

### KS2 Mathematical Methods including arithmetic strategies

### Thursday 29<sup>th</sup> November 9 – 10am and Thursday 6<sup>th</sup> December 6 – 7pm

## Aims



- Understand the expectations for the use of different strategies to solve problems.
- Consider the different methods your child would have been taught at Ladbrooke to solve a given problem.
- Use mental strategies to quickly work through problems.
- Use written methods practised in school to solve problems.

#### Year 3 programme of study (statutory requirements)

**Buillipp** 

Number and place	Addition and	Multiplication and division	Fractions	Measurement	Geometry: properties of	Statistics
value	subtraction				shapes	
		Pupils should be taught to:	Pupils should be taught	Pupils should be taught to:		Pupils should be
Pupils should be taught	Pupils should be		to:		Pupils should be taught	taught to:
to:	taught to:	<ul> <li>recall and use multiplication</li> </ul>	a second second description	<ul> <li>measure, compare, add</li> </ul>	to:	
		and division facts for the 3, 4	<ul> <li>count up and down in</li> </ul>	and subtract: lengths		<ul> <li>interpretand</li> </ul>
<ul> <li>count from 0 in</li> </ul>	<ul> <li>add and subtract</li> </ul>	and 8 multiplection tables	tenths; recognise that	(m/cm/mm); mass (kg/g);	<ul> <li>draw 2-D shapes and</li> </ul>	present data
multiples of 4, 8, 50	numbers mentally,	a sufficient estimates	tenths arise from	volume/capadty (i/mi)	make 3-D snapes	using bar
and 100; find 10 or	including:	<ul> <li>write and calculate</li> </ul>	dividing an object into		using modelling	cnaπs,
then a given	- a triee-oigit	mathematical statements to	dividing one digit	<ul> <li>measure the perimeter</li> <li>of simple 2. D shopes</li> </ul>	2 Dishapas in	tobloc
nan a given	- e three-digit	using the multiplication tables	numbers or quantifies	or simple 2-D shapes	different orientations	lables
number	number and tens	that they know including for	by 10	add and subtract	and describe them	solve one-sten
<ul> <li>recognise the place</li> </ul>	- a three-digit	two-digit numbers times one-	<ul> <li>recognise, find and</li> </ul>	amounts of money to		and two-step
value of each digit	number and	digit numbers, using mental	write fractions of a	give change, using both	<ul> <li>recognise that angles</li> </ul>	questions for
in a three-digit	hundreds	and progressing to formal	discrete set of objects:	£ and p in practical	are a property of	example, How
number (hundreds,		vitten methods	unit fractions and non-	contexts	shape or a description	many more?"
tens, ones)	<ul> <li>add and subtract</li> </ul>		unit fractions with		ofatum	and How many
	numbers with up to	<ul> <li>solve problems including</li> </ul>	small denominators	<ul> <li>tell and write the time</li> </ul>		fewer?'] using
<ul> <li>compare and order</li> </ul>	three digits, using	missing number problems,	<ul> <li>recognise and use</li> </ul>	from an analogue clock,	<ul> <li>identify right angles,</li> </ul>	information
numbers up to 1000	formal written	involving multiplication and	fractions as numbers:	including using Roman	recognise that two	presented in
	methods of	division, including positive	unit fractions and non-	numerals from I to XII,	right angles make a	scaled bar
<ul> <li>identify, represent</li> </ul>	columnaraddition	integer scaling problems and	unit fractions with	and 12-hour and 24-hour	half-turn, three make	charts and
and estimate	and subtraction	correspondence problems in	small denominators	clocks	three quarters of a	pictograms and
numbers using		which n objects are connected	<ul> <li>recognise and show,</li> </ul>		turn and four a	tables
different	<ul> <li>estimate the</li> </ul>	to mobjects	using diagrams,	<ul> <li>estimate and read time</li> </ul>	complete turn; identify	
representations	answer to a		equivalent fractions	with increasing accuracy	whether angles are	
<ul> <li>mod and write</li> </ul>	calculation and use		with small	to the nearest minute;	greater than or less	
<ul> <li>read and write</li> <li>numbers up to 1000</li> </ul>	to check answers		<ul> <li>add and subtract</li> </ul>	in terms of seconds	than a right angle	
in numerals and in	to check answers		fractions with the	minutes and hours: use	identify borizontal and	
words	<ul> <li>Solve problems</li> </ul>		same denominator	vocabulary such as	vertical lines and pais	
10103	including missing		within one whole (for	o'clock a.m./p.m.	of perpendicular and	
<ul> <li>solve number</li> </ul>	number problems.		5 1 6	morning, afternoon, noon	parallel lines	
problems and	using number		example, /,+ /,= /,)	and midnight		
practical problems	facts, place value,		<ul> <li>compare and order</li> </ul>			
involving these	and more complex		unit fractions, and	<ul> <li>know the number of</li> </ul>		
ideas	addition and		fractions with the	seconds in a minute and		
	subtraction		same denominators	the number of days in		
			<ul> <li>solve problems that</li> </ul>	each month, year and		
			involve all of the	leap year		
			above			
				<ul> <li>compare durations of</li> </ul>		
				events [for example to		
				calculate the time taken		
				tooks1		
				Lasks		

## Methods taught: In year 3

#### Complete:



2 tens and 3 tens is equal to \_\_\_\_ tens.

2 ones and 3 ones is equal to \_\_\_\_ ones.

2 hundreds and 3 hundreds is equal to \_\_\_\_ hundreds.

We can use Base 10 to solve 245 + 7



Use this method to calculate:

	357 + 8	286 + 5	419 + 1
--	---------	---------	---------

We can partition our 1-digit number to calculate 379 + 5



I lea this method to calculate.



Use the place value grid to complete the calculations.

We can use a number line to calculate 346 + 7



#### Solve 46 + 367 using Base 10



		4	6
+	3	6	7

#### Use place value counters to calculate 455 + 466



	4	5	5
+	4	6	6

2

4

1

\_



Now subtract 142

-

Copy and complete the column subtraction.

Complete the calculations using place value counters.

372 - 165

629 - 483

н	т	0
		00
н	т	0
0000	00	00000

Kassie is working out 406 - 289

Here is her working out:

$$\frac{3}{4}0^{1}6$$
  $\frac{23}{4}0^{1}6$   
-289 -289  
7 027

Explain her mistake.

There are five towers with 3 cubes in each tower. How many cubes are there altogether?

× =

Complete the diagram using known facts.



Circle the counters in groups of 3 and complete the division.

○○○○○○ ○○○○○○○ ---÷3=---

' Fill in the table to show that multiplying by 8 is the same as double, double and double again.

6	6	6	6	6	6	6	6
6 × 2 = 6 × 2 =		6 × 2 =		6 × 2 =			
× 2 =				×2	2 =		
×2 =							

Match the multiplication to the representation.





#### Year 4 programme of study (statutory requirements)

Sutten are Sutce

Number and place	Addition and	Multiplication and	Fractions (Including decimals)	Measurement	Geometry:	Geometry:	Statistics
value	subtraction	division	Pupils should be taught to:		properties of	position and	
Publis should be			and the second states and share and	Pupils should be	shapes	direction	Pupils should be
taught to:	Pupils should be	Pupils should be taught to:	<ul> <li>recognise and snow, using diagrams,</li> </ul>	taught to:			taught to:
wogin w.	taught to:		families of common equivalent		Pupils should be	Pupils should	
<ul> <li>count in multiples</li> </ul>		<ul> <li>recall multiplication and</li> </ul>	fractions	<ul> <li>convert between</li> </ul>	taught to:	be taught to:	<ul> <li>Interpret and</li> </ul>
of 6, 7, 9, 25 and	<ul> <li>add and</li> </ul>	division facts for	<ul> <li>count up and down in hundredths;</li> </ul>	different units of	-	_	present
1000	subtract	multiplication tables up	recognise that hundredths arise when	measure (for	<ul> <li>compare and</li> </ul>	<ul> <li>describe</li> </ul>	discrete and
<ul> <li>find 1000 more or</li> </ul>	numbers with	to 12 × 12	dividing an object by a hundred and	example,	classify	positions	continuous
less than a giver	up to 4 digits	<ul> <li>use place value, known</li> </ul>	dividing tenths by ten.	kliometre to	geométric	on a 2-D	data using
number	using the	and derived facts to	<ul> <li>solve problems involving increasingly</li> </ul>	metre; hour to	shapes,	grid as	appropriate
<ul> <li>count backwards</li> </ul>	formal written	multiply and divide	harder fractions to calculate	minute]	Including	coordinates	graphical
through zero to	methods of	mentally, including:	quantities, and fractions to divide	<ul> <li>measure and</li> </ul>	quadrilaterais	In the first	methods,
Include negative	columnar	multiplying by 0 and 1;	quantities, including non-unit fractions	calculate the	and triangles,	quadrant	including bar
numbers	addition and	dividing by 1;	where the answer is a whole number	perimeter of a	based on their	<ul> <li>describe</li> </ul>	charts and
<ul> <li>recognise the</li> </ul>	subtraction	multiplying together	<ul> <li>add and subtract fractions with the</li> </ul>	rectlinear figure	properties and	movements	time graphs
place value of	where	three numbers	same denominator	(Including	sizes	between	<ul> <li>solve</li> </ul>
each digit in a	appropriate	<ul> <li>recognise and use</li> </ul>	<ul> <li>recognise and write decimal</li> </ul>	ŝquares) In	<ul> <li>Identify acute</li> </ul>	positions	comparison,
four-digit number	<ul> <li>estimate and</li> </ul>	factor pairs and	equivalents of any number of tenths	centimetres and	and obtuse	36	sum and
(thousands,	use inverse	commutativity in	or hundredths	metres	angles and	translations	difference
hundreds, tens,	operations to	mental calculations	<ul> <li>recognise and write decimal</li> </ul>	<ul> <li>find the area of</li> </ul>	compare and	of a given	problems
and ones)	check	<ul> <li>multiply two-digit and</li> </ul>	equivalents to 1:1:1:1	rectlinear	order angles	unit to the	using
<ul> <li>order and</li> </ul>	answers to a	three-digit numbers by	4 2 4	shapes by	up to two right	left/right	Information
compare	calculation	a one-digit number	<ul> <li>find the effect of dividing a one- or</li> </ul>	counting	angles by size	and	presented in
numbers beyond	<ul> <li>solve addition</li> </ul>	using formal written	two-digit number by 10 and 100,	squares	<ul> <li>Identify lines</li> </ul>	up/down	bar charts,
1000	and	layout	identifying the value of the digits in	<ul> <li>estimate,</li> </ul>	of symmetry	<ul> <li>piot</li> </ul>	pictograms,
<ul> <li>Identify, represent</li> </ul>	subtraction	<ul> <li>solve problems</li> </ul>	the answer as ones, tenths and	compare and	In 2-D shapes	specified	tables and
and estimate	two-step	Involving multiplying	nunareatns	calculate	presented in	points and	other graphs
numbers using	problems in	and adding, including	<ul> <li>round decimals with one decimal</li> </ul>	different	different	draw sides	
different	contexts.	using the distributive	place to the nearest whole number	measures,	orientations	to complete	
representations	deciding	law to multiply two digit	<ul> <li>compare numbers with the same</li> </ul>	including money	<ul> <li>complete a</li> </ul>	a given	
<ul> <li>round any</li> </ul>	which	numbers by one digit,	number of decimal places up to two	In pounds and	simple	polygon	
number to the	operations	Integer scaling	decimal places	pence	symmetric		
nearest 10, 100	and methods	problems and harder	<ul> <li>solve simple measure and money</li> </ul>	<ul> <li>read, write and</li> </ul>	figure with		
or 1000	to use and	correspondence	problems involving fractions and	convert time	respect to a		
<ul> <li>solve number and</li> </ul>	why	problems such as n	decimais to two decimal places	between	specific line of		
practical		objects are connected		analogue and	symmetry		
problems that		to m objects		digital 12 and			
involve all of the				24-hour clocks			
above and with				<ul> <li>solve problems</li> </ul>			
increasingly large				Involving			
positive numbers				converting from			
<ul> <li>read Roman</li> </ul>				hours to			
numerals to 100				minutes; minutes			
(I to C) and know				to seconds;			
that over time,				years to months;			
the numeral				weeks to days			
system changed							
to include the							
concept of zero							
and place value							

## Methods taught: In year 4

Use counters and a place value grid to calculate 3,242 + 2,213

1,000s	100s	10s	1s
	100 100		
<b>•• ••</b>	100 100	•	

Anne, Beth and Alex are working out the solution to the calculation 6,374 + 2,823

#### Anne's Strategy

6,000 + 2,000 = 8,000 300 + 800 = 110 70 + 20 = 90 4 + 3 = 78,000 + 110 + 90 + 7 = 8,207

#### Beth's Strategy

#### Alex's Strategy

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

	6	3	7	4
+	2	8	2	3
				7
			9	0
	1	1	0	0
	8	0	0	0
	9	1	9	7

Who is correct?

#### Complete the subtraction.

	Th	Н	Т	0
	7	6	4	6
_	4	3	3	5

A shop has 8,435 magazines.

367 are sold in the morning and 579 are sold in the afternoon.

How many magazines are left?

	8,435			
367	579	?		

There are \_\_\_\_ magazines left.

#### Sam, Lucas and Jemima are calculating 7,000 - 3,582

#### Here are their methods:



Whose method is most efficient? Use the different methods to calculate 4,000 – 2,831

#### Phoebe solves 87 + 4 using this approach



#### Calculate $12 \times 4$ Use place value counters and the formal method.



2

4

A school has 245 packets of sweets. Each packet contains 4 sweets. How many sweets are there altogether?



Use the place value counters to solve the problem. Remember, if there are ten or more counters in a column, to make an exchange.



#### Year 5 programme of study (statutory requirements)

Number and	Addition and	Multiplication and division	Fractions (including decimals and	Measurement	Geometry:	Geometry:	Statistics
place value	subtraction		percentages)	Pupils should be taught	properties of	position	
		Pupils should be taught to:		to:	shapes	and	Pupils
Pupils should be	Pupils should		Pupils should be taught to:	····		direction	should be
taught to:	be taught to:	<ul> <li>Identify multiples and factors,</li> </ul>		<ul> <li>convert between</li> </ul>	Pupils should be		taught to:
		including finding all factor pairs of a	<ul> <li>compare and order fractions whose</li> </ul>	different units of metric	taught to:	Pupils	
<ul> <li>read, write,</li> </ul>	<ul> <li>add and</li> </ul>	number, and common factors of two	denominators are all multiples of the same	measure (for example,		should be	solve
order and	subtract whole	numbers.	number	kilometre and metre;	<ul> <li>Identify 3-D</li> </ul>	tought to:	compariso
compare numbers	numbers with	<ul> <li>know and use the vocabulary of</li> </ul>	Identify, name and write equivalent	centimetre and metre;	shapes,		n, sum and
to at least	more than 4	prime numbers, prime factors and	fractions of a given fraction, represented	centimetre and	Including cubes	<ul> <li>Identify,</li> </ul>	difference
1 000 000 and	digits,	composite (non-prime) numbers	visually, including tenths and hundredths	millimetre; gram and	and other	describe	problems
determine the	including using	<ul> <li>establish whether a number up</li> </ul>	recognise mixed numbers and improper	kilogram, litre and	cubolds, from 2-	and	using
value of each dig.	tormel written	to 100 is prime and recall prime	fractions and convert from one form to the	minine)	0	represent	intormation
<ul> <li>count forwards</li> </ul>	methods	numbers up to 19	other and write mathematical statements > 1	<ul> <li>understand and use</li> </ul>	representations	the	presented
or backwards in	(columner	multiply numbers up to 4 digits	as a mixed number [ for example, /,+ /,-	equivalences between	know angles	position or	in a line
steps or powers	addition and	by a one- or two-digit number using	a sta	metric units and	die medsureu in	a snape	grapn
or 10 for any	subtraction)	a formal written method, including	/_ 1 /_1	common impedial units	degrees:	tollowing a	complet
given number up	subtract	rong merupinension for two digit	<ul> <li>add and subtract fractions with the same</li> </ul>	such as inches, pounds	compare acute	or	e, reau anu
1 000 000	automatica -	a millioly and divide symbols	denominator and multiples of the same	and plots	obhuse and	translation.	Information
<ul> <li>Internet</li> </ul>	manifelity with	mestally distance in a sub-	number	measure and	reflex annies	using the	In tables
negative numbers	Increasingly	divide numbers up to 4 digits by	<ul> <li>multiply proper fractions and mixed</li> </ul>	calculate the perimeter	draw given	appropriate	Including
In context, count	lame numbers	a one-digit number using the formal	numbers by whole numbers, supported by	of composite rectilinear	angles, and	language	timetables
forwards and	USC	written method of short division and	materials and diagrams	shapes in centimetres	measure them in	and know	
backwards with	rounding to	Interpret remainders appropriately	<ul> <li>read and write decimal numbers as</li> </ul>	and metres	A	that the	
positive and	check answes	texthe context	fractions [ for example, 0.71 = <sup>71</sup> / <sub>400</sub> ]	<ul> <li>calculate and</li> </ul>	degrees ()	shape has	
negative whole	to calculations	<ul> <li>molifoly and divide whole</li> </ul>	to a second second use the second be and	compare the area of	identity:	not	
numbers,	and	numbers and those involving	relate them to teaths, hundred the and	rectangles (including	- anyies at a	changed	
Including through	determine, in	decimals by 10, 100 and 1000	decimal equivalents	squares) using	whole two dotel	_	
zero	the context of	<ul> <li>recognise and use square</li> </ul>	<ul> <li>mund decimals with two decimal places</li> </ul>	standard units, square	whole tann (total		
<ul> <li>round any</li> </ul>	a problem,	numbers and cube numbers, and	to the nearest whole number and to one	centimetres (cm <sup>2</sup> ) and	360 )		
number up to	levels of	the potetion for squared $\hat{O}$ and	decimal place	2	<ul> <li>angles at a</li> </ul>		
1 000 000 to the	accuracy		<ul> <li>read, write, order and compare numbers</li> </ul>	square metres (m.) and	point on a		
nearest 10, 100,	<ul> <li>solve</li> </ul>	cubed ( )	with up to three decimal places	estimate the area of	straight line and		
1000, 10 000 and	addition and	<ul> <li>solve problems involving</li> </ul>	<ul> <li>solve problems involving number up to</li> </ul>	inegular snapes	55 a tum (total		
100 000	subtraction	multiplication and division including	three decimal places	<ul> <li>esomate vorome por s</li> </ul>	180)		
<ul> <li>solve number</li> </ul>	multi-step	using their knowledge of lactors and	<ul> <li>recognise the per cent symbol (%) and</li> </ul>	example, using 1 cm	- other		
problems and	problems in	solve problems involving	understand that per cent relates to 'number	blocks to build	multiples of 90°		
practical	contexts,	addition subtraction multiplication	of parts per hundred", and write percentages	cubolas(including	<ul> <li>use the</li> </ul>		
problems that	deciding which	and division and a combination of	as a fraction with denominator 100, and as a	cubes)] and	properties of		
involve all of the	operations and	these, including understanding the	decimal	capacity(for example,	rectangles to		
above a gead Roman	methods to	meaning of the equals sign	<ul> <li>solve problems which require knowing</li> </ul>	using water j	deduce related		
- read Roman	use and why	solve problems involving	percentage and decimal equivalents of 1/2	<ul> <li>solve problems</li> </ul>	facts and find		
(M) and recording		multiplication and division, including	1 1 2 4	between units of time	missing lengths		
vens witten in		scaling by simple fractions and	I , I , I , I and those with a denominator	a use all four	and angles		
Roman numerals		problems involving simple rates	of a multiple of 10 or 25	operations to solve	distinguish		
				problems involving	between regular		
				measure flor example	and Imegular		1
				length, mass, volume	polygons based		
				money] using decimal	on reasoning		
				notation including	about equal		
				scaling	sides and		
				_	englics		

## Methods taught: In year 5

Use a place value grid and counters to calculate 4,434 + 3,325

Show the column method alongside.

Th	н	Т	0

The sum of two numbers is 11,339

The difference between the same two numbers is 1,209 Use the bar model to help you find the numbers.



Here is a method to solve 4,892 divided by 4 using place value counters and short division.



#### Calculate:

4,648 – 2,347

т

0



Sam earns £1,325 per week.

Calculate.

+

3

How much would he earn in 4 weeks?



TH	н	т	0
1	3	2	5
×			4

Use the place value counters to solve the problem.

Complete the followin	g to calculate 2	$23 \times 14$ :	
23			
× 14			
92 (23 × 4) 230 (23 × 10)	Use the m 34 × 26	ethod to ca 58 × 15	lculate: 72 × 35

Here is a method to solve 4,894 divided by 4 using place value counters and short division.



#### Year 6 programme of study (statutory requirements)

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Number	Addition, subtraction,	Fractions (including decimals and	Ratio and	Algebra	Measurement	Geometry:	Geometry:	Statistics
and place	multiplication and	percentages)	proportion	-		properties of	position, and	
value	division			Pupils should	Pupils should be	shapes	direction	Pupils should
	Public around be taught to:	Pupils should be taught to:	Pupils should be	be taught to:	taught to:			be taught to:
Publis		,	taught to:	-		Publis should	Publis should	-
should be	<ul> <li>multiply multi-chalt</li> </ul>	<ul> <li>use common factors to simplify fractions: use</li> </ul>	-	<ul> <li>use simple</li> </ul>	<ul> <li>solve problems</li> </ul>	be taught to:	be taught to:	<ul> <li>Interpret</li> </ul>
taught to:	numbers up to 4 digits by a	common multiples to express fractions in the	<ul> <li>solve</li> </ul>	formulae	involving the	ou bogin to.	ou bogin to.	and construct
angin to.	two-digit whole number	same denomination	noblems		calculation and	<ul> <li>draw 2-D</li> </ul>	<ul> <li>describe</li> </ul>	nie charts and
<ul> <li>read</li> </ul>	using the formal written	<ul> <li>compare and order fractions. Including</li> </ul>	involving the	<ul> <li>nenerate and</li> </ul>	conversion of units of	shapes using	positions on	line or anhs
write order	method of long	fractions >1	relative sizes of	describe linear	measure using	olven	the full	and use these
and	multiplication	<ul> <li>add and subtract fractions with different</li> </ul>	two quantities	number	decimal notation up	dimensions and	coordinate	to solve
compare	<ul> <li>divide numbers up to 4</li> </ul>	denominators and mixed numbers using the	where mission	sentiences	to three decimal	annies	orld (all four	noblems
numbers un	digits by a two-digit whole	concent of equivalent fractions	values can be	00000000	places where	<ul> <li>recoonise</li> </ul>	quadrants)	prosicility
to 10,000	number using the formal	<ul> <li>multiply simple pairs of proper fractions</li> </ul>	found by using	•ermess	annonriate	describe and	quadranta	<ul> <li>calculate</li> </ul>
000 and	written method, of long	writing the answer in its simplest form I for	Intener	mission number	<ul> <li>use read write</li> </ul>	build simple 3-	<ul> <li>draw</li> </ul>	and interpret
determine	division and interpret		multiplication and	problems	and convert between	D shapes	and translate	the mean as
the value of	remainders as whole	example, / × / = / ]	division facts	algebraically	standard units	Including	cimula	20.20220.0
are value u	number remainders	divide proper fractions by whole numbers flor	<ul> <li>solva</li> </ul>	argeoratically	converting	making pats	shape on	all average
each uight	fractions, or by rounding		noblame	<ul> <li>find pairs of</li> </ul>	measurements of	<ul> <li>compare</li> </ul>	the	
any whole	as appropriate for the	example, / +2 = / ]	problems the	numbers that	langth mass volume	and classify	coordinate	
number to a	contaxt	associate a fraction with division and calculate	calculation of	caticity an	and time from a	neometric	niana and	
retuired	<ul> <li>divide numbers un to d</li> </ul>	decimal fraction equivalents [for example, 0.375]	narcantanas. Mar	equation with	smaller unit of	shanas hasari	reflect them	
degree of	digits by a two-digit	for a simple fraction. Nor example 1	evande of	two unknowing	measure to a larner	on their	In the avec	
accuracy	number using the formal	tor a emple racion for example, 7	massuras such		unit and vice versa	monarties and	III UIC AVED	
• 160	written method, of short	<ul> <li>Identify the value of each digit to three</li> </ul>	as 15% of 9801	• en imerate	using decimal	sizes and find		
nenative	Nyision where provoriate	decimal places and multiply and divide numbers	and the use of	nesibilities of	potation to un to	unknown		
negative sumbars in	lenveration completions	by 10, 100 and 1000 giving answers up to three	and the use of	combinations of	three decimal places	analas la anv		
context, and	interpreting remarides	decimal places	percentages for	two variables	mee decimal places	angles in any trianalos		
context, and	accorded to be context	<ul> <li>multiply one-digit numbers with up to two</li> </ul>	companison	the valiables	<ul> <li>Convert between</li> </ul>	urangies, avaddiatarais		
Intervale	<ul> <li>periodicities including with</li> </ul>	decimal places by whole numbers	<ul> <li>surve</li> <li>nrobleme</li> </ul>		<ul> <li>recording that</li> </ul>	quadriaterais,		
THE VAIO	mixed operations, and large	<ul> <li>use written division methods in cases where</li> </ul>	problems Involving cimilar		<ul> <li>recognise trat</li> <li>change, with the</li> </ul>	anu regular polya ops		
across zero	ninced operations and large	he answer has up to two decimal places	chapped, where the		snapes with the	polygons		
number and	<ul> <li>Identify common factors</li> </ul>	<ul> <li>solve problems which require answers to be</li> </ul>	scale factor is		bave different	and name narts		
mantical	common multiples and	rounded to specified degrees of accuracy	known or can be		narimaters and vice	of circles		
problems	prime numbers	<ul> <li>recall and use equivalences between simple</li> </ul>	found		varea	including		
that involve	<ul> <li>use their knowledge of</li> </ul>	fractions, decimals and percentages, including in	<ul> <li>solva</li> </ul>		<ul> <li>recoordse when it</li> </ul>	radus		
all of the	the order of operations to	different contexts	nmhiame		is possible to use	diamatar and		
all of the	crew aut calculations		probleme Involvine unequal		formulae for area	diameter and		
above	carry out carculatoria		charles and		and volume of	and know that		
	approximations		ananny anu		change	the diameter in		
	<ul> <li>solve addition and</li> </ul>		knowledge of		<ul> <li>calculate the area</li> </ul>	the diameter is		
	subtraction multi-stan		fractions and		of naraligion rans	<ul> <li>recontise</li> </ul>		
	problems in contexts		multiples		and triangles	anniae where		
	deciding, which operations		morepree		<ul> <li>calculate</li> </ul>	they meet at a		
	and methods to use and				estimate and	noint are on a		
	why				compare volume of	straight line or		
	<ul> <li>solve problems involving</li> </ul>				cubes and cuboids	are vertically		
	addition subtraction				using standard units	onnosite and		
	multiplication and dutation				including continuing,	find mission		
	<ul> <li>use estimation to check</li> </ul>				and during containing of	annies		
	answers to calculations				cubed (cm ) and	angroo		
	and determine in the				cubic metres (m <sup>2</sup> ).			
	context of a problem an				and extending to			
	anoropriate degree of				other units for			
	appropriate degree of							
	accordary.				example mm and			
					km ]			

# Methods taught:

In year 6

Calculate.



	4	7	6	1	3	2	5
—		9	3	8	0	5	2

67,832 + 5,258

834,501 - 193,642

#### Calculate.





5,734 × 26

Calculate using short division.										
	5	7	2	5		3	1	9	3	8
	12	6	0	3	6		3	3,612 -	÷ 14	

List the multiples of the numbers to help you calculate.



<u>Jultiples to help</u>	
2 x 1 = 12	
2 × 2 = 24	
2 × 5 = 60	
2 × 10 = 120	

= 150

Elijah uses this method to calculate 372 divided by 15 He has used his knowledge of multiples to help.

						1
		2	4	r	12	1 × 15 = 15
15	3	7	2			2 × 15 = 30
-	3	0	0			3 × 15 = 45
		7	2			4 × 15 = 60
		6	0			5 × 15 = 75
		0	0			10 × 15 = 15
		1	2			

Mathematics is foremost an activity of the mind, and written calculations are an aid to that mental activity.

At Ladbrooke, we aim to develop children's mental strategies. We then focus on written methods that derive from and support mental methods.

### We want children to ask themselves:

Can I do this in my head?

Can I do this in my head using drawings or jottings?

Do I need to use an expanded/shortened written method?

Do I need a calculator?

Have I checked my answers using a different method?

Finding from 2018 papers - Children need to correctly identify between mental and written questions and when to use strategies accordingly

Based on last year's SATs tests (2018): % of questions from each year group Year 3 – 9% Year 4 – 18% Year 5 – 26% Year 6 – 47%

## Try these...

- 1989 + 723 =
- 17 x 26 =
- 9645 700 =
- 1435 ÷ 7

How did you do each one? Compare strategies Questions that should not require a written method: By the end of Key stage 2

39 + 673 =

 $6^2 + 10 =$ 

 $270 \div 3 =$ 

### $5,400 \div 9 =$

2 × 45 =

 $60 \div 15 =$ 

Some will use a written method, others might not:

## 10 - 5.4 = 7,064 - 502 =

### 56.38 + 24.7 =









# Qu. 27 3.9 × 30 =













Variation?

- \_\_\_\_\_ + 823 = 1027
- £12.50 + £27.45
- 35cm + 479cm

What is seven hundred and forty plus six hundred and five?

James, Ellie and Amir collect marbles. James has 114, Ellie has 403, Amir has 189. How many do they have altogether?

What went wrong?

Thank you so much for attending this workshop and for your continued support.

I hope you have found it helpful.

Please fill in an evaluation form