Oreston Community Academy Calculation Policy					
Addition					
Key Vocabulary: sum, total, parts and wholes, plus, add, together, more, 'is equal to' 'is the same as'.					
Progression in Addition					
Foundation / Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
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. 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 number
Nursery/Foundation					
Early Years	**Cardinality and Counting**	**Comparison**	**Composition**	**Pattern**	**Manipulatives**
There are six main areas that collectively underpin children's early mathematical learning, and which provide the firm foundations for the maths that children will encounter as they go up the years in primary school.	The cardinal value of a number refers to the quantity of things it represents, e.g. the numerosity, 'howmanyness', or 'threeness' of three. When children understand the cardinality of numbers, they know what the numbers mean in terms of knowing how many things they refer to. Counting is one way of establishing how many things are in a group, because the last number you say tells you how many there are. Children enjoy learning the sequence of counting	Comparing numbers involves knowing which numbers are worth more or less than each other. This depends both on understanding cardinal values of numbers and also knowing that the later counting numbers are worth more (because the next number is always one more). This understanding underpins the mental number line which children will develop later, which represents the relative value of numbers, i.e. how much bigger or smaller they are than each other.	Knowing numbers are made up of two or more other smaller numbers involves 'part–whole' understanding. Learning to 'see' a whole number and its parts at the same time is a key development in children's number understanding. Partitioning numbers into other numbers and putting them back together again underpins understanding of addition and subtraction as inverse operations.	Developing an awareness of pattern helps young children to notice and understand mathematical relationships. Patterns may provide the foundations of algebraic thinking, since they provide the opportunity for young children to observe and verbalise generalisations. The focus in this section is on repeating patterns, progressing from children copying simple alternating AB patterns to identifying different structures in the 'unit of repeat', such as ABB or ABBC. Patterns can	Multilink cubes Numicon Number fans Number tracks Dice Counters (plain and double sided) Numberblocks Bead strings (10 and 20) Tens frames Compare bears/counting objects Whole, part, part models Dominoes Number rods

| | | | | be made with objects like coloured cubes, small toys, buttons and keys, and with outdoor materials like pine cones, leaves or large blocks, as well as with movements and sounds, linking with music, dance, phonics and rhymes. Children can also spot and create patterns in a range of other contexts, such as printed patterns, timetables, numbers and stories. | |

numbers long before they understand the cardinal values of the numbers. Subitising is another way of recognising how many there are, without counting.

| **Nursery and Foundation Addition** |

Developments Matters and ELG for Number

30-50 months

Compare two groups of objects, saying when they have the same number.

Show an interest in number problems.

Separate a group of three or four objects in different ways, beginning to recognise the total is still the same.

40-60 months

Uses the language of more or fewer to compare two sets of objects.

Finds the total number of items in two groups by counting all of them.

Say the number that is one more than a given number.

ELG

Say which number is one more or one less than a given number.

Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.

Images and manipulatives to support learning in this area. Please note all children in Nursery and Foundation Stage should be familiar with using all of these resources and exposed to these images before moving to Year 1.

3+1=4

whole

part   part

5+5 6+4 7+3 8+2 9+1

Concrete	Pictorial	Abstract

Concrete

Use cubes to add two numbers together as a group or in a bar.

10

Numicon can also be used to support this

Pictorial
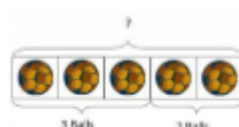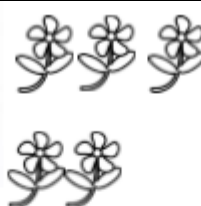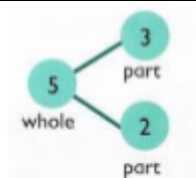
5 whole
3 part
2 part

Use pictures to add two numbers together as a group or in a bar.

3 Balls   2 Balls

8   1

Abstract

4 + 3 = 7

10= 6 + 4

5
3
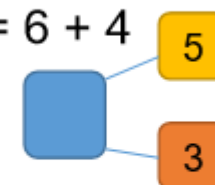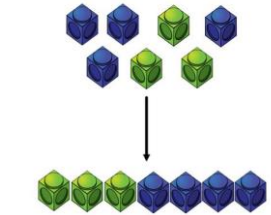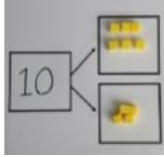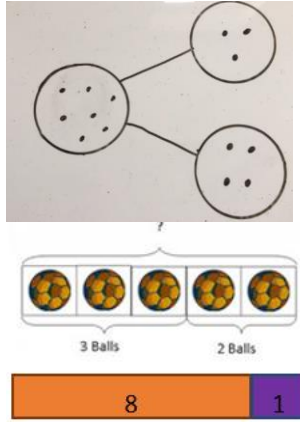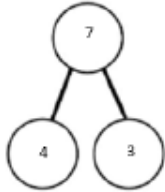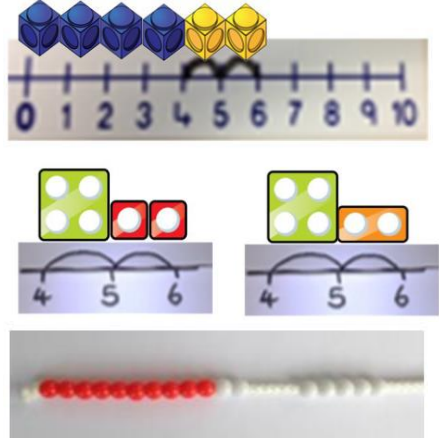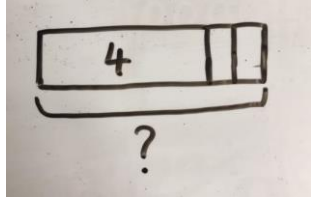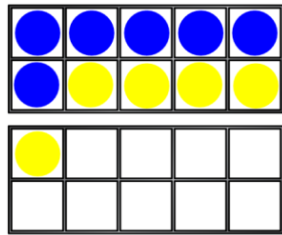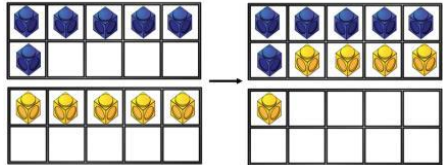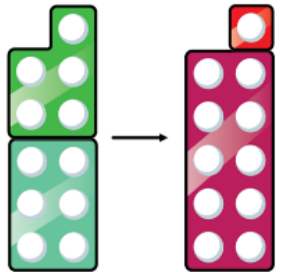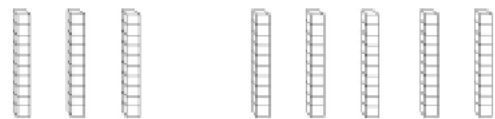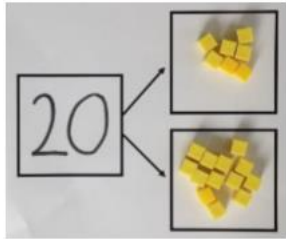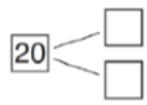
Use the part-part whole diagram as shown above to move into the abstract.

Year 1				
Objective & Strategy	**Concrete**	**Pictorial**	**Abstract**	**Vocabulary**
Combining two parts to make a whole: part-whole model	Use part part whole model. Use cubes to add two numbers together as a group or in a bar.	Children to represent the cubes using dots or crosses. They could put each part on a part whole model too. 3 Balls 2 Balls 8 1	4 + 3 = 7 Four is a part, 3 is a part and the whole is seven. 10= 6 + 4	Add, plus, count, how many, equals, altogether, total, makes, groups
Starting at the bigger number and counting on		A bar model which encourages the children to count on, rather than count all. 4 ?	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? 4 + 2	
Regrouping to make 10. *This is an essential skill for column addition later.*	Using ten frames and counters/cubes or using Numicon. 6 + 5	Children to draw the ten frame and counters/cubes.	Children to develop an understanding of equality e.g. 6 + □ = 11 6 + 5 = 5 + □	

			$6 + 5 = \Box + 4$	

Year 2				
Adding multiples of ten	50= 30 = 20 Model using dienes and bead strings	 3 tens + 5 tens = _____ tens 30 + 50 = _____ Use representations for base ten.	20 + 30 = 50 70 = 50 + 20 40 + $\Box$ = 60	+, add, more, plus make, sum, total altogether, =, equals score double, near double one more, two more… ten more…
Use known number facts Part part whole	 20 Children explore ways of making numbers within 20	 20 $\Box + \Box = 20$ $20 - \Box = \Box$ $\Box + \Box = 20$ $20 - \Box = \Box$	$\Box + 1 = 16$ $16 - 1 = \Box$ $1 + \Box = 16$ $16 - \Box = 1$	how many more to make…? how many more is… than…? how much more is…?

Using known facts	$\square_\square\square + \square_\square\square = \square_\square\square_\square\square$ $$\text{(base 10 tens)} + \text{(base 10 tens)} = \text{(base 10 tens)}$$	$\cdots + \cdots = \cdots$ $||| + |||| = |||||||$ (squares) $+$ (squares) $=$ (squares) Children draw representations of H,T and O	$3 + 4 = 7$ leads to $30 + 40 = 70$ leads to $300 + 400 = 700$	
Bar model	$3 + 4 = 7$	$7 + 3 = 10$	23 | 25 ? $23 + 25 = 48$	
Add a two digit number and ones	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.	$41 + 8$ $1 + 8 = 9$ $40 + 9 = 49$ 41 / 40 1 $\begin{array}{r} 4\ 1 \\ +\quad 8 \\ \hline 4\ 9 \end{array}$	
Add a 2 digit number and tens	$25 + 10 = 35$ Explore that the ones digit does not change	$33 + 20$	$33 + 20 = 53$ $\begin{array}{r} 33 \\ + 30 \\ \hline 53 \end{array}$	
Add two 2-digit numbers	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.	Looking for ways to make 10.	

	10s 1s 6 1	10s 1s 6 1	36 + 25= 1 5 30 + 20 = 50 5 + 5 = 10 50 + 10 + 1 = 61 23 + 12 = +10 +1 +1 23 35 34 + 23 = +20 +3 34 54 57 **Towards an efficient written method** T O T O T T O O $45 + 34 = 40 + 30 + 5 + 4$ $= 70 + 9$ $= 79$ Then moving towards a more efficient method: T O T O 67 = 60 + 7 +24 20 + 4 91 = 80 + 11	
Add three 1-digit numbers	 Combine to make 10 first if possible, or bridge 1o then add third digit	 Regroup and draw representation. + = 15	4 + 7 + 6 = 10 + 7 10 = 17 Combine the two numbers that make/ bridge ten then add on the third.	
Year 3				
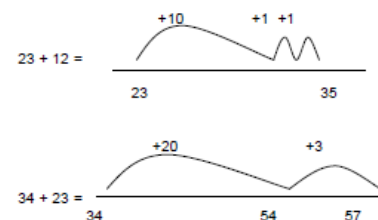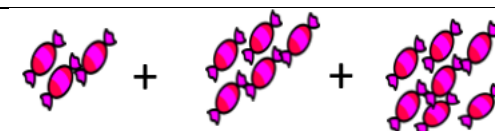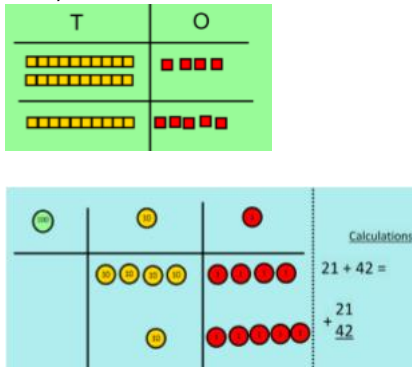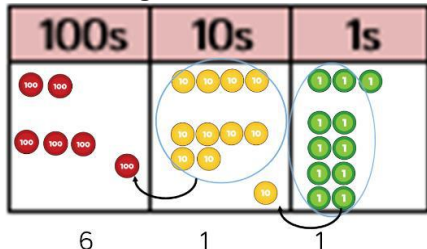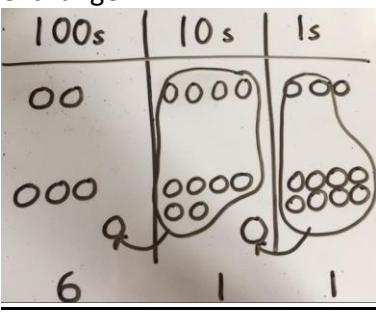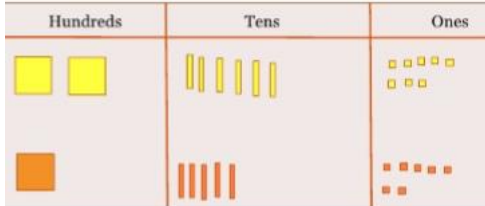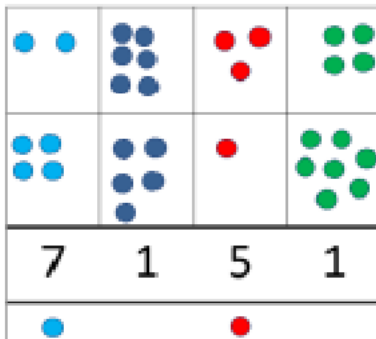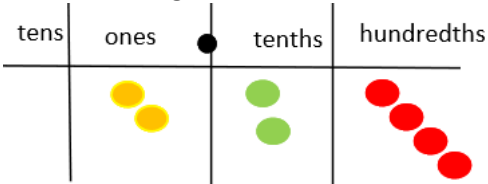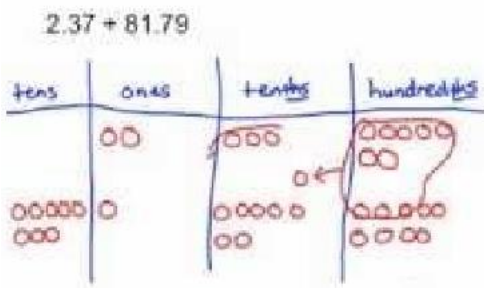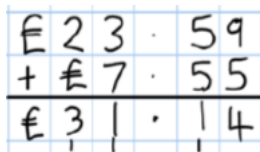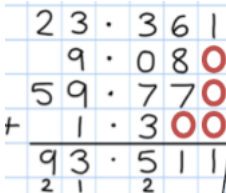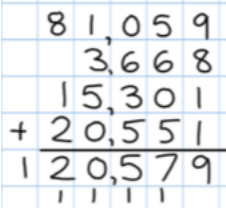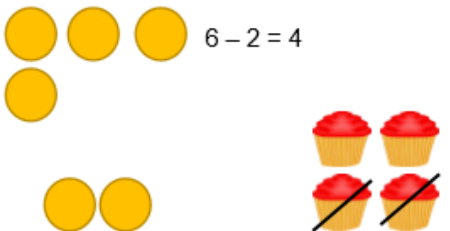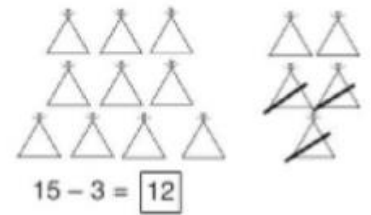
Column Addition—no regrouping (friendly numbers) Add two or three 2 or 3-digit numbers.	Model using base 10 and then place value counters. Children to add from the units, then tens, then hundreds.	Children to move towards drawing the counters or base 10. tens | ones	When understanding of the expanded method is secure, children will move on to the formal columnar method for whole numbers as an efficient written algorithm. 2 2 3 + 1 1 4 ——— 3 3 7	+, add, addition, more, plus Make, sum, total Altogether Score Double, near double One more, two more….. ten more…… one hundred more How many more to make? How many more is … than …. ? How much more is …..? Three-digit number and ones, tens, hundreds
Column Addition with regrouping.	Use of place value counters to add HTO + TO, HTO + HTO etc. 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.	243 +368 ——— 611 1 1	
Year 4-6				
Y4—add numbers with up to 4 digits	Children continue to use dienes or pv counters to add, exchanging ten ones for a ten and ten tens for a hundred and ten hundreds for a thousand.	Draw representations using pv grid.	Continue from previous work to carry hundreds as well as tens. Relate to money and measures. ThHTU 2456 +5379 ——— 7834 1 1	Add, addition, more, plus, increase Sum, total, altogether Score Double, near double How many more to make?

Y5—add numbers with more than 4 digits. Add decimals with 2 decimal places, including money.	Introduce decimal place value counters and model exchange for addition. tens ones • tenths hundredths	2.37 + 81.79 	TU . t 24.5 +51.7 76.2 1 TU .t h 56.47 + 84.86 141.33 11 1 £23.59 + £7.55 £31.14	Add, addition, more, plus, increase Sum, total, altogether Score Double, near double How many more to make?
Y6—add several numbers of increasing complexity Including adding money, measure and decimals with different numbers of decimal points.	As Year 5	As Year 5	TThThHTU 12 989 +14 798 27 787 1 1 1 ThTThTh HTU 456 287 +359 847 816 134 1 1 1 1 1 TU .t h th 57.486 + 45.378 102.864 1 11 23.361 9.080 59.770 + 1.300 93.511 81,059 3,668 15,301 + 20,551 120,579	Add, addition, more, plus, increase Sum, total, altogether Score Double, near double How many more to make?

Subtraction					
Key Vocabulary: take away, less than, the difference, subtract, minus, fewer, decrease.					
Progression in Subtraction					
Foundation/ Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
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 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.
Nursery and Foundation Subtraction					

Developments Matters and ELG for Number

30-50 months

Compare two groups of objects, saying when they have the same number.

Show an interest in number problems.

40-60 months

Uses the language of more or fewer to compare two sets of objects.

ELG

Say which number is one more or one less than a given number.

Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.

See above in Addition for images and manipulatives to support learning in this area. Please note all children in Nursery and Foundation Stage should be familiar with using all of these resources and exposed to these images before moving to Year 1

Concrete	Pictorial	Abstract
Use physical objects, counters, cubes etc to show how objects can be taken away. 6 – 2 = 4	Cross out drawn objects to show what has been taken away. 15 – 3 = 12	18 -3= 15 8 – 2 = 6

Foundation / Year 1				
Taking away ones.	Physically taking away and removing objects from a whole (ten frames, Numicon, cubes and other items such as beanbags could be used). 4 – 3 = 1 8 - 3 = 5	Children to draw the concrete resources they are using and cross out the correct amount. The bar model can also be used. 	4- 3 = $\boxed{} = 4 - 3$ 	Equals, subtract, take away, count, how many, total, makes, groups, left over.
Counting back	Counting back (using number lines or number tracks) children start with 6 and count back 2. 6 – 2 = 4 	Children to represent what they see pictorially e.g. 	Children to represent the calculation on a number line or number track and show their jumps. Encourage children to use an empty number line. 	
Find the Difference	Finding the difference (using cubes, Numicon or Cuisenaire rods, other objects can also be used). Calculate the difference between 8 and 5. 	Children to draw the cubes/other concrete objects which they have used or use the bar model to illustrate what they need to calculate. 	Find the difference between 8 and 5. 8 – 5, the difference is $\boxed{}$ Children to explore why 9 - 6 = 8 – 5 = 7 – 4 have the same difference.	
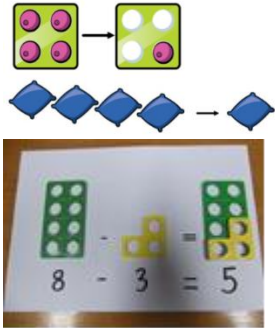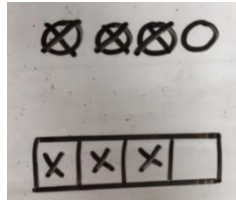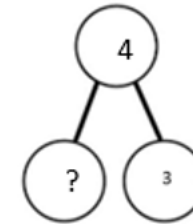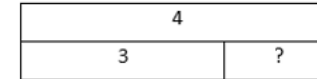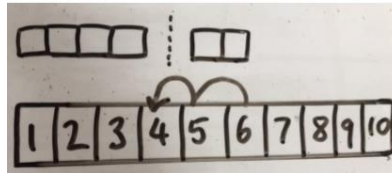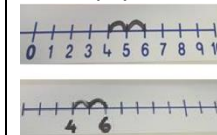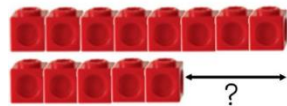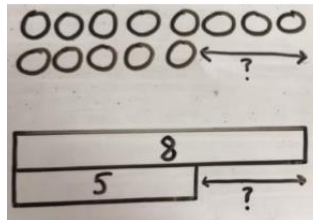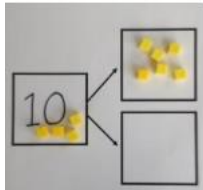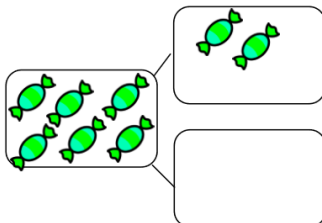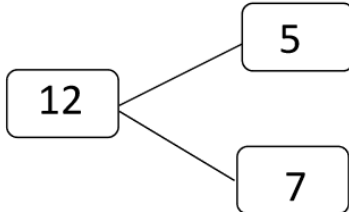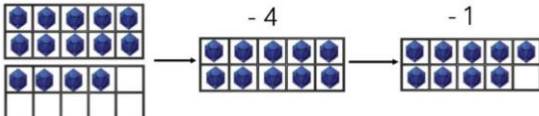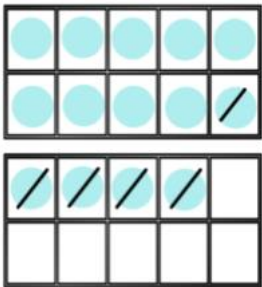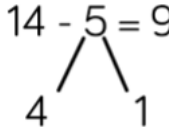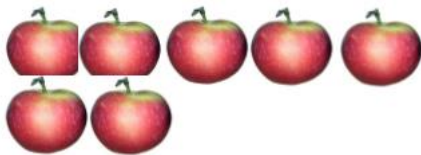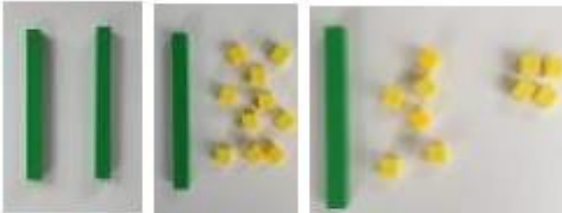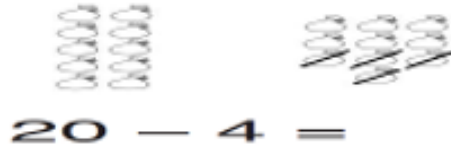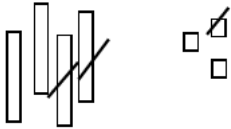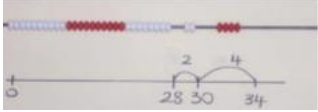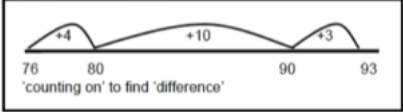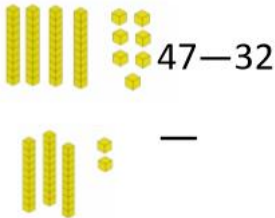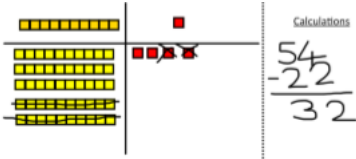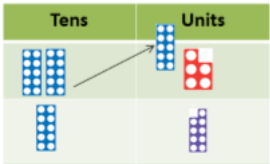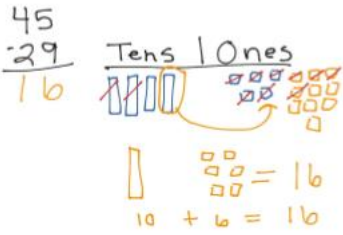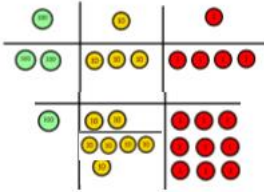
Represent and use number bonds and related subtraction facts within 20	If 10 is the whole and 6 is one of the parts, what is the other part?	Use pictorial representations to show the part.	Move to using numbers within the part whole model.	
Make 10	Making 10 using ten frames. $14 - 5$	Children to present the ten frame pictorially and discuss what they did to make 10.	Children to show how they can make 10 by partitioning the subtrahend. $14 - 5 = 9$ $4 \quad 1$ $14 - 4 = 10$ $10 - 1 = 9$	
Bar model	$5 - 2 = 3$		8 | 2 $10 = 8 + 2$ $10 = 2 + 8$ $10 - 2 = 8$ $10 - 8 = 2$	
Year 2				
Regroup a ten into ten ones	Use a PV chart to show how to change a ten into ten ones, use the term 'exchange'.	$20 - 4 =$	$20 - 4 = 16$	-, subtract, subtraction, take (away), minus Leave, how many are left / left over? One less, two less…… ten less………. One hundred less How many fewer is …. Than ……? How much less is …….? Difference between Half, halve

Partitioning to sub-tract without re-grouping. *'Friendly numbers'*	34—13 = 21 Use Dienes to show how to partition the number when subtracting without regrouping.	Children to draw representations of dienes and cross off. 43—21 = 22	43 – 21 = 22	=, equals, sign, is the same as Tens boundary
Make ten strategy *Progression should be crossing one ten, crossing more than one ten, cross-ing the hundreds.*	 34 – 28 Use a bead bar or bead strings to model counting to next ten and the rest.	 Use a number line to count on to next ten and then the rest.	93—76 = 17	
		Year 3		
Column subtraction without regrouping (friendly numbers)	 Use base 10 or Numicon to model	 Draw representations to support understanding	H T U 287 - 132 155 Intermediate step of partitioning may be needed to lead to clear subtraction understanding.	-, subtract, subtraction, take (away), minus Leave, how many are left / left over? One less, two less…… ten less………. One hundred less How many fewer is …. Than ……? How much less is …….? Difference between Half, halve =, equals, sign, is the same as Tens boundary, hundreds boundary Columnar addition, subtraction
Column subtraction with regrouping	 Begin with base 10 or Numicon. Move to pv counters, modelling the exchange of a ten into ten ones. Use the phrase 'exchange'.		H T U 5⁷8¹2 -2 3 7 3 4 5 Begin by partitioning into place value columns. Then move to a formal method.	

		Children may draw base ten or PV counters and cross off.		
		Year 4		
Year 4 subtract with up to 4 digits.	234 - 179 Model process of exchange using Numicon, base ten and then move to PV counters. *Introduce decimal subtraction through context of money*	Children to draw place value counters and show their exchange. (See Year 3)	H T U 787 - 342 445 U . t h £3.84 - £2.31 £1.53 Th H T U ⁵6¹³4¹1 8 - 2 4 56 3 9 62	Subtract, subtraction, take (away), minus, decrease Leave, how many are left / left over? Difference between Half, halve How many more / fewer is….. than….? How much more / less is…….? Equals, sign, is the same as Tens boundary, hundreds boundary Inverse Columnar addition, subtraction
		Year 5		
Year 5- Subtract with at least 4 dig-its, including money and measures.	As Year 4. *Subtract with decimal values, including mixtures of integers and decimals and aligning the decimal*	Children to draw place value counters and show their exchange. (See Year 3)	Tth Th H T U ³4¹4⁵5¹¹2¹4⁵7 - 1 7 4 88 2 7 7 69 T U. t h ⁷8¹²3.⁹1⁰¹2 - 3 6. 4 9 4 6. 5 3	
		Year 6		
Year 6— Subtract with increasingly large and more complex numbers and decimal values.	As Year 4	Children to draw place value counters and show their exchange. (See Year 3)	Htth Tth Th H T U ⁶7¹³4¹⁵6¹2⁸9¹1 - 2 8 9 3 5 4 4 5 6 9 3 7 T U. t h th ⁵6¹²3.¹¹2¹²3¹7 - 4 5. 8 6 9 1 7. 3 6 8	
		Multiplication		

	Key Vocabulary: double, times, multiplied by, the product of, groups of, lots of, equal groups.				
	Progression in Multiplication				
Foundation/ Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
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- introduced with place value counters. (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)
	Foundation				

ELG:

Solve problems, including doubling, halving and sharing.

Doubling should be introduced practically including dot formation, dice games, dominoes.

Use practical activities to show how to double a number.
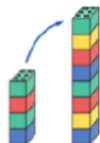
double 4 is 8
4 × 2 = 8

This can also be done with Numicon reflections in mirrors, dominoes, dice…

Draw pictures to show how to double a number.

Double 4 is 8

DOUBLE TROUBLE!

2 + 2 = 4

$J \star J = S$

$1 \star 1 = 2$
double 1 = 2
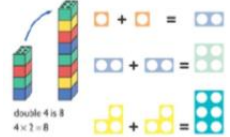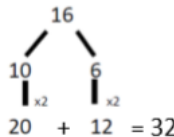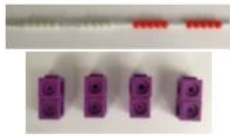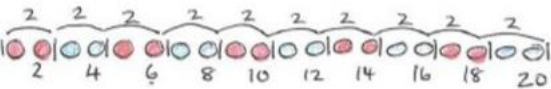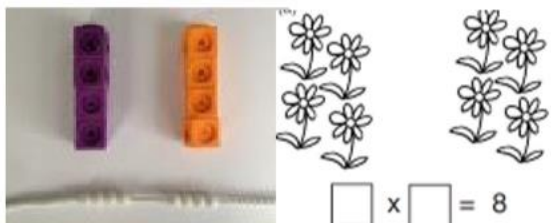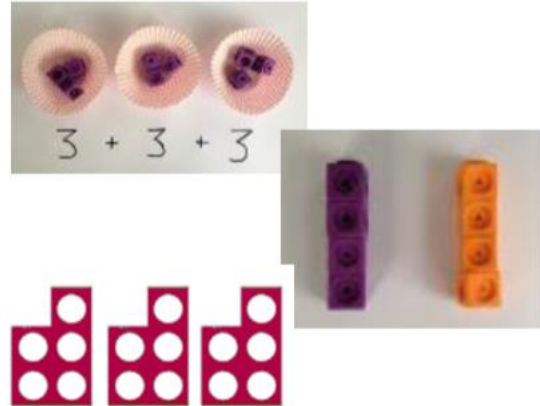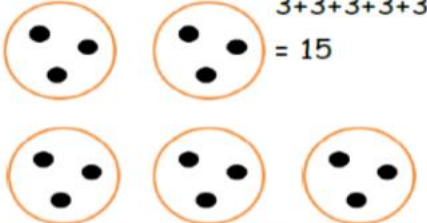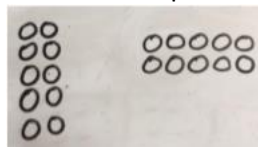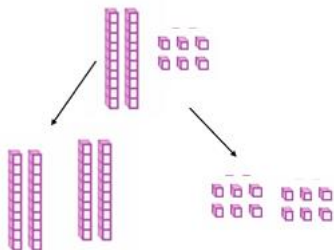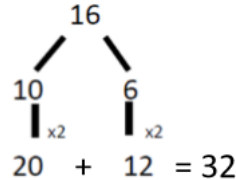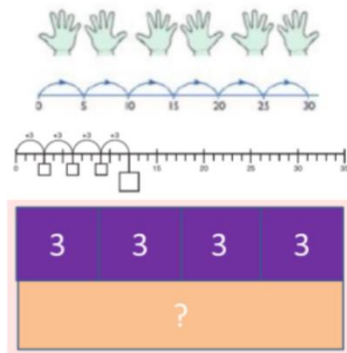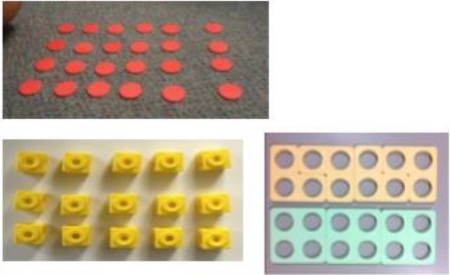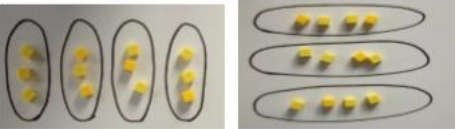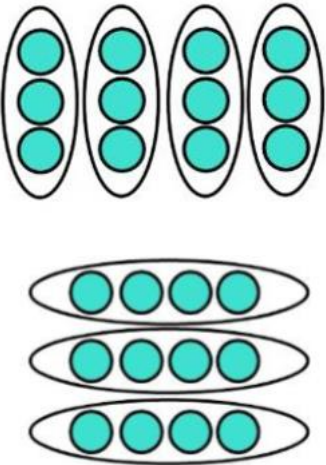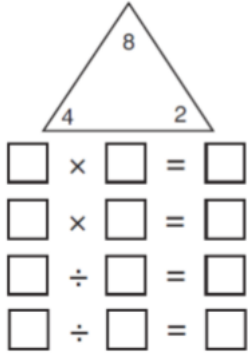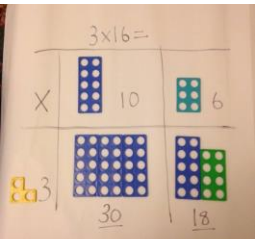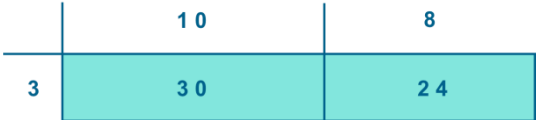
Year 1
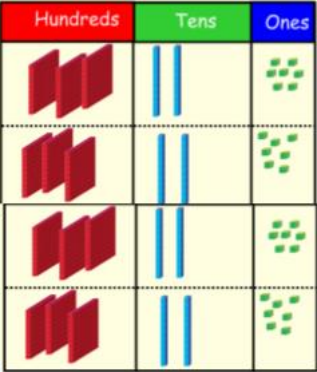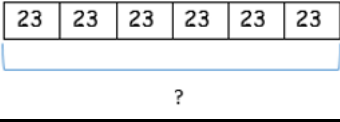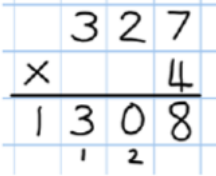
Doubling	Use practical activities using manipulatives including cubes and Numicon to demonstrate doubling	Draw pictures to show how to double numbers Double 4 is 8	Partition a number then double each part before recombining it back together. 20 + 12 = 32	Equal sets/groups
Counting in multiples	Count 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	
Making equal groups and counting the total	Use manipulatives to create equal groups. $\square \times \square = 8$	Draw and make representations Draw 🐟 to show 2 x 3 = 6	2 x 4 = 8	
Repeated addition	Use different objects to add equal groups. 3 + 3 + 3	Use pictorial including number lines to solve problems. There are 3 sweets in one bag. How many sweets are in 5 bags altogether? 3+3+3+3+3 = 15	Write addition sentences to describe objects and pictures. 2 + 2 + 2 + 2 + 2 = 10	

Understanding arrays	Use arrays to illustrate commutativity counters and other objects can also be used. $2 \times 5 = 5 \times 2$ 2 lots of 5 5 lots of 2	Children to represent the arrays pictorially. 	$10 = 2 \times 5$ $5 \times 2 = 10$	
Year 2				
Doubling	Model doubling using dienes and PV counters. $40 + 12 = 52$	Draw pictures and representations to show how to double numbers.	Partition a number and then double each part before recombining it back together. 16 10 6 x2 x2 20 + 12 = 32	Half/halve, double
Counting in multiples of 2, 3, 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	
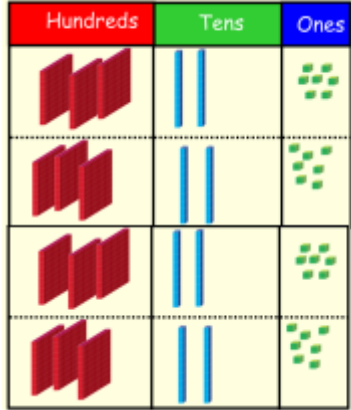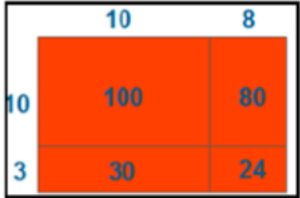
Multiplication is commutative	Create arrays using counters and cubes and Numicon. Pupils should understand that an array can represent different equations and that, as multiplication is commutative, the order of the multiplication does not affect the answer. 	Use representations of arrays to show calculations and explore commutativity. 	12 = 3 × 4 12 = 4 × 3	
Using the inverse			2 x 4 = 8 4 x 2 = 8 8 ÷ 2 = 4 8 ÷ 4 = 2 8 = 2 x 4 8 = 4 x 2 2 = 8 ÷ 4 4 = 8 ÷ 2 Show all 8 related fact family sentences.	
		Year 3		
Grid method	3 x 16 = 	Children can represent their work with place value counters in a way that they understand. Move on to a grid method representation. 	**Expanded Written Method** $\begin{array}{r} \text{T U} \\ 18 \\ \underline{\text{X} \quad 3} \\ 24 \ (3 \times 8) \\ \underline{30} \ (3 \times 10) \\ \underline{54} \end{array}$	lots of, groups of, times, multiply, multiplication, multiplied by multiple of, product once, twice, three times… ten times… times as (big, long, wide… and so on) repeated addition, array, row, column double, halve

	10 8 3 30 24 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 Calculations 4 x 126 Fill each row with 126 Calculations 4 x 126 Add up each column, starting with the ones making any exchanges needed.			share, share equally one each, two each, three each... group in pairs, threes… tens equal groups of, divide, division, divided by, divided into left, left over, remainder

<p align="center">Year 4</p>

Grid method recap from Year 3 for 2 digits x 1 digit Move to multiplying 3 digit numbers by 1 digit (Year 4 expectation)	As Year 3 Children can continue to be supported by place value counters at the stage of multiplication. This is initially done where there is no regrouping. 321 x 2 = 642	As Year 3 The grid method may be used to show how this relates to a formal written method. <table><tr><td>×</td><td>300</td><td>20</td><td>7</td></tr><tr><td>4</td><td>1200</td><td>80</td><td>28</td></tr></table>	T U 63 X 8 504 2 327 x 4 ―― 28 80 1200 ―― 1308	lots of, groups of times, multiply, multiplication, multiplied by multiple of, product once, twice, three times… ten times… times as (big, long, wide… and so on) repeated addition array row, column double, halve share, share equally one each, two each, three each…group in pairs, threes… tens equal groups of

Column multiplication	 It is important at this stage that they always multiply the ones first. The corresponding long multiplication is modelled alongside.	Bar modelling and number lines can support learners when solving problems with multiplication alongside the formal written methods. | 23	23	23	23	23	23 | ?		divide, division, divided by, divided into remainder factor, quotient, divisible by inverse

Year 5				
Column multiplication for 3 and 4 digits x 1 digit	Manipulatives may still be used with the corresponding long multiplication modelled alongside. See Year 4.	See Year 4.	See Year 4.	lots of, groups of times, multiply, multiplication, multiplied by multiple of, product once, twice, three times… ten times… times as (big, long, wide… and so on) repeated addition array row, column double, halve share, share equally
Column multiplication	Manipulatives may still be used with the corresponding long multiplication modelled alongside. It is important a this stage that they always multiply the ones first.	Continue to use bar modelling to support problem solving 	T U 2 4 X 1 6 1 4 4 2 4 0 3 8 4 T U 8 5 X 6 3 2²5¹5 5 1³0 0 5 3 5 5 Th H T U 2 7 4 1 X 6 1 6 4 4 6	

Year 6				
Multiplying decimals up to 2 decimal places by a single digit	See year 5.		Remind children that the single digit belongs in the units column. Line up the decimal points in the question and the answer. $$\begin{array}{r} 3 \cdot 1\ 9 \\ \times\ 8 \\ \hline 2\ 5 \cdot 5\ 2 \\ {}_{1}\quad{}_{7} \end{array}$$	lots of, groups of times, multiply, multiplication, multiplied by multiple of, product once, twice, three times… ten times… times as (big, long, wide… and so on) repeated addition array, row, column double, halve share, share equally one each, two each, three each… group in pairs, threes… tens equal groups of divide, division, divided by, divided into remainder factor, quotient, divisible by inverse.

Division					
Key Vocabulary: share, group, divide, divided by, half.					
Progression in Division					
Foundation/ Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Sharing objects into groups Division as grouping e.g. I have 12 sweets and put them in groups of 3, how many groups? Use cubes and draw round 3 cubes at a time.	Division as grouping Division within arrays-linking to multiplication Repeated subtraction	Division with a remainder-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- concrete and pictorial)	Short division (up to 4 digits by a 1 digit number including remainders)	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
Foundation					

ELG:

Solve problems, including doubling, halving and sharing.

Practical activities during play or snack time
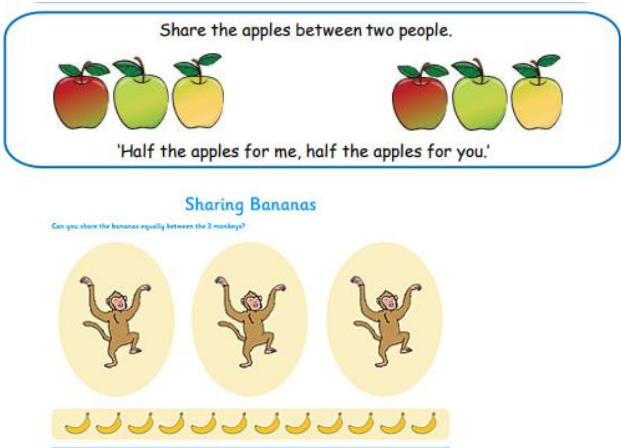
Foundation / Year 1			
Division as sharing	 I have 10 cubes, can you share them equally in 2 groups?	Children use pictures to share quantities. 8 shared between 2 is 4. 12 shared between 3 is 4	6 shared between 2 is 3 | 3 | 3 | Children should also be encouraged to use their 2 times table facts.	Groups of, counting in, half, count, how many, equals, divide, sharing.
Year 2			
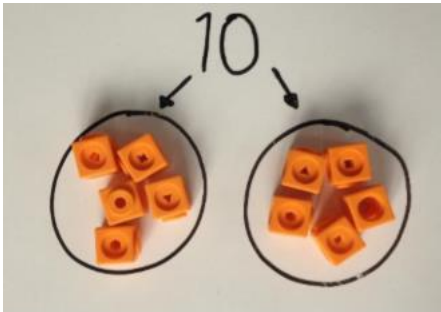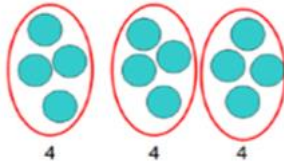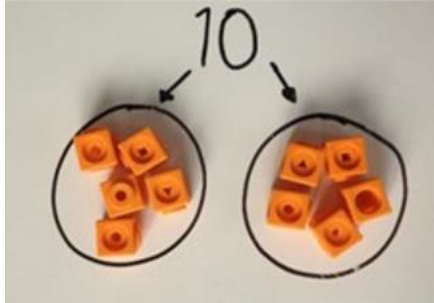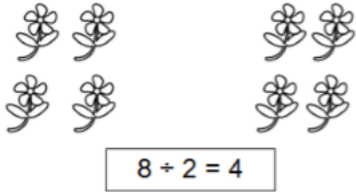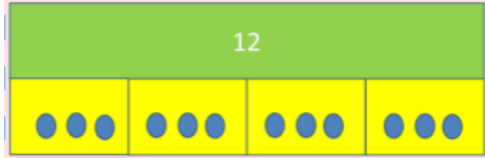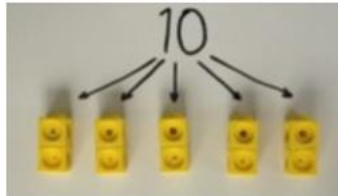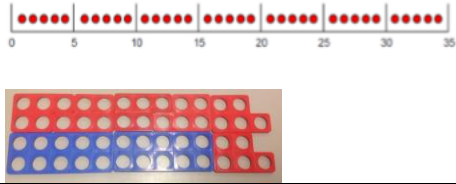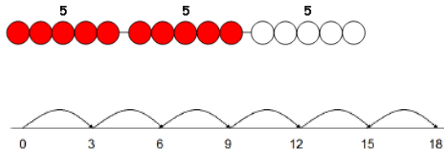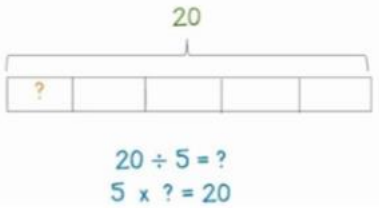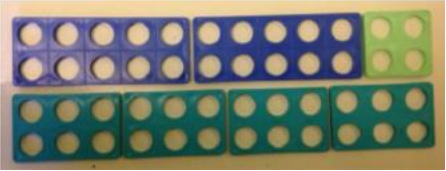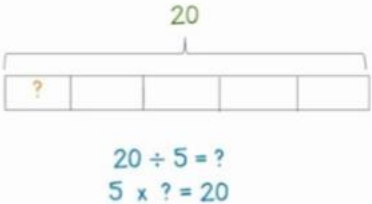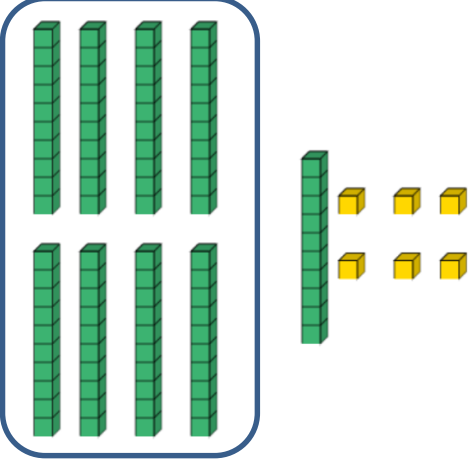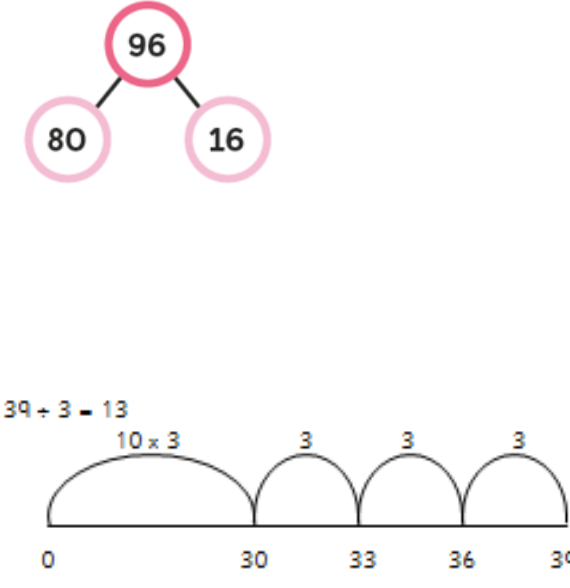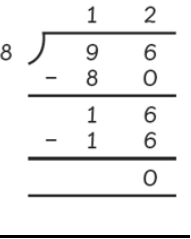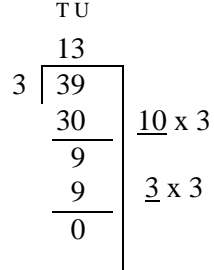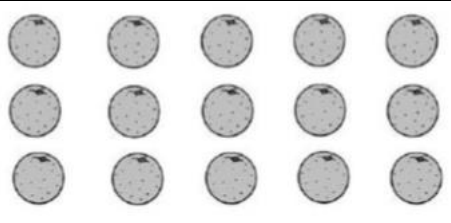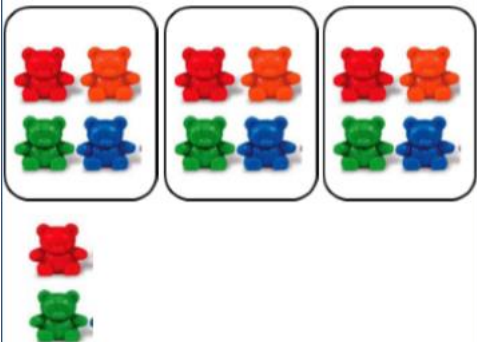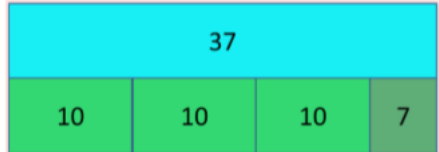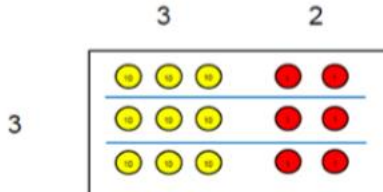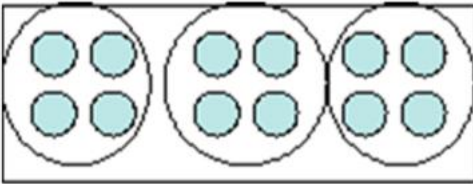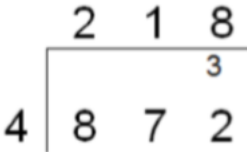
Division as sharing	I have 10 cubes, can you share them equally in 2 groups?	Children use pictures or shapes to share quantities. $8 \div 2 = 4$ Children use bar modelling to show and support understanding. $12 \div 4 = 3$	$12 \div 3 = 4$	Groups of, counting in, half, count, how many, equals sets, groups, divide, sharing.
Division as grouping	Divide quantities into equal groups. Use cubes, counters, objects or place value counters to aid understanding.	Use number lines for grouping 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. $20 \div 5 = ?$ $5 \times ? = 20$	$21 \div 3 = 7$ Divide 21 into 3 groups. How many are in each group?	
Year 3				

Division as grouping	Use cubes, counters, objects or place value counters to aid understanding. 24 divided into groups of 6 = 4 96 ÷ 3 = 32 	Continue to use bar modelling to aid solving division problems. 20 ÷ 5 = ? 5 x ? = 20	How many groups of 6 in 24? 24 ÷ 6 = 4	lots of, groups of, times, multiply, multiplication, multiplied by multiple of, product once, twice, three times… ten times… times as (big, long, wide… and so on) repeated addition, array, row, column double, halve share, share equally one each, two each, three each... group in pairs, threes… tens equal groups of, divide, division, divided by, divided into left, left over, remainder

Division as chunking	
	
	8 x 10 = 80
	
	96 – 80 = 16
	
	8 x 2 = 16
		
		96
		80 16
		
		39 ÷ 3 = 13
		10 x 3 3 3 3
		0 30 33 36 39
			1 2
			8) 9 6
			  – 8 0
			     1 6
			  – 1 6
			        0
			
			Expanded written method
			T U
			13
			3) 39
			    30 10 x 3
			     9
			     9 3 x 3
			     0	

Division with arrays	Link division to multiplication by creating an array and thinking about the number sentences that can be created.	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 eight linking number sentences. 7 x 4 = 28 4 x 7 = 28 28 ÷ 7 = 4	

	  E.g. 15 ÷ 3 = 5 5 x 3 = 15 15 ÷ 5 = 3 3 x 5 = 15		28 ÷ 4 = 7 28 = 7 x 4 28 = 4 x 7 4 = 28 ÷ 7 7 = 28 ÷ 4	
Division with remainders	14 ÷ 3 = Divide objects between groups and see how much is left over 	Jump forward in equal jumps in 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. Use bar models to show division with remainders. 	Complete written divisions and show the remainder using r. 	
		Year 4 – 6		
Divide at least 3 digit numbers by 1 digit.	96 ÷ 3 Use place value counters to divide using the bus stop method alongside	Students can continue to use drawn diagrams with dots or circles to help them divide numbers into equal groups. Encourage them to move towards counting in multiples to divide more efficiently.	Begin with divisions that divide equally with no remainder. Move onto divisions with a remainder.	lots of, groups of times, multiply, multiplication, multiplied by multiple of, product once, twice, three times… ten times… times as (big, long, wide… and so on) repeated addition array row, column double, halve share, share equally one each, two each, three each…group in pairs,

42 ÷ 3=

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.
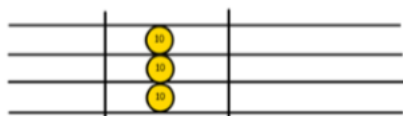
We exchange this ten for ten ones and then share the ones equally among the groups.
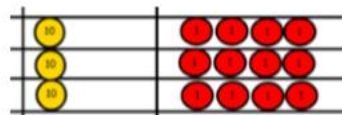
We look how much in 1 group so the answer is 14.

$$\begin{array}{r} 8\ 6 \quad r\ 2 \\ 3 \\ 5\overline{)4\ 3\ 2} \end{array}$$

Finally move into decimal places to divide the total accurately.

$$\begin{array}{r} 1\ 4\ .\ 6 \\ 16 \qquad 21 \\ 3\ 5\overline{)5\ 1\ 1\ .\ 0} \end{array}$$

$$\begin{array}{r} 0\ 6\ 6\ 3\ r\ 5 \\ 8\overline{)5\ {}^53\ {}^50\ {}^29} \end{array}$$

$$\begin{array}{r} 2\ 2\ 9 \\ r\ 6 \\ 8\overline{)1\ 8^23^28} \end{array}$$

With decimals:

$$\begin{array}{r} 7\ .\ 5\ 6 \\ 6\overline{)4\ 5\ .\ {}^33^36} \end{array}$$

threes… tens equal groups of
divide, division, divided by, divided into remainder factor, quotient, divisible by inverse

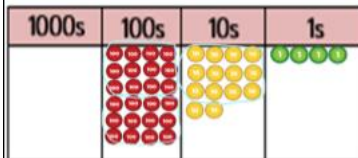| Year 6		
A remainder in the ones	**Long division** using place value counters 2544 ÷ 12	lots of, groups of times, multiply, multiplication, multiplied by multiple of, product once, twice, three times… ten times… times as (big, long, wide… and so on) repeated addition array, row, column double, halve share, share equally one each, two each, three each… group in pairs, threes… tens equal groups of divide, division, divided by, divided into remainder factor, quotient, divisible by inverse.
A remainder in the tens		
A remainder in any of the place values		

1000s	100s	10s	1s

We can't group 2 thousands into groups of 12 so will exchange them.

1000s	100s	10s	1s
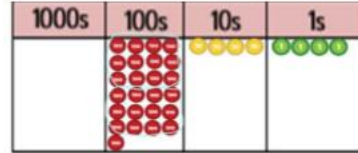
We can group 24 hundreds into groups of 12 which leaves with 1 hundred.

```
      0 2
12 | 2544
     24
      1
```

1000s	100s	10s	1s

After exchanging the hundred, we have 14 tens. We can group 12 tens into a group of 12, which leaves 2 tens.

```
      0 2 1
12 | 2544
     24
     14
     12
      2
```

1000s	100s	10s	1s
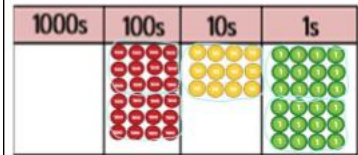
After exchanging the 2 tens, we have 24 ones. We can group 24 ones into 2 group of 12, which leaves no remainder.

```
      0 2 1 2
12 | 2544
     24
     14
     12
     24
     24
      0
```