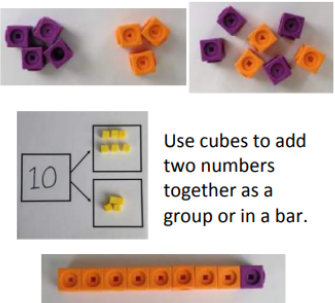
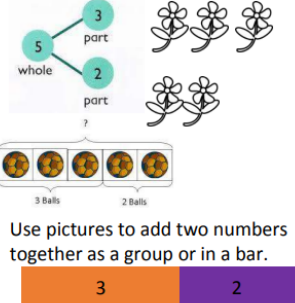
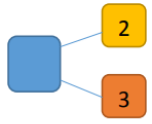
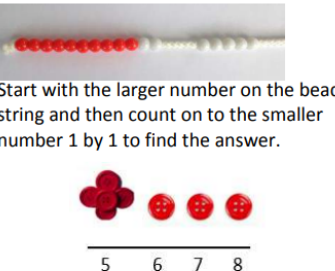
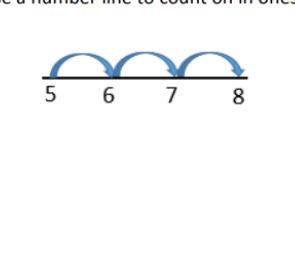
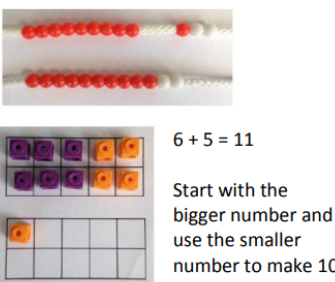
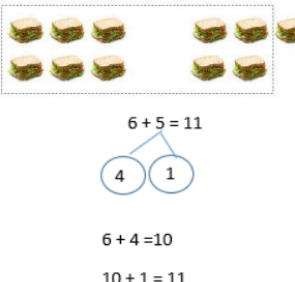
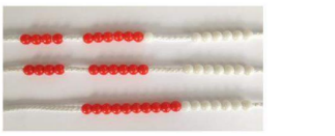
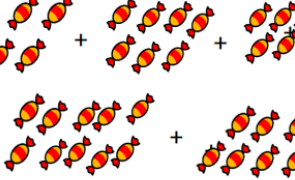
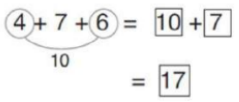


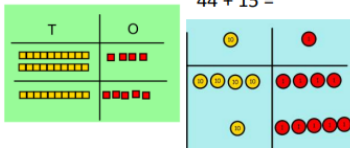
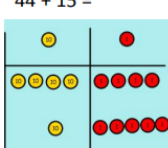
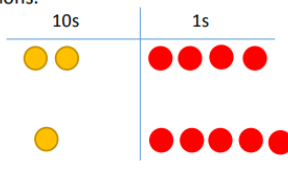
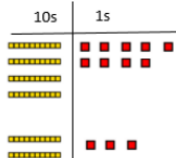
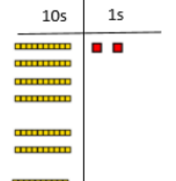
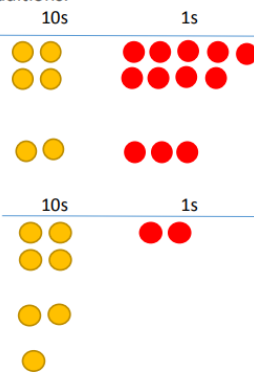
PROGRESSION THROUGH CALCULATION GUIDANCE – White Rose Mathematics Scheme

All Saints and Selston Infant and Nursery School Calculation Policy to indicate the progression through Addition, Subtraction, Multiplication and Division in Years 1 – 2.



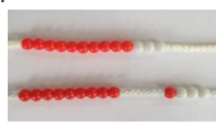
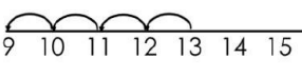
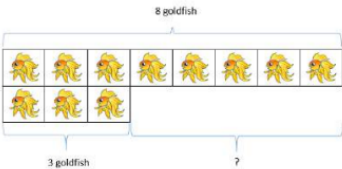
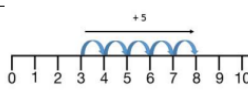
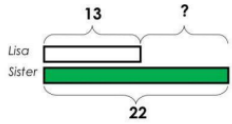
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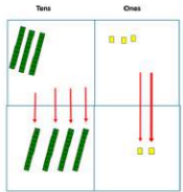
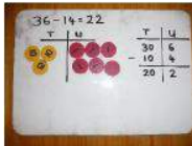
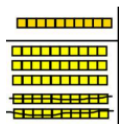
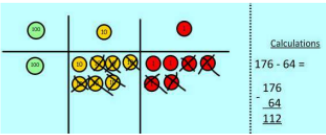
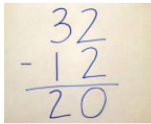
	Objective	Concrete	Pictorial	Abstract
Year 1	Number bonds of 5, 6, 7, 8, 9 and 10	 <p>Use cubes to add two numbers together as a group or in a bar.</p>	 <p>Use pictures to add two numbers together as a group or in a bar.</p>	$2 + 3 = 5$ $3 + 2 = 5$ $5 = 3 + 2$ $5 = 2 + 3$  <p>Use the part-part-whole diagram as shown above to move into the abstract.</p>
	Counting	 <p>Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer.</p>	<p>Use a number line to count on in ones.</p> 	$5 + 3 = 8$

	Objective	Concrete	Pictorial	Abstract
Year 1	Regrouping to make 10	 <p>$6 + 5 = 11$</p> <p>Start with the bigger number and use the smaller number to make 10.</p>	 <p>$6 + 5 = 11$</p> <p>$4 + 1 = 5$</p> <p>$6 + 4 = 10$</p> <p>$10 + 1 = 11$</p>	$6 + 5 = 11$
Year 2	Adding 3 single digit numbers	<p>$4 + 7 + 6 = 17$</p> <p>Put 4 and 6 together to make 10. Add on 7.</p>  <p>Following on from making 10, make 10 with 2 of the digits (if possible) then add on the third digit.</p>	 <p>Add together three groups of objects. Draw a picture to recombine the groups to make 10.</p>	 <p>Combine the two numbers that make 10 and then add on the remainder.</p>

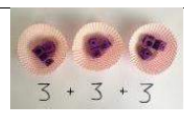



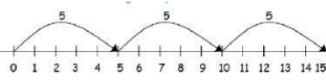




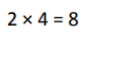


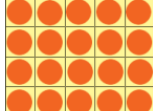

	Objective	Concrete	Pictorial	Abstract
Year 2	Column method without regrouping	<p>Add together the ones first, then add the tens. Use the Base 10 blocks first before moving onto place value counters.</p> <p>$24 + 15 =$</p>  <p>$44 + 15 =$</p> 	<p>After physically using the base 10 blocks and place value counters, children can draw the counters to help them to solve additions.</p> 	<p>$24 + 15 = 39$</p> $\begin{array}{r} 24 \\ + 15 \\ \hline 39 \end{array}$
	Column method with regrouping	<p>Make both numbers on a place value grid.</p>  <p>Add up the units and exchange 10 ones for 1 ten.</p> 	<p>Using place value counters, children can draw the counters to help them to solve additions.</p> 	<p>$40 + 9 = 49$</p> $\begin{array}{r} 40 \\ + 9 \\ \hline 49 \end{array}$ <p>$60 + 12 = 72$</p>

Subtraction:


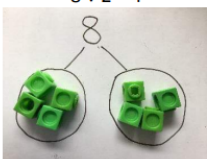
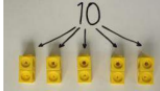
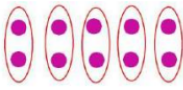
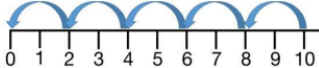
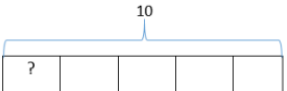
	Objective	Concrete	Pictorial	Abstract
Year 1	Taking away ones	<p>Use physical objects, counters, cubes etc. to show how objects can be taken away.</p> <p>$4 - 2 = 2$</p> 	<p>Cross out drawn objects to show what has been taken away.</p> <p>$4 - 2 = 2$</p> 	<p>$4 - 2 = 2$</p>
	Counting back	<p>Make the larger number in your subtraction. Move the beads along your bead string as you count backwards in ones.</p>  <p>$13 - 4 = 9$</p>	<p>Count back on a number line or number track</p>  <p>Start at the bigger number and count back the smaller number, showing the jumps on the number line.</p>	<p>Put 13 in your head, count back 4. What number are you at? Use your fingers to help.</p>
	Find the difference	<p>Compare amounts and objects to find the difference.</p>  <p>Use cubes to build towers or make bars to find the difference. Use basic bar models with items to find the difference.</p>	<p>Count on to find the difference.</p>  <p>Lisa is 13 years old. Her sister is 22 years old. Find the difference in age between them.</p>  <p>Draw bars to find the difference between 2 numbers.</p>	<p>Hannah has 8 goldfish. Helen has 3 goldfish. Find the difference between the number of goldfish the girls have.</p>

	Objective	Concrete	Pictorial	Abstract
Year 2	Column method without regrouping	<p>$75 - 42 = 33$</p>  <p>Use Base 10 to make the bigger number then take the smaller number away.</p> <p>Show how you partition numbers to subtract.</p> <p>Again make the larger number first.</p> 	 <p>Draw the Base 10 or place value counters alongside the written calculation to help to show working.</p> 	<p>Calculations</p> $\begin{array}{r} 54 \\ - 22 \\ \hline 32 \end{array}$ $47 - 24 = 23$ $\begin{array}{r} 40 + 7 \\ - 20 + 4 \\ \hline 20 + 3 \end{array}$ <p>This will lead to a clear written column subtraction.</p> 

Multiplication

	Objective	Concrete	Pictorial	Abstract
	Repeated addition	   <p>Use different objects to add equal groups.</p>	<p>There are 3 plates. Each plate has 2 star biscuits on. How many biscuits are there?</p>  $2 + 2 + 2 = 6$  $5 + 5 + 5 = 15$	<p>Write addition sentences to describe objects and pictures.</p>  $2 + 2 + 2 = 6$
Year 1/2	Arrays- showing commutative multiplication	<p>Create arrays using counters/cubes to show multiplication sentences.</p>  	<p>Draw arrays in different rotations to find commutative multiplication sentences.</p>  $4 \times 2 = 8$  $2 \times 4 = 8$  $2 \times 4 = 8$  $4 \times 2 = 8$ <p>Link arrays to area of rectangles.</p> 	<p>Use an array to write multiplication sentences and reinforce repeated addition.</p>  $5 + 5 + 5 = 15$ $3 + 3 + 3 + 3 + 3 = 15$ $5 \times 3 = 15$ $3 \times 5 = 15$

Division:

	Objective	Concrete	Pictorial	Abstract
Year 1/2	Sharing	<p>I have 8 cubes, can you share them equally between two people?</p>	<p>Children use pictures or shapes to share quantities.</p>  <p style="text-align: center;">$8 \div 2 = 4$</p>	<p>Share 8 buns between two people.</p> <p style="text-align: center;">$8 \div 2 = 4$</p> 
	Grouping	<p>Divide quantities into equal groups. Use cubes, counters, objects or place value counters to aid understanding.</p>  	<p>Use a number line to show jumps in groups. The number of jumps equals the number of groups.</p>  <p>Think of the bar as a whole. Split it into the number of groups you are dividing by and work out how many would be within each group.</p>  <p style="text-align: center;">$10 \div 5 = ?$ $5 \times ? = 10$</p>	<p>$10 \div 5 = 2$</p> <p>Divide 10 into 5 groups. How many are in each group?</p>