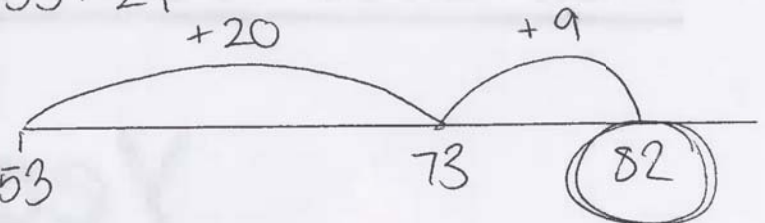


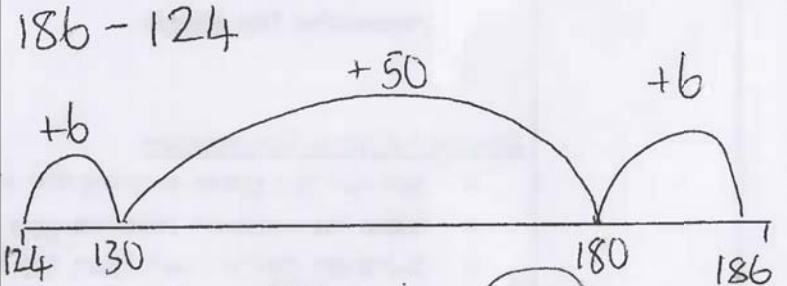
Parent Workshop - Numeracy

Year 3 and 4

Miss C Rix and Miss P Bahia

Calculation Strategies:

Operation	Theory/Method	Example																																												
<p style="text-align: center;">+</p> <p style="text-align: center;">addition</p>	<p><u>Counting On</u></p> <ul style="list-style-type: none"> • Partition the smallest number. • Children start with the biggest number at the left end of the number line. • They add on the tens and then the units (if working with a 3-digit number, add on the hundreds, then tens and then units). • The number that they land on is their final answer. <p><u>Partitioning</u></p> <ul style="list-style-type: none"> • Partition both numbers into T and U (H, T and U). • Add the tens together • Add the units together. • Recombine the answers to find the total. <p><u>Expanded Column Addition</u></p> <ul style="list-style-type: none"> • Partition both numbers into H, T and U. • Lay out the partitioned numbers in columns labelled H, T and U. • Add the units together • Add the tens together. • Add the hundreds together. • The final answer should be clear - children need to recombine the answer. 	<p>$53 + 29 =$</p>  <p>$53 + 29 =$ $50 + 20 = 70 \Rightarrow 70 + 12 = 82$ $3 + 9 = 12$</p> <p>$256 + 313 =$</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;">200</td> <td style="text-align: right;">50</td> <td style="text-align: right;">6</td> <td></td> </tr> <tr> <td style="text-align: right;">300</td> <td style="text-align: right;">10</td> <td style="text-align: right;">3</td> <td style="text-align: right;">+</td> </tr> <tr> <td colspan="3" style="border-top: 1px solid black; text-align: right;">500</td> <td></td> </tr> <tr> <td></td> <td style="text-align: right;">60</td> <td style="text-align: right;">9</td> <td></td> </tr> <tr> <td></td> <td colspan="2" style="border-top: 1px solid black; text-align: right;">= 569</td> <td></td> </tr> </table> <p style="margin-left: 200px;">OR</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;">200</td> <td style="text-align: right;">50</td> <td style="text-align: right;">6</td> <td></td> </tr> <tr> <td style="text-align: right;">300</td> <td style="text-align: right;">60</td> <td style="text-align: right;">8</td> <td style="text-align: right;">+</td> </tr> <tr> <td colspan="3" style="border-top: 1px solid black; text-align: right;">500</td> <td></td> </tr> <tr> <td></td> <td style="text-align: right;">110</td> <td style="text-align: right;">14</td> <td></td> </tr> <tr> <td></td> <td style="text-align: right;">600</td> <td style="text-align: right;">20</td> <td></td> </tr> <tr> <td></td> <td colspan="2" style="border-top: 1px solid black; text-align: right;">= 624</td> <td></td> </tr> </table>	200	50	6		300	10	3	+	500					60	9			= 569			200	50	6		300	60	8	+	500					110	14			600	20			= 624		
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	<p><u>Compact Column Addition</u></p> <ul style="list-style-type: none"> • Set out the question using the H, T and U grid. • Place the numbers into the grid, one under the other. • Add the units together. • Add the tens together. • Add the hundreds together. • The final answer should be clear. 	$256 + 313 =$ $\begin{array}{r} 256 \\ + 313 \\ \hline 569 \end{array}$ <p style="text-align: center;">OR</p> $256 + 368 =$ $\begin{array}{r} 256 \\ + 368 \\ \hline 624 \\ \hline \end{array}$
<p style="text-align: center;">-</p> <p>subtraction</p>	<p><u>Counting On</u></p> <ul style="list-style-type: none"> • Children start with the smallest number at the left hand end of the number line and the biggest number on the right. • Children jump to the next ten. • Children then jump up (in sensible jumps e.g. 10's or 100's) until the nearest ten to the end number. • Children to then add the amount needed to reach the final answer. • The final answer is found by adding the jumps together. <p><u>Partitioning</u></p> <ul style="list-style-type: none"> • Partition both numbers into T and U (H, T and U). • Children need to make sure they subtract the smallest number from the bigger number. • Subtract the tens. • Subtract the units. 	<p>$186 - 124$</p>  <p>$6 + 50 + 6 = 62$</p> <p>$86 - 43 =$</p> <p>$80 - 40 = 40 \Rightarrow 40 + 3 = 43$</p> <p>$6 - 3 = 3$</p>

- Recombine the answers to find the total.

Expanded Column Subtraction

- Partition both numbers into H, T and U.
- Lay out the partitioned numbers in columns labelled H, T and U.
- Subtract bottom unit from top unit.
- Subtract bottom ten from top ten.
- Subtract bottom hundred from top hundred.
- The final answer should be clear - children need to recombine the answer.

Compact Column Subtraction

- Set out the question using the H, T and U grid.
- Place the numbers into the grid, one under the other.
- Subtract bottom unit from top unit.
- Subtract bottom ten from top ten.
- Subtract bottom hundred from top hundred.
- The final answer should be clear.

$$186 - 124 =$$

$$\begin{array}{r} 100 \quad 80 \quad 6 \\ - 100 \quad 20 \quad 4 \\ \hline \quad \quad 60 \quad 2 = 62 \end{array}$$

$$186 - 124 =$$

$$\begin{array}{r} 186 \\ - 124 \\ \hline 62 \end{array}$$

OR $186 - 127 =$

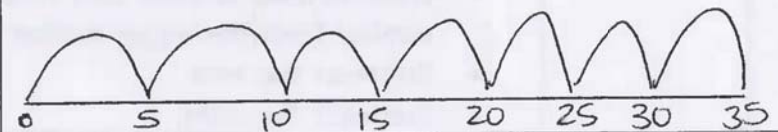
$$\begin{array}{r} 186 \\ - 127 \\ \hline 59 \end{array}$$

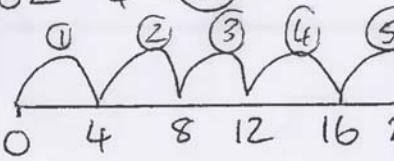
X
multiplication

Counting in Steps

- Children draw a number line and count up in multiples the stated amount of times.
- To find the answer, they work out what number they ended on.

$$7 \times 5 = 35$$



	<p><u>Grid Method</u></p> <ul style="list-style-type: none"> • Children draw a grid and partition both of the numbers. • They then work systematically multiplying the sets of numbers together. • To find the answer, children need to add up all the totals they have found. <p><u>Ladder Method (Column)</u></p> <ul style="list-style-type: none"> • Set out the question in columns. • Children need to multiply the units. • Multiply the tens. • Multiply the hundreds. • To find the answer, children need to add together the answers that they have found. 	<p>$18 \times 24 =$</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td style="padding: 5px;">\times</td><td style="padding: 5px;">10</td><td style="padding: 5px;"></td></tr> <tr><td style="padding: 5px;">20</td><td style="padding: 5px;">200</td><td style="padding: 5px;"></td></tr> <tr><td style="padding: 5px;">4</td><td style="padding: 5px;">40</td><td style="padding: 5px;"></td></tr> </table> <p style="margin-left: 150px;">$50 = 200$ $= 720$</p> <p>$18 \times 5 =$</p> <table style="margin-left: auto; margin-right: auto;"> <tr><td style="padding: 5px;">\times</td><td style="padding: 5px;">18</td></tr> <tr><td style="padding: 5px;">5</td><td style="padding: 5px;"></td></tr> <tr><td colspan="2" style="border-top: 1px solid black; padding: 5px;"></td></tr> <tr><td style="padding: 5px;"></td><td style="padding: 5px;">40</td></tr> <tr><td style="padding: 5px;"></td><td style="padding: 5px;">50</td></tr> </table> <p style="margin-left: 150px;">$\rightarrow 4$</p>	\times	10		20	200		4	40		\times	18	5					40		50
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\div division	<p><u>Grouping</u></p> <ul style="list-style-type: none"> • Children draw a number line and count up in multiples until they get to the big number in the question. • To find the answer, they count how many jumps they have made. <p><u>Chunking</u></p> <ul style="list-style-type: none"> • Children start with the big number from the question. • They then find multiples of the smaller number that will go into the bigger number. 	<p>$32 \div 4 = 8$</p>  <p>$84 \div 7 =$</p> <table style="margin-left: auto; margin-right: auto;"> <tr><td style="padding: 5px;"></td><td style="padding: 5px;">84</td></tr> <tr><td style="padding: 5px;"></td><td style="padding: 5px; border-top: 1px solid black;">70</td></tr> <tr><td style="padding: 5px;"></td><td style="padding: 5px;">14</td></tr> <tr><td style="padding: 5px;"></td><td style="padding: 5px; border-top: 1px solid black;">14</td></tr> <tr><td style="padding: 5px;"></td><td style="padding: 5px;">0</td></tr> </table>		84		70		14		14		0									
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- They then subtract this from the total.
- They continue to find multiples until they can no longer subtract.
- Children then add up the amount of multiples that they have found.

Bus Stop

- Children set out their work using a 'bus stop' grid. They need to put the number being divided by outside the stop and the big number inside the stop.
- They then need to see how many times the number being divided by can go into the tens amount and write this above.
- They then work out how many times the number being divided by can go into the units amount and write this above.
- The answer should clearly be above the bus stop.

$$84 \div 7 =$$

$$\begin{array}{r} 12 \\ 7 \overline{) 84} \end{array}$$

$$45 \div 4 =$$

$$\begin{array}{r} 11r1 \\ 4 \overline{) 45} \end{array}$$