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Calculation Policy

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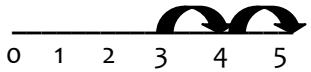
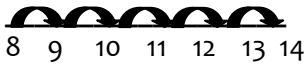
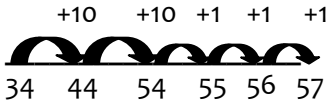
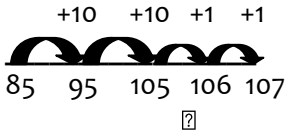
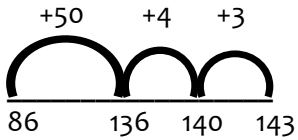
PROGRESSION THROUGH WRITTEN CALCULATIONS FOR ADDITION

Singing Recite number sequences Count sets reliably Add 1 more Name 1 more Combine 2 sets to make a total Describe work orally Record work pictorially Record work numerically Using number lines 3 + 2 = 5  	Addition can be done in any order 4 + 12 = 12 + 4 Encourage children to start with the larger number Empty number line 8 + 5 = 13  100 square to add 10, add 9, add 11 Counting on in tens and ones 34 +23 = 57  Partitioning 42 + 16 = 40 + 10 = 50 2 + 6 = 8 + = 58	Number line Biggest number first 85 + 22= 107  Partitioning 35 + 26 30 + 20 = 50 5 + 6 = 11 → 50 + 11 = 61 Using doubles 8 + 6 + 8 = 8 + 8 = 16 16 + 6 = 22 Number bonds 6 + 7 + 4 =  6 + 4 = 10 → 10 + 7 = 17	Empty number line 86 + 57  Partitioning Add ones first 86 + 57 13 (6 + 7) 130 (80 + 50) 143 Leading to 4 digit number Repeat all above method using decimals	**FORMAL METHOD TO BE USED EFFECTIVELY BY THE END OF KS2** **Children need to understand fully the processes behind addition in order to be able to unpick errors** Carrying method **7 8 9** **6 4 2 +** **1 4 3 1** **1 1**

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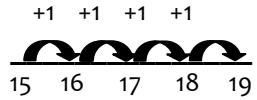
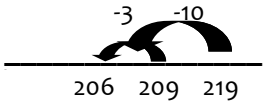
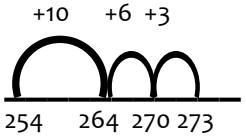
PROGRESSION THROUGH WRITTEN CALCULATIONS FOR SUBTRACTION

Singing number rhymes - with objects - with children Counting backwards Individual work Taking objects away independently e.g. objects out of a hoop Teacher demonstrates use if number line Back 1 Jumping back on number mats Leading to recognition of recorded work 3 – 2 = 1	Taking objects away from a set Recount and say/write total Counting back on a number line, Move objects along it subtracting 10, 9, or 11 on 100 square Count back in 10's, 1's on 100 square and orally <u>Take away</u> on a number line (numbers are far apart) <u>Counting back</u> 19 – 4 = 15  Work out <u>difference</u> by counting on (numbers close together) 19 – 15 = 4  	<u>Take away</u> on a number line, <u>counting back</u> (when numbers are far apart) 219 – 12  Work out the <u>difference</u> by counting on from smallest to largest numbers (numbers close together) 273 – 254  74 – 27 74 – 20 = 54 54 – 7 = 47	Empty number line, counting on and back as before <u>Partitioning</u> 74 – 27 74 – 20 = 54 54 – 7 = 47 74 – 27 \ \ 60+14 20+7 / Split this was because you can't subtract 7 from 4 60 – 20 = 40 14 – 7 = 7 + 47 <u>Decomposition</u> 6 1 7 4 – 2 7 4 7 Repeat all above with decimals	**FORMAL METHOD TO BE USED EFFECTIVELY BY <u>THE END OF KS2</u>** **Children need to understand fully the processes behind addition in order to be able to unpick errors** Exchanging method (not borrowing) 1 1 2 1 3 1 3 2 4 2 – 8 8 6 2 3 5 6

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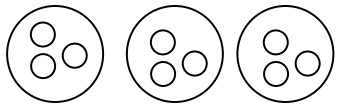
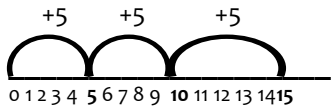
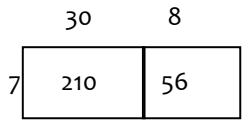
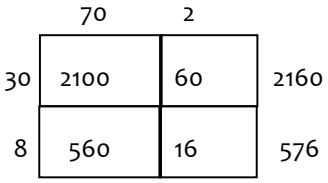
PROGRESSION THROUGH WRITTEN CALCULATIONS FOR MULTIPLICATION

Songs with jumps in (e.g. ants go marching) Need to be secure in number quantity Identify sets of same size Need to know that multiplication leads to more Combine sets of same size Grouping objects into 2's and 10's Doubling and halving Counting in 5's Practical pattern making Pictorial recording	Grouping objects into sets  Repeat addition on a number line 3 x 5 = 5 + 5 + 5  Dot arrays  2 x 3 or 3 x 2 Mental recall	Grid method (must be secure in x10 and x100) 38 x 7 (30 x 7) (8 x 7)  210 + 50 = 260 + 6 = 266	Grid method with larger numbers 72 x 38  2160 576 + 2736	**FORMAL METHOD TO BE USED EFFECTIVELY BY THE END OF KS2** **Children need to understand fully the processes behind addition in order to be able to unpick errors** **Short multiplication** – 342 x 7 becomes 3 4 2 7 x 2 3 9 4 2 1 **Long multiplication** – 124 X 26 becomes 1 2 1 2 4 2 6 x 7 4 4 2 4 8 0 + 3 2 2 4 1 1 Annexing





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PROGRESSION THROUGH WRITTEN CALCULATIONS FOR DIVISION

One to one correspondence

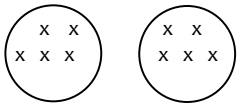
Experience of grouping and sharing fairly

Pictorial recording

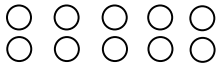
Sharing objects into equal sets

Linking to pictorial representation

10 ÷ 2 = 5

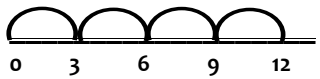


Linking to dot arrays



10 ÷ 2 = 5
10 ÷ 5 = 2

Link to number line (Always counting on)

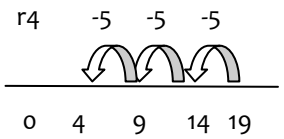


12 ÷ 3 = 4

4 "jumps"

Remainders

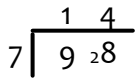
19 ÷ 5



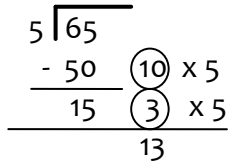
3 "jumps" r4

3 r4

Bus stop method



Simple chunking
65 ÷ 5 =

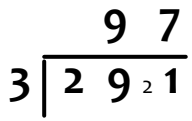


Answer = 13

FORMAL METHOD
TO BE USED EFFECTIVELY BY
THE END OF KS2

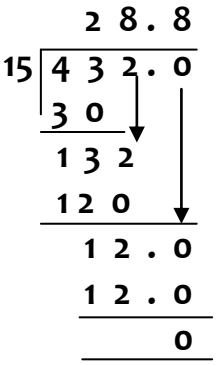
Children need to understand fully the processes behind addition in order to be able to unpick errors

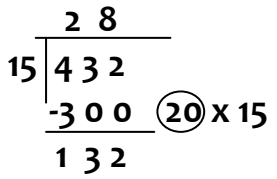
Short division



Long division – 3 ways depending on answer required

432 ÷15





ans: 28r12

ans: 28 $\frac{12}{15} = \frac{4}{5}$

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Review

This policy has been agreed by staff and Governors and will be reviewed early in light of the changes to the National Curriculum.

Name of creator - 2015	Mrs Lisa Sexton
Date of approval by Governing Body	10.10.19
Signature of Chair of Governors	*Lawrence Wakefield*
Date due for review	Autumn 2023