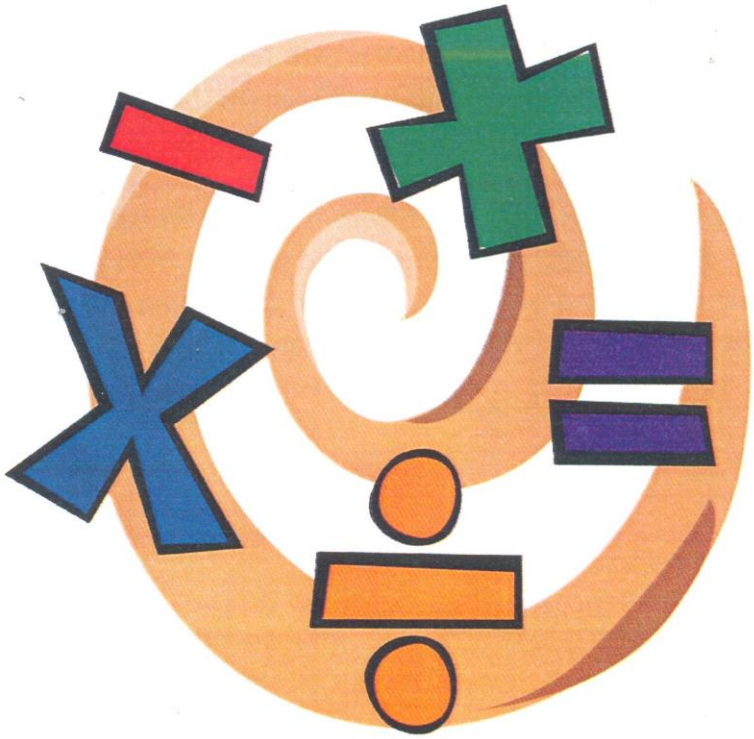
Upper KS2 Mathematics Calculation Booklet

Progression of more formal written methods of calculation
used when calculating addition, subtraction, multiplication and division



Priscilla Ind, Nicola Hirst, Lucy Beerling

Calculation methods in Upper KS2

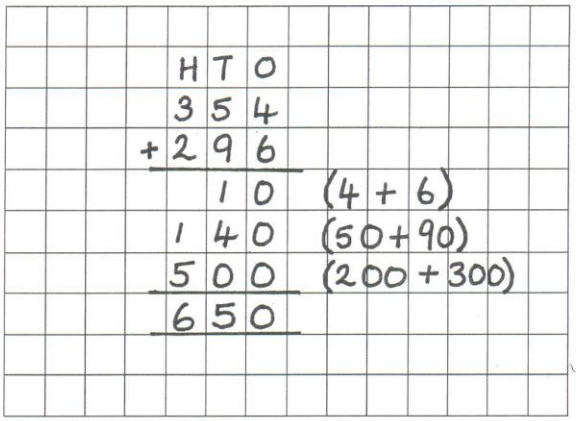
The principal focus of mathematics teaching in Upper KS2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This helps to develop the connections that pupils make between multiplication and division, and with fractions, decimals and percentages and ratio. Pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of number and arithmetic, and problems demanding efficient written methods of calculation. By the end of Year 6 pupils should be fluent in more formal written methods for all four operations including long multiplication and long division.

We appreciate that the maths work your child is doing at school may look very different to the kind of calculations you remember. This is because children are encouraged to work mentally, where possible, using personal jottings to help support their thinking. Even when children are taught more formal written methods they are only encouraged to use these methods for calculations they cannot solve in their heads.

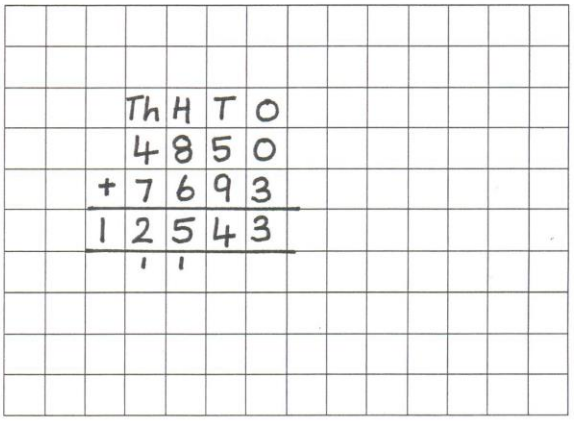
In this booklet we will show you the different formal written methods of calculation, for all four rules, which your child will use in Year 5 and Year 6. The methods of calculation and progression lower down the school will be covered in the calculation booklets of EYFS, KS1 and Lower KS2.

Addition

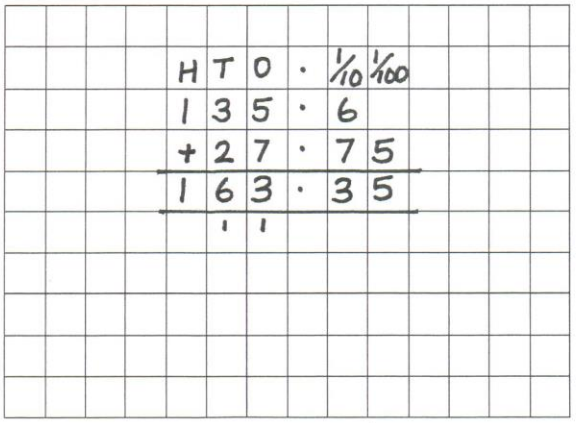
Expanded column method



Formal column method



Formal column method with decimals



Subtraction

Subtraction by decomposition

Exchange one ten

342 − 136 = 206

	H	T	O
	3	$^{3}\not{4}$	$^{1}2$
−	1	3	6
	2	0	6

Subtraction by decomposition

Exchange one ten

Exchange one hundred

Exchange one thousand

5346 − 3874 = 1472

	Th	H	T	O
	$^{4}\not{5}$	$^{1}\not{2}$	$^{1}\not{3}$	$^{1}4$ 6
−	3	8	7	4
	1	4	7	2

Subtraction by decomposition

What to do when you have no value to exchange.

(Eg: There is a zero in the next column)

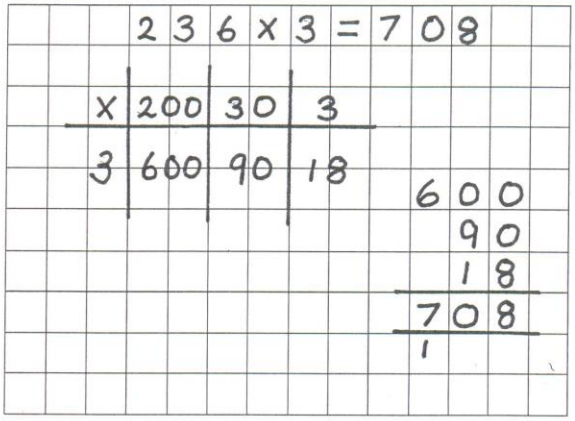
5004 − 3678 = 1326

	$^{4}\not{5}$	$^{9}\not{0}$	$^{9}\not{0}$	$^{1}4$
−	3	6	7	8
	1	3	2	6

Multiplication

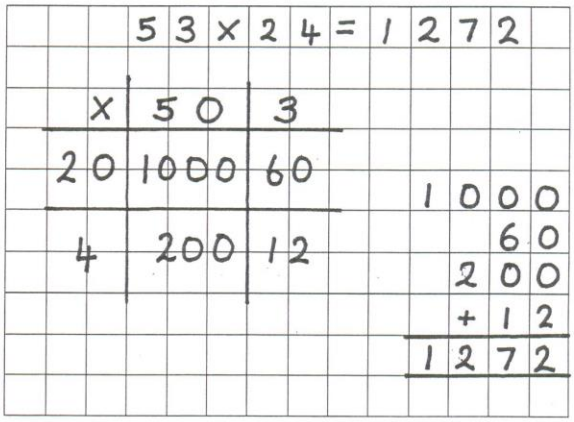
Grid method 3 digits by 1 digit

236 x 3 =



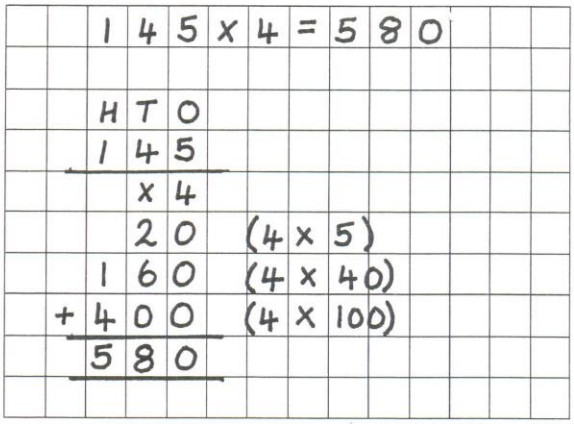
Grid method 2 digits by 2 digits

53 x 24 =



Expanded column method

145 x 4 =

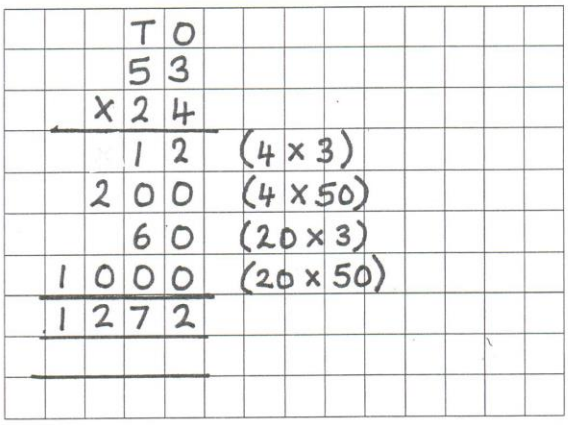


Multiplication

Expanded column method

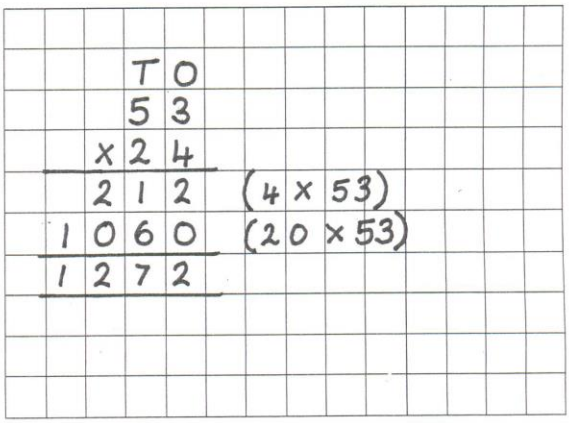
2 digits by 2 digits

53 x 24 =



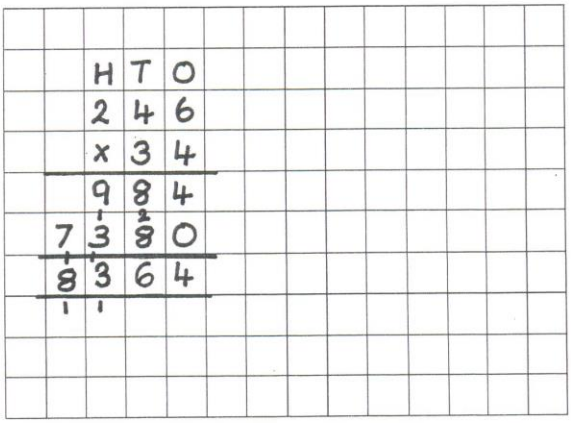
Long multiplication method

53 x 24 =



Long multiplication

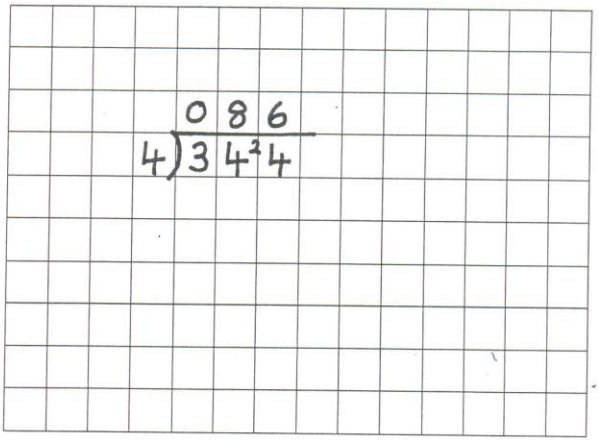
246 x 34 =



Division

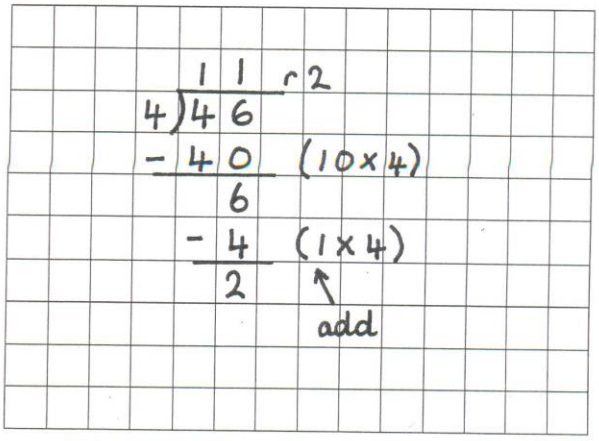
'Bus stop' method for division by 1 digit

344 ÷ 4 =



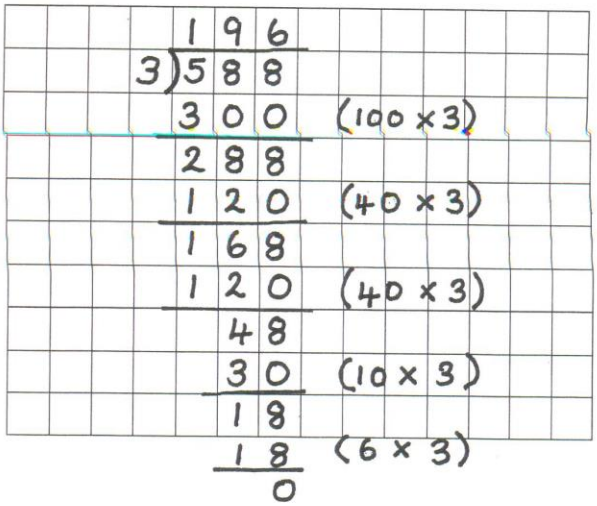
Expanded division by 'chunking'

46 ÷ 4 =



Expanded division by 'chunking'

558 ÷ 3 =

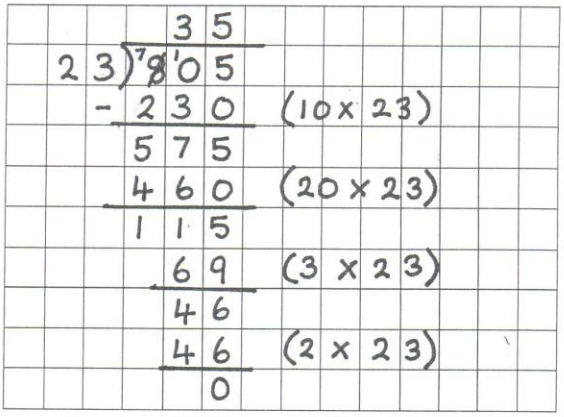


Division

Division by 'chunking'

3 digit by 2 digit

805 ÷ 23 =



Long division method

805 ÷ 23 =

