



	Use visual support such as tens frames, part part whole and subtraction mats, with the physical objects and resources that can be manipulated.		
Key mathematical voo	cabulary	iplication - EYFS	
Sharing, doubling, ha	lving, number patterns	1	
Objectives	Concrete	Pictorial	Abstract
Explore the composition of numbers to 10. Recall number bonds for numbers 1-10. ELG: Recall some number bonds to 10, including double facts. Explore and represent patterns within numbers up to 10, including double facts. Language to be used: Double, equal groups, groups of, lots of, the same as, equals.	Counting and other maths resources to make 2 equal groups. Counting and other maths resources to make 2 equal groups. Physical and real life examples that encourage children to see the concept of doubling as adding two equal groups.	What is double 4?         4+4=8         Image: Construction of the set	

#### **Division - EYFS** Key mathematical vocabulary Sharing, doubling, halving, number patterns Objectives Concrete Pictorial Abstract Explore the composition of 1 numbers to 10. Recall number 10 bonds for numbers 1-10. Children have the opportunity to physically cut objects, food Pictures and icons that encourage the children to ELG: or shapes in half. see the concept of halving in relation to subsitising, Explore and addition and subtraction knowledge i.e. knowing 4 represent patterns is made of 2 groups of 2, so half of 4 is 2. within numbers Counting and other maths resources and how quantities for children to share into two equal 000000 ..... can be distributed groups. equally. Language to be Use visual supports such as halving used; mats and part part whole, with the Share, half, halves, physical objects and resources that Bar model with pictures or icons to support the same as, can be manipulated. understanding of finding 2 equal parts of a equals, whole. number, to further understand how two halves Counting and other maths resources make a whole. for children to explore sharing between 3 or more. Pictures for children to createand visualise 3 or more equal groups.

# Addition – Year 1 (numicon and other maths resources are used to support learning)

Key mathematical vocabulary

Addition, add, more, and make, sum, total, altogether, double, near double, half, halve one more, two more ... ten more how many more to make ...? how many more is ...? how many more is ...?

Objectives	Concrete	Pictorial	Abstract
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.	3       Josephine         5       2         yhole       2         Josephine       Josephine         Josephine       Josephine	4 + 3 = 7 $5$ $3$ $10 = 6 + 4$ 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.	12 + 5 = 17 $10 + 11 + 12 + 13 + 14 + 15 + 16 + 17 + 18 + 19 + 20$ Start at the larger number on the number line and count on in ones or in one jump to find the answer.	5 + 12 = 17 Place the larger number in your head and count on the smaller number to find your answer.
Regrouping to make 10. This is an essential skill for column addition later.	6+5=11 Start with the bigger number and use the smaller number to make 10. Use ten frames.	Use pictures or a number line. Regroup or partition the smaller number using the part part whole model to make 10. 9 + 5 = 14	7 + 4 = 11 If I am at seven, how many more do I need to make 10. How many more do I add on now?

Represent & use number bonds and related subtraction facts within 20	2 more than 5.	Drave 3 magree Trats	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.'
	<u>Subt</u>	<u>raction – Year 1</u>	
Key mathematical vo Subtract, take away between, equals is	cabulary y, how many are left/left over? how many have gone? one the same a,s number bonds/pairs missing number	less, two less, ten less how many fewer is tha	an? how much less is? difference
Objectives	Concrete	Pictorial	Abstract
Taking away ones	Use physical objects, counters, cubes etc to show how objects can be taken away. 6-4=2 4-2=2	$\begin{array}{c} & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & & & \\ & & & & & &$	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.	5 - 3 = 2 $5 - 3 = 2$ 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 objects and amounts	Count on using a number line to find the difference.	Hannah has12 sweets and her sister has 5. How many more does Hannah have than her sister?

	7 'Seven is 3 more than four' 4 T am 2 years older than my sister' 5 Percils 3 Exsens 2 Lay objects to represent bar model.	+6 +6 0 1 2 3 4 5 6 7 8 9 10 11 12	
Represent and use number bonds and related subtraction facts within 20. Part part whole	Link to addition. Use PPW model to model the inverse. If 10 is the whole and 6 is one of the arts, what's 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 13-7=6 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?
Bar model	<b>5−2 = 3</b>		8     2       10 = 8 + 2       10 = 2 + 8       10-2 = 8       10-8 = 2
Multiplication – Year 1			
Key mathematical vocabulary			
Objectives	Concrete	Pictorial	Abstract

Doubling	Use practical activities using manipulatives including	Draw pictures to show how to double	Partition a number and then double each
	cubes and numicon to demonstrate doubling	numbers	part before recombining it back
	c + c = c $double 4 is 8$	Double 4 is 8	together. 16 10 12
Counting in	Count the groups as children are skin counting, children		Count in multiples of a number aloud
multiples	may use their fingers as they are skip counting.		Write sequences with multiples of
			numbers.
		Children make representations to show counting in multiples.	2,4,6,8,10
		$\begin{array}{cccccccccccccccccccccccccccccccccccc$	5,10,15,20,25,30
Making equal groups and counting the total	x x x x x x x x x x x x x x	Draw to show 2 x 3 = 6 Draw and make representations	2 x 4 = 8
Repeated addition	Use different objects to add equal groups	Use pictorial including number lines to solve problems There are 3 sweets in one bag. How many sweets are in 5 bags altogether?	Write addition sentences to describe objects and pictures.

Understanding	Use objects laid out in arrays to find the answers to 2	Draw representations of arrays to show	$3 \times 2 = 6$
arrays	lots 5, 3 lots of 2 etc.	understanding	0 / 2 0
	*****		2 x 5 = 10
	<u>Div</u>	<u>ision – Year 1</u>	
Key mathematical v Multiplication, mult	vocabulary tinly multiplied by multiple division dividing grouping sl	paring doubling balving array number patterns	
Objectives	Concrete	Pictorial	Abstract
Division as		Children use pictures or shapes to share	12 shared between 3 is
sharing	66	quantities.	
	have 10 cubes, can you share them equally in 2 groups?	$\frac{2}{3} + \frac{2}{3} + \frac{2}$	4
	Ado	<u>dition – Year 2</u>	
Key mathematical vocabulary         Addition, add, more, and make, sum, total, altogether, double, near double, half, halve one more, two more ten more one hundred more, how many more to make        ? how many more is than? how much more is? Subtract, take away, how many are left/left over? how many have gone? one less, two less, ten less one         hundred less how many fewer is than? how much less is? difference between, equals is the same as, number bonds/pairs/facts tens boundary         Objectives       Concrete			

Adding multiples of ten	50 = 30 = 20	3 tens + 5 tens = tens 30 + 50 =	20 + 30 = 50 70 = 50 + 20 40 + ? = 60
	Model using dienes and bead strings	Use representations for base ten.	
Use known number facts Part part whole	Children explore ways of making numbers within 20	20 - = = = = = = = = = = = = = = = = = =	+ 1 = 16 $16 - 1 =1 + = 16 $ $16 - = 1$
Using known facts		Children draw representations of H, T and O	3 + 4 = 7
		11 + 12 = 13	leads to
		(  + )    =	30 + 40 = 70
			leads to 300 + 400 = 700
Bar model			
	3 + 4 = 7		23 25
	7 3 4	7 + 3 = 10	23 + 25 = 48

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	Use part part whole and number line to model. 17 + 5 = 22 3 2 16 + 7 16 + 7 16 + 7 16 + 20 23	17 + 5 = 22         Explore related facts $17 + 5 = 22$ $5 + 17 = 22$ $22 - 17 = 5$ $22 - 5 = 17$
Add a 2 digit number and tens	25 + 10 = 35 Explore that the ones digit does not change	Draw base 10: 25 + 10 = 35 1 + 1 = 1 + 1 +	27 + 10 = 37 27 + 20 = 47 27 + □ = 57
Add two 2-digit numbers	Model using dienes , place value counters and numicon	Draw base 10: 25 + 47 = 62 $1 + 1 + 1 = 1 + 1$	Donut method: 25 + 47 = 72 20 + 40 = 60 5 + 7 = 12 Then column method: 60 + 12 72

Add three 1-digit numbers	Combine to make 10 first if possible, or bridge 10 then add a third digit.	Regroup and draw representation. + + + + + + + + + + + + + + + + + + +	4 + 7 + 6 = 10 + 7 $= 17$ Combine the two numbers that make/bridge ten then add on the third.
Key mathematical vo	ocabulary	raction – Year 2	
Addition, add, mor ? how many mor hundred less, how	e, and make, sum, total, altogether, double near, double, h e is than? how much more is? Subtract, take away, h many fewer is than? how much less is? difference b	nalf, halve one more, two more ten more one now many are left/left over? how many have gone etween, equals is the same as, number bonds/pai	hundred more, how many more to make e? one less, two less, ten less one irs/facts tens boundary
Objectives	Concrete	Pictorial	Abstract
Regroup a ten into ten ones	Use a PV chart to show how to change a ten into ten ones, use the term 'take and make'	20 - 4 =	20 – 4 = 16 Then column subtraction.
Partitioning to subtract without regrouping 'Friendly numbers'	34-13 = 21	Children draw representations of Dienes and cross off. Children draw representations of Dienes and diamondation of Dienes and diamond the cross off.	43 - 21 = 22

Make ten strategy Progression should be crossing one ten, crossing more than one ten, crossing the hundreds.	34-28 Use a bead bar or bead strings to model counting to next ten and the rest.	76 80 90 93 'counting on' to find 'difference' Use a number line to count on to the next ten and then the rest.	
	<u>Multir</u>	<u> Dlication – Year 2</u>	
Key mathematical vo Multiplication, mul- into, grouping, shar array row, column,	cabulary tiply, multiplied by, multiple, groups of, times once, twice, 'ing, share, share equally left, left over one each, two each, number patterns, multiplication table, multiplication fact,	three times ten times, repeated addition, divisi three each ten each group in pairs, threes te division fact	on, dividing, divide, divided by, divided ens, equal groups of, doubling, halving,
Objectives	Concrete	Pictorial	Abstract
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. $16$ $10$ $6$ $10$ $10$ $6$ $1x_2$ $10$ $1x_2$ $12$ = 32
Counting in multiples 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.	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



Using the inverse This should be taught alongside division, so pupils learn how they work alongside each other.		$\begin{vmatrix} 8 \\ 4 \\ 2 \\ \end{vmatrix}$ $\begin{vmatrix} 4 \\ 2 \\ 2 \\ 2 \\ \end{vmatrix}$ $\begin{vmatrix} 4 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\$	$2 \times 4 = 8$ $4 \times 2 = 8$ $8 \div 2 = 4$ $8 \div 4 = 2$ $8 = 2 \times 4$ $8 = 4 \times 2$ $2 = 8 \div 4$ $4 = 8 \div 2$		
			Show all 8 related fact family sentences.		
	Div	ision – Year 2			
Multiplication, mul into, grouping, shar array row, column,	Multiplication, multiply, multiplied by, multiple, groups of, times once, twice, three times ten times, repeated addition, division, dividing, divide, divided by, divided into, grouping, sharing, share, share equally left, left over one each, two each, three each ten each group in pairs, threes tens, equal groups of, doubling, halving, array row, column, number patterns, multiplication table, multiplication fact, division fact				
Objectives	Concrete	Pictorial	Abstract		
Division as sharing	Thave 10 cubes, can you share them equally in 2 groups?	Children use pictures or shapes to share quanti- ties. $\begin{array}{c}  & & & & & & & & & & & & & & & & & & &$	12 ÷ 3 = 4		



Key mathematical vocabulary

Addition, add, more, and make, sum, total, altogether, double, near double, half, halve, one more, two more ... ten more ... one hundred more, how many more to make ...? how many more is ... than ...? how much more is ...? Subtract, take away, how many are left/left over? how many have gone? one less, two less, ten less ... one hundred less, how many fewer is ... than ...? how much less is ...? difference between, equals is the same as, number bonds/pairs/facts, missing number, tens boundary, hundreds boundary

Objectives	Concrete	Pictorial	Abstract
Column addition –	Model using Dienes or numicon	Children move to drawing the counters using a	
no regrouping		hundreds, tens and ones frame.	
(friendly numbers)	Add together the ones first, then the tens.		
Add two or three 2			
or 3 digit numbers.			



...? how many more is ... than ...? how much more is ...? Subtract, take away, how many are left/left over? how many have gone? one less, two less, ten less ... one

hundred less, how	many fewer is than? how much less is? difference be	etween, equals is the same as, number bonds/pair	rs/facts, missing number, tens boundary,
hundreds boundary	/		
Objectives	Concrete	Pictorial	Abstract
Column subtraction without regrouping (friendly numbers)	47—32	Calculations 54 -22 -22 -32	Intermediate step may be needed to lead to clear subtraction under- standing.
		Darw representations to support under- standing	
	Use base 10 or pv counters.		
Column subtraction with regrouping	Tens       Units         Image: Constraint of the sector of th	45 -29 16 Hold Parts -29 16 -29 -29 -29 -29 -29 -29 -29 -29	728-582=146 $47'2'''''''''''''''''''''''''''''''''''$
	Multip	lication – Year 3	
Key mathematical vo Multiplication, mul- by, divided into left of, doubling, halvin	cabulary tiply, multiplied by multiple, factor groups of times product , left over, remainder, grouping, sharing, share, share equa g, array row, column, number patterns, multiplication table	t once, twice, three times ten times, repeated a Illy, one each, two each, three each ten each, gr e, multiplication fact, division fact	ddition, division, dividing, divide, divided oup in pairs, threes tens, equal groups
Objectives	Concrete	Pictorial	Abstract
		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	2 4



Division as grouping	Use cubes, counters or place value counters to aid understanding.	Continue to use bar modelling to aid solving division problems.	How many groups of 6 in 24?
	24 divided into groups of 6 = 4	20	24 ÷ 6 = 4
	96 ÷ 3 = 32	$20 \div 5 = ?$ 5 x ? = 20	
Division with arrays	Link division to multiplication by creating an array and thinking about the number sentences that can be created. Eg $15 \div 3 = 5$ $5 \times 3 = 15$ $15 \div 5 = 3$ $3 \times 5 = 15$	Draw an array and use lines to split the array into groups to make multiplication and division sentences	Find the inverse of multiplication and division sentences by creating eight linking number sentences. 7 x 4 = 28 4 x 7 = 28 28 ÷ 7 = 4 28 ÷ 4 = 7 28 = 7 x 4 28 = 4 x 7 4 = 28 ÷ 7 7 = 28 ÷ 4

Division with remainders	14÷3 = Divide counters between groups and see how much is left over	Draw dots and group them to divide an amount and clearly show a remainder.	Complete written divisions and show the remainder using r. $\begin{array}{c} 29 \div 8 = 3 \text{ REMAINDER 5} \\ \uparrow \uparrow \uparrow & \uparrow \\ \text{dividend divisor quotient} & \text{remainder} \end{array}$
	Exam 40 + 5 Ask "H	low many 5s in 40?" $5+5+5+5+5+5+5+5+5=8$ fi 0 5 10 15 20 25 30 35 40	ves
	Ado	<u> dition – Year 4</u>	
Key mathematical vo Addition, add, mor ? how many more hundred less, how hundreds boundary	ocabulary re, and make, sum, total, altogether, double, near double, h e is than? how much more is? Subtract, take away, h many fewer is than? how much less is? difference b y, inverse	half, halve, one more, two more ten more one how many are left/left over? how many have gone etween, equals is the same as, number bonds/pai	hundred more, how many more to make ? one less, two less, ten less one rs/facts, missing number, tens boundary,
Objectives	Concrete	Pictorial	Abstract
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.	7 1   5   7   1   5   1    1   1 <tr< td=""><td>3517         + 396         3913         Continue from previous work to carry hundreds as well as tens.         Relate to money and measures.</td></tr<>	3517         + 396         3913         Continue from previous work to carry hundreds as well as tens.         Relate to money and measures.

## Subtraction – Year 4

### Key mathematical vocabulary

expectation)

Addition, add, more, and make, sum, total, altogether, double, near double, half, halve, one more, two more... ten more... one hundred more, how many more to make ...? how many more is ... than ...? how much more is ...? Subtract, take away, how many are left/left over? how many have gone? one less, two less, ten less ... one hundred less, how many fewer is ... than ...? how much less is ...? difference between, equals is the same as, number bonds/pairs/facts, missing number, tens boundary, hundreds boundary, inverse

Pictorial	Abstract	
Children to draw pv counters and show their	e l	
exchange. 45 -29 Tens lones 20 -29 -29 -29 -29 -29 -29 -29 -29	2 7 5 4 - 1 5 6 2 1 1 9 2 Use the phrase 'take and make' for exchange.	
plication - Year 4		
Key mathematical vocabulary		
auct, once, twice, three times ten times, repeated	a addition, division, dividing, divide,	
hare equally, one each, two each, three each ten	each, group in pairs, threes tens, equal	
tion table, multiplication fact, division fact, inverse	, square, squared cube, cubed	
Pictorial	Abstract	
	Pictorial         Children to draw pv counters and show their exchange.         45         29         16         16         16         16         16         16         16         16         16         17         18         19         10         10         10         10         10         10         10         10         10         10         10         11         12         13         14         15         16         17         18         19         110         10         110         110         110         110         110         110         110         110         110         110         110         110         110         110         110	



# **Division – Year 4**

#### Key mathematical vocabulary

Multiplication, multiply, multiplied by, multiple, factor, groups of, times, product, once, twice, three times ... ten times, repeated addition, division, dividing, divide, divided by, divided into, left, left over, remainder, grouping, share, share equally, one each, two each, three each ... ten each, group in pairs, threes ... tens, equal groups of, doubling, halving, array, row, column, number patterns, multiplication table, multiplication fact, division fact, inverse, square, squared cube, cubed



#### Addition – Year 5 Key mathematical vocabulary Addition, add, more, and make, sum, total, altogether, double, near double, half, halve, one more, two more ... ten more ... one hundred more, how many more to make ...? how many more is ... than ...? how much more is ...? Subtract, take away, how many are left/left over? how many have gone? one less, two less, ten less ... one hundred less, how many fewer is ... than ...? how much less is ...? difference between, equals is the same as, number bonds/pairs/facts, missing number, tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse Objectives Concrete Pictorial Abstract Children continue to use dienes or pv counters to add, 2.37 + 81.79Add numbers exchanging ten ones for a ten and ten tens for a 72.8 with more than 4 tentos tens ONAS hundredt digits. hundred and ten hundreds for a thousand. +54.60000 00 000 127.4 Add decimals (As year 4) 01 1 1 0 00000 00000 00.000 tens hundredths with 2 decimal ones tenths 000 0000 00 places, including money. 0 Introduce decimal place value counters and model exchange for addition. Subtraction – Year 5 Key mathematical vocabulary Addition, add, more, and make, sum, total, altogether, double, near double, half, halve, one more, two more ... ten more ... one hundred more, how many more to make ...? how many more is ... than ...? how much more is ...? Subtract, take away, how many are left/left over? how many have gone? one less, two less, ten less ... one hundred less, how many fewer is ... than ...? how much less is ...? difference between, equals is the same as, number bonds/pairs/facts, missing number, tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse Objectives Concrete Pictorial Abstract Children to draw pv counters and show their Subtract with at As year 4 exchange - see year 3 least 4 digits, 234 - 179including money and measures. 0 00 000 Subtract with decimal values. Use zeros 00 including for place-mixtures of holders. integers and decimals and

aligning the	Model process of exchange using Numicon, base ten		
decimal.	and then move to PV counters.		
	<u>Multir</u>	olication – Year 5	
Key mathematical vo Multiplication, multiplication, multiplica	cabulary tiply, multiplied by, multiple, factor, groups of, times, prod into, left, left over, remainder, grouping, sharing, share, sh , halving, array, row, column, number patterns, multiplicat	uct, once, twice, three times ten times, repeated are equally, one each, two each, three each ten ion table, multiplication fact, division fact, inverse	d addition, division, dividing, divide, each, group in pairs, threes tens, equal , square, squared cube, cubed
Objectives	Concrete	Pictorial	Abstract
Column multiplication for 3 and 4 digits x 1 digit.	Hundreds       Tens       Ones         It is important at this stage that they always multiply the ones first.         Children can continue to be supported by place value counters at the stage of multiplication. This would initially be done where there is no regrouping. 321 x 2 = 642.	Optional grid method: 327 x 4 = 1308 300 x 4 = 1200 20 x 4 = 80 7 x 4 = 28 x 300 20 7 4 1200 80 28	
Column	Manipulatives may still be used with the cooresponding	Optional grid method:	
multiplication	long multiplication modelled alongside.	815 x 34: 815 x 34 We partition 815 into 800 and 10 and 5 and put it in a table. We partition 34 into 30 and 4 and put it in the table. x 800 10 5 30 24000 300 150 4 3200 40 20 Multiply the numbers in the grid one by one, then add all the numbers to make 27,710.	$ \begin{array}{c} 1 & 8 \\ x & 1 & 3 \\ \hline 5 & 4 \\ 1 & 8 & 0 \\ \hline 2 & 3 & 4 \\ \end{array} $ 18 x 3 on the first row. $(x = 24 \text{ carrying the 2 for 20 then 1 x 2)}$

			18 x 10 on the 2 <sup>nd</sup> row. Show multiplying by 10 putting zero in the ones column first (place holder). 1 2 3 4 $\times$ 1 6 7 4 0 4 (1234 x 6) 1 2 3 4 0 (1234 x 10) 1 9 7 4 4
	<u>Div</u> i	<u>ision – Year 5</u>	
Key mathematical vo Multiplication, mult divided by, divided groups of, doubling	cabulary ciply, multiplied by, multiple, factor, groups of, times, produ into, left, left over, remainder, grouping, sharing, share, sha , halving, array, row, column, number patterns, multiplicati	uct, once, twice, three times ten times, repeated are equally, one each, two each, three each ten ion table, multiplication fact, division fact, inverse,	d addition, division, dividing, divide, each, group in pairs, threes tens, equal , square, squared cube, cubed
Objectives	Concrete	Pictorial	Abstract
Divide at least 3 digit numbers by 1 digit.	96÷3 Tens Units 3 2	Students can continue to use drawn diagrams with dots or circles to help them divide numbers into equal groups	Begin with divisions that divide equally with no remainder.
Short Division (As in year 4)	3 Use place value counters to divide using the bus stop method alongside	Encourage them to move towards counting in multiples to divide more efficiently.	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

	We exchange this ten for ten ones and then share the ones equally among the groups.		$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
Divide at least 3	As above	As above	As above.
aigit numbers by			Children list factors.
Short Division -			1456 divided by 16.
Factorisation			Factor pairs of 16:
			1 and 16 2 and 8
			4 and 4
			Children choose a pair to use and follow the short division method (shown above)
			1456 divided by 2 = 728
			728 divided by 8 = 91
			The children can choose which way around
			they divide by.
			1456 divided by 16 = 91
Divide at least 3	As above	As above	As above.
digit numbers by			Children work out and list the multiples
2 digit.			children work out and list the multiples
Short Division -			1456 divided by 16.
List multiples			Multiples of 16:

			1 x 16 = 16 2 x 16 = 32 3 x 16 = 48 4 x 16 = 64 5 x 16 = 80 6 x 16 = 96 7 x 16 = 112 8 x 16 = 128 Children use the multiples to complete the calculation using short division (shown above) 1456 divided by 16 = 91
	Ade	dition – Year 6	
Addition, add, more ? how many more hundred less, how hundreds boundary	e, and make, sum, total, altogether, double, near double, h e is than? how much more is? Subtract, take away, h many fewer is than? how much less is? difference b /, ones boundary, tenths boundary, inverse	half, halve, one more, two more ten more one now many are left/left over? how many have gone etween, equals is the same as, number bonds/pai	e hundred more, how many more to make ?? one less, two less, ten less one rs/facts, missing number, tens boundary,
Objectives	Concrete	Pictorial	Abstract
Add several numbers of increasing complexity. Including adding	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. (As year 4) tens ones tenths hundredths	2.37 + 81.79 <u>tens</u> ones <u>tents</u> <u>hundredtes</u> 00 000 0000 00000 000000 0 00000 00000 000000 0 00000 00000	72.8 <u>+ 54.6</u> <u>127.4</u> 1 1
and decimals with different numbers of decimal points.	Introduce decimal place value counters and model exchange for addition.	6	€23·59 +€7·55 €31·14
	Subt	raction – Year 6	
Key mathematical vo Addition, add, more ? how many more	cabulary e, and make, sum, total, altogether, double, near double, h e is than? how much more is? Subtract, take away, h	half, halve, one more, two more ten more one now many are left/left over? how many have gone	e hundred more, how many more to make ?? one less, two less, ten less one

hundred less, how	many fewer is than? how much less is? difference be	etween, equals is the same as, number bonds/pair	s/facts, missing number, tens boundary,
hundreds boundary	, ones boundary, tenths boundary, inverse		
Objectives	Concrete	Pictorial	Abstract
Subtract with			_
increasingly large			X 8 10 6 9 9
and more			- 99919
complex numbers			81,141
and decimal			60,750
values			
values.			
			·V1015 . 14 11 9 4
			- 36.080 kg
			69·339,kg
	Multip	lication – Year 6	
Key mathematical vo	cabulary		
Multiplication, mul	tiply, multiplied by, multiple, factor, groups of, times, produ	uct, once, twice, three times ten times, repeated	d addition, division, dividing, divide.
divided by divided	into left left over remainder grouping sharing share sh	are equally one each two each three each ten	each group in pairs threes tens equal
groups of doubling	halving array row column number natterns multiplicat	ion table multiplication fact division fact inverse	square squared cube cubed
Objectives	Concrete	Dictorial	Abstract
Column		Ontional grid method:	
column multiplication for	Hundreds Tens Ones		
		$327 \times 4 = 1308$	
3 and 4 digits x 1		527 X 4 - 1500	
digit.		$300 \times 4 = 1200$	
		$20 \times 4 = 80$	
(As in year 5)		$7 \times 4 = 28$	
		× 300 20 7	
		4 1200 80 28	
	It is important at this stage that they always multiply the ones		
	first		
	Children can continue to be supported by place value		
	counters at the stage of multiplication. This would initially be		
	done where there is no regrouping $321 \times 2 = 642$		

Column multiplication (As in year 5)	Manipulatives may still be used with the cooresponding long multiplication modelled alongside.	Optional grid method: 815 x 34: 815 x 34 We partition 815 into 800 and 10 and 5 and put it in a table. We partition 34 into 30 and 4 and put it in the table. x 800 10 5 30 24000 300 150 4 3200 40 20 Muttiply the numbers in the grid one by one, then add all the numbers to make 27,710.	18 x 3 on the first row. (x 3 = 24, carrying the 2 for 20 then 1 x 3) 18 x 10 on the 2 <sup>nd</sup> row. Show multiplying by 10 putting zero in the ones column first (place holder). 1 2 3 4 x 1 6 7 4 0 4 (1234 x 6) 1 2 3 4 x 1 6 7 4 0 4 (1234 x 10) 1 9 7 4 4
Multiplying decimals up to 2 decimals places by a single digit.		ision – Vear 6	Remind the children that the single digit belongs in the ones column. Line up the decimal points in the question and the answer. $3 \cdot 1 9$ $\times 8$ $2 5 \cdot 5 2$
Key mathematical vo	cabulary		

Multiplication, multiply, multiplied by, multiple, factor, groups of, times, product, once, twice, three times ... ten times, repeated addition, division, dividing, divide, divided by, divided into, left, left over, remainder, grouping, sharing, share, share equally. one each, two each, three each ... ten each, group in, pairs, threes ... tens equal groups of, doubling, halving, array, row, column, number patterns, multiplication table, multiplication fact, division fact, inverse, square, squared cube, cubed



Divide at least 3	As above	As above	As above.
digit numbers by			
2 digit.			Children list factors.
Short Division -			1456 divided by 16.
Factorisation			Factor pairs of 16:
			L and 16
(As in year 5)			2 and 8
(no my car by			4 and 4
			Children choose a pair to use and follow the short division method (shown above)
			1456 divided by 2 = 728
			728  divided by  8 = 91
			The children can choose which way around
			they divide by.
			1456 divided by 16 = 91
Divide at least 3	As above	As above	As above.
digit numbers by			
2 digit.			Children work out and list the multiples
Short Division –			1456 divided by 16.
List multiples			Multiples of 16:
List multiples			1 x 16 = 16
(A = in			2 x 16 = 32
(As in year 5)			3 x 16 = 48
			4 x 16 = 64
			5 x 16 = 80
			6 x 16 = 96
			7 x 16 = 112
			8 x 16 = 128
			Children use the multiples to complete the
			calculation using short division (shown
			abovej
			1456 divided by 16 = 91

uivision	
	h t o 0 4 1 R1
	4 ) <mark>1 6</mark> 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
	0400R7
	8) <mark>32</mark> 07
	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.



1. Divide.	2. Multiply & subtract.	3. Drop down the next digit.
to	to	to
2)58	2	29
2/00	<u>-4</u>	<u>-4</u>
	1	1 8
Two goes into 5 two times, or 5 tens -2 = 2 whole tens but there is a	To find it, multiply $2 \times 2 = 4$ , write that 4 under the five, and subtract to find	Next, drop down the 8 of the ones
emainderl	the remainder of 1 ten.	combine the remainder ten with 8 ones, and get 18.
1. Divide.	2. Multiply & subtract.	3. Drop down the next digit.
t o	t o	t o
29	29	29
<u>-4</u>	<u>-4</u>	<u>-4</u>
18	18	18
	0	0
Divide 2 into 18. Place 9 into the	Multiply 9 × 2 = 18, write that 18	The division is over since there are
quotient.	under the 18, and subtract.	no more digits in the dividend. The quotient is 29.

1. Divide.	2. Multiply & subtract.	3. Drop down the next digit.
2)278	h t o 1 2)278 <u>-2</u> 0	$ \begin{array}{r}     h t \circ \\     18 \\     2)278 \\     -2 \\     07 \end{array} $
Two goes into 2 one time, or 2 hundreds + 2 = 1 hundred.	Multiply $1 \times 2 = 2$ , write that 2 under the two, and subtract to find the remainder of zero.	Next, drop down the 7 of the tens next to the zero.
Divide.	Multiply & subtract.	Drop down the next digit.
h t o 1 3 2 ) 2 7 8 -2 0 7 Divide 2 into 7. Place 3 into the quotient.	h t o $ \frac{13}{2 \cdot 278} $ $ \frac{-2}{07} $ $ \frac{-6}{1} $ Multiply 3 × 2 = 6, write that 6 under the 7, and subtract to find the remainder of 1 ten.	h t o 13 2)278 -2 07 -6 18 Next, drop down the 8 of the ones next to the 1 leftover ten.
1. Divide.	2. Multiply & subtract.	3. Drop down the next digit.
hto 139 2)278 -2 07 -6 18	h t o <u>139</u> 2)278 <u>-2</u> 07 <u>-6</u> <u>18</u> <u>-18</u> 0	$ \begin{array}{r}             h t \circ \\             \frac{139}{2)278} \\             \frac{-2}{07} \\             \frac{-6}{18} \\             \frac{-18}{0} \end{array} $
Divide 2 into 18. Place 9 into the quotient.	Multiply 9 × 2 = 18, write that 18 under the 18, and subtract to find the	There are no more digits to drop down. The quotient is 139.