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





YEAR 1 AND 2 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?

ADDITION GUIDELINES	
Year 1	Year 1
Based on Practical Experiences & Mental Calculation Strategies	Doubling numbers within 20 (KF)
(supported by jottings)	(e.g. 7 + 7 = 14, 12 + 12 = 24)
(using familiar / practical resources) Place numbers to 20 in order (KF)	Number bonds to 20 (KF)
Bonds up to 10 and to make 10 (KF)	Relate addition facts to 10 to add multiples of 10 up to a total of 100 e.g. if 3 + 4 is 7 then 30 + 40 is 70 (KF)
4+6=10 $5+3=8$ 1 more than a number (KF)	Use familiar objects to recognise the place value of 2 digit numbers. (KF)
? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	Recognise and explain 24 is '2 tens and 4 ones' (KF)
Addition as combining, up to three, groups (including spotting doubles or bonds to 10).	<u>+ / = signs and missing numbers</u>
Addition as combining, up to three, groups (including spotting doubles or bonds to 10).	Children need to understand the concept of equality before using the '=' sign. Calculations should be written either side of the '=' sign so that the sign is not just interpreted as 'the answer'.
1, 2, 3, 4 1, 2 1, 2, 3	2 = 1+1
4 + 2 + 3	2 + 3 = 4 + 1
Addition as counting on in ones and tens from any 1 or 2 digit number (KF) (supported by practical apparatus)	3 = 3
1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 +	2 + 2 + 2 = 4 + 2





Count back in 10s	Subtract using patterns of known facts (KF)
e.g. 53 – 20 as 53, 43, 33	e.g. $7 - 3 = 4$ so we know $27 - 3 = 24$, $47 - 3 = 44$, $77 - 3 = 74$
	Count on from smallest to largest number to find the difference where numbers are close in value. (e.g.9-7)

JUDIRACIIO	N GOIDELINES
Year 2	Year 2
Based on Practical Experiences & Mental Calculation Strategies	Using number facts / Knowledge of Bonds (KF)
(supported by jottings)	Initially children should be supported in applying this knowledge using bead strings, number lines and other practical apparatus.
Using place value (KF)	Know pairs of numbers which make the numbers up to and including 12 and derive related
Know 1 less or 10 less than any number	subtraction facts
e.g. 1 less than 74	e.g. 10 – 6 = 4, 8 – 3 = 5, 5 – 2 = 3
e.g. 10 less than 82	Subtract using nattorns of known fasts
	Subtract using patterns of known facts $2 - 66 + 80 + 2 - 86$
Partitioning	e.g. = 5 = 0, 50 we know $53 = 5 = 50, 03 = 5 = 00, 03 = 5 = 00$
e.g. $55 - 32$ as $50 - 30$ and $5 - 2$ and combine the answers: $20 + 3$	_3
50 - 30 = 20 5 - 3 2 3 2 3	Using knowledge of number bonds to subtract mentally from multiples of 10s
	$e_{1} = 10 - 4 = 6$ so we know $20 - 4 = 16 - 30 - 4 = 26 - 60 - 4 = 56$
Taking away (as counting back)	
Subtract 10 and multiples of 10 (J10 method). For example:	Using knowledge of number bonds to subtract mentally multiples of 10 from multiples of 10
$\begin{array}{r} 37 - 12 = 37 - 10 - 2 \\ = 27 - 2 \\ = 25 \end{array} \qquad \begin{array}{r} -2 \\ 25 \end{array} \qquad \begin{array}{r} -10 \\ 25 \end{array} \qquad \begin{array}{r} -2 \\ 25 \end{array} \qquad \begin{array}{r} -10 \\ 37 \end{array}$	e.g. if $7 - 4 = 3$ then $70 - 40 = 30$ Bridging Ten (T10) This method involves partitioning and bridging e.g. $52 - 6 = 52 - 2$ = 50 - 4 = 46 targeting the next multiple of 10, through a multiple of 10.



MULTIPLICATION GUIDELINES	
Year 1	Year 1
Based on Practical Experiences & Mental Calculation Strategies (supported by jottings) Counting in steps ('clever' counting) Count in 2s	Doubling and halving (KF) Multiplication is linked to known facts, including doubling and counting groups of the same size. Children should be given opportunities to do this with practical items such as dominance, disc, groups of care, groups of dolls, etc.
	Find doubles to double 5 using fingers or objects e.g. double 3
I I <thi< th=""> <thi< th=""> <thi< th=""></thi<></thi<></thi<>	Grouping Begin to use visual and concrete arrays and sets of objects to find the answers to questions such as: 'three lots of two' or 'three lots of four' or 'two lots of five' e.g. three lots of four



Page 7 of 10	Initially children may
	need to be supported
	using practical
	apparatus.
Begin to double 2-digit numbers less than 50 with 1s digits of 1, 2, 3, 4 or 5	Start learning ×2, ×5, ×10 tables, relating these to 'clever' counting in 2s, 5s, and 10s e.g. 5 × 10 = 50, and five steps in the 10s count = 10, 20, 30, 40, 50

DIVISION GUIDELINES	
Year 1	Year 1
Based on Practical Experiences & Mental Calculation Strategies	Grouping
(supported by jottings)	Begin to use visual and concrete arrays and 'sets of' objects to find the answers to questions such as:
Counting in steps ('clever' counting)	'There are 10 seeds. Plant 5 in each pot. How many pots are there?'
Count in 2s (KF)	'Jo has 10 Lego wheels. How many bicycles can she make?'
	'There are 6 sweets. How many people can have 2 sweets each?'
	2003 2003 2003 2003
Count in 10s (KE)	Sharing
	Begin to find half of a quantity using sharing
	e.g. find half of 16 cubes by giving one each repeatedly to two children
11 12 13 14 15 16 17 18 19 20	e.g. 6 sweets are shared between 2 people. How many do they have each?
21 22 23 24 25 26 27 28 29 30	
31 32 33 34 35 36 37 38 39 40	
41 42 43 44 45 46 47 48 49 50	
51 52 53 54 55 56 57 58 59 60	\mathbf{T} \mathbf{T} $\backslash \times \backslash$
61 62 63 64 65 66 67 68 69 70	
71 72 73 74 75 76 77 78 79 80	or Or
81 82 83 84 85 86 87 88 89 90	
91 92 93 94 95 96 97 98 99 100	
Doubling and halving (KF)	

Find half of even numbers up to 12, including realising that it is hard to halve an odd	
number	

DIVISION GUIDELINES	
Year 2	Year 2
Based on Practical Experiences & Mental Calculation Strategies (supported by jottings)	Grouping Relate division to multiplication by using arrays or towers of cubes to find answers to division. (KF)
Counting in steps ('clever' counting) Count in 2s, 5s and 10s (KF)	e.g. 'How many towers of five cubes can I make from twenty cubes?' as $_ \times 5 = 20$ and also as $20 \div 5 = _$
	Include practical grouping, such as: In PE 12 children get into teams of 4 to play a game. How many teams are there?
December 20 30	
Doubling and halving Find half of numbers up to 40, including realising that half of an odd number gives a	Relate division to 'clever' counting and hence to multiplication. (KF) e.g. 'How many fives do I count to get to twenty?' Sharing
remainder of 1 or an answer containing a $\frac{1}{2}$. (KF) e.g. $\frac{1}{2}$ of 11 = 5 $\frac{1}{2}$	Begin to find half or a quarter of a quantity using sharing e.g. find a quarter of 16 cubes by sorting the cubes into four piles

