



ST MARGARET'S COLLIER STREET

CHURCH OF ENGLAND PRIMARY SCHOOL

Growing as we learn. Learning as we grow.

Rooted in Jesus.

Calculation Policy

Policy reviewed	October 2026
Next review	October 2029, or earlier when the new national curriculum is published
Policy lead	Mathematics Subject Leader
Read alongside	Mathematics Policy; Homework Policy

This policy has been adapted from the White Rose Maths Hub Calculation Policy with further material added.

Aims

The aims of the policy are to provide guidance on the steps needed when teaching the four main operations: addition, subtraction, multiplication and division, as well as guidance on mental maths expectations for each year group. The policy aims:

- to ensure consistency across the school
- to outline a consistent approach to progression
- to use assessment for learning to identify suitable next steps in calculation for groups of children
- to encourage the mathematical language used to describe each operation, and display it on learning walls
- to ensure children are taught each stage through variation of question type and context

How to use this policy

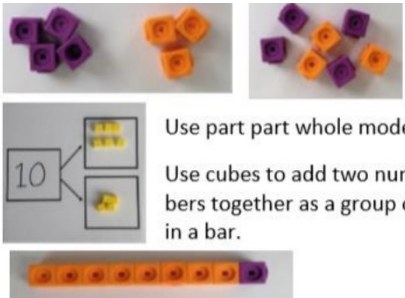
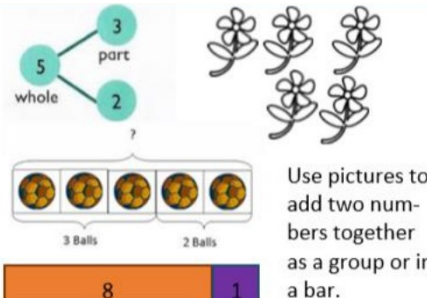
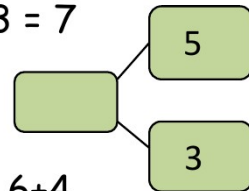
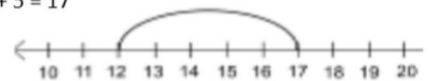
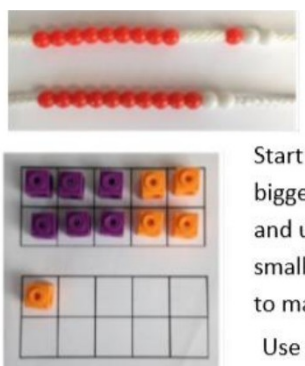
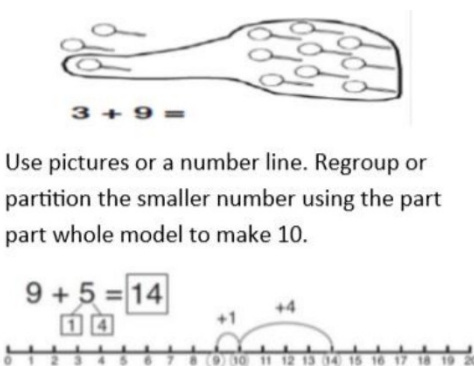
Each operation is set out year by year using the **concrete, pictorial and abstract** approach, in line with our Mathematics Policy:

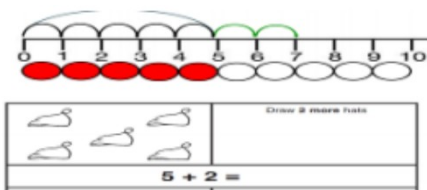
- **Concrete** – children use real objects and manipulatives, such as cubes, Dienes, Numicon, bead strings and place value counters.
- **Pictorial** – children draw or use pictures, diagrams and models, such as part-whole models, bar models and number lines.
- **Abstract** – children use numbers and symbols, moving towards efficient written methods.

Key vocabulary for each operation is listed at the end of each section.

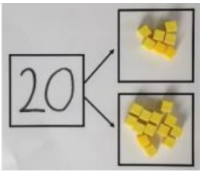
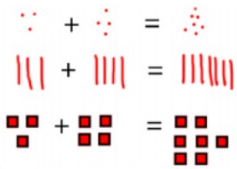
Addition

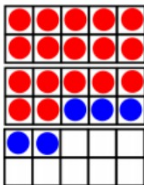
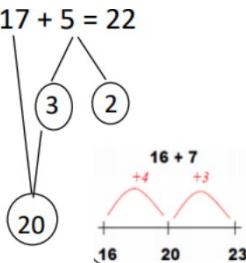
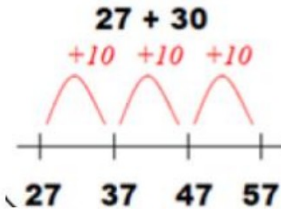
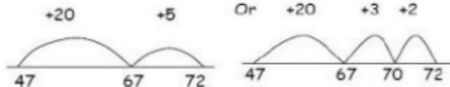
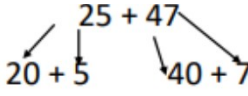
Year 1 Addition

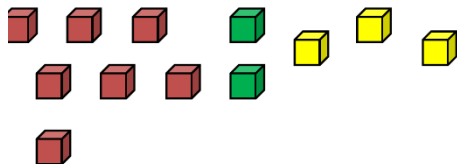
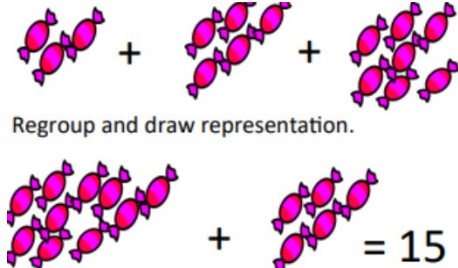
Objective and strategy	Concrete	Pictorial	Abstract
Combining two parts to make a whole <i>Part-whole model</i>	 Use part part whole model. Use cubes to add two numbers together as a group or in a bar.	 Use pictures to add two numbers together as a group or in a bar.	$4 + 3 = 7$  $10 = 6 + 4$ Use the part whole model diagram as shown to move into the abstract.
Starting at the bigger number and counting on	 Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer.	$12 + 5 = 17$  Start at the larger number on the number line and count on in ones or in one jump to find the answer.	$5 + 12 = 17$ Place the larger number in your head and count on the smaller number to find your answer.
Regrouping to make 10 <i>(Vital small step for column addition later)</i>	 Start with the bigger number and use the smaller number to make 10. Use ten frames.	 Use pictures or a number line. Regroup or partition the smaller number using the part part whole model to make 10.	$7 + 4 = 11$ If I am at seven, how many more do I need to make 10. How many more do I add on now?

Objective and strategy	Concrete	Pictorial	Abstract
Represent and use number bonds and subtraction facts to 20	 2 more than 5.		Emphasis on mathematical vocabulary 3 more than 4 is equal to 7 3 more than 4 is 7 7 is 3 more than 4

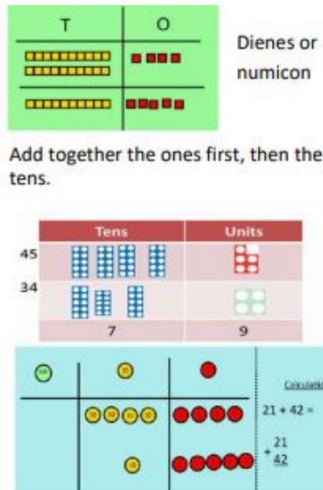
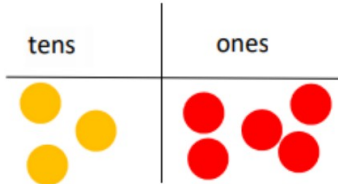
Year 2 Addition

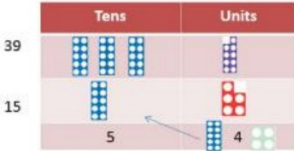
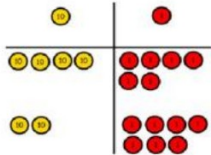
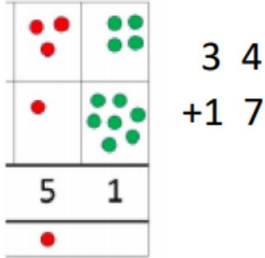
Objective and strategy	Concrete	Pictorial	Abstract
Adding multiples of ten	50 = 30 + 20  Model using dienes and bead strings	 3 tens + 5 tens = ____ tens 30 + 50 = ____ Use representations for base ten	20 + 30 = 50 70 = 50 + 20 40 + ____ = 60 Vary the position of the equals sign and missing number problems
Use known number facts <i>Part-whole model</i>	 Explore ways of making numbers up to 20	 □ + □ = 20 20 - □ = □ □ + □ = 20 20 - □ = □	____ + 1 = 16 1 + ____ = 16 16 - 1 = 16 - ____ = 1
Using known facts	□□ + □□ = □□□□ □□□ + □□□ = □□□□□	 Draw representations of H, T and O	3 + 4 = 7 Leads to 30 + 40 = 70 Leads to 300 + 400 = 700

Objective and strategy	Concrete	Pictorial	Abstract				
Bar model	 $3 + 4 = 7$	 $7 + 3 = 10$	<table border="1" data-bbox="1706 210 1977 298"><tr><td>23</td><td>24</td></tr><tr><td colspan="2"></td></tr></table> $23 + 24 = 47$	23	24		
23	24						
Add a two-digit number and ones	 $17 + 5 = 22$ Use ten frame to make 'magic ten' Children explore the pattern. $17 + 5 = 22$ $22 + 5 = 27$	Use part part whole and number line to model. $17 + 5 = 22$ 	$17 + 5 = 22$ Explore the related facts $17 + 5 = 22$ $5 + 17 = 22$ $22 - 17 = 5$ $22 - 5 = 17$ <table border="1" data-bbox="1908 590 2094 657"><tr><td colspan="2">22</td></tr><tr><td>17</td><td>5</td></tr></table>	22		17	5
22							
17	5						
Add a two-digit number and tens	 $25 + 10 = 35$ Explore the ones digit did not change	$27 + 30$  27 37 47 57	$27 + 10 = 37$ $27 + 20 = 47$ $27 + \text{ } = 57$				
Add two two-digit numbers	 Model using dienes, place value counters and numicon	 Use number line and bridge ten using part whole model	$25 + 47$  $20 + 40 = 60$ $5 + 7 = 12$ $60 + 12 = 72$				

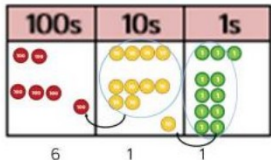
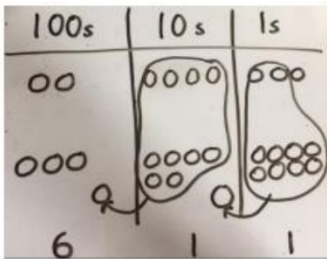
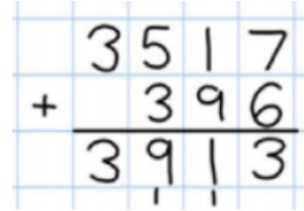
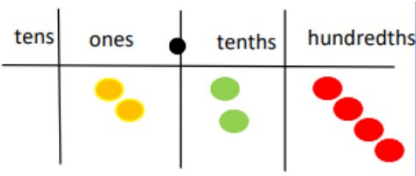
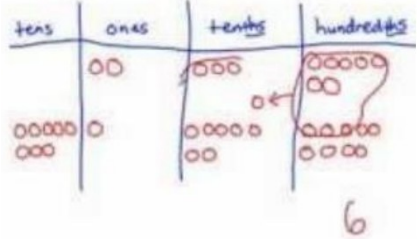
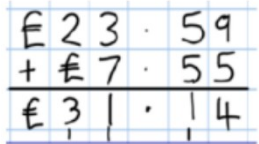
Objective and strategy	Concrete	Pictorial	Abstract
Add three one-digit numbers	 Combine to make 10 first if possible, or bridge ten then add third digit	 Regroup and draw representation.	$\begin{array}{r} 4 + 7 + 6 = 10 + 7 \\ \quad \quad \quad 10 \quad \quad \quad = 17 \end{array}$ Combine to make 10 first if possible, or bridge ten then add third digit

Year 3 Addition

Objective and strategy	Concrete	Pictorial	Abstract
Column addition – no exchanging <i>Add two or three 2- or 3-digit numbers</i>	 Add together the ones first, then the tens. Move to using place value counters	Move to drawing the counters using a tens and ones frame. 	$\begin{array}{r} 223 \\ + 114 \\ \hline 337 \end{array}$ Add the ones first, then the tens then the hundred.

Objective and strategy	Concrete	Pictorial	Abstract
Column addition with exchanging	 Exchange ten ones for a ten. Model using place value counters or numicon.  $46 + 27 = 73$	 $\begin{array}{r} 34 \\ +17 \\ \hline \end{array}$ Draw a representation of the grid to support understanding, carrying the ten underneath the line after exchanging	$\begin{array}{r} 500 + 30 + 6 \\ 80 + 5 \\ \hline 500 + 110 + 11 = 621 \end{array}$ Start by partitioning the numbers before formal column to show the exchange. $\begin{array}{r} 536 \\ + 85 \\ \hline 621 \\ 11 \end{array}$
Estimate the answers to questions and use inverse operations to check answers	 Estimating $98 + 17 = ?$ $100 + 20 = 120$	 Use a number line to illustrate estimation	Building up known facts and using them to illustrate the inverse and to check answers: $98 + 17 = 115$ $17 + 98 = 115$ $115 - 98 = 17$ $115 - 17 = 98$

Year 4 – 6 Addition

Objective and strategy	Concrete	Pictorial	Abstract
Year 4 – add numbers with up to four digits	Continue to use dienes and place value counters to add, exchanging ten ones for a ten, ten tens for a hundred and ten hundreds for a thousand 	 Draw representation using place value grid	 Continue to exchange and carry forward tens and hundreds Relate to money and measures
Year 5 – add numbers with more than four digits <i>Add decimals with two decimal places, including money</i>	Introduce decimal place value counters and model exchange for addition 	2.37 + 81.79 	72.8 + 54.6 <u>127.4</u> 11 

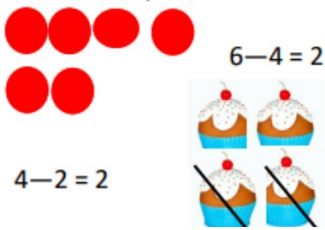
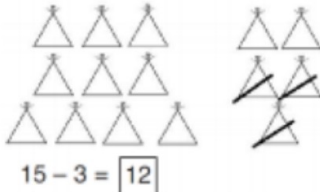
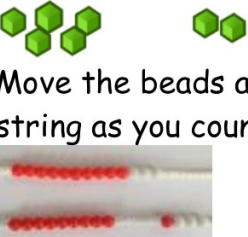
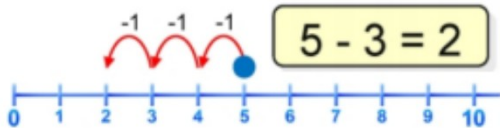
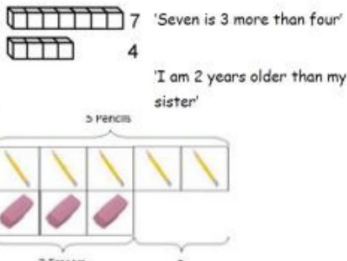
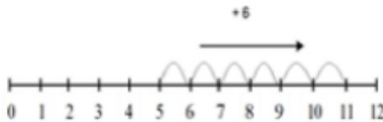
Objective and strategy	Concrete	Pictorial	Abstract
Year 6 – add several numbers of increasing complexity <i>Including adding money, measures and decimals with different numbers of decimal places</i>	As Year 5	As Year 5	Insert zeros for place holders.

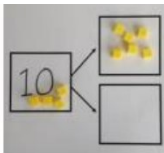
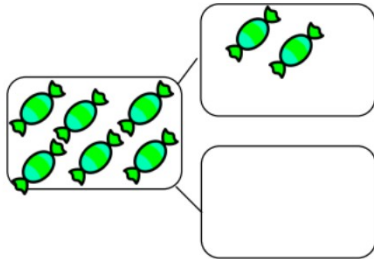
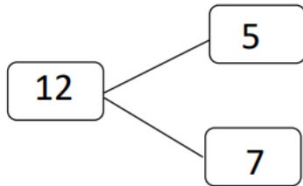
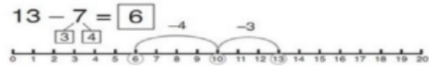
Key vocabulary: addition

sum, total, parts and wholes, plus, add, altogether, more, 'is equal to' 'is the same as'

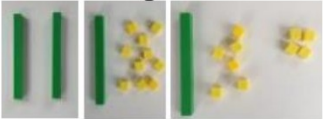
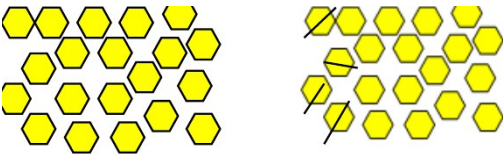
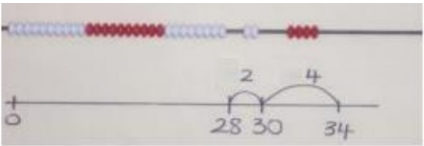
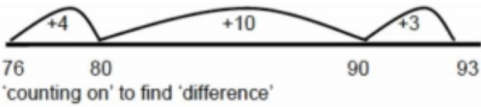
Subtraction

Year 1 Subtraction

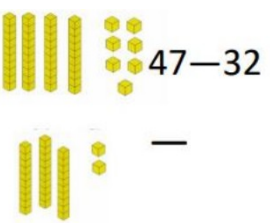
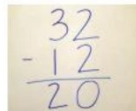
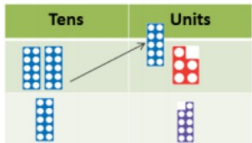
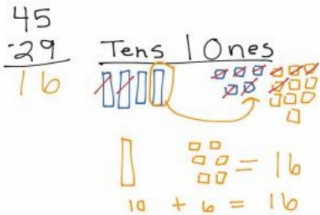
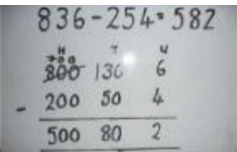
Objective and strategy	Concrete	Pictorial	Abstract
Take away ones	Use physical objects, counters, cubes, etc to show how objects can be taken away 	Cross out drawn objects to show what has been taken away 	$9 - 4 = 5$ $17 - 8 = 9$
Counting back	Move objects away from the group, counting backwards  Move the beads along the bead string as you count backwards	Count backwards in ones using a number line 	Put 14 in your head, count back 5. What number are you at?
Find the difference	Compare objects and amounts  Lay objects to represent bar model	Count on using a number line to find the difference 	Sarah has 11 apples and her brother has 5. How many more does Sarah have than her brother?

Objective and strategy	Concrete	Pictorial	Abstract		
Represent and use number bonds and related subtraction facts within 20 <i>Part-whole model</i>	 Link to addition. Use part whole model to model the inverse. If 10 is the whole and 6 is one of the parts, what is the other part? $10 - 6 = 4$	 Use pictorial representations to show the part	Move to using numbers within the part whole model 		
Make 10	$14 - 5 = 9$  Make 14 on the ten frame. Take 4 away to make 10, then take one more away so that you have taken 5	$13 - 7$  Jump back 3 first, then another 4. Use 10 as the stopping point.	$17 - 9$ How many do we take off first to get to 10? How many left to take off?		
Bar model	 $5 - 2 = 3$		<table border="1" data-bbox="1680 946 2004 1008"><tr><td>8</td><td>2</td></tr></table> $10 = 8 + 2$ $10 = 2 + 8$ $10 - 2 = 8$ $10 - 8 = 2$	8	2
8	2				

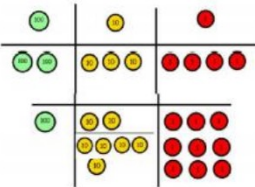
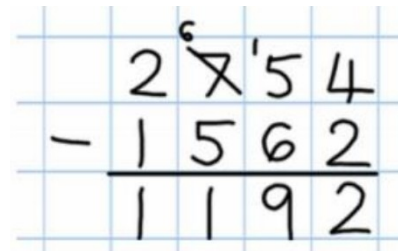
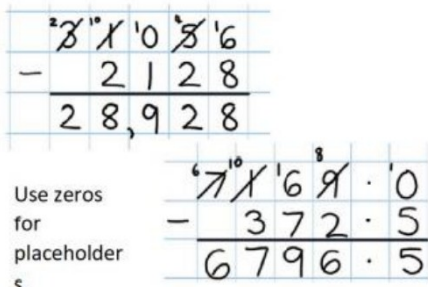
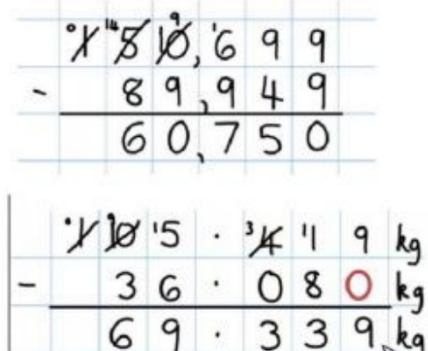
Year 2 Subtraction

Objective and strategy	Concrete	Pictorial	Abstract
Exchange a ten into ten ones	Use place value chart to show how to exchange a ten for 10 ones 	 $20 - 4$	$20 - 4 = 16$
Partition to subtract without exchanging	$34 - 13 = 21$ Use Dienes to show how to partition the number when subtracting without exchanging 	Draw representations of Dienes and cross off  $43 - 21 = 22$	$43 - 21 = 22$
Make ten strategy <i>Progression should be crossing one ten, crossing more than one ten, crossing the hundreds</i>	 $34 - 28$ Use a bead string to model counting to the next ten and the rest	 Use a number line to count on to the next ten and then the rest	$93 - 76 = 17$

Year 3 Subtraction

Objective and strategy	Concrete	Pictorial	Abstract
Subtract numbers mentally, including: - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds			$678 = ? - 1$ $688 - 10 = ?$ $678 = ? - 100$ Vary the position of the answers and questions. Expose children to missing number questions and vary the missing part of the calculation.
Column subtraction without exchanging	 Use Dienes or Numicon to model	Draw representations to support understanding 	Intermediate step may be needed to lead to clear subtraction understanding $\begin{array}{r} 47 - 24 = 23 \\ - \frac{40 + 7}{20 + 3} \end{array}$ 
Column subtraction with exchanging	Begin with Dienes or Numicon. Move to place value counters, modelling the exchange of a ten into 10 ones. 	Draw Dienes or place value counters and cross off 	 Begin by partitioning into pv columns  Then move to formal method.

Year 4 – 6 Subtraction

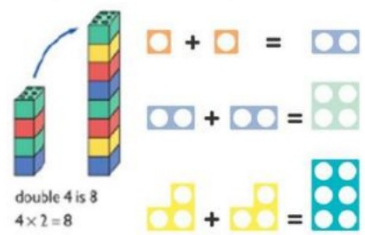
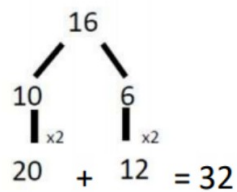
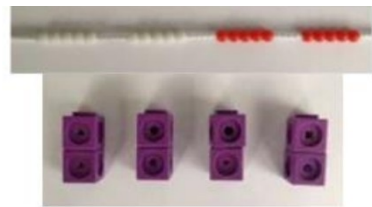
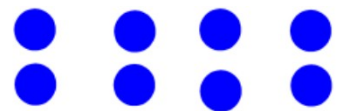
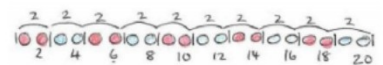
Objective and strategy	Concrete	Pictorial	Abstract
Subtracting tens and ones Year 4 – subtract with up to four digits Introduce decimal subtraction through the context of money	$234 - 179$  Model process of exchange using Numicon, Dienes and then move to place value counters	Draw place value counters and show exchange - see Year 3	
Year 5 – subtract with at least four digits, including money and measures Subtract with decimal values, including mixtures of integers and decimals, aligning the decimal point	As Year 4	Draw place value counters and show exchange - see Year 3	
Year 6 – subtract with increasingly large and more complex numbers and decimal values			

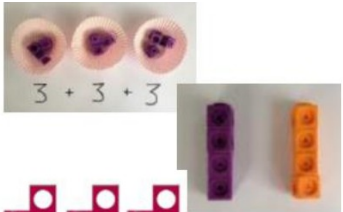
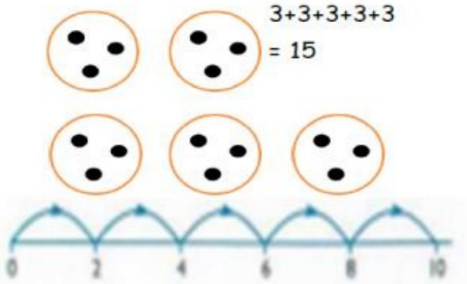
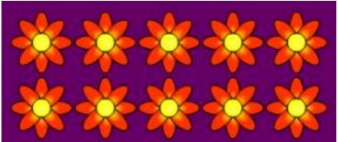
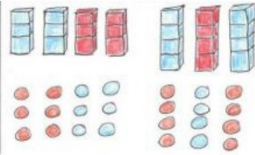
Key vocabulary: subtraction

take away, less than, the difference, subtract, minus, fewer, decrease, '7 take away 3, the difference is four'

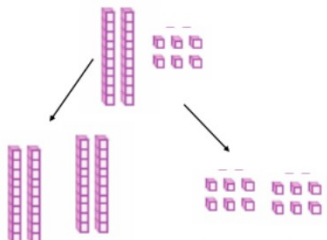
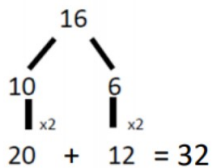
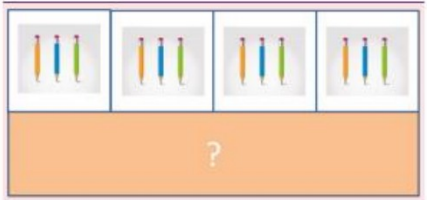
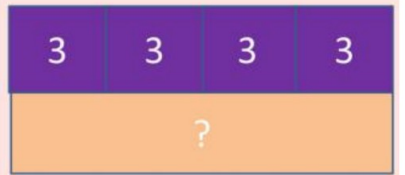
Multiplication

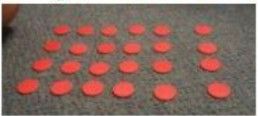
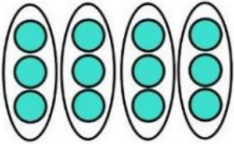
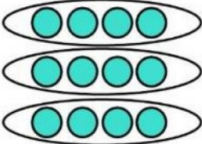
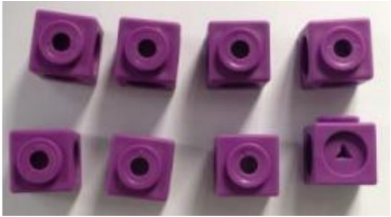
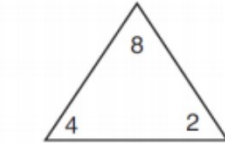
Year 1 Multiplication

Objective and strategy	Concrete	Pictorial	Abstract
Doubling	Use practical activities using manipulatives including cubes and Numicon to demonstrate doubling  double 4 is 8 $4 \times 2 = 8$	Draw pictures to show how to double numbers Double 4 is 8 	Partition a number and then double each part before recombining it back together  $20 + 12 = 32$
Counting in multiples		 Make representations to show counting in multiples 	Count in multiples of a number aloud Write sequences with multiples of numbers 2, 4, 6, 8, 10 5, 10, 15, 20, 25, 30
Making equal groups and counting the total	Use manipulatives to create equal groups  $\square \times \square = 8$	Draw and make representations	$2 \times 4 = 8$

Objective and strategy	Concrete	Pictorial	Abstract
Repeated addition	 Use different objects to add equal groups	Use pictures including number lines to solve problems 	Write addition sentences to describe objects and pictures 
Understanding arrays	Use objects laid out in arrays to find the answers to 2 lots of 5, 3 lots of 2 etc. 	Draw representations of arrays to show understanding 	$3 \times 2 = 6$ $2 \times 5 = 10$

Year 2 Multiplication

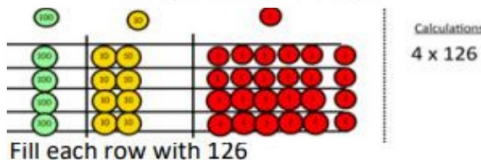
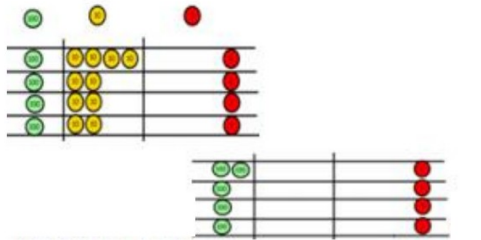
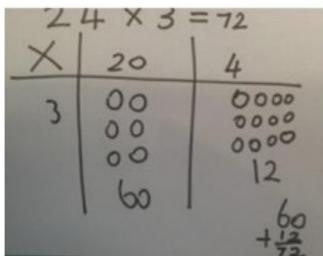
Objective and strategy	Concrete	Pictorial	Abstract
Doubling	Model doubling using Dienes and place value counters  $40 + 12 = 52$	Draw pictures and representations to show how to double numbers	Partition a number and then double each part before recombining it back together.  $20 + 12 = 32$
Counting in multiples of 2, 3, 4, 5 and 10 from 0 <i>Repeated addition</i>	 $5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 40$  	Number lines, counting sticks and bar models should be used to show representation of counting in multiples    	Count in multiples of a number aloud. Write sequences with multiples of numbers. 0, 2, 4, 6, 8, 10 0, 3, 6, 9, 12, 15 0, 5, 10, 15, 20, 25, 30 $4 \times 3 = \underline{\quad}$

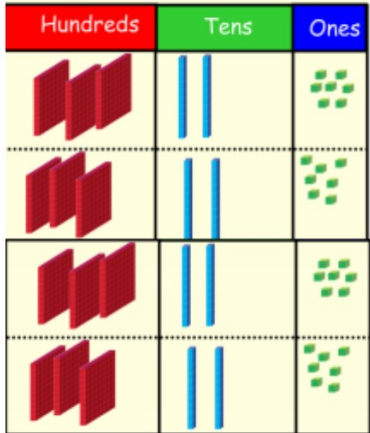
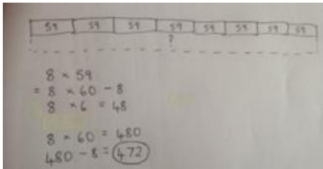
Objective and strategy	Concrete	Pictorial	Abstract
Multiplication is commutative	Create arrays using counters and cubes and Numicon.    Pupils should understand that an array can represent different equations and that, as multiplication is commutative, the order of the multiplication does not affect the answer.  	Use representations of arrays to show different calculations and explore commutatively  	$12 = 3 \times 4$ $12 = 4 \times 3$ Use an array to write multiplication sentences and reinforce repeated addition  $5 + 5 + 5 = 15$ $3 + 3 + 3 + 3 + 3 = 15$ $5 \times 3 = 15$ $3 \times 5 = 15$
Using the inverse <i>This should be taught alongside division, so pupils learn how they work alongside each other</i>		 $\square \times \square = \square$ $\square \times \square = \square$ $\square \div \square = \square$ $\square \div \square = \square$	$2 \times 4 = 8$ $4 \times 2 = 8$ $8 \div 2 = 4$ $8 \div 4 = 2$ $8 = 2 \times 4$ $8 = 4 \times 2$ $2 = 8 \div 4$ $4 = 8 \div 2$ Show all 8 related fact family sentence

Year 3 Multiplication

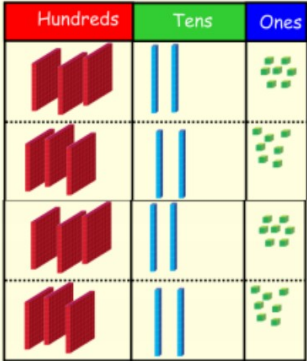
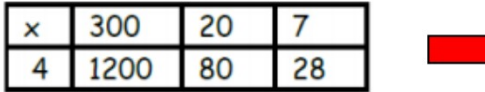
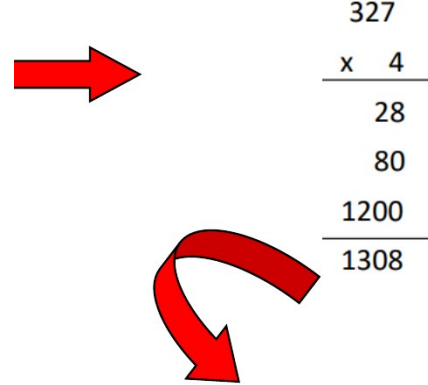
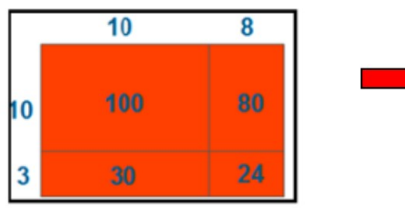
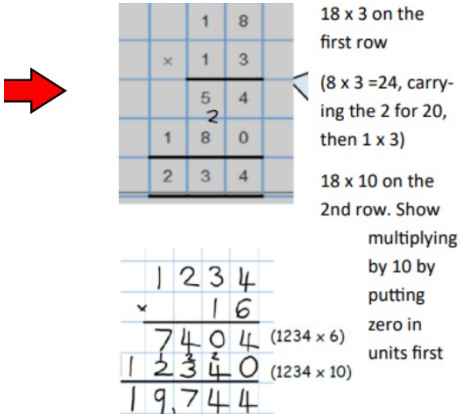
Objective and strategy	Concrete	Pictorial	Abstract
Grid method	Show the links with arrays to first introduce the grid method x 10 3 4 <		

Year 4 Multiplication

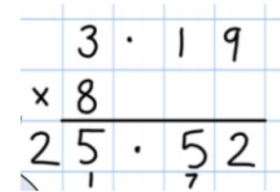
Objective and strategy	Concrete	Pictorial	Abstract						
Grid method recap from Year 3 for two-digit $\times$ one-digit <i>Move to multiplying three-digit numbers by one-digit</i>	Use place value counters to show how we are finding groups of a number. We are multiplying by 4 so we need 4 rows  Fill each row with 126  Add up each column making any exchanges needed	Represent work with place value counters in a way that they understand. Draw the counters using colours to show different amounts or just use the circles in the different columns to show their thinking 	Start with multiplying by one-digit numbers and showing the clear addition alongside the grid <table border="1" data-bbox="1621 469 1912 549"><tr><td>$\times$</td><td>30</td><td>5</td></tr><tr><td>7</td><td>210</td><td>35</td></tr></table> $210 + 35 = 245$	$\times$	30	5	7	210	35
$\times$	30	5							
7	210	35							

Objective and strategy	Concrete	Pictorial	Abstract																								
Column multiplication	Continue to use place value counters to support. Start with no exchanging  It is important at this stage that they always multiply the ones first. The corresponding long multiplication is modelled alongside	<table border="1" data-bbox="1133 220 1413 288"> <tr> <td>x</td><td>300</td><td>20</td><td>7</td></tr> <tr> <td>4</td><td>1200</td><td>80</td><td>28</td></tr> </table> The grid method may be used to show how this relates to a formal written method.  Bar modelling and number lines can support learners when solving problems with multiplication alongside the formal written methods.	x	300	20	7	4	1200	80	28	 $\begin{array}{r} 327 \\ \times 4 \\ \hline 28 \\ 80 \\ 1200 \\ \hline 1308 \end{array}$  <table border="1" data-bbox="1693 560 1917 730"> <tr> <td></td><td>3</td><td>2</td><td>7</td></tr> <tr> <td>x</td><td></td><td></td><td>4</td></tr> <tr> <td></td><td>1</td><td>3</td><td>0</td></tr> <tr> <td></td><td></td><td>2</td><td>8</td></tr> </table> This may lead to a compact method.		3	2	7	x			4		1	3	0			2	8
x	300	20	7																								
4	1200	80	28																								
	3	2	7																								
x			4																								
	1	3	0																								
		2	8																								

Year 5 and 6 Multiplication

Objective and strategy	Concrete	Pictorial	Abstract
Column multiplication for 3- and 4-digit $\times$ 1-digit	 It is important at this stage that they always multiply the ones first. Use place value counters to support understanding. This initially is done with no exchanging $321 \times 2 = 642$		 This will lead to a compact method.
Column multiplication	Manipulatives may still be used with the corresponding long multiplication modelled alongside	 Continue to use bar models to support problem solving	 18 x 3 on the first row $(8 \times 3 = 24, \text{ carrying the } 2 \text{ for } 20, \text{ then } 1 \times 3)$ 18 x 10 on the 2nd row. Show multiplying by 10 by putting zero in units first

Year 6 Multiplication

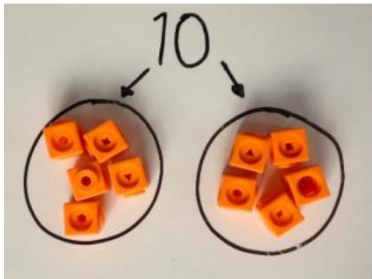
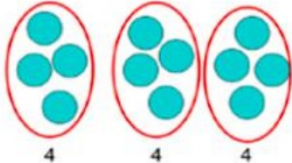
Objective and strategy	Concrete	Pictorial	Abstract
Multiplying decimals up to 2 decimal places by a single digit			Remind children that the single digit belongs in the ones column. Line up the decimal point in the question and answer.  Number of decimal places in the question is reflected in the answer.

Key vocabulary: multiplication

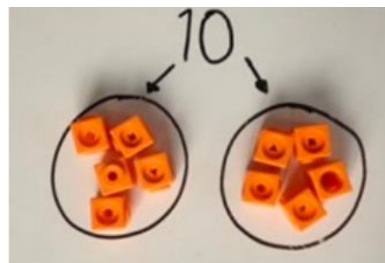
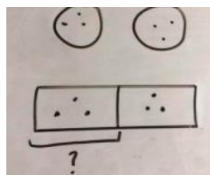
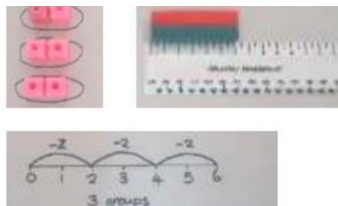
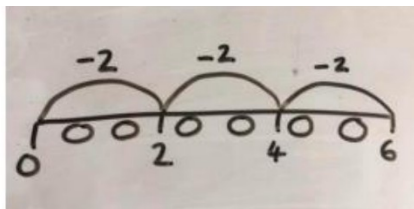
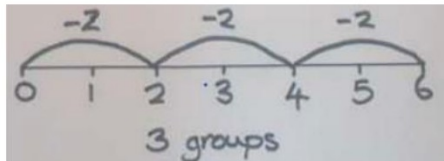
double, times, multiplied by, the product of, groups of, lots of, equal groups.

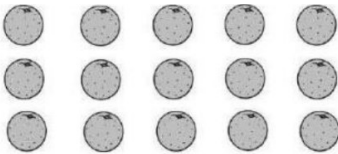
Division

Year 1 Division

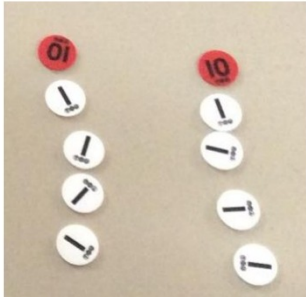
Objective and strategy	Concrete	Pictorial	Abstract
Division as sharing	   I have 10 cubes. Can you share them equally into 2 groups?	Pictures or shapes used to share quantities  8 shared between 2 is 4. Sharing:  12 shared between 3 is 4	8 shared between 2 is 4.

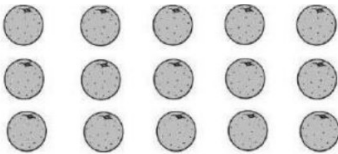
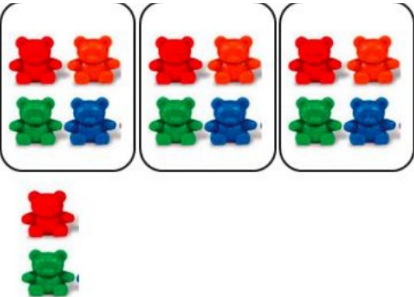
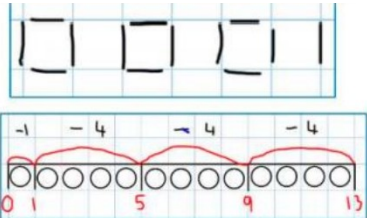
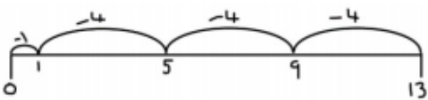
Year 2 Division

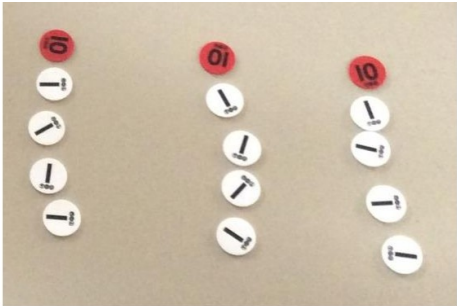
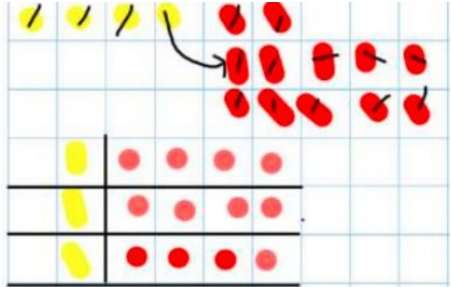
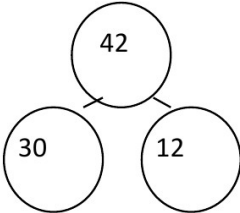
Objective and strategy	Concrete	Pictorial	Abstract								
Division as sharing	 Joe has 10 cubes. Can you share them into 2 equal groups?	 Representing sharing pictorially. <table><tr><td colspan="3">?</td></tr><tr><td>2</td><td>2</td><td>2</td></tr></table> Bar models used to share and to support understanding of equal parts.	?			2	2	2	$6 \div 2 = 3$ What's the calculation? <table><tr><td>3</td><td>3</td></tr></table>	3	3
?											
2	2	2									
3	3										
Division as repeated subtraction	 Understanding division as repeated subtraction and groupings		Abstract numberline 								

Objective and strategy	Concrete	Pictorial	Abstract
Division within arrays	 Link division to multiplication using an array. Think about the number sentences that can be created. $5 \times 2 = 10$ $2 \times 5 = 10$ $10 \div 2 = 5$ $10 \div 5 = 2$	 Draw an array and use lines to split the array into groups. Which multiplication and division sentences can be made?	Find the inverse of multiplication and division sentences by creating four linking number sentences. $3 \times 4 = 12$ $4 \times 3 = 12$ $12 \div 3 = 4$ $12 \div 4 = 3$

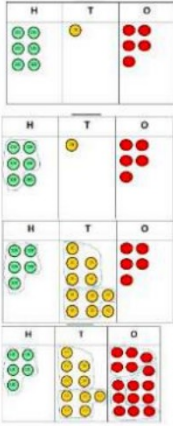
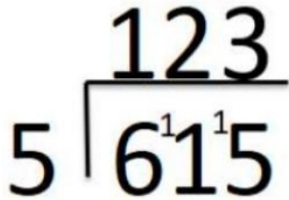
Year 3 – 4 Division

Objective and strategy	Concrete	Pictorial	Abstract
Division as grouping	Use cubes, counters, objects or place value counters to support understanding.  $28 \div 2 = 14$	 $20 \div 5 = ?$ $5 \times ? = 20$	How many groups of 8 are in 24? $24 \div 8 =$

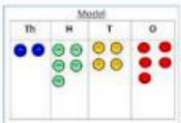
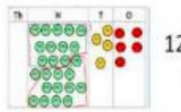
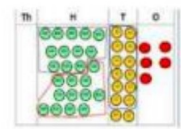
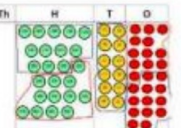
Objective and strategy	Concrete	Pictorial	Abstract
Division with arrays	 Link division to multiplication using an array. Think about the number sentences that can be created. $4 \times 6 = 24$ $6 \times 4 = 24$ $24 \div 4 = 6$ $24 \div 6 = 4$	 Draw an array and use lines to split the array into groups. Which multiplication and division sentences can be made?	Find the inverse of multiplication and division facts by creating linking number sentences. $4 \times 6 = 24$ $6 \times 4 = 24$ $24 \div 4 = 6$ $24 \div 6 = 4$ $24 = 4 \times 6$ $24 = 6 \times 4$ $6 = 24 \div 4$ $4 = 24 \div 6$
Division with remainders	 Divide into equal groups. How many are left over? $14 \div 3 =$	 A pictorial representation of the practical resources used.	 $13 \div 4 = 3$ remainder 1 Children should use their times table facts and also represented as repeated subtraction on a number line.

Objective and strategy	Concrete	Pictorial	Abstract
Division as sharing	 Using place value counters share into equal groups. Exchange if necessary $42 \div 3 = 14$	 Drawing of the resources used	Partitioning to divide using a whole-part model. $42 \div 3 = 14$  Partition so that each part is divisible. $42 = 30 + 12$ $30 \div 3 = 10$ $12 \div 3 = 4$ $10 + 4 = 14$

Year 5 – 6 Division

Objective and strategy	Concrete	Pictorial	Abstract
Divide at least 3-digit numbers by 1-digit <i>Short division</i>	$615 \div 5$  Step 1: make 615 Step 2: Circle your groups of 5 Step 3: Exchange 1H for 10T and circle groups of 5 Step 4: exchange 1T for 10ones and circles groups of 5 Use of the 'bus stop' method using place value counters.	Pictorial representations to show grouping of concrete resources whilst the children need it.	

Year 5 – 6 Long Division

Objective and strategy	Concrete	Pictorial	Abstract
Long division	 $\begin{array}{r} 0212 \\ 12 \overline{)2544} \\ \underline{24} \\ 14 \\ \underline{12} \\ 24 \\ \underline{24} \\ 0 \end{array}$ $2544 \div 12$ How many groups of 12 thousands do we have? None  Exchange 2 thousand for 20 hundreds.  $\begin{array}{r} 02 \\ 12 \overline{)2544} \\ \underline{24} \\ 1 \end{array}$ How many groups of 12 are in 25 hundreds? 2 groups. Circle them. We have grouped 24 hundreds so can take them off and we are left with one.  $\begin{array}{r} 021 \\ 12 \overline{)2544} \\ \underline{24} \\ 14 \\ \underline{12} \\ 2 \end{array}$ Exchange the one hundred for ten tens so now we have 14 tens. How many groups of 12 are in 14? 1 remainder 2.  Exchange the two tens for twenty ones so now we have 24 ones. How many groups of 12 are in 24? 2	Children can represent place value counters and record the subtractions beneath.	$\begin{array}{r} 0 \\ 12 \overline{)2544} \end{array}$ Step one- exchange 2 thousand for 20 hundreds so we now have 25 hundreds. $\begin{array}{r} 02 \\ 12 \overline{)2544} \\ \underline{24} \\ 1 \end{array}$ Step two- How many groups of 12 can I make with 25 hundreds? The 24 shows the hundreds we have grouped. The one is how many hundreds we have left. $\begin{array}{r} 021 \\ 12 \overline{)2544} \\ \underline{24} \\ 14 \\ \underline{12} \\ 2 \end{array}$ Exchange the one hundred for 10 tens. How many groups of 12 can I make with 14 tens? The 14 shows how many tens I have, the 12 is how many I grouped and the 2 is how many tens I have left. $\begin{array}{r} 0212 \\ 12 \overline{)2544} \\ \underline{24} \\ 14 \\ \underline{12} \\ 24 \\ \underline{24} \\ 0 \end{array}$ Exchange the 2 tens for 20 ones. The 24 is how many ones I have grouped and the 0 is what I have left.

Key vocabulary: division

share, group, divide, divided by, half, repeated subtraction.