Mental Maths Calculation Policy: Addition

The rationale for the Mental Maths Calculation Policy is to help provide teachers and children with a variety of strategies to tackle arithmetic questions without being overly reliant on formal written methods. The aim of this document is to help children becoming fluent, flexible and accurate in their mental calculation and help them to draw on their knowledge of known facts. Below is a grid for all four categories of calculation, the potential strategies that can be applied and in which year groups you could use these strategies. This policy should be used in conjunction with the written methods calculation policy. This policy was inspired by the book Number Talks: Whole Number Computation by Shelly Parrish.

Category	Strategy	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition	Combining two parts to make a whole.	✓	✓	✓			
	Counting all/counting on	✓	✓				
	Doubles and near doubles	✓	✓	✓	✓	✓	✓
	Making 10	✓	✓	✓	✓	✓	✓
	Making landmark/friendly numbers		✓	✓	✓	✓	✓
	Partition and then add		✓	✓	✓	✓	✓
	Compensation		✓	✓	✓	✓	✓
	Adding up in chunks.		✓	✓	✓	✓	✓

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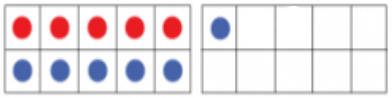
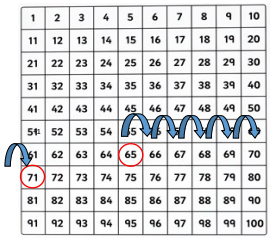
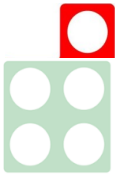
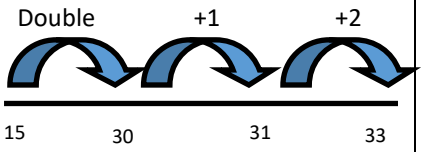
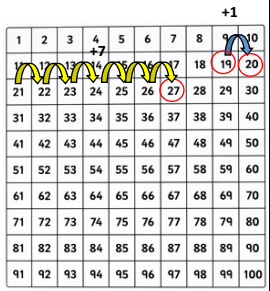
Strategy and method	Recorded Strategy	Representation (and practical strategy) Concrete	Pictorial	Abstract
Counting all/Counting on. Simple counting on strategy that should be replaced by more efficient strategies as a child moves into KS2.	4 + 5 = Start from 5 and count up 6, 7, 8, 9,	 Numicon, 10s frames, multilink all work here. 5 + 6 could be answered 6+5 Start from 6, count up: 7, 8, 9, 10, 11	Number line and 100 squares work here. 65 + 6 Start from 65 66, 67, 68, 69, 70, 71 	Children reach a point of confidence with their counting forwards that they can do this mentally, potentially using fingers to support.
Doubles and near doubles. Similar to the compensating method but both numbers can be changed so knowledge of doubles can be utilised.	8 + 9 Recognise Double 8 8 + 8 = 16 Add on the additional 1 16 + 1 = 17	10s frames, Numicon, Place Value Counters and Dienes rods can all be used to support this calculation approach as outlined in other strategies. Overlapping Numicon  5+4 Double 4 = 8 8 + 1 = 9	16 + 17 Double 15  Add the 1 to move from adding 15 to 16 add 2 move from adding 15 to 17.	116 + 118 (116 - 1= 115) (118 - 3= 115) 115 + 115= 130 130 + 4 = 134
Making landmark/friendly numbers. Landmark numbers are those that are easy to use in mental computation. Multiples of 5s, 10s and monetary numbers fall into this.	23 + 46 Turn 46 into 50 which is a friendly number (46 + 4 = 50) 23 + 50 = 73 73 - 4 = 69 You must remove the extra 4 added onto the 46.	Deines Rods, PVC, Numicon can all be used to support here in ways previously displayed.	19 + 8 19 + (1 + 7) 19 + 1 = 20 20 + 7 = 27 	23 + 46 (46 + 4 = 50) 23 + 50 = 73 73 - 4 = 69 You must remove the extra 4 added onto the 46.

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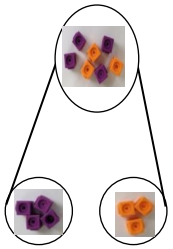
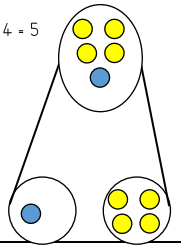
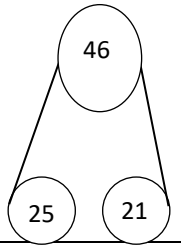
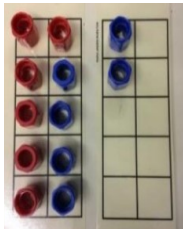
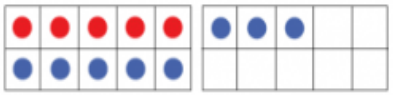
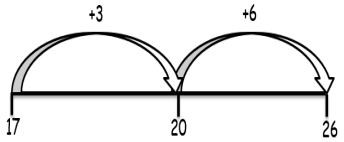
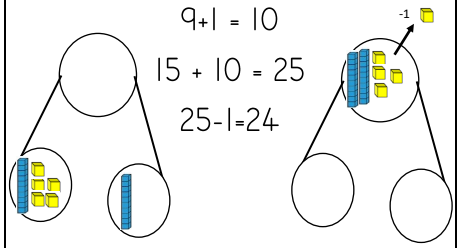
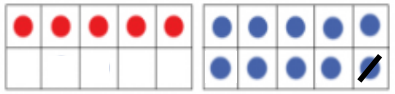
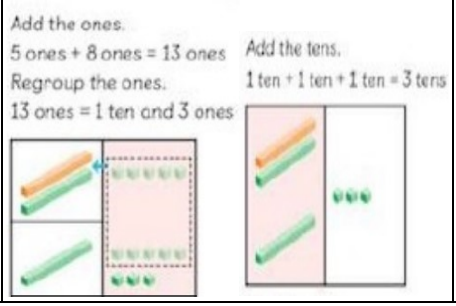
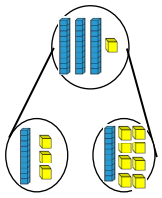
Combining 2 parts to make a whole.	Lots of practise making 10 e.g. 6 + 4 and bonds within 10. Moving onto use to add two 2-digit numbers.	4 + 3 = 7 	 Work with and draw arrays 1 + 4 = 5 	Children working in the abstract. 
Making 10. Use knowledge of number bonds to 10 to jump to next set of ten and add remaining ones.	8 + 5 = 13 8 + 2 = 10 10 + 3= 13 Use of tens frames, Numicon and number lines to practise.	 6 + 6 = 12 6 + 4=10 10 +2 = 12	5 + 8 = 13 Children draw arrays on empty tens frames. 	Mental addition, number line to support if necessary. 
Compensation: Adding a number like 8 or 9. Adding 10 instead and compensating by subtracting the extra numbers added,	36 + 9 = 45 36 + 10 = 46 46 - 1 = 45 57 + 8 = 65 57 + 10 = 67 67 - 2= 65	15 + 9 9+1 = 10 15 + 10 = 25 25-1=24 	5 + 9 = 14  5 + 10 = 15 15 - 1 = 14	Reasoning: What is the most efficient method to answer: 76 + 9 =_____
Partition and then add 46+ 23 = 69 Including situations involving exchanging ten 1s for a 10.	Intelligent practise to explore both ways. 46-23 40 + 20= 60 or 46 + 20 = 66 6 +3= 9 66 + 3= 69 60 + 9 = 69	15 +18= 33 	Draw base 10 on whiteboards to show partitions, addition and exchanging. 13+18=31  Pupils can rub out 10 ones and draw a replacement 10 stick.	If 35+26=61 'Make then take' 50 + 11 Make a 10 from ones and take away to swap for a ten stick. This becomes 60 + 1 = 61

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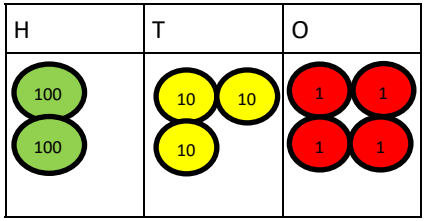
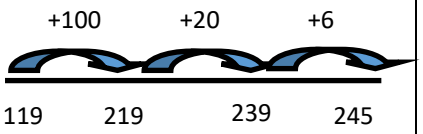
Adding up in chunks. From the starting number, the number is partitioned and each element of place value	119 + 126 119 + (100 + 20 + 6) 119 + 100 = 219 219 + 20 = 239 239 + 6 = 245	Base 10 with grid method.  234 + 228 234 + 200 = 434 434 + 20 = 454 454 + 8 = 462 Children will still need to be competent with exchanging	119 + 126  100 squares can be used to support computation of individual steps within 100.	245 + _____ = 468 245 + 200 = 445 445 + 20 = 465 465 + 3 = 468 A lot more challenging when exchanging is required.