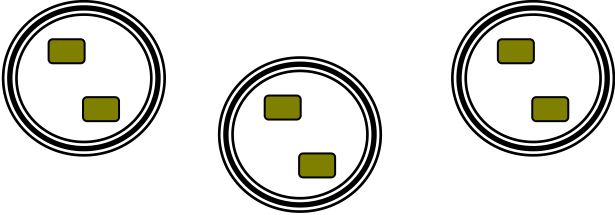
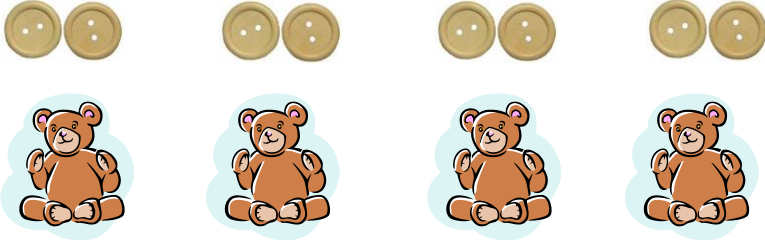


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Progression in multiplication strategies


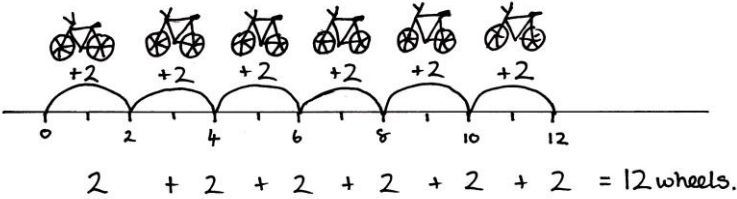
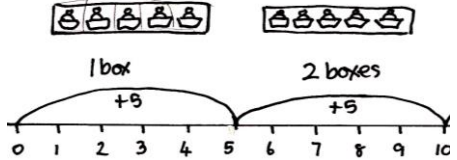
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Strategy	Examples	Vocabulary
<p>Groups or 'lots of' with concrete materials</p> <p>Practical examples and use of role play</p>	<p style="text-align: right;">Year 1</p> <p>3 plates, each with 2 biscuits. How many biscuits are there altogether?</p>  <p>2 biscuits and 2 biscuits and 2 biscuits is 6 biscuits</p>	<p>Altogether, lots of, groups</p>
<p>Grouping and 'lots of' with concrete materials and recording using pictures</p>	<p style="text-align: right;">Year 1</p> <p>Each teddy has two buttons. Draw the buttons on the teddy bears. How many buttons is that altogether?</p>  <p>2 buttons and 2 buttons and 2 buttons and 2 buttons is 8 buttons</p>	<p>Group, lots of, altogether</p>

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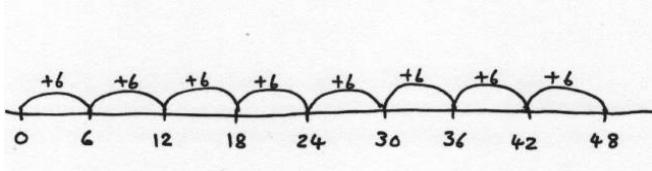
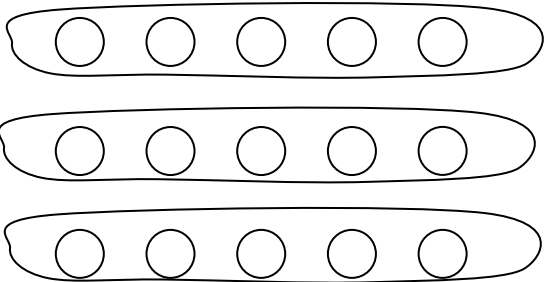
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<p>Pre-multiplication</p> <p>Understand the idea of arrays</p> <p>2 rows with 3 eggs in each row</p> <p>3 columns with 2 eggs in each column</p>	<p>Noticing arrays in everyday objects, e.g. cake tray</p> <p>Using the language of arrays</p> <p>2 rows of 3 eggs</p>  <p>2 rows of 3 eggs</p>	<p>Year 1</p> <p>Rows of, arrays, columns</p>
<p>Pre-multiplication</p> <p>Understand counting forwards in equal steps or jumps</p> <p>$2+2+2+2+2+2=12$</p>	<p>There are six bicycles, how many wheels?</p> 	<p>Year 2</p> <p>Counting forwards, equal steps, equal jumps</p>
<p>Understand whole number multiplication as repeated equal jumps, $5 + 5$</p> <p>5×2 5 multiplied by 2 2 lots of 5</p> <p>Know the above all mean the same</p>	<p>There are five cakes in a box, how many cakes in two boxes?</p>  <p>$5 \times 2 = 10$ There are 10 cakes in two boxes.</p>	<p>Year 2</p> <p>Counting forwards, equal steps, equal jumps</p>

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<p>Understand multiplication as 'groups of'</p>	<p>Year 2</p> <p>There are six carrots in a bag. How many carrots are there in eight bags?</p>  <p>$6 \times 8 = 48$ There are 48 carrots altogether.</p>	<p>Groups of, altogether,</p>
<p>Understand that 5×3 can be represented as</p> <p>5 multiplied by 3 } 3 lots of 5 } 3 rows of 5 }</p> <p>Know how the above are represented in an array.</p>	<p>Year 2</p> <p>Apples are packed in trays of five. There are three trays of apples, how many apples are there altogether?</p>  <p>$5 \times 3 = 15$ There are 15 apples altogether.</p>	<p>Array, lots of, rows of</p>

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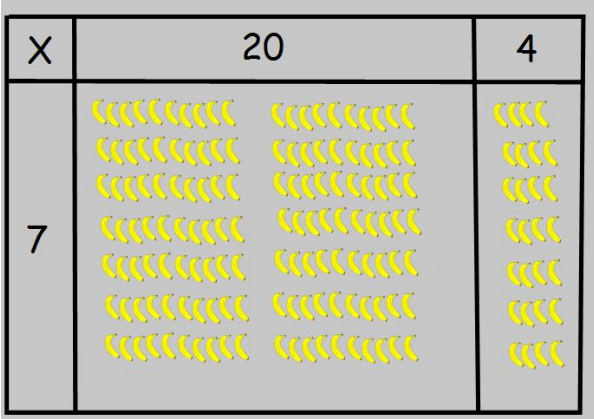
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<p>Understand that 3×5 can be represented as</p>	<p style="text-align: right;">Year 3</p> <p style="text-align: center;">3</p> <div style="display: flex; align-items: center; justify-content: center;"> 5 <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </table> </div>																<p>Array, grid</p>
<p>Horizontal partitioning</p>	<p style="text-align: right;">Year 4</p> <p>There are 25 letters delivered each day in a week. How many letters are delivered in a week?</p> <p style="text-align: center;"> 25×7 partitions to 20×7 and 5×7 140 35 175 </p> <p>There are 175 letters delivered each week</p>	<p>Horizontal partitioning, combine answers</p>															

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<p>Understand that 24×7 can be represented as</p>	<p style="text-align: right;">Year 4</p> <p>Bananas are packed in bags of seven. The supermarket has 24 bags of bananas on the shelf. How many bananas do they have altogether?</p>  <p style="text-align: right;">$24 \times 7 = 168$ bananas</p>	<p>Array, grid</p>																
<p>Understand that 25×18 can be represented as</p> <p>The graph paper illustrates the relative sizes of the sections. One small square equals 1 unit.</p> <p>Shows the next step from the banana image.</p>	<p style="text-align: right;">Year 5</p> <table border="1"> <tr> <td>25 x 18</td> <td>20</td> <td>5</td> <td></td> </tr> <tr> <td>10</td> <td>100</td> <td>100</td> <td>50</td> </tr> <tr> <td>8</td> <td>80</td> <td>80</td> <td>40</td> </tr> <tr> <td></td> <td></td> <td></td> <td>450</td> </tr> </table> <p>Tickets cost £25 each. Eighteen people buy a ticket. How much money is taken on ticket sales?</p> <p>$25 \times 18 = £450$ £450 was taken in ticket sales.</p>	25 x 18	20	5		10	100	100	50	8	80	80	40				450	<p>Grid method, multiply, totals, area</p>
25 x 18	20	5																
10	100	100	50															
8	80	80	40															
			450															

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<p>Grid multiplication method</p>	<p style="text-align: right;">Year 5</p> <p>There are 18 trays of cakes. If each tray has 125 cakes on it, how many cakes are there in total?</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>18 x 125</td> <td>10</td> <td>8</td> <td></td> </tr> <tr> <td>100</td> <td>1000</td> <td>800</td> <td>1800</td> </tr> <tr> <td>20</td> <td>200</td> <td>160</td> <td>360</td> </tr> <tr> <td>5</td> <td>50</td> <td>40</td> <td>90</td> </tr> <tr> <td></td> <td></td> <td></td> <td>2250</td> </tr> </table> <p>There are 2250 cakes</p>	18 x 125	10	8		100	1000	800	1800	20	200	160	360	5	50	40	90				2250	<p>Grid method, multiply, totals</p>
18 x 125	10	8																				
100	1000	800	1800																			
20	200	160	360																			
5	50	40	90																			
			2250																			
<p>Simple expanded method</p>	<p style="text-align: right;">Year 5</p> <p>There are 275 bottles of pop drunk each day for 8 days. How many pop bottles are drunk altogether?</p> $ \begin{array}{r} 275 \\ \times 8 \\ \hline 40 \quad (5 \times 8) \\ 560 \quad (70 \times 8) \\ \underline{1600} \quad (200 \times 8) \\ 2200 \end{array} $	<p>Simple expanded method, columns</p>																				
<p>Expanded method</p> <p>Understand how to round to approximate the answer</p> <p>Be able to jot down the stages to the right</p> <p>Know that the 'one' in 18 is not a one but a ten!</p>	<p style="text-align: right;">Year 5</p> <p>Cakes weigh 125g each. Dave has 18 cakes, how much do they weigh altogether?</p> <p>125 x 18 is approximately equal to 125 x 20</p> <p>125 x 20 = 2500</p> $ \begin{array}{r} 125 \\ \times 18 \\ \hline 1000 \quad 125 \times 8 \\ \underline{1250} \quad 125 \times 10 \\ 2250 \quad \text{Check against approximation OK!} \end{array} $ <p>125 x 18 = 2250</p>	<p>Expanded method, vertical, columnar</p>																				

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Be able to keep the digits in the correct columns	The cakes weigh 2250g altogether.	
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<p>Columnar method</p> <p>Understand the above</p> <p>Apply the principles to any size of number</p>	<p style="text-align: right;">Year 5</p> <p>A coach tour costs £236 per person. If sixty seven people sign up for the tour how much do they pay altogether?</p> <p>326 x 67 is approximately equal to 300 x 70 300 x 70 = 21000</p> $\begin{array}{r} 326 \\ \times 67 \\ \hline 19560 \\ \underline{2282} \\ 21842 \end{array}$ <p>Check against approximation OK!</p> <p>326 x 67 = 21842</p> <p style="text-align: right;">They pay £21842 altogether.</p>	<p>Columnar or vertical method</p>
<p>Columnar method</p>	<p style="text-align: right;">Year 6</p> <p>A company pays an average monthly salary of £2435. They employ 54 people, what is the total monthly salary bill?</p> <p>2435 x 54 is approximately equal to 2400 x 50 2400 x 50 = 120000</p> $\begin{array}{r} 2435 \\ \times 54 \\ \hline 121750 \\ \underline{9740} \\ 131490 \end{array}$ <p>Check against approximation OK!</p>	

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	$2435 \times 54 = 131490$	The monthly salary bill is £131490.	
Columnar method with decimals	$ \begin{array}{r} 1.56 \\ \times 25 \\ \hline 31.20 \\ \underline{7.80} \\ 39.00 \end{array} $	<p>Year 6</p> <p>Tom needs to buy some lawn edging. He needs 40m. There is a pack of x25 strips each of length 1.56m. Will Tom have enough edging if he buys that pack?</p> <p>1.56m x 25 is approximately equal to 1.5 x 20 = 30</p> <p>Check against approximation OK</p> <p>1.56 x 25 = 39.00m Tom will not have enough edging.</p>	