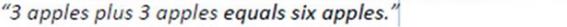
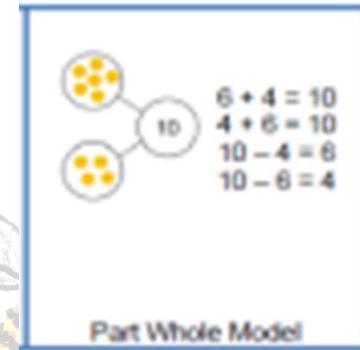


Calculation Policy- Addition and Subtraction- Mental and Written Methods

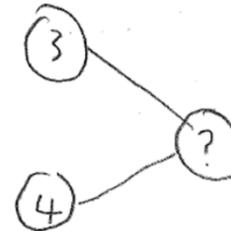
Number	Assessment Point	Example	Progressions in problem solving using concrete and visual methods.
1  EYFS START	<b>Count forwards and backwards using rhymes and stories.</b>	<p>"Five sizzling sausages sizzling in a pan."</p> 	<p>-Modelling with real things- concrete</p>
2  YEAR 1/2 START	<b>Count on and back in ones from any given number.</b>	<p>10, 9, 8, 7, 6...</p>	
3	<b>Begin to relate subtraction to taking away and addition to getting bigger.</b>	<p>3 teddies take away 2 teddies leaves 1 teddy.</p> 	<p><i>"3 apples plus 3 apples equals six apples."</i></p>  <p>-Modelling with copies of things</p>



-Begin to understand the concept of 'whole' and 'part'.

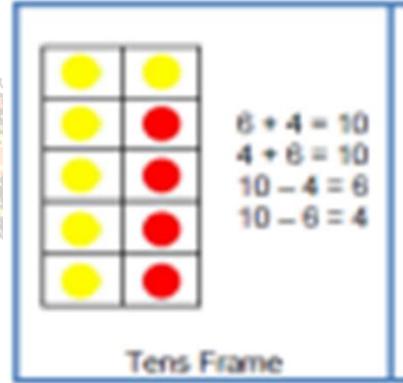
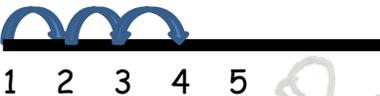


Modelling with pictures to link concrete to visual/abstract



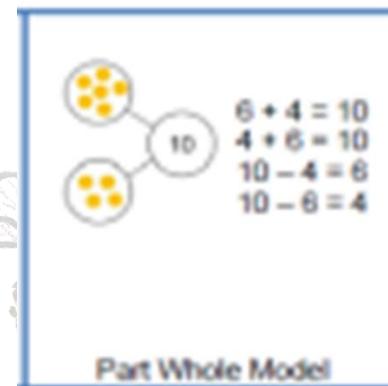
"There are 3 girls and 4 boys. How many children are there altogether?"

-Linking problems with stories

<p>4</p> <p>EYFS END</p>	<p>Find 1 less and 1 more than a number up to 20.</p>	<p>□□□ and □ is □□□□</p>	<p>-Modelling with counters/multilink</p>  <p>"If 3 people have 2 apples each then altogether there are 6 apples."</p> <p>-Drawing using squares with 1 square representing 1 object (discrete counting)</p>  <p>Tens Frame</p> <p>-Making up stories to represent problems</p>
<p>5</p>	<p>Use a structures number line to add and take away.</p> 	 <p>1 2 3 4 5</p> 	

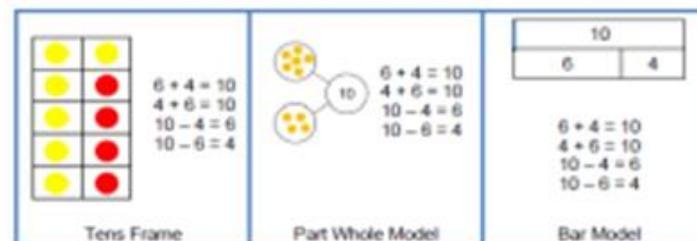
6	<b>Begin to use the + - and = signs to record mental calculations.</b> Solve one step problems.	Maria had 6 sweets. She ate 4. How many does she have left? $6-4=2$
6.1	Use inverse strategies applying + - and =. Addition can be in any order, subtraction cannot be reversed.	$8+2=10$ so $10-2=8$ and $10-8=2$
7	<b>Recall and use bonds to 20 confidently.</b>	$1+19=20$ $2+18=20$ $3+17=20$ etc.
7.2	Add 3 one digit numbers.	$1+5+2=8$ Using objects or a structured number line
7.3	Double any number up to 20.	
8	<b>Add and subtract 1d and 2d numbers up to 20.</b>	$17+3=20$ $11+9=20$ $20-15=5$ etc.
9	<b>Begin to partition to add and take away.</b>	$  \begin{array}{c}  53 \\  \swarrow \quad \searrow \\  50 \qquad \qquad 3  \end{array}  $
10	<b>Add and subtract a 1 digit number from a 2 digit</b>	$15-7=8$

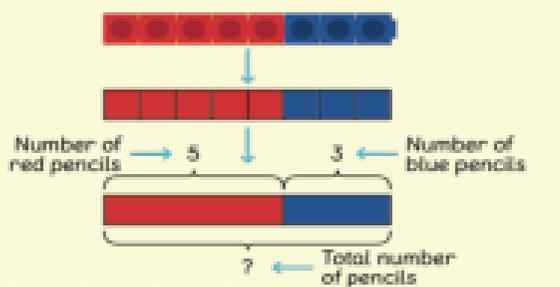
**-Understand concept of 'whole' and 'part'**



**-Begin to use Part : Whole bar model**

**(Progression of previous skills)**



<p>Y3/4 START</p>	<p><b>number often bridging 10.</b></p> 	<p>-1 -1 -1 -1 -1 -1 -1</p>  <p>8 15</p> <p>or in Y3/4 15-7=8</p>  <p>8 10 15</p>	<p>Use   to show the number of pencils.</p>  <p>Number of red pencils 5      3      Number of blue pencils</p> <p>5 + 3 = 8 or 3 + 5 = 8</p> <p>There are 8 pencils altogether.</p> <p>Draw bars to show each number.</p> 
<p>10.1</p>	<p><b>Apply bonds to 20 knowledge to bonds to 100.</b></p>	<p>8+2=10 so 80+20=100</p>	
<p>11</p>	<p><b>Add and subtract 10 from a 2 digit number</b></p>	<p>45-10=35</p>  <p>35 45</p>	
<p>12</p>	<p><b>Add and subtract multiples of 10 from a 2 digit number.</b></p>	<p>25+20=45</p>  <p>25 35 45</p>	

12.1

**Estimate answers to addition and subtraction problems using 2 digits.**



$$19+12=31$$

Round 19 to 20 and round 12 to 10:

$$20+10=30$$



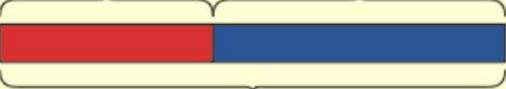
has 15 pencils.

has 23 pencils.

There is not enough space to use  !

How many pencils do they have altogether?

15                      23



15 + 23 = 38

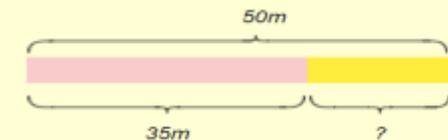
They have 38 pencils altogether.

**Further develop part-whole bar method. Begin to write number sentences (early algebra).**

Lulu wants to swim 50 metres.

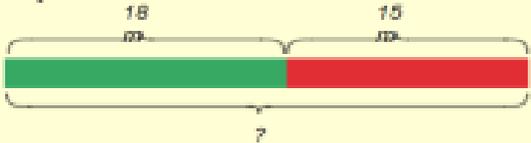
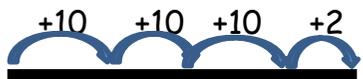
She has swum 35m.

How far is she from the finishing line?



$$50 - 35 = 15$$

Lulu is 15 metres from the finishing line

			<p>Emma buys 18m of red cloth and 15 m of blue cloth</p> <p>What is the total length of cloth that she buys?</p>  <p>  </p> <p>Emma buys  of cloth altogether.</p>
12.2 Y1/2 END	Find the difference between two 2-digit numbers by using a number line to count on to the highest number.	<p>Find the difference between 23 and 55.</p>  <p>23 33 43 53 55 =32.</p>	
14.1	<b>Use column method to add and subtract 2 digit numbers.</b>	$\begin{array}{r} 23 \\ + 15 \\ \hline 38 \end{array}$	
14.2	Solve addition and subtraction problems using the column method involving 2	<p>Addition: 23</p> $\begin{array}{r} 23 \\ + 15 \\ \hline \end{array}$	<b>Develop comparison bar model</b>

digit numbers and decimals.

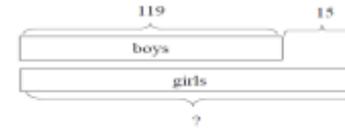


Subtraction: 89  
-12



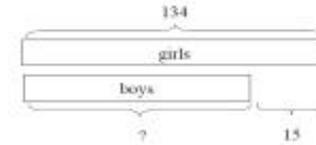
119 boys took part in an art competition. 15 more girls than boys took part. How many girls took part in the competition?

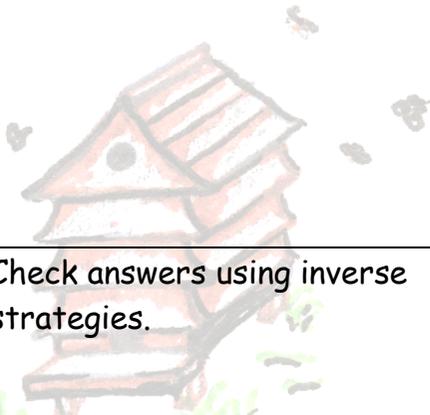
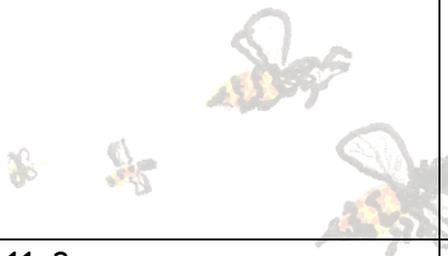
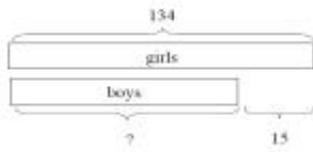
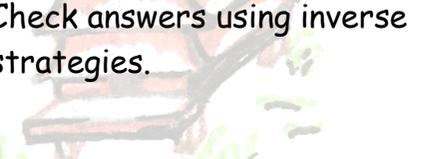
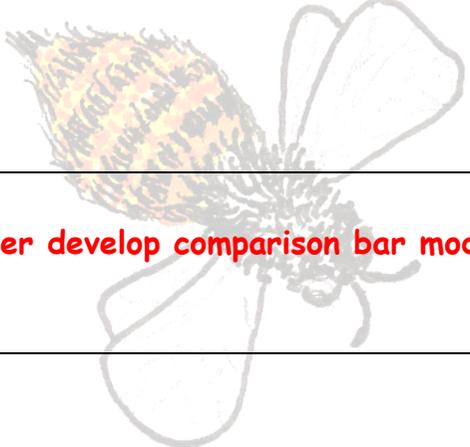
- We are comparing the boys to the girls. We know the smaller quantity. To find the bigger quantity we add  $119 + 15$ .

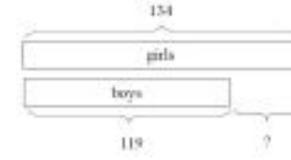


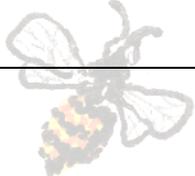
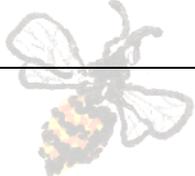
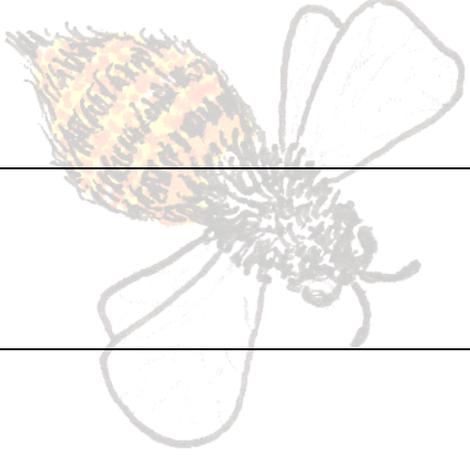
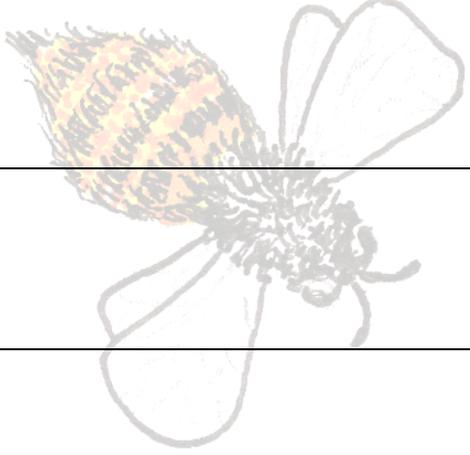
134 girls took part in an art competition. 15 fewer boys than girls took part. How many boys took part in the competition?

- We are comparing the girls to the boys. We know the bigger quantity. To find the smaller quantity we subtract  $134 - 15$ .



			<p>134 girls took part in an art competition. 15 fewer boys than girls took part. How many boys took part in the competition?</p> <ul style="list-style-type: none"> <li>■ We are comparing the girls to the boys. We know the bigger quantity. To find the smaller quantity we subtract <math>134 - 15</math>.</li> </ul> 
15	<p>Check answers using inverse strategies.</p> 	<p><math>14 - 11 = 3</math> so <math>3 + 11 = 14</math></p>	
15.1	<p><b>Estimate answers to addition and subtraction problems using 3 digits and decimals.</b></p>	<p><math>213 + 214 = 427</math> so <math>200 + 200 = 400</math></p>	<p><b>Further develop comparison bar model</b></p> 

			<p>134 girls and 119 boys took part in an art competition. How many more girls than boys took part in the competition?</p> <ul style="list-style-type: none"> <li>We are comparing the girls to the boys. To find the difference we subtract <math>134 - 119</math>.</li> </ul> 
<p>16 Y5/6 START</p>	<p>Apply the column method using renaming and regrouping to complex problems involving 2 and 3 digit numbers and decimals.</p>	<p>Children must have a strong understanding of place value to complete this stage.</p> <p><b>Addition</b></p> $\begin{array}{r} 1\ 1 \\ 5\ 6\ 7 \\ \underline{1\ 9\ 9} + \\ 7\ 6\ 6 \end{array}$ <p><b>Subtraction</b></p> $\begin{array}{r} 3\ 12 \\ \cancel{4}\ \cancel{2} \\ \underline{3\ 7} - \\ 5 \end{array}$	

<p>17</p> <p>Y3/4</p> <p>END</p>	<p>Apply the column method using carrying and borrowing to complex problems involving 4 digits and decimals.</p> <p>Solve two step problems.</p>	<p>Column method using thousand numbers.</p> <p>"Tom goes to a shop and he buys a pencil case for £3.50 and a pack of pencils for £1.99. How much change does he get from £5.00?"</p>	
<p>17.1</p>	<p><b>Estimate answers to addition and subtraction problems using 4 digits.</b></p>	<p>584-201=383</p> <p>so</p> <p>600-200=400</p>	 
<p>18</p>	<p>Apply the column method using carrying and borrowing to numbers over 4 digits and decimals.</p>	<p>Column method using any number.</p>	
<p>18.1</p>	<p><b>Estimate answers to any addition and subtraction problems.</b></p>	<p>5413+2147=3266</p> <p>so</p> <p>5000-2000=3000</p>	
<p>19</p> <p>Y5/6</p> <p>END</p>	<p>Solve addition and subtraction multi step problems deciding which operation to use and why.</p>		