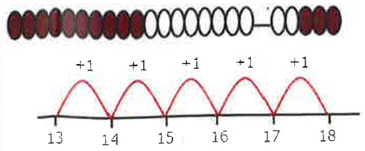
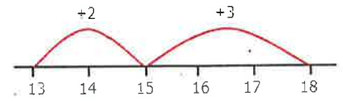
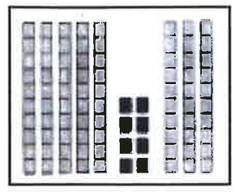
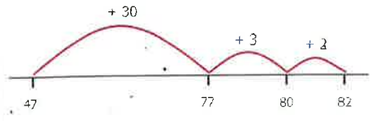
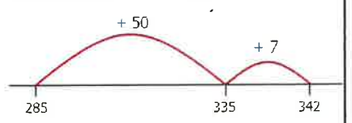
Calculation Policy - Brimpton C.E Primary School

Addition

	Rapid Recall / Mental Calculations	Written	Problem Solving					Non statutory guidance
1	Represent and use number bonds and related subtraction facts within 20	Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs add and subtract one-digit and two-digit numbers to 20, including zero	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = – 9. Problems should include terms: put together, add, altogether, total, take away, distance between, more than and less than, so pupils develop concept of +/- and use operations flexibly.	Pupils use concrete objects and pictorial representations (eg place value counters, Dienes)	Visual (modelled using bead strings) 13 + 5 = 18 	Visual (efficient jumps) 13 + 5 = 18 [jumps may be in 1s] 	Use known facts/partitioning 8 + 5 + 13 8 + 2 = 10 10 + 3 = 13	*Pupils memorise and reason with number bonds to 10 and 20 in several forms (for example, 9 + 7 = 16; 16 – 7 = 9, 7 = 16 – 9). They should realise the effect of adding or subtracting zero. This establishes addition and subtraction as related operations.*
Y2	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100	Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: □ a two-digit number and ones □ a two-digit number and tens □ two two-digit numbers □ adding three one-digit numbers Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot	Solve problems with addition and subtraction: □ using concrete objects and pictorial representations, including those involving numbers, quantities and measures □ applying their increasing knowledge of mental and written methods □ recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems	Practical/visual images 58 + 30 = 88 	Visual (efficient jumps) 35 + 47= 82  Jumps can also be in 10's 1's	Partitioning 35 + 47 = 82 40 + 30 = 70 7 + 5 = 12	*Recording addition in columns supports place value and prepares for formal written methods with larger numbers.* 47 + 35 = 82 40 + 7 30 + 5 70 + 12	*Pupils extend their understanding of the language of addition and subtraction to include sum and difference.* *Recording addition and subtraction in columns supports place value and prepares for formal written methods with larger numbers.*
Y3	Add and subtract numbers mentally, including: □ a three-digit number and ones □ a three-digit number and tens □ a three-digit number and hundreds	Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction Estimate the answer to a calculation and use inverse operations to check answers	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	Number line 57 + 285 = 342 	**Partitioning** 374 + 248 374 + 248 = 622 300 70 4 200 40 8 500 110 12	Formal column addition 374 + 248 622 Estimate answers and use inverse to check		*Pupils use their understanding of place value and partitioning, and practise using columnar addition and subtraction with increasingly large numbers up to three digits to become fluent*
Y4		Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate estimate and use inverse operations to check answers to a calculation	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	Partitioning 357 + 426 300 50 7 + 400 20 6 700 70 13	789 + 642 = 1431 7 8 9 + 6 4 2 1 4 3 1 1 1	5735 + 562 = 6297 5735 + 562 6297		*Pupils continue to practise both mental methods and columnar addition and subtraction with increasingly large numbers to aid fluency*
Y5	Add and subtract numbers mentally with increasingly large numbers	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	Formal column addition 7 8 9 + 6 4 2 1 4 3 1 1 1	Decimals 23.45 +42.26 65.71 1			*Pupils practise using the formal written methods of columnar addition and subtraction with increasingly large numbers to aid fluency*
Y6	Perform mental calculations, including with mixed operations and large numbers	Use their knowledge of the order of operations to carry out calculations involving the four operations Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Solve problems involving addition, subtraction, multiplication and division	Formal column addition 7 8 9 + 6 4 2 1 4 3 1 1 1	Decimals 123.45 42.26 + 0.02 165.73 1			*Pupils round answers to a specified degree of accuracy, for example, to the nearest 10, 20, 50 etc., but not to a specified number of significant figures.* *Pupils explore the order of operations using brackets; for example, 2 + 1 x 3 = 5 and (2 + 1) x 3 = 9.*