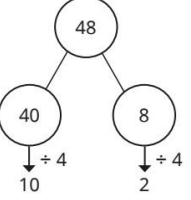
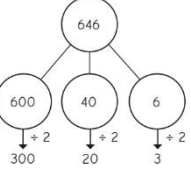
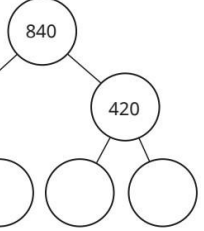
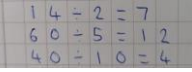
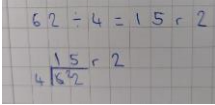
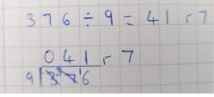
Abstract				Number sentences	Formal written layout	Formal written layout	Formal written layout	Formal written layout
								

Division								
Mentally		Sharing into groups	Sharing into groups	$\div 2, \div 5, \div 10$	$3, \div 4, \div 8$ $TO \div O$	All 12 times tables (related division facts) 1	All 12 times tables (related division facts) 10/100/ 1000	All 12 times tables (related division facts)
Written			Pictorial - sharing into groups	Read and write using the \div and = signs.	Read and write using the \div and = signs. Formal written layout ($TO \div O$) (Summer Term only)	Formal written layout ($\div 10/100$) $TO \div O$ $HTO \div O$ interpreting remainders appropriately)	Formal written method of short division ($ThHTO \div O$, interpreting remainders appropriately)	Formal written method of short division ($ThHTO \div TO$, interpreting remainders appropriately) Formal written method of long division ($ThHTO \div TO$, interpreting remainders appropriately)

<p>Concrete</p>		<p>Egg boxes to encouraging sharing and grouping. Counters/single objects can be placed into the containers:</p>  <p>Double sided counters or single objects to count and</p>   <p>sort into groups:</p> 	<p>Egg boxes to encouraging sharing and grouping. Counters/single objects can be placed into the containers:</p>  <p>Double sided counters or single objects to count and</p>   <p>sort into groups:</p> 	<p>Egg boxes to encouraging sharing and grouping. Counters/single objects can be placed into the containers:</p>  <p>Double sided counters or single objects to count and</p>   <p>sort into groups:</p> 	<p>Double sided counters or single objects to count and sort into groups:</p>  <p>Base ten can be used for grouping and</p>  <p>sharing:</p> 	<p>Place value counters used to explore the structure of division:</p>  <p>NET Place value</p>  <p>chart:</p> <p>Double sided counters to create arrays:</p> 	<p>Place value counters used to explore the structure of division:</p>  <p>NET Place value</p>  <p>chart:</p> <p>Base ten can be used for exploring division:</p> 	<p>Place value counters used to explore the structure of division:</p>  <p>NET Place value</p>  <p>chart:</p> <p>Base ten can be used for exploring division:</p> 
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		<p>Real life objects to share out, e.g., fruit, biscuits.</p>	 <p>Sorting circles:</p>	 <p>Sorting circles:</p> <p>Base ten can be used for grouping and</p>  <p>sharing:</p> 	<p>Single objects which can support grouping and sharing, e.g. buttons:</p>  	<p>Base ten can be used for grouping and sharing:</p> 		
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<p>Pictorial</p>		<p>Images which represent sharing and grouping. Visual representations of images that can pose questions, e.g. can they give the gingerbread man 3 buttons each? Are the fruits plated up evenly?</p> 	<p>Images showing multiple items challenging the children to identify whether the groupings are equal:</p>  <p>Images which represent concrete items, e.g. drawing dots on dominoes:</p> 	<p>Arrays of counters to group while reinforcing multiplication as the inverse:</p>  <p>Images of cubes which can be grouped by circling them:</p>  <p>Number lines – show the jumps to calculate division:</p>  <p>Images of base ten:</p>	<p>Bar models to represent dividing by a number and its fact family:</p>   <p>Bar models to represent halving and halving again concept:</p>  <p>Arrays of counters to group while reinforcing multiplication as the inverse:</p>	<p>Bar models to represent fact families:</p>  <p>Numicon images can be used to represent fact families:</p>  <p>Images of real-life objects to support the total being divided into groups:</p> 	<p>Place value charts to show numbers being divided by 10/100/1000:</p>  <p>Place value counters on a place value chart to support short division and need for exchanges:</p>   <p>Part whole models to demonstrate how partitioning can be used for division:</p>	<p>Place value charts to show numbers being divided by 10/100/1000:</p>  <p>Place value counters on a place value chart to support short division and need for exchanges:</p>  <p>Bar models:</p>  <p>Part whole models to demonstrate how halving and halving</p>
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				 <p>Number lines – show the jumps to calculate division:</p>  <p>Images representing real life images:</p> 	<p>Arrays of counters to reinforce fact families:</p>  <p>Place value charts:</p> <table border="1" data-bbox="1440 387 1630 515"> <thead> <tr> <th colspan="2">Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>10</td> <td>1</td> </tr> <tr> <td>10</td> <td>10</td> <td>1</td> </tr> <tr> <td>10</td> <td>10</td> <td>1</td> </tr> </tbody> </table> <table border="1" data-bbox="1440 531 1630 619"> <thead> <tr> <th>Hundreds</th> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>10</td> <td>1</td> </tr> <tr> <td>100</td> <td>10</td> <td>1</td> </tr> <tr> <td>100</td> <td>10</td> <td>1</td> </tr> </tbody> </table> <p>Part whole models to demonstrate how partitioning can be used for division:</p> 	Tens		Ones	10	10	1	10	10	1	10	10	1	Hundreds	Tens	Ones	100	10	1	100	10	1	100	10	1	 <p>again can be explored:</p> 
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