Calculation Policy

At Belvedere Infant and Junior School, we are committed to ensuring that every child, regardless of their background, becomes a confident and capable mathematician. As a school serving a community with high levels of deprivation and a significant number of pupils with English as an Additional Language (EAL), we recognise the importance of providing all our students with the tools and support they need to succeed in mathematics. Our Maths Calculation Policy is designed to ensure that all children, no matter their starting point, develop strong calculation skills, improving both their fluency and their ability to apply these skills in problem-solving contexts.

Our approach to teaching calculation is based on the White Rose Maths framework, which uses a concrete, pictorial, abstract (CPA) approach. This model supports all learners by helping them build a deep understanding of mathematical concepts. Children begin by experiencing calculations through manipulatives (concrete), move on to representing concepts with images and diagrams (pictorial), and eventually transition to more abstract methods using numbers and symbols (abstract). This carefully structured progression ensures that students build a secure foundation for tackling more complex problems and fosters a deeper understanding of mathematical concepts.

We follow a clear progression based on year group expectations, ensuring that all children are supported to meet the end-of-year expectations. The policy emphasises developing fluency in key calculation skills at each stage, with a strong focus on consistency in approach and methodology.

As a school with a high proportion of children who face additional challenges, we place particular emphasis on personalised support and adaptive teaching. We are committed to ensuring that every child, including those with additional learning needs and EAL, can access the curriculum and make progress in their learning.

To ensure the consistent delivery of our calculation policy, teachers are trained by the Maths Leader, who provides ongoing support and professional development. This training helps staff to implement the policy effectively, making use of resources like White Rose Maths, Classroom Secrets, and manipulatives. These resources are particularly important in helping pupils who may struggle with abstract concepts, allowing them to engage with maths in a hands-on and accessible way.

The core goals of our Maths Calculation Policy are to:

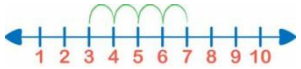
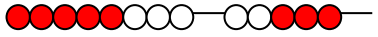
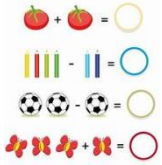
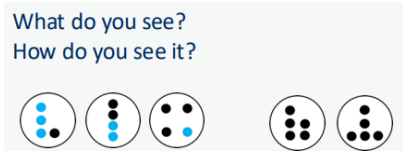
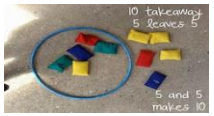
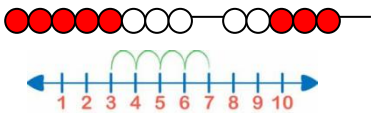
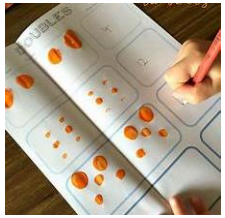
- Improve fluency in key calculation methods across all year groups.

- Support the development of problem-solving skills, enabling pupils to apply their knowledge in different contexts.

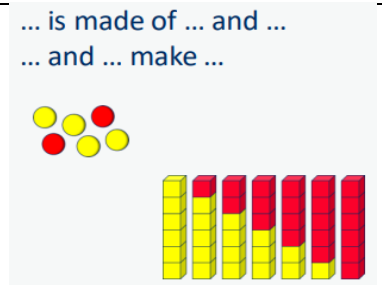
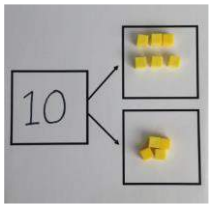
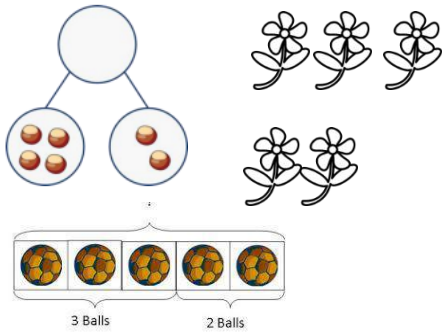
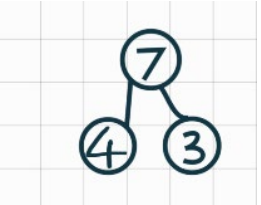
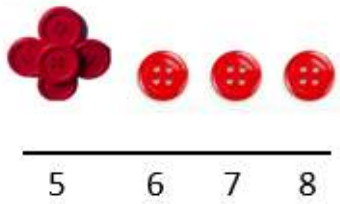
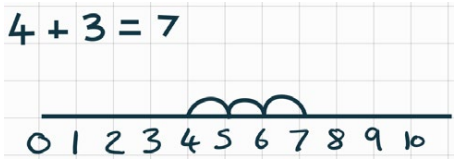
- Promote consistency in answering calculations with confidence and accuracy.

These goals are central to our commitment to improving mathematical outcomes for all pupils, particularly those facing disadvantage.

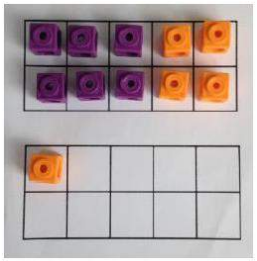
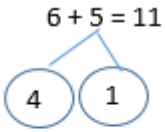
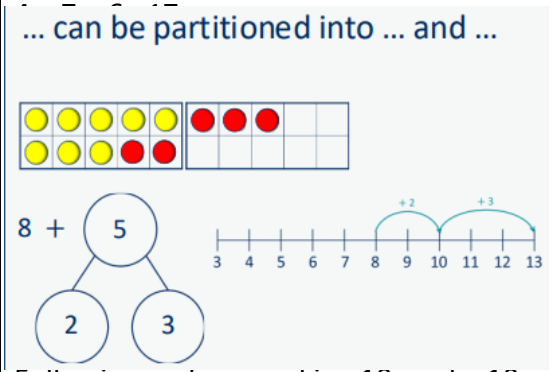
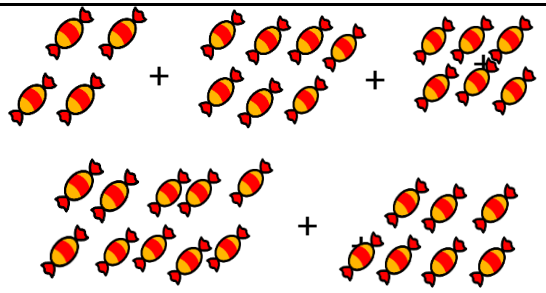
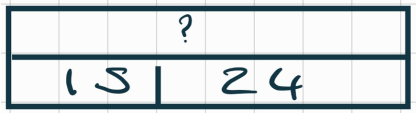
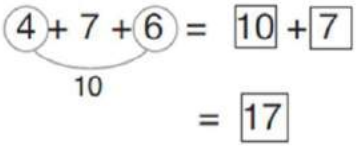
EYFS (Nursery & Reception)

Addition	Subtraction	Multiplication	Division
Children are encouraged to gain a sense of the number system through the use of counting concrete objects.  They combine objects in practical ways and count all.  They understand addition as counting on and will count on in ones and twos using objects, cubes, bead string and number line.   They use concrete and pictorial representation to record their calculations.  Subitising  	Children are encouraged to gain a sense of the number system through the use of counting concrete objects.  They understand subtraction as counting out.  They begin to count back in ones and twos using objects, cubes, bead string and number line.  They use concrete and pictorial representation to record their calculations. They begin to use - and = They are encouraged to develop a mental picture of the number system in their heads to use for calculations.	Children use concrete objects to make and count equal groups of objects.  They understand doubling as repeated addition. 2 + 2 = 4 They use concrete and pictorial representation to record their calculations. Higher attaining children may be able to represent their calculations using symbols and numbers within a written calculation. 	Children use concrete objects to count and share equally into 2 groups. 6 cakes shared between 2 people each person gets 3 cakes. 6 ÷2 = 3   They count a set of objects and halve them by making two equal groups. They understand sharing and halving as dividing by 2. They will begin to use objects to make groups of 2 from a given amount. They use concrete and pictorial representation to record their calculations.  More able children may be able to represent their calculations using symbols and numbers within a written calculation.

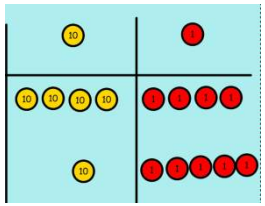
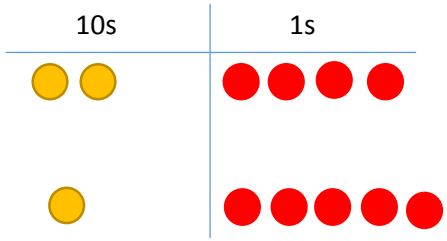
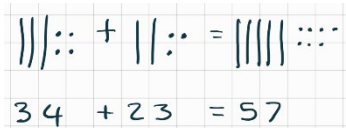
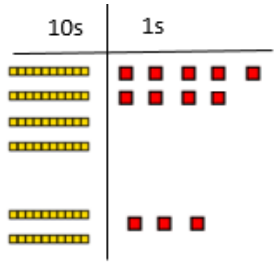
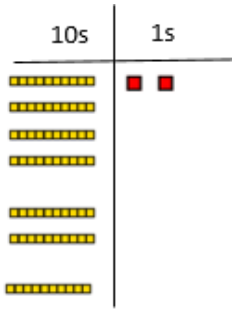
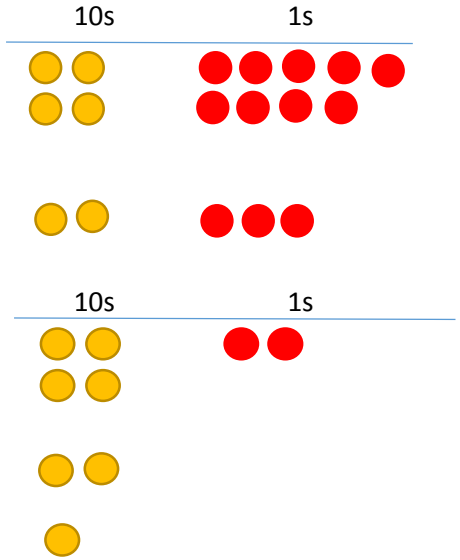
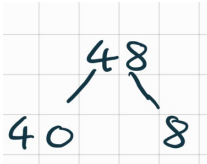
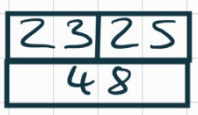
Addition

	Objective	Concrete	Pictorial	Abstract
Year 1	Number bonds of 5, 6, 7, 8, 9 and 10	… is made of … and … … and … make …   Use cubes to add two numbers	 Use pictures to add two numbers together as a group or in a bar.  	2 + 3 = 5 3 + 2 = 5 5 = 3 + 2 5 = 2 + 3  Use the part-part-whole diagram as shown above to move into the abstract.
	Counting	 	Use a number line to count on in ones.  	5 + 3 = 8

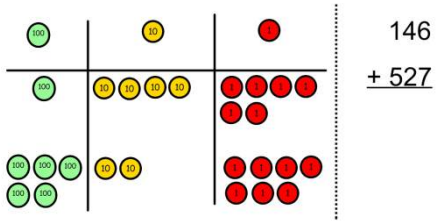
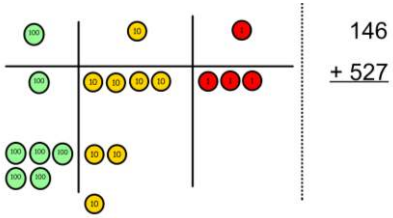
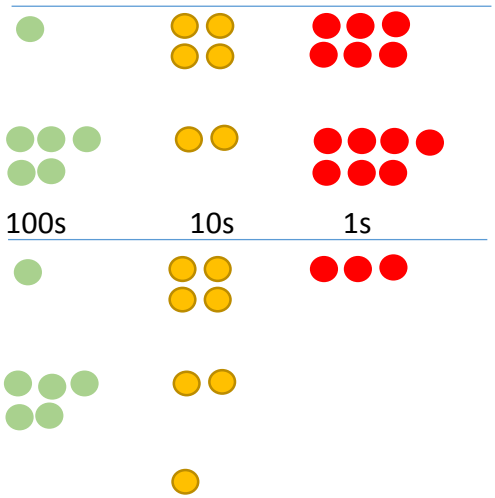
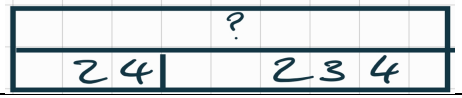
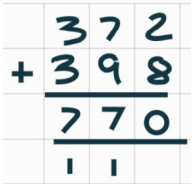
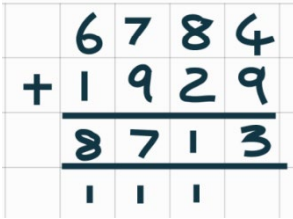
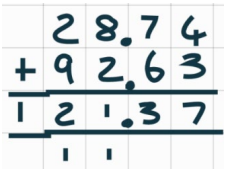
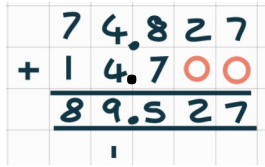
Addition

	Objective	Concrete	Pictorial	Abstract
Year 1	Regrouping to make 10	 6 + 5 = 11 Start with the bigger number and use the smaller number to make 10.	  	6 + 5 = 11  6 + 4 =10 10 + 1 = 11
Year 2	Adding 3 single digit numbers	 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.

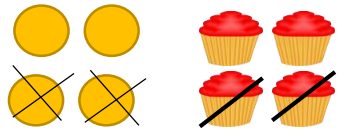
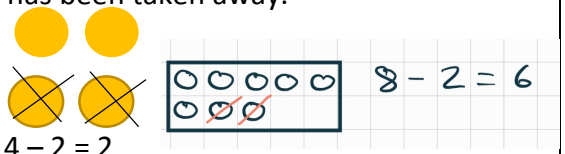
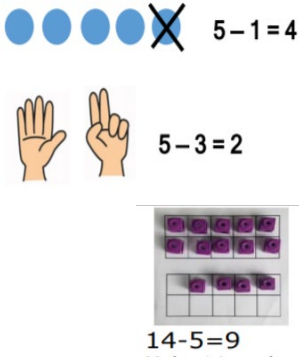
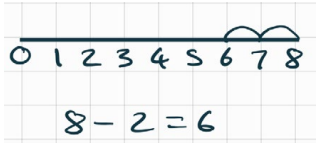
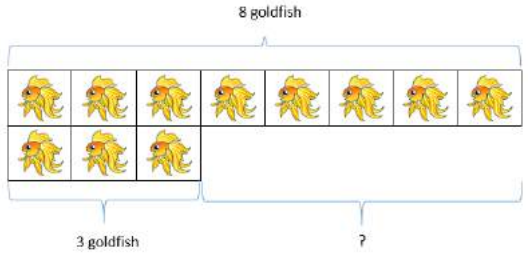
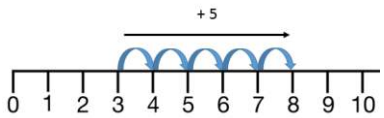
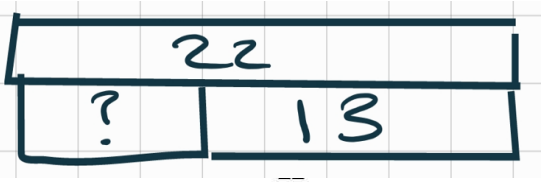
Addition

	Objective	Concrete	Pictorial	Abstract
Year 2	Column method without regrouping	Add together the ones first, then add the tens. Use the Base 10 blocks first before moving onto place value counters. 24 + 15 =  44 + 15 = 	After physically using the base 10 blocks and place value counters, children can draw the counters to help them to solve additions.  	24 + 15 = 39 24 + 15 39  Draw and write abstract alongside
	Column method with regrouping	Make both numbers on a place value grid.  Add up the ones and exchange 10 ones for 1 ten.  	Using place value counters, children can draw the counters to help them to solve additions.  	40 + 9 20 + 3 60 + 12 = 72  

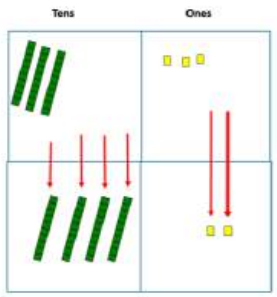
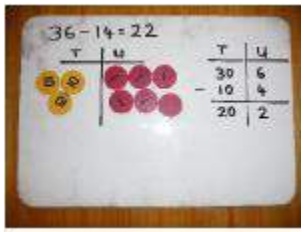
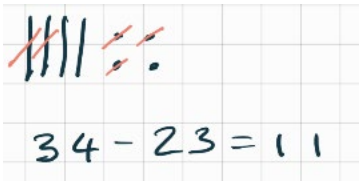
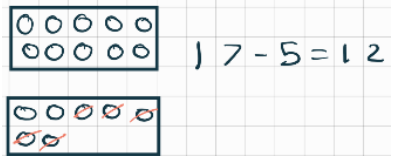
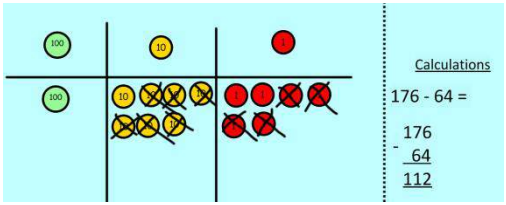
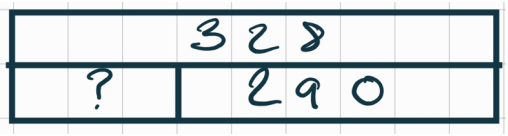
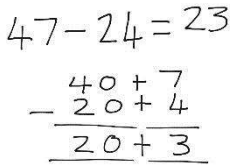
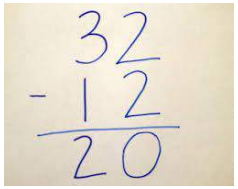
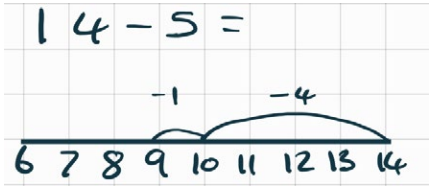
Addition

	Objective	Concrete	Pictorial	Abstract
Year 3/4	Column method with regrouping	Make both numbers on a place value grid.  146 + 527 Add up the ones and exchange 10 ones for 1 ten.  146 + 527	100s 10s 1s  100s 10s 1s Children can draw a pictoral representation of the columns and place value counters to further support their learning and understanding. **NB** Addition of money needs to have £ and p added separately. 	100 + 40 + 6 500 + 20 + 7 600 + 70 + 3 = 673 As the children progress, they will move from the expanded to the compacted method.  As the children move on, introduce decimals with the same number of decimal places and different. Money can be used here. 
Year 5/6	Column method with regrouping	As year three and four but with inclusion of decimals 		As year five but having to add their own place holders (shown in red 

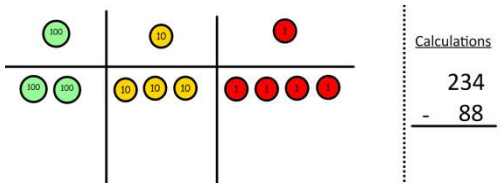
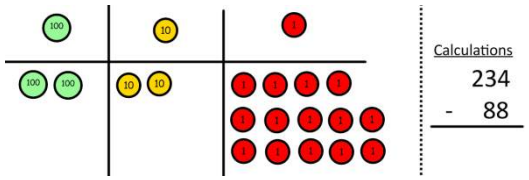
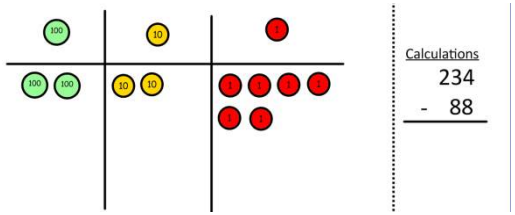
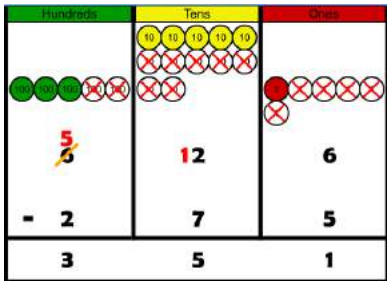
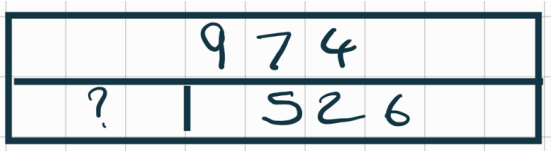
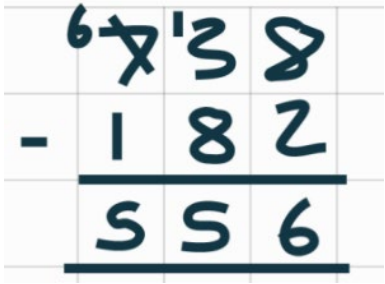
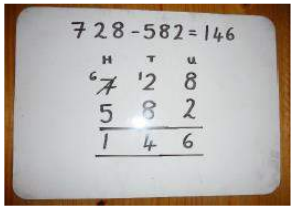
Subtraction

	Objective	Concrete	Pictorial	Abstract
Year 1	Taking away ones	Use physical objects, counters, cubes etc. to show how objects can be taken away. 4 – 2 = 2 	Cross out drawn objects to show what has been taken away.  4 – 2 = 2	4 – 2 = 2
	Counting back	 5 – 1 = 4 5 – 3 = 2 14-5=9	Count back on a number line or number track  Start at the bigger number and count back the smaller number, showing the jumps on the number line.	Put 13 in your head, count back 4. What number are you at? Use your fingers to help.
	Find the difference	Compare amounts and objects to find the difference.  Use cubes to build towers or make bars to find the difference. Use basic bar models with items to find the difference.	 Count on to find the difference. *Lisa is 13 years old. Her sister is 22 years old. Find the difference in age between them.*  Draw bars to find the difference between 2 numbers.	Hannah has 8 goldfish. Helen has 3 goldfish. Find the difference between the number of goldfish the girls have.

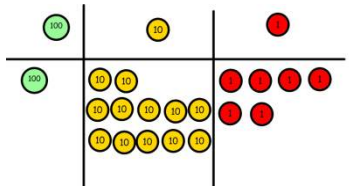
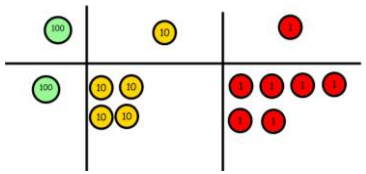
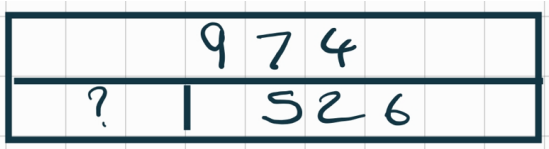
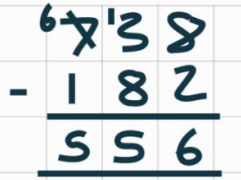
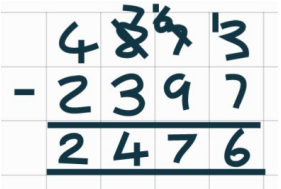
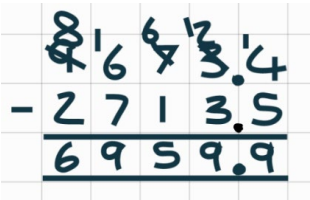
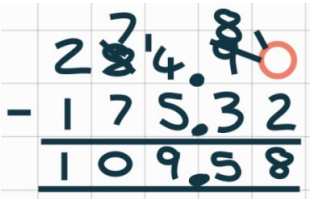
Subtraction

	Objective	Concrete	Pictorial	Abstract
Year 2	Column method without regrouping	75 – 42 = 33  Use Base 10 to make the bigger number then take the smaller number away. Show how you partition numbers to subtract. Again make the larger number first.  	  Draw the Base 10 or place value counters alongside the written calculation to help to show working.   	 This will lead to a clear written column subtraction.  

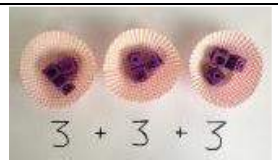
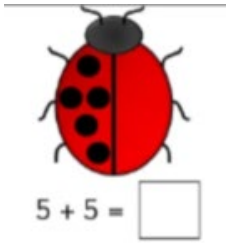
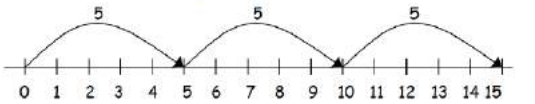
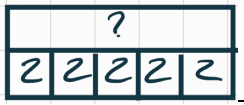
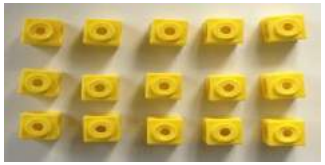
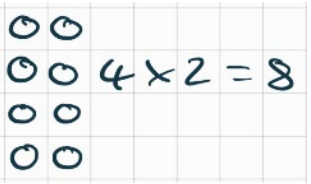
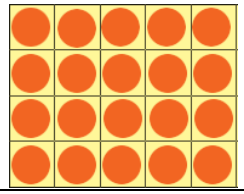
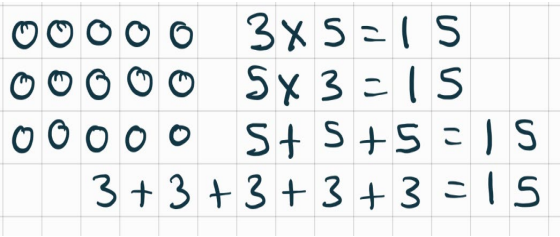
Subtraction

	Objective	Concrete	Pictorial	Abstract
Year 3 +	Column method with regrouping	Use Base 10 to start with before moving on to place value counters. Start with one exchange before moving onto subtractions with 2 exchanges. Make the larger number with the place value counters  Start with the ones, can I take away 8 from 4? I need to exchange 1 of my tens for 10 ones.  Now I can subtract my ones.  	 Draw the counters onto a place value grid and show what you have taken away by crossing the counters out as well as clearly showing the exchanges you make. Just writing the numbers as shown here shows that the child understands the method and knows when to exchange/regroup.  	  Moving forward the children use a more compact method. 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

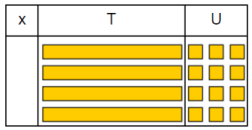
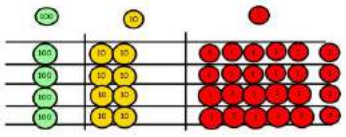
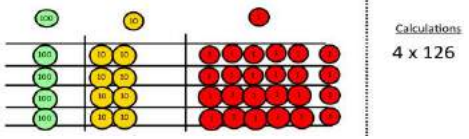
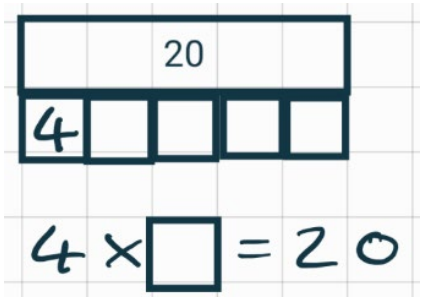
Subtraction

	Objective	Concrete	Pictorial	Abstract
Year three - six	Column method with regrouping	Now look at the tens, can I take away 8 tens easily? I need to exchange 1 hundred for 10 tens.  Calculations 234 - 88 Now I can take away 8 tens and complete my subtraction.  Calculations 234 - 88 146 Show children how the concrete method links to the written method alongside your working. Cross out the numbers when exchanging and show where we write our new amount.	As year three  	year three  year four  year five  year six 

Multiplication

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

Multiplication

	Objective	Concrete	Pictorial	Abstract
Year 3/4	Grid method	 4 rows of 13 Move on to 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, starting with the ones making any exchanges needed.	Children can represent the work they have done with place value counters in a way that they understand.  	Start with multiplying by one digit numbers and showing the clear addition alongside the grid. | ×	30	5
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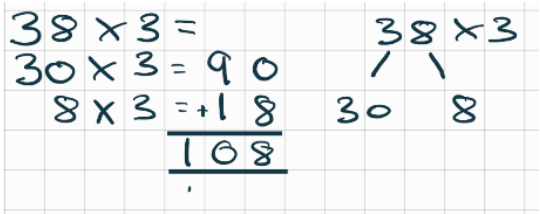
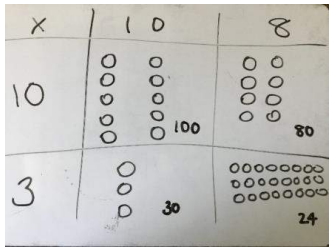
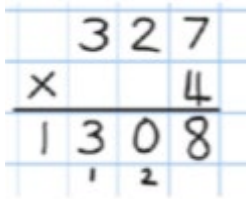
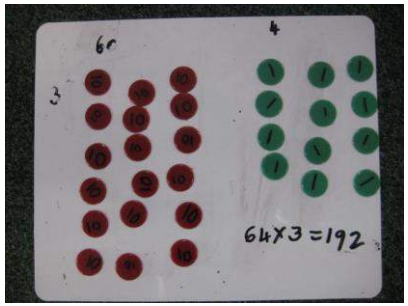
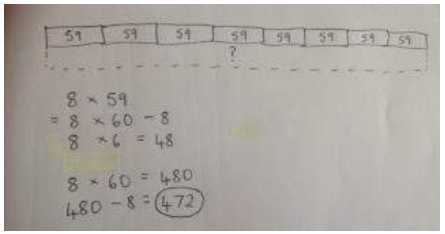
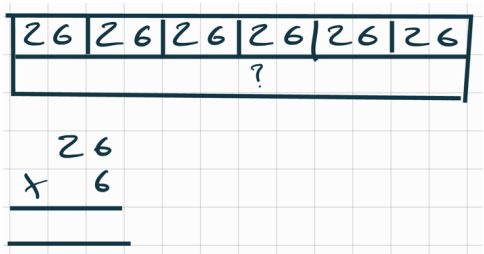
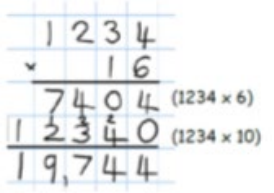
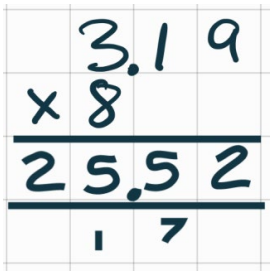
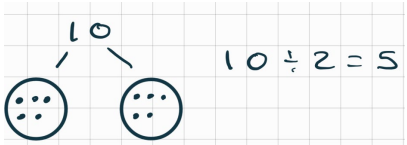
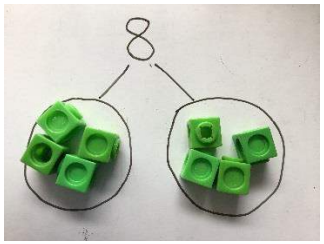
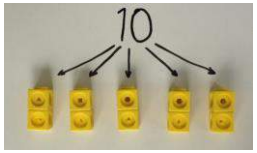
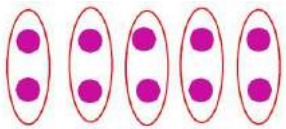
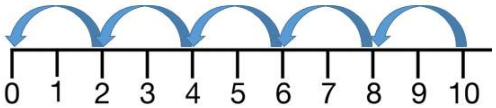
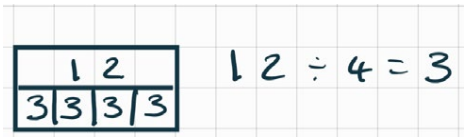
7	210	35 | 210 + 35 = 245 Moving forward, multiply by a 2 digit number showing the different rows within the grid method.  | X	1000	300	40	2
10	10000	3000	400	20
8	8000	2400	320	16

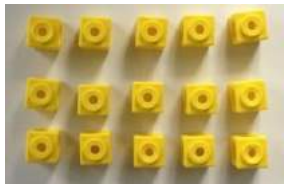
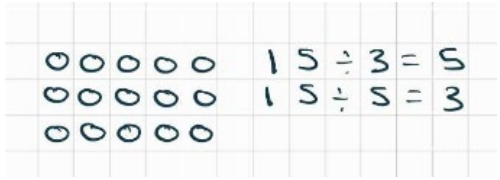
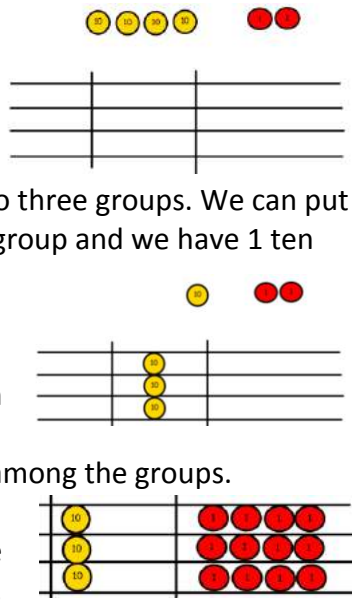
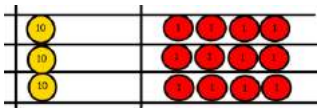
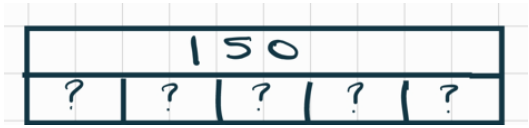
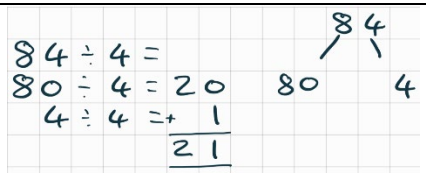
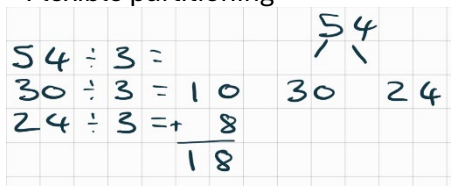
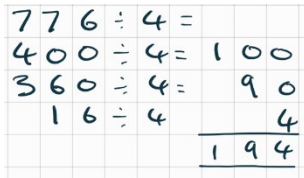
Multiplication

	Objective	Concrete	Pictorial	Abstract
	Expanded method	Show the link with arrays to first introduce the expanded method.	 327 x 4 28 80 1200 1308	Show alongside eachother 327 x 4 28 80 1200 1308 
Year 5/6	Compact method	Children can continue to be supported by place value counters at the stage of multiplication.  It is important at this stage that they always multiply the ones first and note down their answer followed by the tens which they note below.	Bar modelling and number lines can support learners when solving problems with multiplication alongside the formal written methods.  	Start with long multiplication, reminding the children about lining up their numbers clearly in columns. If it helps, children can write out what they are solving next to their answer.   

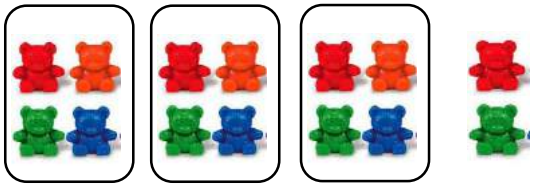
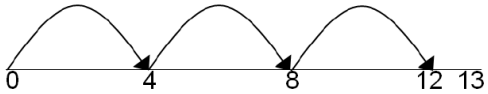
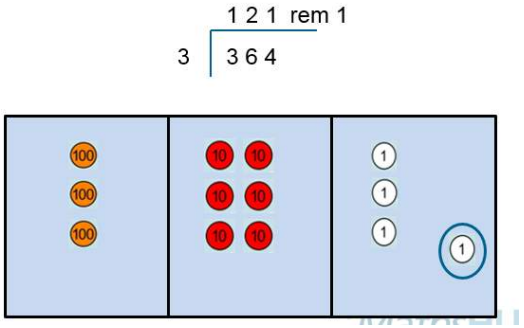
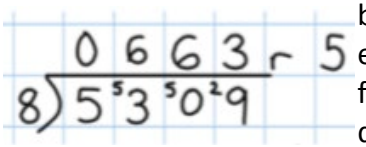
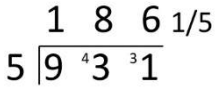
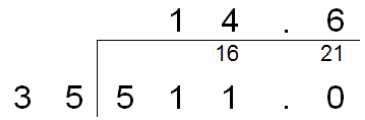
Division

	Objective	Concrete	Pictorial	Abstract
Year 1/2	Sharing	I have 8 cubes, can you share them equally between two people?  sharing plates	Children use pictures or shapes to share quantities. 8 ÷ 2 = 4  	Share 8 buns between two people. 8 ÷ 2 = 4 
	Grouping	Divide quantities into equal groups. Use cubes, counters, objects or place value counters to aid understanding.  	Use a number line to show jumps in groups. The number of jumps equals the number of groups.  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. 	10 ÷ 5 = 2 Divide 10 into 5 groups. How many are in each group?

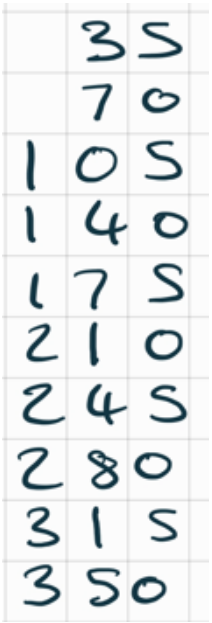
Division

	Objective	Concrete	Pictorial	Abstract
Year 3/4	Division with arrays	Link division to multiplication by creating an array and thinking about the number sentences that can be created. Eg 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. 5 x 3 = 15 3 x 5 = 15 15 ÷ 5 = 3 15 ÷ 3 = 5
	Short division	42 ÷ 3 Start with the biggest place value. We are sharing 40 into three groups. We can put 1 ten in each group and we have 1 ten left over. We exchange this ten for 10 ones and then share the ones equally among the groups. We look at how many are in each group. 	Draw the concrete  	 Flexible partitioning  

Division

	Objective	Concrete	Pictorial	Abstract
Year 5/6	Division with remainders	14 ÷ 3 = Divide objects between groups and see how much is left over 	Jump forward in equal jumps on a number line then see how many more you need to jump to find a remainder.  Draw dots and group them to divide an amount and clearly show a remainder.  	Complete written divisions and show the remainder using r. 
	Short division with remainders	364 ÷ 3 =  	 	Move onto divisions with a remainder. Once children understand remainders, begin to express as a fraction or decimal according to the context.   

Division

	Objective	Concrete	Pictorial	Abstract
Year 6	Long division		 It is necessary to write out the number track	Children will use long division to divide numbers with up to 4 digits by 2 digit numbers.