'Shine like a lantern in the presence of the Lord.'





YEAR 3 AND 4 MATHEMATICS CALCULATION METHODS

Always think:

Can I do it mentally? Can I do it with jottings? Do I need a written method (vertical layout)? Do I need a calculator?

MENTAL ADDITION GUIDELINES Year 3 Year 3 (MENTAL CALCULATION supported with jottings) (MENTAL CALCULATION supported with jottings)

MENTAL ADDITION GUIDELINES		
Year 3 (MENTAL CALCULATION supported with jottings)	Year 3 (MENTAL CALCULATION supported with jottings)	
Using Place Count in 100s number line for e.g. Know 475 675	Counting on Add two 2-digit numbers by adding the multiple of 10, then the 1s e.g. 67 + 55 as 67 + 50 (117) + 5 = 122 Add near multiples of 10 and 100 (Adjusting Method) e.g. 67 + 39 e.g. 364 + 199 Add pairs of 'friendly' 3-digit numbers e.g. 548 + 120	
Add multiples of 10, 100 and £1 (KF) e.g. 746 + 200 e.g. 746 + 40 e.g. £6·34 + £5 as £6 + £5 and 34p Partitioning (KF) e.g. £8·50 + £3·70 = £8 + £3 + 50p + 70p = £11 + £1·20 e.g. 347 + 36 = 300 + 40 + 30 + 7 + 6 = 300 + 70 + 13 = 383	Count on from 3-digit numbers e.g. $247 + 34$ as $247 + 30$ (277) + 4 = 281 Using number facts (KF) Know pairs which total each number to 20 e.g. $7 + 8 = 15$ e.g. $12 + 6 = 18$ Number bonds to 100 (support with practical apparatus) e.g. $46 + 54$ e.g. $73 + 27$ e.g. $35 + 65$	
e.g. $68 + 74 = 60 + 70 + 8 + 4$	000000000000000000000000000000000000000	
= 130 + 12 = 142 60 + 70 = 130 68 + 74 8 + 4 = 12	35 65 Add to the next 10 and the next 100 e.g. $176 + 4 = 180$ e.g. $435 + 65 = 500$	



WRITTEN ADDITION GUIDELINES		
Year 3	Year 4	
Written Addition	Written Addition	
Build on partitioning to develop expanded column addition with	Build on expanded column addition to develop compact column addition with larger	
two 3-digit numbers	numbers	
e.g. 466 + 358	e.g. 1466 + 4868	
400 60 <mark>6</mark>	1000 400 50 5	
+ 300 50 8	4000 800 60 8	
700 110 14 = 824	+ 1000 100 10	
	6000 300 30 4	
Use expanded column addition where digits in a column add to		
more than the column value	Compact column addition with larger numbers	
e.g. 466 + 358	e.g. 5347 + 2286 + 1495	
400 60 6		
300 50 8	5347	
+ 100 10	2286	
800 20 4	+ 1495	
	121	
Compact column addition with two or more 3-digit numbers or	9128	
towers of 2-digit numbers		
e.g. 347 + 286 + 495		
	Use expanded and compact column addition to add amounts of money.	
347		
200		
+ 415		
1120		
Compact column addition with 3- and 4-digit numbers		

MENTAL SUBTRACTION GUIDELINES		
Year 3	Year 3	
(MENTAL CALCULATION supported with jottings and practical apparatus)	(MENTAL CALCULATION supported with jottings and practical apparatus)	
Taking away Use place value (KF) to subtract e.g. 348 – 300 e.g. 348 – 40 e.g. 348 – 40 e.g. 348 – 8 Take away multiples of 10, 100 and £1 e.g. 476 – 40 = 436 e.g. 476 – 40 = 436 e.g. 476 – 300 = 176 e.g. 64 – 52 = £2.76 Partitioning (KF) e.g. 68 – 42 as 60 – 40 and 8 – 2 e.g. £6.84 – £2.40 as £6 – £2 and 80p – 40p Count back in 100s, 10s then 1s e.g. 763 – 121 = 763 – 100 – 20 – 1 = 663 – 20 – 1 = 663 – 20 – 1 = 642 20 100 642 Subtract near multiples of 10 and 100 (Adjusting method) e.g. 648 – 199 e.g. 86 – 39	Counting up Find a difference between two numbers by counting up from the smaller to the larger e.g. $132 - 117 = 15$ Using number facts Know pairs which total each number to 20 (KF) e.g. $20 - 14 = 6$ Number bonds to 100 (KF) e.g. $100 - 48 = 52$ e.g. $100 - 48 = 52$ e.g. $100 - 35 = 65$ Subtract using number facts to bridge back through a 10 (T10 Method) e.g. $40 - 3$ = 37	

MENTAL SUBTRACTION GUIDELINES		
Year 4	Year 4	
(MENTAL CALCULATION supported with jottings)	(MENTAL CALCULATION supported with jottings)	
Taking awayUse place value to subtracte.g. 4748 - 4000e.g. 4748 - 8	Subtract near multiples of 10, 100, 1000 or £1 (Adjusting Method) e.g. 3522 – 1999 e.g. £34·86 – £19·99	
Take away multiples of 10, 100, 1000, £1, 10p or 0.1 e.g. 8392 – 50 e.g. 6723 – 3000 e.g. £3.74 – 30p e.g. 5.6 – 0.2	Counting up Find a difference between two numbers by counting up from the smaller to the larger e.g. 754 – 568 +32 +100 +54	
Partitioning e.g. $\pm 5.87 - \pm 3.04$ as $\pm 5 - \pm 3$ and $7p - 4p$ e.g. $7493 - 2020$ as $7000 - 2000$ and $90 - 20$	568 600 700 754 e.g. 4000 – 2693	
7493 - 2020 7000 - 2000 90 - 20	Using number facts Number bonds to 10 and 100 and derived facts (KF) e.g. $100 - 76 = 24$ e.g. $1 - 0.6 = 0.4$	
Count back	0.6	
e.g. $6482 - 1301 = 6482 - 1000 - 300 - 1$ = $5482 - 300 - 1$ = $5182 - 1$ = 5181 -1 -1 -300 -1000 	Number bonds to £1 and £10 (KF) e.g. $\pounds 1 \cdot 00 - 86p = 14p$ e.g. $\pounds 10 \cdot 00 - \pounds 3 \cdot 40 = \pounds 6 \cdot 60$	







Year 3 Year 4 Written Multiplication Written Multiplication Build on partitioning to develop grid multiplication Use grid multiplication to multiply 3-digit numbers by1-digit	
Build on partitioning to develop grid multiplication Use grid multiplication to multiply 3-digit numbers by1-digit	
e.g. 23 × 4	jit numbers
× 20 3	_ 1519
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	= 1516 t numbers by 1-digit numbers
Some children may benefit from placing the actual mulitplication they are solving for each part of their partitioned number in the appropriate part of the grid.	
X 20 3 1 2 0 0 $\leftarrow 6 \times 2$	200
$\begin{vmatrix} 4 & 4 & x & 20 = & 3 & x & 3 = \\ 80 & & 9 & & & & & & & & & & & & & & & & $	3
(KF) Children must be secure in their ability to partition numbers	
6 = 5 + 1 Therefore we know	git numbers
Double 6 is the same as double 5 add double 1. × 10 6	
40 400 240 = 6	640
8 80 48 =	128
7	768





WRITTEN DIVISION GUIDELINES	
Year 3	Year 4
Written Division	Written Division
Perform divisions just above the 10th multiple using written jottings, supported by a mental method; understand how to give a remainder as a whole number.	Use a written version of a mental method to divide 2- and 3-digit numbers by 1-digit numbers. e.g. 86 ÷ 3 as 20 × 3 (60) and 8 × 3 (24), remainder 2
Use division facts to find unit and simple non-unit fractions of amounts within the times-tables.	86÷3=
e.g. $\frac{3}{4}$ of 48 is 3 × (48 ÷ 4) = 36	$x = 3 = 86$ $86 \div 3 = 28 r^2$
	$\frac{20 \times 3 = 60}{26}$
	<u>8 × 3 = 2 4</u> 2
	28
	Use chunking
	86 ÷ 3
	86 Sector
	$-60(20 \times 3)$ $3 \times 2 = 6$
	26 Answer: 3 x 5 = 15
	-24 (8 x 3) 20 + 8 = 28 r2 3 x 10 = 30
	۷
	Use division facts to find unit and non-unit fractions of amounts within the times-
	e.g. $7/_8$ of 56 is 7 × (56 ÷ 8) = 48