St Kenelm's Calculations Policy

This policy has been adapted from both the Abacus Calculation Policy and White Rose Maths Hub Calculation Policy with further material added. It is a working document and will be revised and amended as necessary.

(March 2024)

<table>
<tr><th colspan="3">EYFS</th></tr>
<tr><td colspan="3">In Early Years Foundation Stage, pupils should be developing their concept of the number system through use of concrete and material representations. They should experience practical calculation using a wide variety of equipment for example small world play, role play, counters, cubes and investigate ways of recording calculations using pictures and different pictorial representations.</td></tr>
<tr><td colspan="3">Key language: more, less, fewer, equal, 1 more, 1 less, whole, part, number bond, add, addition, plus, total, altogether, subtract, subtraction, difference, take away, minus, less, more, group, share, equal, equals, is equal to, groups, equal groups, share, shared equally</td></tr>
<tr><td>Addition and Subtraction: Pupils must be provided with opportunities to develop their skills so that they are able to count reliably, including one to one correspondence and count on from a given number. Pupils should be given the opportunity to count out sets of objects and then combine them to make totals for example 6 + 2 = 8 First count out a group of 6. Then count out a group of 2. Finally combine them to find a total.</td><td>Multiplication and Division: Children will experience equal groups of objects. They should work on practical problem solving activities.</td><td>Fractions: Solve problems, including halving and sharing. Pupils should have many practical experiences of sharing objects for example sharing between two people.</td></tr>
</table>

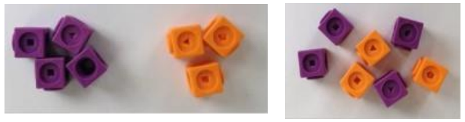
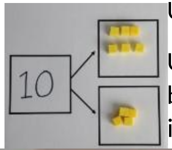
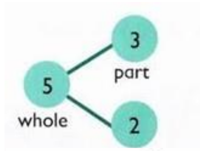
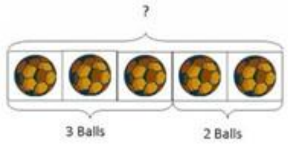
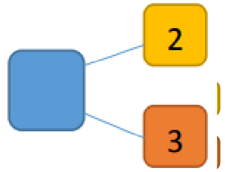
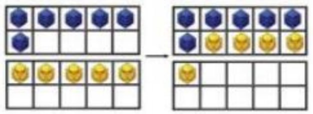
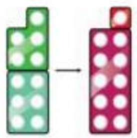
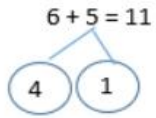
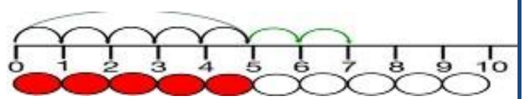
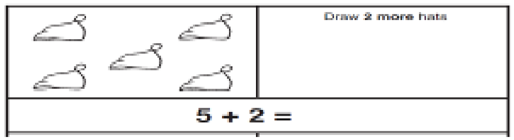
<table>
<tr><th colspan="3">KEY STAGE 1</th></tr>
<tr><td colspan="3">Children in Years 1 and 2 will be given a really solid foundation in the basic building blocks of mental and written arithmetic. Through being taught place value, children will develop an understanding of how numbers work, so that they are confident with 2-digit numbers and beginning to read and say numbers above 100.</td></tr>
<tr><td colspan="3">Key language: whole, part, ones, ten, tens, number bond, add, addition, plus, total, altogether, subtract, subtraction, find the difference, take away, minus, less, more, group, share, equal, equals, is equal to, groups, equal groups, times, multiply, multiplied by, divide, share, shared equally, times-table</td></tr>
<tr><td>Addition and Subtraction: A focus on number bonds, first via practical hands-on experiences and subsequently using memorisation techniques, enables a good grounding in these crucial facts, and ensures that all children leave Year 2 knowing the pairs of numbers which make all the numbers up to 10 at least. Children will also have experienced and been taught pairs to 20. Children’s knowledge of number facts enables them to add several 1-digit numbers, and to add/subtract a 1-digit number to/from a 2-digit number. Another important conceptual tool is the ability to add/subtract 1 or 10, and to understand which digit changes and why. This understanding is extended to enable children to add and subtract multiples of 10 to and from any 2-digit number. The most important application of this knowledge is the ability to add or subtract any pair of 2-digit numbers by counting on or back in 10s and 1s. Children may extend this to adding by partitioning numbers into 10s and 1s.</td><td>Multiplication and Division: Children will be taught to count in 2s, 3s, 5s and 10s, and will relate this skill to repeated addition. Children will meet and begin to learn the associated ×2, ×3, ×5 and ×10 tables. Engaging in a practical way with the concept of repeated addition and the use of arrays enables children to develop a preliminary understanding of multiplication, and asking them to consider how many groups of a given number make a total will introduce them to the idea of division. Children will also be taught to double and halve numbers, and will thus experience scaling up or down as a further aspect of multiplication and division.</td><td>Fractions: Fractions will be introduced as numbers and as operators, specifically in relation to halves, quarters and thirds.</td></tr>
</table>

LOWER KEY STAGE 2		
In Lower Key Stage 2, children build on the concrete and conceptual understandings they have gained in Key Stage 1 to develop a real mathematical understanding of the four operations, in particular developing arithmetical competence in relation to larger numbers.		
Key language: partition, place value, tens, hundreds, thousands, column method, whole, part, decrease, equal groups, the product of, sharing, grouping, bar model		
Addition and subtraction: Children are taught to use place value and number facts to add and subtract numbers mentally and they will develop a range of strategies to enable them to discard the 'counting in 1s' or fingers-based methods of Key Stage 1. In particular, children will learn to add and subtract multiples and near multiples of 10, 100 and 1000, and will become fluent in complementary addition as an accurate means of achieving fast and accurate answers to 3-digit subtractions. By the end of LKS2 standard written methods for adding larger numbers are introduced.	**Multiplication and division:** This key stage is also the period during which all the multiplication and division facts are thoroughly memorised, including all facts up to 12 × 12. Efficient written methods for multiplying or dividing a 2-digit or 3-digit number by a 1-digit number are taught, as are mental strategies for multiplication or division with large but 'friendly' numbers, e.g. when dividing by 5 or multiplying by 20.	**Fractions and decimals:** Children will develop their understanding of fractions, learning to reduce a fraction to its simplest form, as well as finding non-unit fractions of amounts and quantities. The concept of a decimal number is introduced and children consolidate a firm understanding of 1-place decimals, multiplying and dividing whole numbers by 10 and 100.

UPPER KEY STAGE 2		
In upper Key Stage 2, children build on secure foundations in calculation, and develop fluency, accuracy and flexibility in their approach to the four operations. They work with whole numbers and adapt their skills to work with decimals, and they continue to develop their ability to select appropriate, accurate and efficient operations.		
Key language: decimal, column methods, exchange, partition, mental method, ten thousand, hundred thousand, million, factor, multiple, prime number, square number, cube number		
Addition and subtraction: Children will consolidate their use of written procedures in adding and subtracting whole numbers with up to 6 digits and also decimal numbers with up to 2 decimal places. Mental strategies for adding and subtracting increasingly large numbers will also be taught. These will draw upon children's robust understanding of place value and knowledge of number facts. Negative numbers will be added and subtracted.	**Multiplication and division:** Efficient and flexible strategies for mental multiplication and division are taught and practised, so that children can perform appropriate calculations even when the numbers are large, such as *40 000 × 6* or *40 000 ÷ 8*. In addition, it is in Years 5 and 6 that children extend their knowledge and confidence in using written methods for multiplication and division.	**Fractions, decimals, percentages and ratio:** Fractions and decimals are also added, subtracted, divided and multiplied, within the bounds of children's understanding of these more complicated numbers. Children will also calculate simple percentages and ratios.

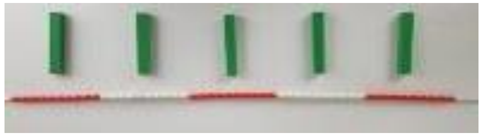
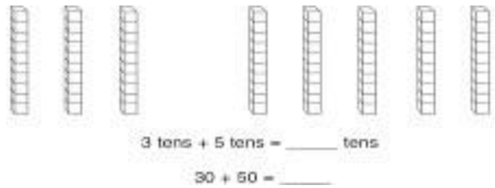
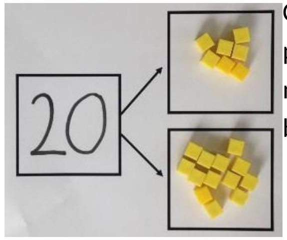
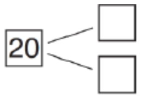
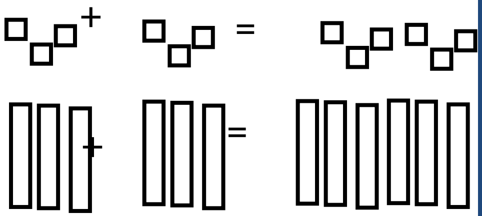
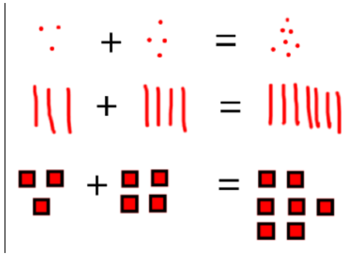
ADDITION +

EYFS/Y1

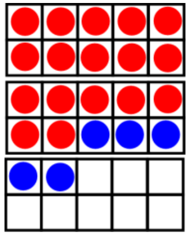
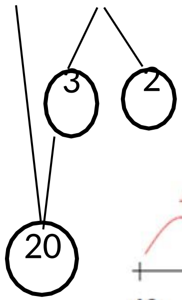
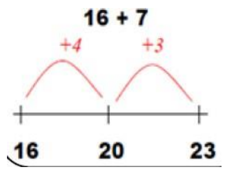
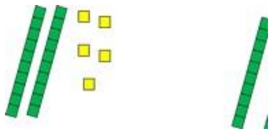
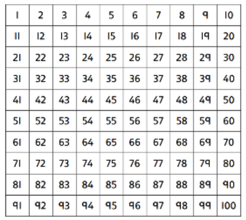
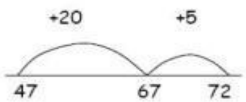
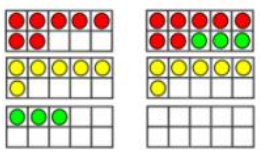
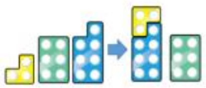
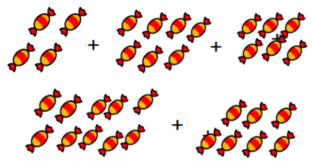
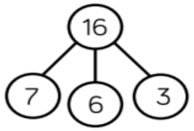
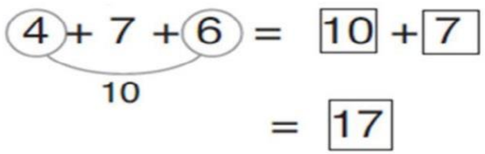
Objective & Strategy	Concrete	Pictorial	Abstract
Number bonds of 5, 6, 7, 8, 9 and 10	  Use part part whole model. Use cubes to add two numbers together as a group or in a bar. 	    Use pictures to add two numbers together as a group or in a bar.	2 + 3 = 5 3 + 2 = 5 5 = 3 + 2 5 = 2 + 3  10= 6 + 4 Use the part-part whole diagram as shown above 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.	5 + 3 = 8  Start at the larger number on the number line and count on in ones or in one jump to find the answer.	5 + 3 = 8 Place the larger number in your head and count on the smaller number to find your answer.
Regrouping to make 10.	6 + 5 = 11  Start with the bigger number and use the smaller number to make 10. Use ten frames.  Use Numicon to overlay a ten piece and the remaining ones.	  6 + 4 =10 10 + 1 = 11 Regroup or partition the smaller number using the part part whole model to make 10.	6 + 5= 11 If I am at six, how many more do I need to make 10. How many more do I add on now?
Represent & use number bonds and related subtraction facts within 20	 2 more than 5.	 	Emphasis should be on the language *'1 more than 5 is equal to 6.'* *'2 more than 5 is 7.'* *'8 is 3 more than 5.'*

Y2

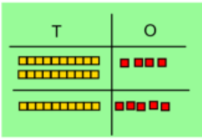
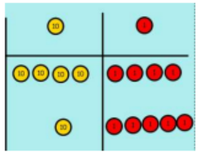
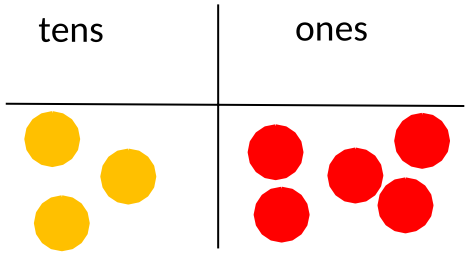
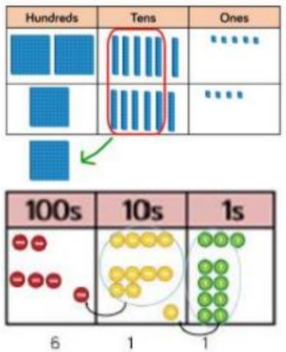
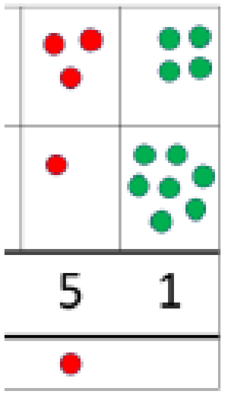
ADDITION +

Objective & Strategy	Concrete	Pictorial	Abstract
Adding multiples of ten	50= 30 = 20  Model using Dienes and bead strings	 Use representations for base ten.	20 + 30 = 50 70 = 50 + 20 40 + □ = 60
Use known number facts Part part whole	 Children explore ways of making numbers within 20	 □ + □ = 20 20 – □ = □ □ + □ = 20 20 – □ = □	□ + 1 = 16 16 – 1 = □ 1 + □ = 16 16 – □ = 1
Using known facts		 Children draw representations of H,T and O	3 + 4 = 7 *leads to* 30 + 40 = 70 *leads to* 300 + 400 = 700

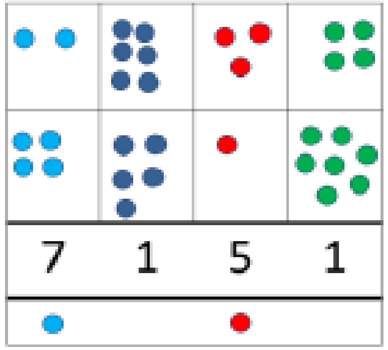
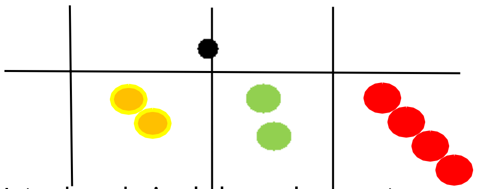
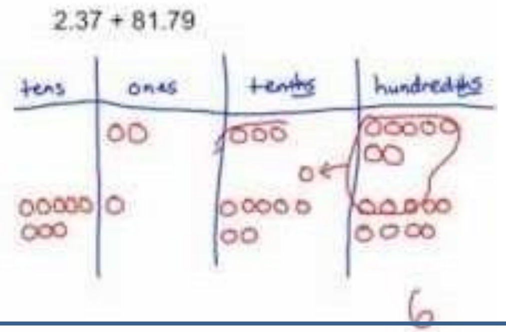
Y2 ADDITION +

Objective & Strategy	Concrete	Pictorial	Abstract
Add a two-digit number and ones	 17 + 5 = 22 Use ten frame to make 'magic ten Children explore the pattern. 17 + 5 = 22 27 + 5 = 32	17 + 5 = 22 Use part part whole and number line to model.   	17 + 5 = 22 Explore related facts 17 + 5 = 22 5 + 17 = 22 22—17 = 5 22—5 =17
Add a two-digit number and tens	 25 + 10 = 35 Explore that the ones digit does not change	 Use a hundred square to add tens.	27 + 10 = 37 27 + 20 = 47 27 + 30 = 57
Add 2 two-digit numbers	25 + 47 =  Model using Dienes , place value counters and numicon	 Use number line and add the tens then the ones.	25 + 47 = 47 + 20 = 67 67 + 5 = 72 Children begin by counting on in 10s then add the 1s to work out the additions.
Add 3 one-digit numbers	  Children should look for number bonds to 10, or doubles to add more effectively.	 Add together three groups of objects. Draw a picture to recombine the groups to make 10.  Children may draw a part-whole model or bar models to help.	 Combine the two numbers that make/ bridge ten then add on the third.

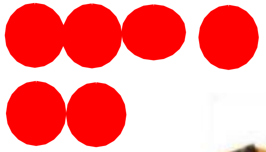
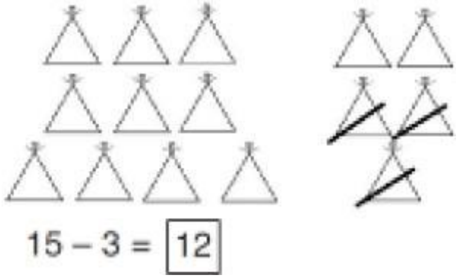
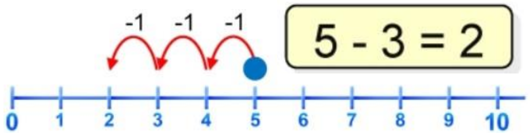
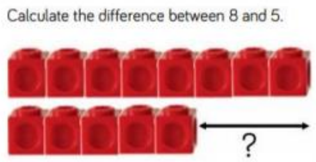
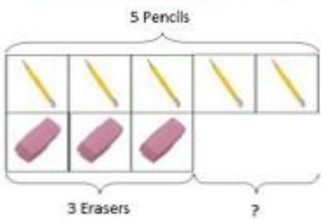
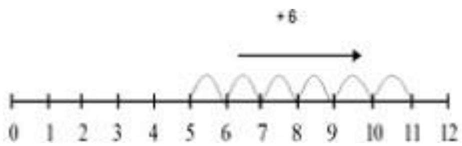
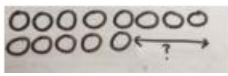
Y3/4 ADDITION +

Objective & Strategy	Concrete	Pictorial	Abstract
Addition—no exchange	Add together the ones first, then add the tens. Use the Dienes blocks first before moving onto place value counters. 24 + 15 = 44 + 15 =  	Children move to drawing the counters using a tens and one frame. 	In Lower Key Stage 2, we use partition addition to solve addition problems. This involves splitting a 2 digit number into tens and ones. Firstly, we add the ones together and then we add the tens together. Finally we add the sum of the tens and the ones together to find the answer. 14 + 35 = 4 + 5 = 9 10 + 30 = 40 40 + 9 = 49
Addition with exchange.	Make both numbers on a place value grid using Dienes or counters. 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.  **NB** By Year 4 children will progress on to adding four digit numbers.	 Children can draw a representation of the grid to further support their understanding, carrying the ten **underneath** the line	Towards the end of Year 4, we introduce the **expanded addition** method. It is vital that pupils always start by adding the ones. In this example, the ones column totals 12. A two digit number cannot go in the ones column and therefore it has to be split into a ten and 2 ones. The ten then has to be carried across to the tens column and is placed under the tens column and then the 2 can be placed in the ones column. **h t o** **147 + 345 = 100 40 7** **+ 300 40 5** **----------------** **400 90 2** **10**

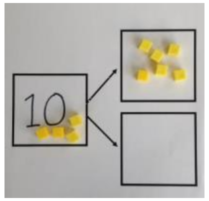
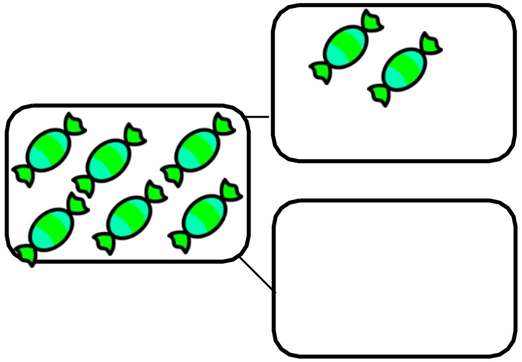
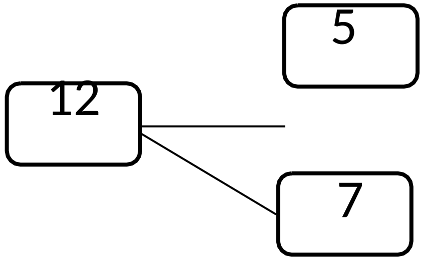
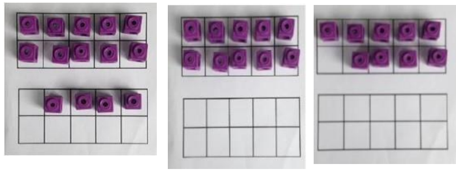
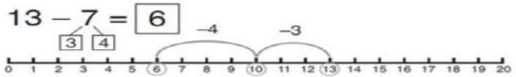
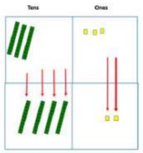
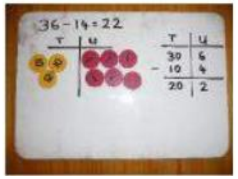
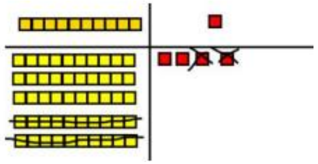
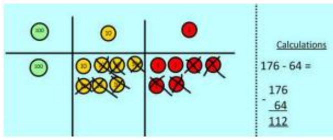
Y5/6 ADDITION +

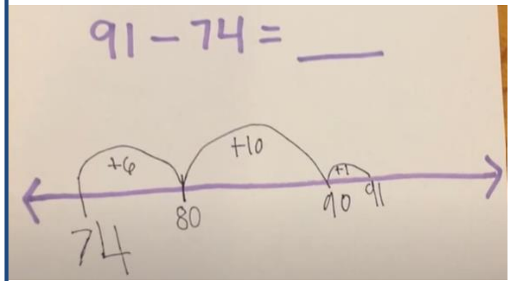
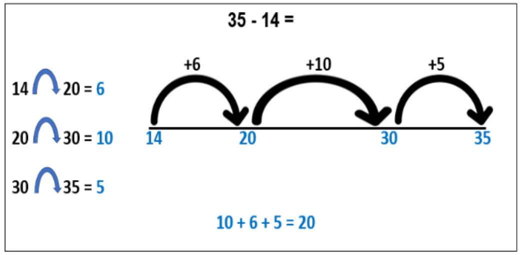
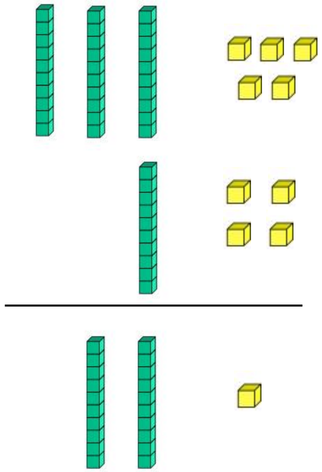
Objective & Strategy	Concrete	Pictorial	Abstract
Addition with and without exchange	Same as year 4		In UKS2, pupils progress from using the expanded method to the **contracted method**. This method requires pupils to understand that the digit in each column represents the number of tens or hundreds. h t o 147 + 345 = 1 4 7 + 3 4 5 ----------- 4 9 2 1
Y5—add numbers with more than 4 digits. Add decimals with 2 decimal places, including money	As year 4 tens ones tenths hundredths  Introduce decimal place value counters and model exchange for addition.		72.8 + 54.6 127.4 1 1 £ 2 3 · 5 9 + £ 7 · 5 5 £ 3 1 · 1 4
Y6—add several numbers of increasing complexity Including adding money, measure and decimals with different numbers of decimal points.	As Y5	As Y5	8 1,0 5 9 3,6 6 8 1 5,3 0 1 + 2 0,5 5 1 1 2 0,5 7 9 Insert zeros for place holders. 2 3 · 3 6 1 9 · 0 8 0 5 9 · 7 7 0 + 1 · 3 0 0 9 3 · 5 1 1

EYFS/Y1 SUBTRACTION -

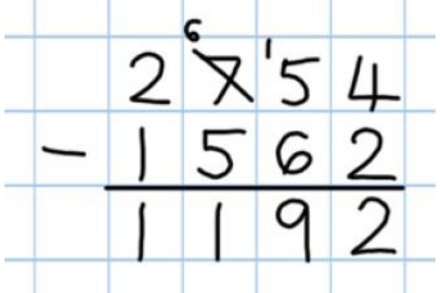
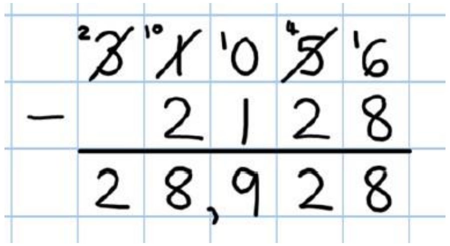
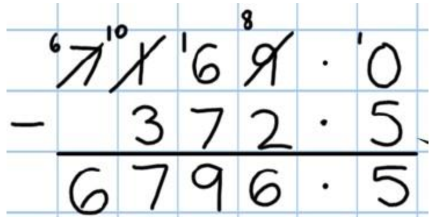
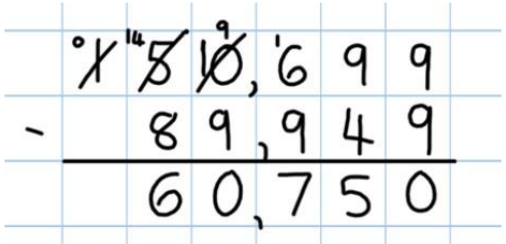
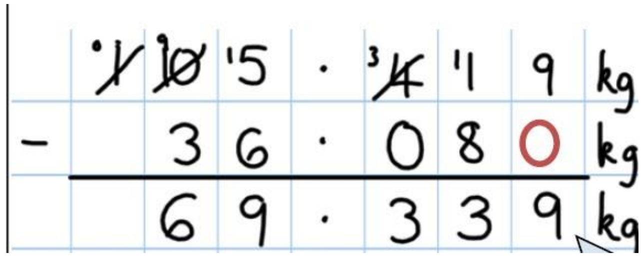
Objective & Strategy	Concrete	Pictorial	Abstract
Taking away ones.	Use physical objects, counters , cubes etc to show how objects can be taken away.  6—4 = 2  5—2 = 2	 Cross out drawn objects to show what has been taken away.	7—4 = 3 16—9 = 7
Counting back	 Move objects away from the group, counting backwards.  Move the beads along the bead string as you count backwards.	 Count back in ones using a number line.	Put 13 in your head, count back 4. What number are you at?
Find the Difference	Compare physical objects and amounts   Lay objects to represent bar model.	Count on using a number line to find the difference.  They can also draw cubes or other concrete objects to show what they need to calculate. 	Hannah has 8 goldfish. Helen has 3 goldfish. Find the difference between the number of goldfish the girls have.

Y2 SUBTRACTION –

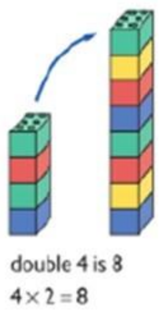
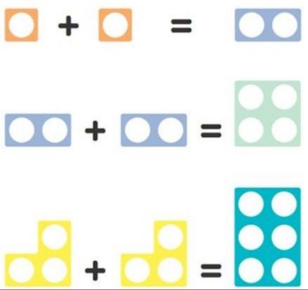
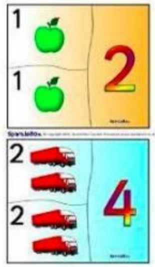
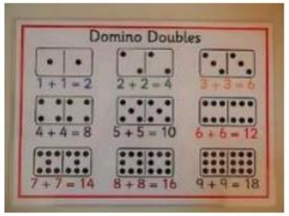
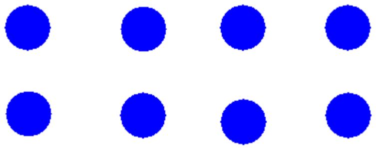
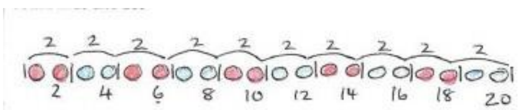
Objective & Strategy	Concrete	Pictorial	Abstract
Represent and use number bonds and related subtraction facts within 20 Part Part Whole model	 Link to addition. Use PPW model to model the inverse. If 10 is the whole and 6 is one of the parts, what is the other part? 10—6 = 4	 Use pictorial representations to show the part.	Move to using numbers within the part whole model. 
Make 10	14—9  Make 14 on the ten frame. Take 4 away to make ten, then take one more away so that you have taken 5.	13—7  Jump back 3 first, then another 4. Use ten as the stopping point.	16—8 How many do we take off first to get to 10? How many left to take off?
Subtracting without regrouping	75 – 42 = 33  Use Dienes 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.  	Written calculation 43 – 21 = 22

Objective & Strategy	Concrete	Pictorial	Abstract
Subtraction using frogging	In Lower Key Stage 2, we use the **frogging** method for subtraction work. This involves using the counting on method to solve calculations. You get to the next 10 and then the next 100. By adding the jumps together, pupils can work out the difference between the 2 numbers.  	 	Written calculation 152 – 43 = 109
Subtraction using expanded method	Towards the end of Year 4, we introduce the **expanded subtraction** method. This introduces the more formal subtraction method. It is vital that pupils always start by subtracting the ones, then the tens and then the hundreds. We do this using Dienes. **35 - 14 =** 		In this example, the calculation is set out correctly with the largest number on the top. The problem is that we cannot take 7 away from 5. Therefore we have to exchange and bring ten ones over from the tens column to make 15 in the ones. We now have 15 – 7, which we can do. Having exchanged a ten from the tens column we have to show that there is one ten less and turn the 40 into 30. **345 - 127 =** h t o 30 +10 300 40 5 - 100 20 7 200 10 8 = 218

Y5/6 SUBTRACTION

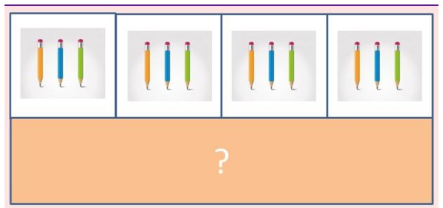
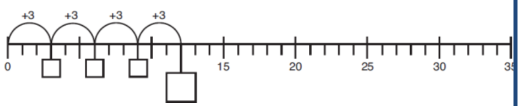
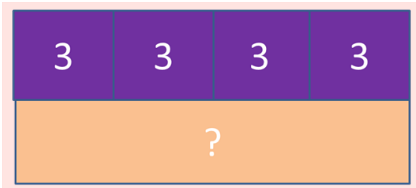
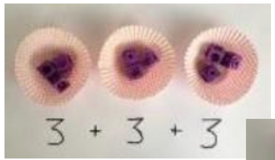
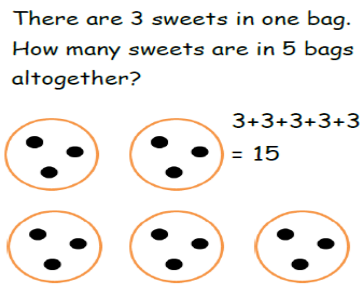
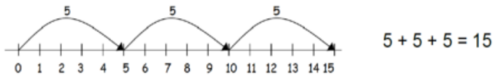
Objective & Strategy	Abstract
Subtract with at least 4 dig-its, including money and measures. *Subtract with decimal values, including mixtures of integers and decimals and aligning the decimal*	Upper KS2 pupils progress from expanded to contracted (same reasoning as addition)   Use zeros for place- holders 
Subtract with increasingly large and more complex numbers and decimal values.	  Place holders

MULTIPLICATION X

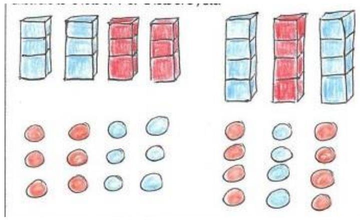
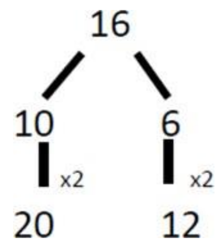
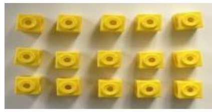
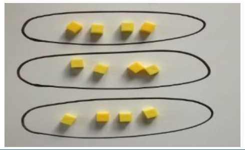
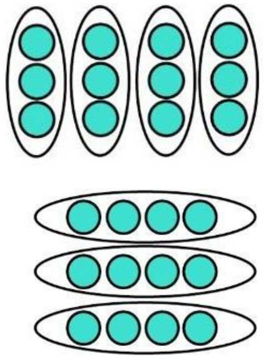
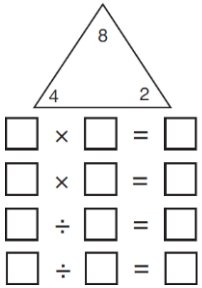
Objective & Strategy	Concrete	Pictorial	Abstract
Doubling	Use practical activities using manipultives including cubes and Numicon to demonstrate doubling.  	Pictures and icons that encourage children to see concept of doubling as adding two equal groups.  	
Counting in multiples	Count the groups as children are skip counting, children may use their fingers as they are skip counting.  	 Children 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

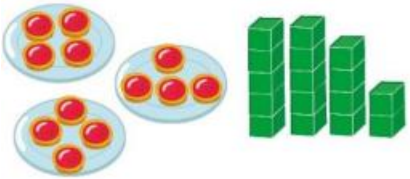
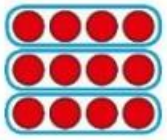
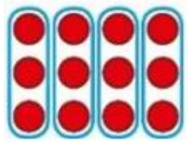
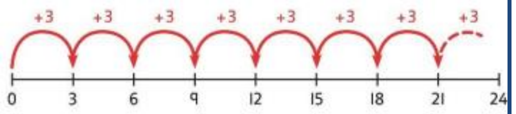
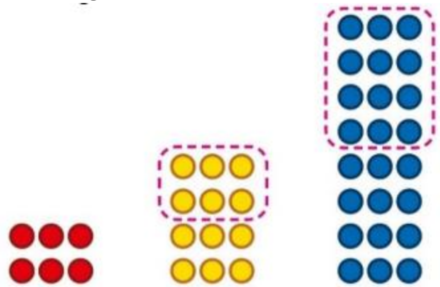
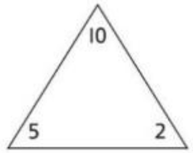
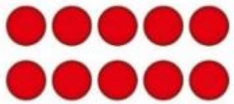
Y2

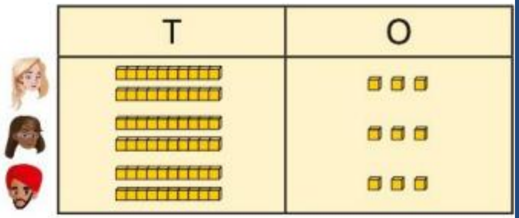
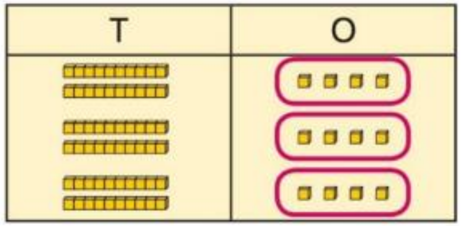
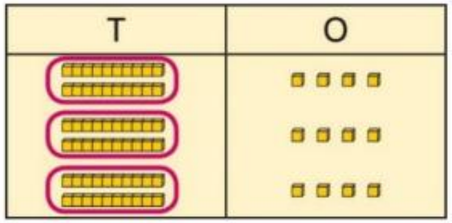
MULTIPLICATION X

Objective & Strategy	Concrete	Pictorial	Abstract
Counting in multi-ples of 2, 3, 4, 5, 10 from 0 (repeated addition)	Count the groups as children are skip counting, children may use their fingers as they are skip counting. Use bar models.  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 $4 \times 3 = \square$
Repeated addition	   Use different objects to add equal groups	Use pictorial including number lines to solve problems   	Write addition sentences to describe objects and pictures. 

Y2 MULTIPLICATION X

Objective & Strategy	Concrete	Pictorial	Abstract
Understanding arrays	Use objects laid out in arrays to find the answers to 2 lots 5, 3 lots of 2 etc.  	Draw representations of arrays to show understanding 	
Multiplication is commutative	Create arrays using counters and cu-bes 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 commutativity. 	$12 = 3 \times 4$ $12 = 4 \times 3$ Use an array to write multiplication sentences and reinforce repeated addition.  5 + 5 + 5 = 15 3 + 3 + 3 + 3 + 3 = 15 5 x 3 = 15 3 x 5 = 15
Using the Inverse *This should be taught alongside division, so pupils learn how they work alongside each other.*			2 x 4 = 8 4 x 2 = 8 8 ÷ 2 = 4 8 ÷ 4 = 2 Show all related fact family sentences.

Objective & Strategy	Concrete	Pictorial	Abstract
Understanding equal grouping and repeated addition	Children continue to build understanding of equal groups and the relationship with repeated addition. They recognise both examples and nonexamples using objects. 	Children recognise that arrays demonstrate commutativity.  This is 3 groups of 4.  This is 4 groups of 3	Children understand the link between repeated addition and multiplication.  8 groups of 3 is 24. 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 24 8 × 3 = 24
Understanding and using ×3, ×2, ×4 and ×8 tables.	Children learn the times-tables as 'groups of', but apply their knowledge of commutativity.  I can use the ×3 table to work out how many keys. I can also use the ×3 table to work out how many batteries.	Children understand how the ×2, ×4 and ×8 tables are related through repeated doubling.  3 × 2 = 6 3 × 4 = 12 3 × 8 = 24	Children understand the relationship between related multiplication and division facts in known times-tables.   *2 × 5 = 10* *5 × 2 = 10* *10 ÷ 5 = 2* *10 ÷ 2 = 5*

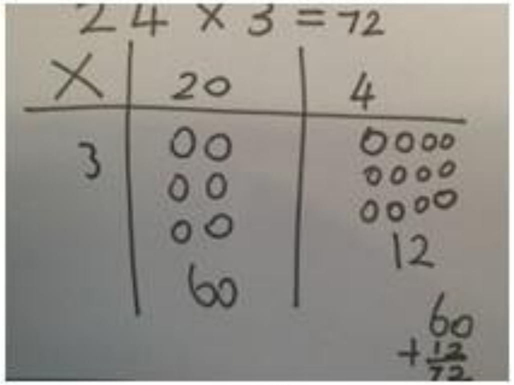
Objective & Strategy	Concrete	Pictorial	Abstract
Multiplying a 2-digit number by a 1-digit number	Understand how to link partitioning a 2-digit number with multiplying. Each person has 23 flowers. Each person has 2 tens and 3 ones.  There are 3 groups of 2 tens. There are 3 groups of 3 ones. Use place value equipment to model the multiplication context.  There are 3 groups of 3 ones. There are 3 groups of 2 tens.	Use place value to support how partitioning is linked with multiplying by a 2-digit number. 3 x 24 = ? • We begin by partitioning the number 24 into tens and ones (20 and 4) and do two separate multiplications: 3 x 20 and 3 x 4  • We then work out the ones: 3 x 4 = 12 • Now move on to working out the tens  3 x 20 = 60 • Now we add our two answers together 60 + 12 = 72 • Therefore 3 x 24 = 72	Use addition to complete multiplications of 2-digit numbers by a 1-digit number. 4 × 13 = ? 4 × 3 = 12 4 × 10 = 40 12 + 40 = 52 4 × 13 = 52

Y3

MULTIPLICATION X

Y4

MULTIPLICATION X

<table>
<tr><th>Objective & Strategy</th><th>Pictorial</th><th>Abstract</th></tr>
<tr>
<td>Grid method 3 digit x 1 digit</td>
<td>
Children can represent their work with place value counters in a way that they understand.
They can draw the counters using colours to show different amounts or just use the circles in the different columns to show their thinking as shown below.


</td>
<td>
Start with multiplying by one digit numbers and showing the clear addition alongside the grid.
<table>
<tr><th>×</th><th>30</th><th>5</th></tr>
<tr><td>7</td><td>210</td><td>35</td></tr>
</table>
210 + 35 = 245
Moving forward, multiply by a 2 digit number showing the different rows within the grid method.
<table>
<tr><th></th><th>10</th><th>8</th></tr>
<tr><td>10</td><td>100</td><td>80</td></tr>
<tr><td>3</td><td>30</td><td>24</td></tr>
</table>
100 + 80 + 30 + 24 = 234
18 x 13 = 234
</td>
</tr>
</table>

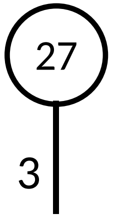
<table>
<tr><th>Objective & Strategy</th><th>Concrete</th><th>Pictorial</th><th>Abstract</th></tr>
<tr><td>Column Multiplication for 3 and 4 digits x 1 digit.</td><td></td><td>

x	300	20	7
4	1200	80	28

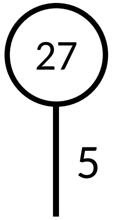
</td><td>This will lead to a compact method.

327
× 4
1308
1 2</td></tr>
<tr><td>Column multiplication for 2 digit x 2 digit</td><td></td><td>Lollipop method:

27
X 35



27 x 3 tens
27 x 10 = 270
x 3
810



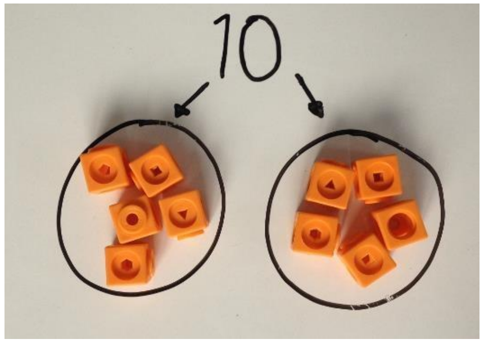
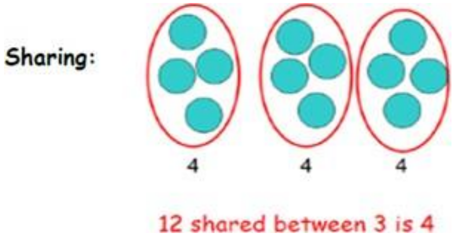
27 x 5 ones
27
x 5
135
3

Add together: 810
+ 135
945</td><td>35 × 26

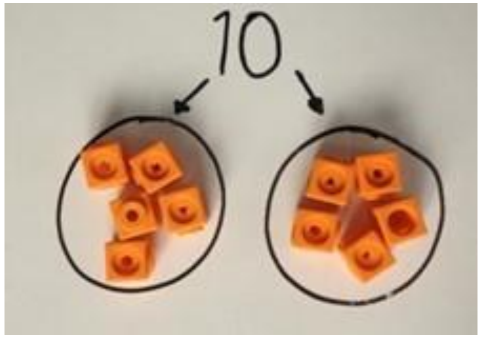
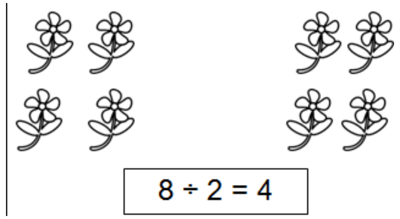
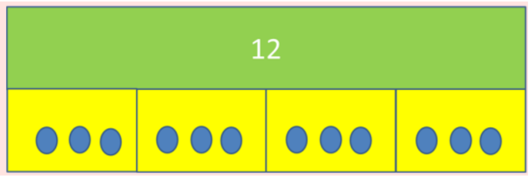
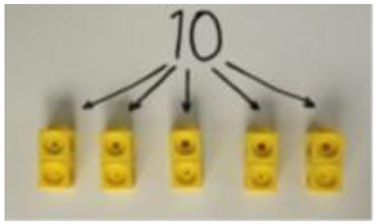
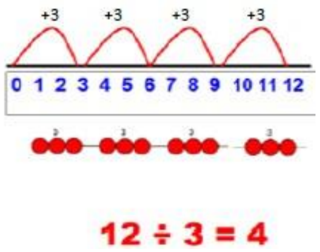
35×10×2
35×10= 350×
2
700

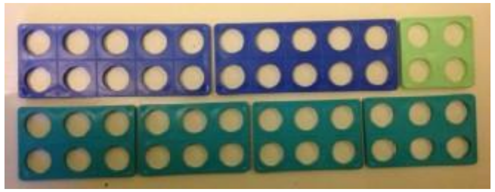
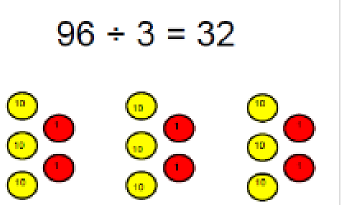
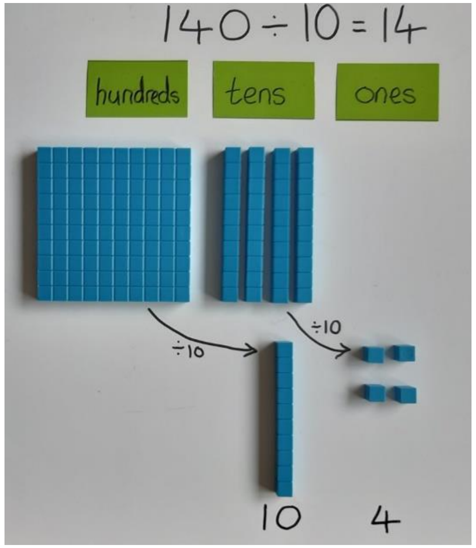
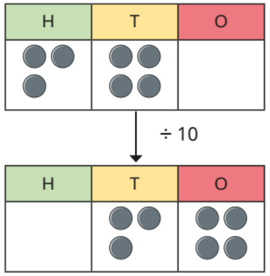
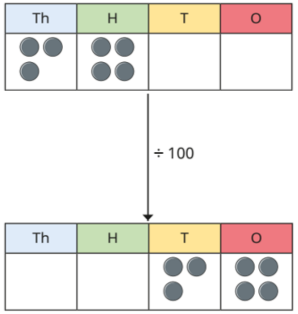
35 ×
6
210
3

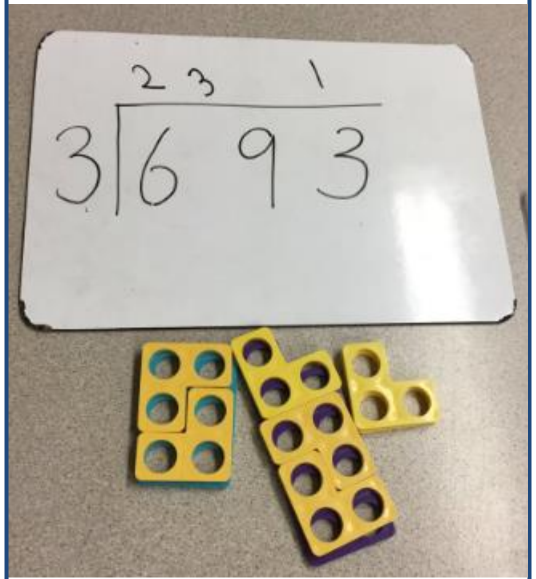
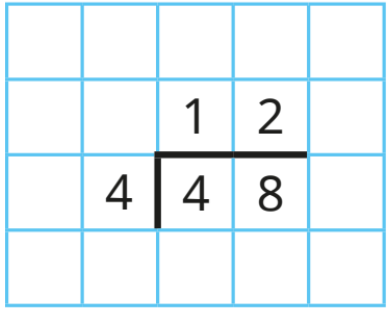
700 +
210
910</td></tr>
</table>

Objective & Strategy	Concrete	Pictorial	Abstract
Division as sharing	   I have 10 cubes, can you share them equally in 2 groups?	Children use pictures or shapes to share quantities.  $\boxed{8 \div 2 = 4}$  	Share 9 buns between three people. $9 \div 3 = 3$

Y2 DIVISION ÷

Objective & Strategy	Concrete	Pictorial	Abstract
Division as sharing	 I have 10 cubes, can you share them equally in 2 groups?	Children use pictures or shapes to share quantities.  Children use bar modelling to show and support understanding.  12 ÷ 4 = 3	12 ÷ 3 = 4
Division as grouping	Divide quantities into equal groups. Use cubes, counters, objects or place value counters to aid understanding. 	Use number lines for grouping 	28 ÷ 7 = 4 Divide 28 into 7 groups. How many are in each group?

Objective & Strategy	Concrete	Pictorial	Abstract
Division as grouping	Use cubes, counters, objects or place value counters to aid understanding.  24 divided into groups of 6 = 4  	Continue to use number lines for grouping	How many groups of 6 in 24? 24 ÷ 6 = 4
Dividing by 10 and 100	Use Dienes to solve division  	 When dividing by 10, all the counters move one place to the right on a place value chart.  When dividing by 100, all the counters move two places to the right on a place value chart.	340 ÷ 10 = 34 3400 ÷ 100 = 34

Objective & Strategy	Concrete	Pictorial	Abstract
Division using bus stop method	Children use Numicon to help solve division when using the bus stop method.  To find how many 3s go into 693, start with making digits 6 9 3 using Numicon.  Next, see how may times 3 goes into each number by laying it over the original Numicon.		 With the Numicon removed, we see how many times 4 goes into 48. We begin by dividing the tens digit of the dividend (48). How many time does the divisor go into the dividend? Next, we divide the units column of the dividend by the divisor. How many times does the divisor go into the units column?

Long Division

```
  h t o
  0 4 1 R1
4 ) 1 6 5
```

4 does not go into 1 (hundred). So combine the 1 hundred with the 6 tens (160).

4 goes into 16 four times.

4 goes into 5 once, leaving a remainder of 1.

```
  th h t o
  0  4 0 0 R7
8 ) 3  2 0 7
```

8 does not go into 3 of the thousands. So combine the 3 thousands with the 2 hundreds (3,200).

8 goes into 32 four times (3,200 ÷ 8 = 400)
8 goes into 0 zero times (tens).
8 goes into 7 zero times, and leaves a remainder of 7.

Y5-6 DIVISION ÷

Long Division

Using repeated addition

$$\begin{array}{r|l} & 2\ 0\ 1\ 4\ r\ 12 \\ \hline 27 & 5\ 4\ 3\ {}^{3}9\ {}^{12}0 \end{array}$$

27	39	27	120
+ 27	- 27	27	- 108
		27	
54	12	27	12
		108	

- 27 goes into 54 twice
- 27 does not go into 3 so you need to put a zero (as a place holder) and carry the 3 over
- 27 goes into 39 once with remainder 12 which needs to be carried over
- 27 goes into 120 four times with remainder 12