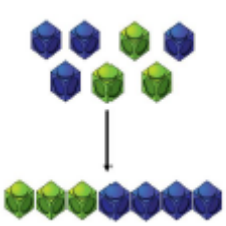
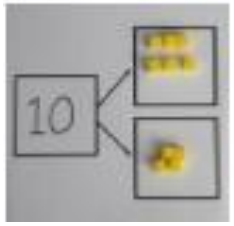
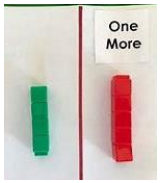
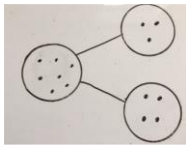
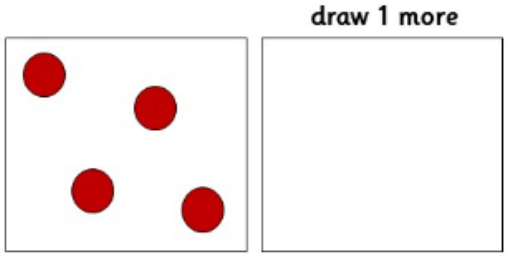
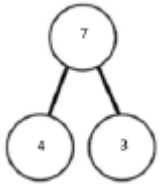
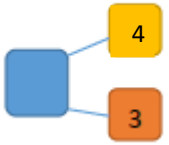
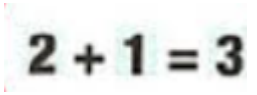
Church Vale Primary School
Calculation Policy

H Etheridge - September 2026

Calculation Policy: Addition

Objective and Strategies	Concrete	Pictorial	Abstract
Combining two parts to make a whole (use other resources too e.g. eggs, shells, teddy bears, cars). Including one more	Use cubes/resources to add two numbers together as a group or in a bar.    	Children to represent the resources using dots or crosses. They could put each part on a part whole model too.   	4 + 3 = 7 Four is a part, 3 is a part and the whole is seven.   

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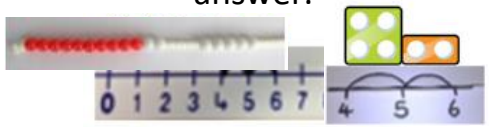
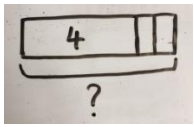
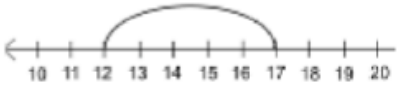
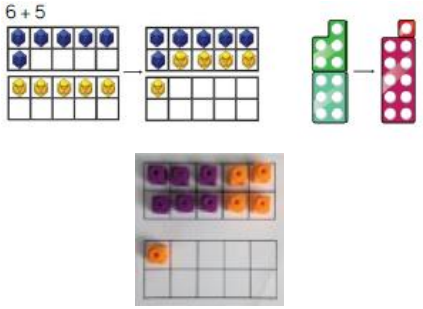
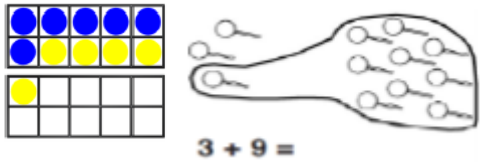
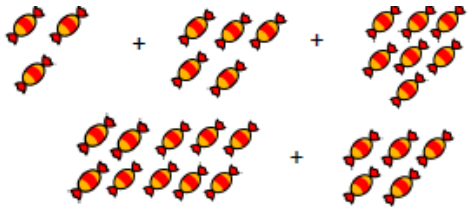
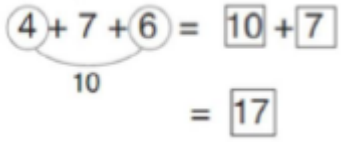
Starting at the bigger number then counting on using a numberline / numicon or other resources	Start with the larger number then count on to the smaller number 1 by 1 to find the answer. 	A bar model which encourages the children to count on in ones or as one group, to find the answer. **12 + 5 = 17**  	The abstract number line: What is 2 more than 4? What is the sum of 2 and 4? What is the total of 4 and 2?  **5 + 12 = 17**
Regrouping to make 10	Using ten frames, counters, cubes or Numicon. 	Use pictures or a number line. Regroup or partition the smaller number to make 10.  **3 + 9 =**	Children to develop an understanding of equality e.g. $6 + \square = 11$ $6 + 5 = 5 + \square$ $6 + 5 = \square + 4$ 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?
Adding three single digits	Put 4 and 6 together to make 10. Add on 7.  Following on from making 10, make 10 with 2 of the digits (if possible) then add on the third digit.	Add together three groups of objects. Draw a picture to recombine the groups to make 10. 	Combine the two numbers that make 10 and then add on the remainder. 

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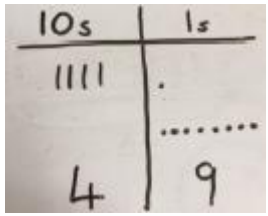
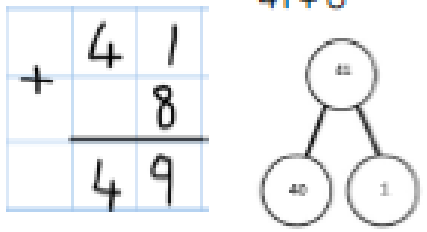
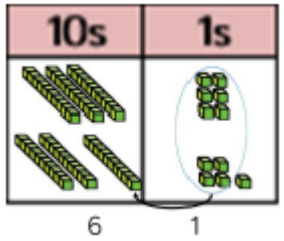
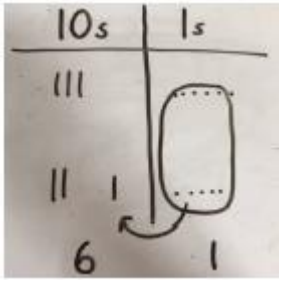
TO + O	TO + O using base 10. Continue to develop understanding of partitioning and place value. 41 + 8 	Children to represent the base 10 e.g. lines for tens and dot/crosses for ones. 	
TO + TO	TO + TO using base 10. Continue to develop understanding of partitioning and place value. 36 + 25 	Children to represent the base 10 in a place value chart. 	Formal Method 

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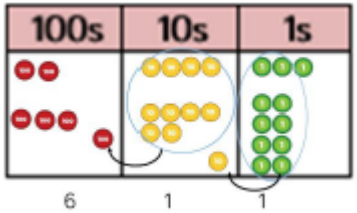
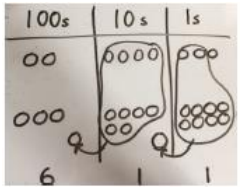
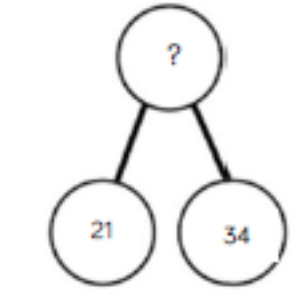
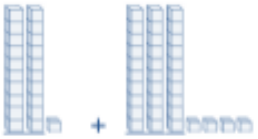
HTO + TO HTO + HTO	Use of place value counters to add. When there are 10 ones in the 1s column- we exchange for 1 ten, when there are 10 tens in the 10s column- we exchange for 1 hundred. 	Children to represent the counters in a place value chart, circling when they make an exchange. 	Formal Method 243 +368 611 1 1

Conceptual variation; different ways to ask children to solve 21 + 34

 ? | 21 | 34	Word problems: In year 3, there are 21 children and in year 4, there are 34 children. How many children in total? 21 + 34 = 55. Prove it	21 +34 ____ 21 + 34 = □ = 21 + 34 Calculate the sum of twenty-one and thirty-four.	 Missing digit problems: 10s | 1s ? | 5

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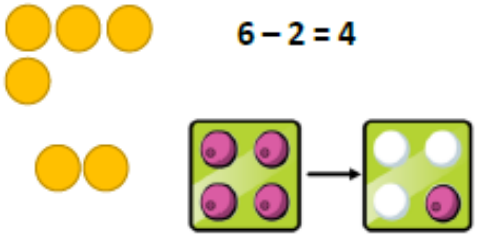
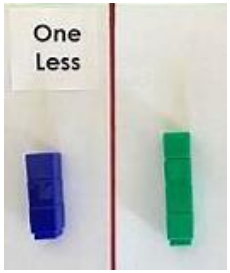
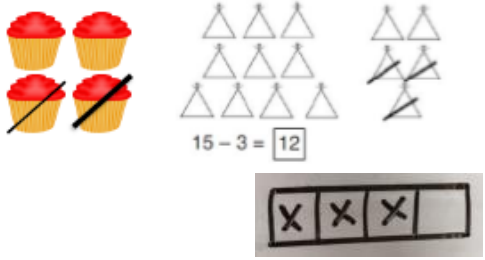
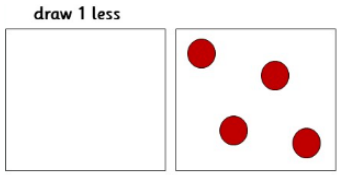
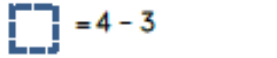
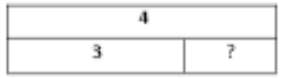
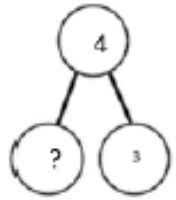
Calculation Policy: Subtraction

Objective and Strategies	Concrete	Pictorial	Abstract
Taking away ones	Use physical objects, counters, cubes etc to show how objects can be taken away.  	Children to draw the concrete objects they are using and cross out the correct amount. The bar model can also be used.  	4- 3 =    18 -3= 15 8 – 2 = 6 4 – 1 =

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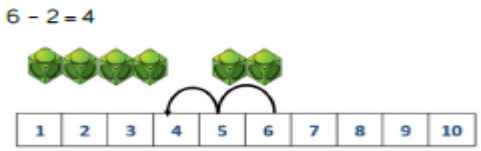
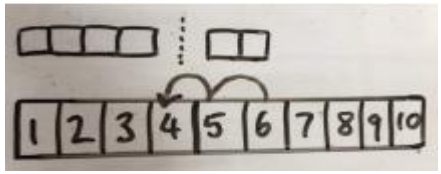
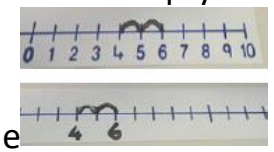
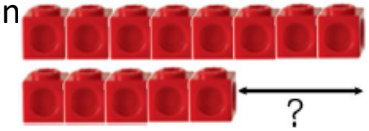
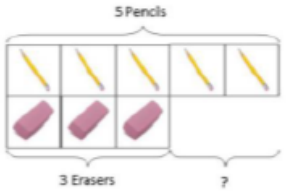
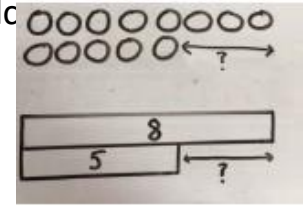
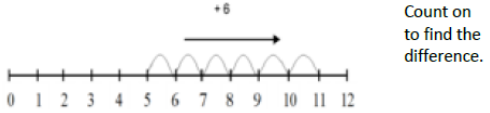
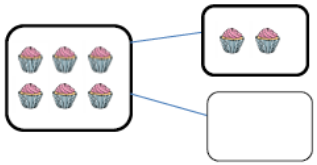
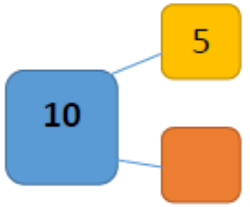
Counting back Year 6 do this with negative numbers & decimals	Using number lines, beads or cubes. Children start with 6 and count back 2. 	Children to represent what they see pictorially e.g. 	Children to represent the calculation on a number line and show their jumps. Encourage children to use an empty number line  'Put 13 in your head, count back 4'
Finding the difference	Using cubes, Numicon or Cuisenaire rods, other objects can also be used. Calculate the difference between  	Children to draw the cubes/other concrete objects which they have used or use the bar model to illustrate what they need to calc  	Find the difference between 8 and 5. 8 – 5, the difference is Children to explore why 9 - 6 = 8 – 5 = 7 – 4 have the same difference. Hannah has 23 sandwiches, Helen has 15 sandwiches. Find the difference between the number of sandwiches.
Part whole model	Link to addition- use the part whole model to help explain the inverse between addition and subtraction. If 10 is the whole and 6 is one of the parts.	Use a pictorial representation of objects to show the part, part whole model. 	Move to numbers using the part, part whole model. 

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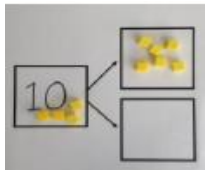
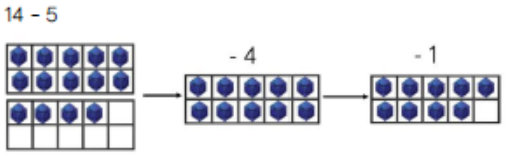
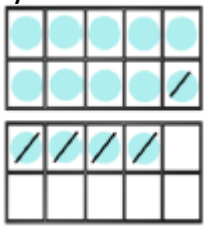
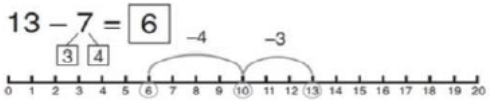
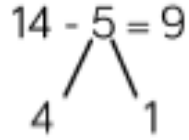
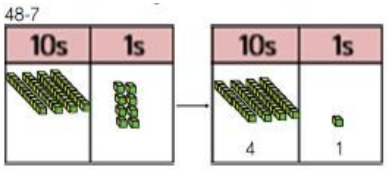
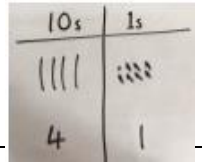
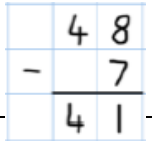
	What is the other part? 10 - 6 = 		
Making 10	Using 10 frames. 	Children to present the ten frame pictorially and discuss what they did to make 10.  Can also show on number lines.  Start at 13, take away three to make 10 then take away the 4.	16 – 8= How many do we take off to reach the next 10? How many do we have left to take off? Children to show how they can make 10 by partitioning.  14 - 4 = 10 10 - 1 = 9
Column method without grouping TO - O	Use Base 10 to make the bigger number then take the smaller number away. 	Draw the Base 10 alongside the written calculation to help to show working. 	This will lead to a clear written column subtraction. Or children could count back when they understand the place value. 

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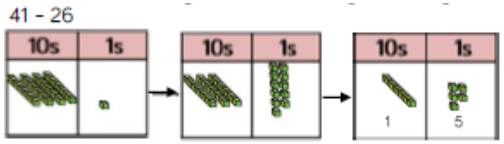
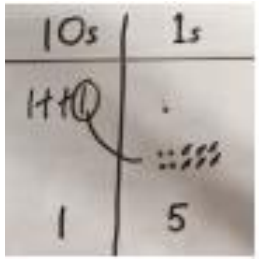
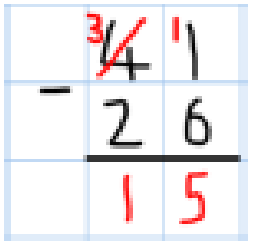
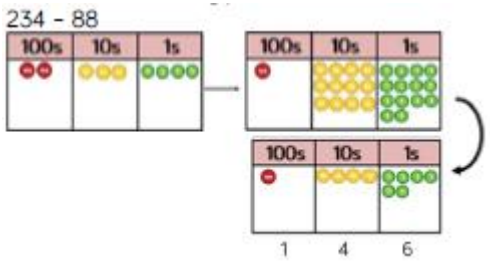
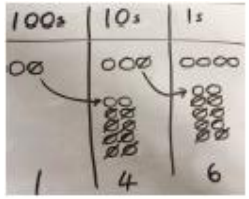
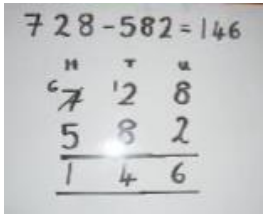
Column method with regrouping TO – TO This method could also be used for TO – O when needing to regroup	Use Base 10 to exchange ten ones for one ten so the subtraction can be done. 	Represent the base 10 pictorially, remembering to show the exchange. Do this alongside calculation. 	Formal column method. Children must understand that when they have exchanged the 10 they still have 41 because 41 = 30 + 11. 
Column method with place value counters Column method with place value counters HTO – HTO HTO - TO	Using place value counters. 	Represent the place value counters pictorially; remembering to show what has been exchanged. 	Formal colum method. Children must understand what has happened when they have crossed out digits. 

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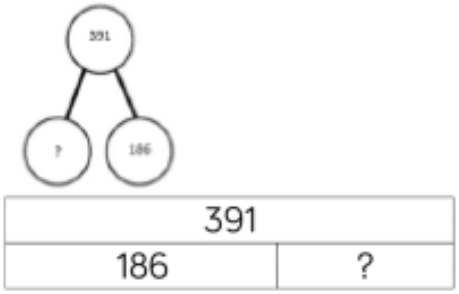
			This will lead to an understanding of subtracting any number including decimals. 5 12 1 2 ~~6~~ ~~3~~ . 0 - 2 6 . 5 2 3 6 . 5

Conceptual variation; different ways to ask children to solve 391 - 186



Raj spent £391, Timmy spent £186.
How much more did Raj spend?

Calculate the difference between 391 and 186.

□ = 391 – 186

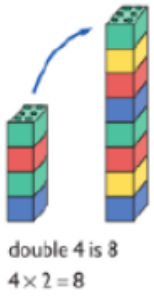
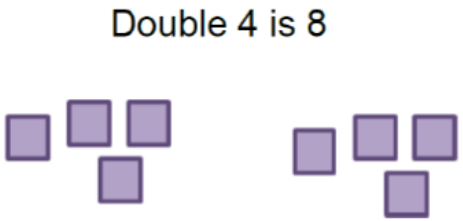
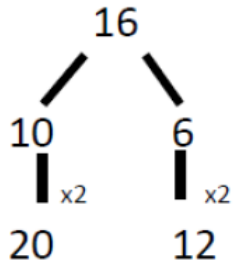
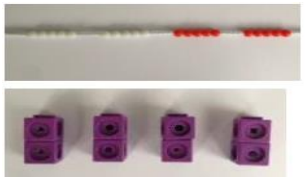
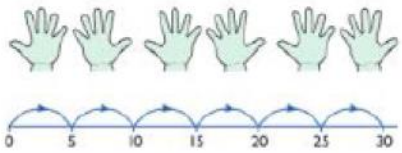
391
-186
———

What is 186 less than 391?

Missing digit calculations

3 9 □
- □ □ 6
———
□ 0 5

Calculation Policy: Multiplication

Objective and Strategies	Concrete	Pictorial	Abstract
Doubling	Use practical activities to show how to double a number.  	Draw pictures to show how to double a number.  	Partition a number and then double each part before recombining it back together. 
Counting in multiples Counting in multiples	Count in multiples supported by concrete objects in equal groups. 	Use a number line or pictures to continue support in 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**

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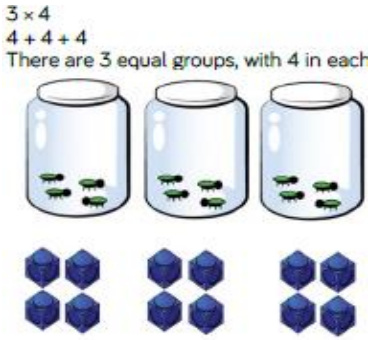
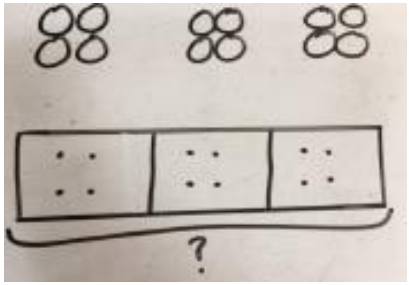
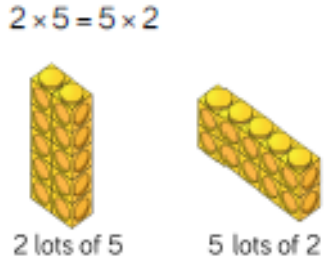
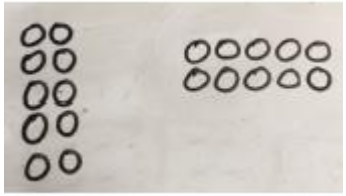
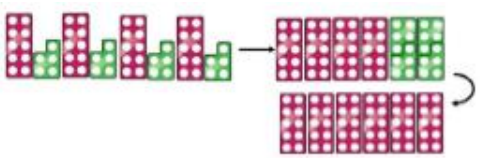
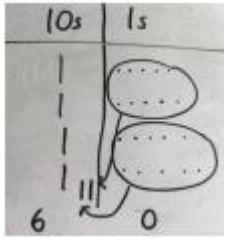
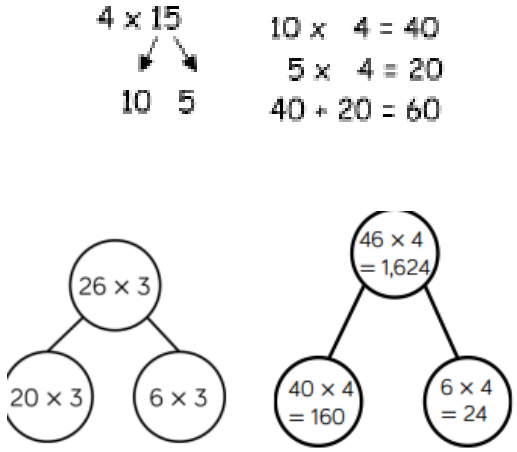
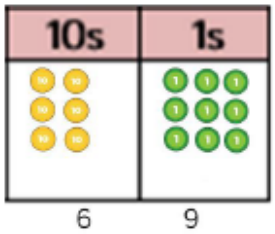
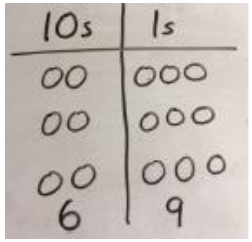
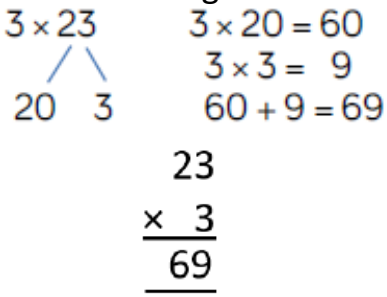
Repeated addition	Repeated grouping/repeated addition 3 × 4 4 + 4 + 4 There are 3 equal groups, with 4 in each group.  	Children to represent the practical resources in a picture and use a bar model.  	3 × 4 = 12 4 + 4 + 4 = 12
Arrays to illustrate commutativity Arrays to illustrate commutativity	Create arrays using counters/ cubes to show multiplication sentences.  	Children to represent the arrays pictorially.  I am showing 2 x 5 and 5 x 2 2 x 5 = 5 x 2	Children to be able to use an array to write a range of calculations e.g. 10 = 2 × 5 5 × 2 = 10 2 + 2 + 2 + 2 + 2 = 10 10 = 5 + 5

Partition to multiply	Using Numicon, base 10 or Cuisenaire rods. 4 × 15 	Children to represent the concrete manipulatives pictorially. 	Children to be encouraged to show the steps they have taken. 
Formal column method TO x O Not reaching 100	With place value counters (base 10 can also be used.) 3 × 23 	Children to represent the counters pictorially. 	Children to record what it is they are doing to show understanding. 

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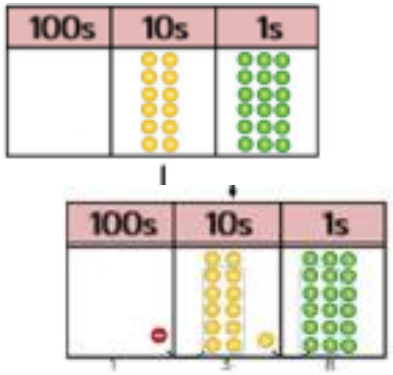
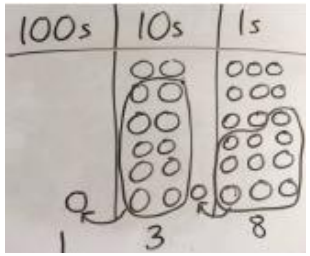
<table>
<tr>
<td>Formal column method
TO x O
Over 100</td>
<td>Formal column method with place value counters.
6 x 23
 
</td>
<td>Children to represent the counters/base 10, pictorially e.g. the image below.
 
</td>
<td>Formal written method
$$\begin{array}{r} 23 \\ \times\ 6 \\ \hline 138 \\ \hline 1\ 1 \end{array}$$</td>
</tr>
<tr>
<td colspan="4">When children start to multiply HTO x HTO and ThHTO × TO etc., they should be confident with the abstract.
$$\begin{array}{r} 1\ 2\ 4 \\ \times\ \ \ 2\ 6 \\ \hline 7\ 4\ 4 \\ 2\ 4\ 8\ 0 \\ \hline 3\ 2\ 2\ 4 \\ \hline 1\ 1 \end{array}$$
Answer: 3224</td>
</tr>
</table>

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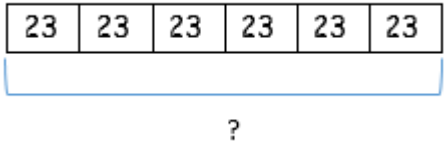
Conceptual variation; different ways to ask children to solve 6 x 23



Mai had to swim 23 lengths, 6 times a week.
How many lengths did she swim in one week?

With the counters, prove that 6 x 23 = 138

Find the product of 6 and 23

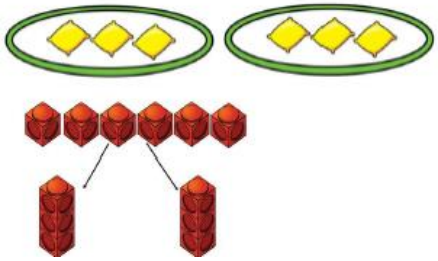
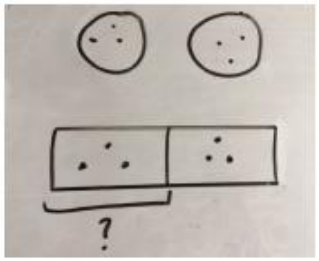
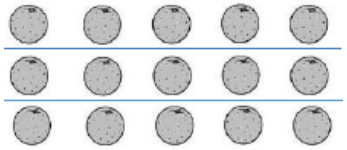
$6 \times 23 =$

$\square = 6 \times 23$

$$\begin{array}{r} 6 \\ \times\ 23 \\ \hline \\ \hline \end{array} \qquad \begin{array}{r} 23 \\ \times\ 6 \\ \hline \\ \hline \end{array}$$

What is the calculation?
What is the product?

Calculation Policy: Division

Objective and Strategies	Concrete	Pictorial	Abstract
Sharing	Using a range of objects. 6 ÷ 2 	Represent the sharing pictorially. 	6 ÷ 2 = 3  Children should also be encouraged to use their 2 times tables facts. Represent what has been shown pictorially using numbers but not the divide sign.
Division within arrays	Link division to multiplication by creating an array and thinking about the number sentences that can be created.  15 ÷ 3 = 5 5 x 3 = 15 15 ÷ 5 = 3 3 x 5 = 15	Draw an array and use lines to split the array into groups to make multiplication and division sentences. 	Find the inverse of multiplication and division sentences by creating four linking number sentences. **7 x 4 = 28** **4 x 7 = 28** **28 ÷ 7 = 4** **28 ÷ 4 = 7**

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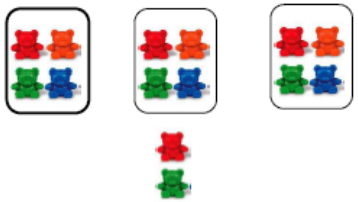
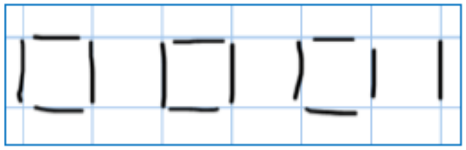
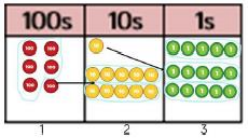
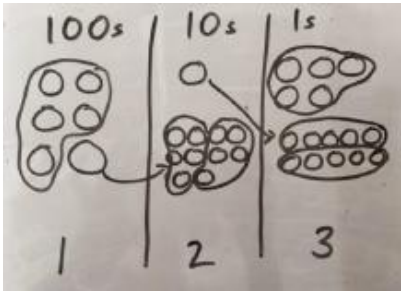
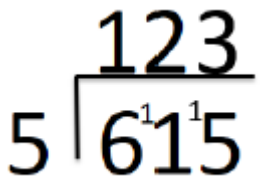
Division with remainders TO ÷ O	Using a range of objects and equipment, divide into groups and see how many is left over  Use of lollipop sticks to form wholes- squares are made because we are dividing by 4.  There are 3 whole squares, with 1 left over.	Draw dots and group them to divide an amount and clearly show a remainder.  Children to represent the lollipop sticks pictorially. 	13 ÷ 4 = 3 remainder 1 Children should be encouraged to use their times table facts; they could also represent repeated addition on a number line. ‘3 groups of 4, with 1 left over’
Short Division Short Division	Using place value counters to group. 615 ÷ 5  1. Make 615 with place value counters. 2. How many groups of 5 hundreds can you make with 6 hundred counters? 3. Exchange 1 hundred for 10 tens. 4. How many groups of 5 tens can you make with 11 ten counters? 5. Exchange 1 ten for 10 ones. 6. How many groups of 5 ones can you make with 15 ones?	Represent the place value counters pictorially.  	Children do the calculation using the short division scaffold. 

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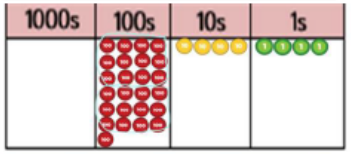
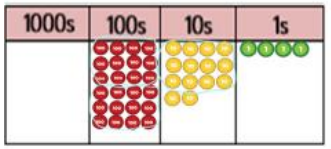
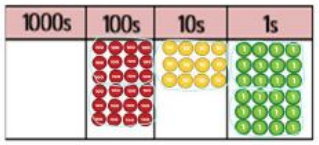
Long Division	Using place value counters 2544 ÷ 12  We can't group 2 thousands into groups of 12 so will exchange them.  We can group 24 hundreds into groups of 12 which leaves with 1 hundred. 02 12|2544 24 1  After exchanging the hundred, we have 14 tens. We can group 12 tens into a group of 12, which leaves 2 tens. 021 12|2544 24 14 12 2  After exchanging the 2 tens, we have 24 ones. We can group 24 ones into 2 group of 12, which leaves no remainder. 0212 12|2544 24 14 12 24 24 0 After practise and gained understanding with the place value counters, children will be expected to do long division without counters.

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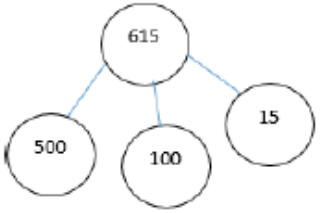
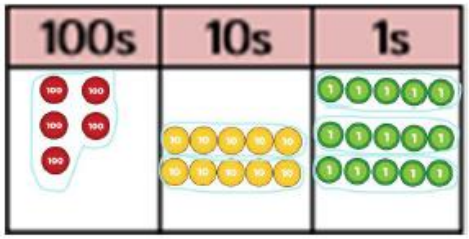
Conceptual variation; different ways to ask children to solve 615 ÷ 5

Using the part whole model below, how can you divide 615 by 5 without using short division?  	I have £615 and share it equally between 5 bank accounts. How much will be in each account? 615 pupils need to be put into 5 groups. How many will be in each group?	$5 \overline{)615}$ 615 ÷ 5 = ☐ = 615 ÷ 5	What is the calculation? What is the answer? 

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Calculation Policy: Guidance

	EYFS / Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition	Combining two parts to make a whole: part whole model. Starting at the bigger number and counting on- using cubes. Regrouping to make 10 using ten frame.	Adding three single digits. Column method - regrouping Use of base 10 to combine two numbers.	Column method- regrouping. Using place value counters (up to 3 digits).	Column method- regrouping. (up to 4 digits)	Column method- regrouping. Use of place value counters for adding decimals.	Column method- regrouping. Abstract methods. Place value counters to be used for adding decimal numbers.
Subtraction	Taking away ones Counting back Find the difference Part whole model Make 10 using the ten frame	Counting back Find the difference Part whole model Make 10 Use of base 10 Column method	Column method with regrouping. (up to 3 digits using place value counters)	Column method with regrouping. (up to 4 digits)	Column method with regrouping. Abstract for whole numbers. Start with place value counters for decimals- with the same amount of decimal places.	Column method with regrouping. Abstract methods. Place value counters for decimals- with different amounts of decimal places.

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Multiplication	Recognising and making equal groups. Doubling Counting in multiples. Use cubes, Numicon and other objects in the classroom	Arrays- showing commutative multiplication	Arrays 2d × 1d using base 10 Column multiplication for 2 digits by 1 digit - introduced with place value counters and then written.	Column multiplication- introduced with place value counters, moving to abstract. (2 and 3 digit multiplied by 1 digit)	Column multiplication Abstract only but might need a repeat of year 4 first(up to 4 digit numbers multiplied by 1 or 2 digits)	Column multiplication Abstract methods (multi-digit up to 4 digits by a 2 digit number)
Division	Sharing objects into equal groups. Division as grouping e.g. I have 12 sweets and put them in groups of 3, how many groups?	Division as grouping Division within arrays- linking to multiplication Repeated subtraction	Division -using lollipop sticks, times tables facts and repeated subtraction. 2d divided by 1d using base 10 or place value counters	Division with a remainder Short division (up to 3 digits by 1 digit- CPA)	Short division (up to 4 digits by a 1 digit number including remainders – moving onto remainders as fractions)	Short division Long division with place value counters (up to 4 digits by a 2 digit number) Children should exchange into the tenths and hundredths column too

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