St Michael & St. John's RC Primary School
Progression Through Mental Calculation Strategies - Addition and Subtraction

	Rapid Recall	Expectations	Mental Strategies	Prerequisite Skills
	Children should be able to recall rapidly or derive:	Children should be able to calculate mentally: *(using concrete objects and pictorial representations)*	Children should be able to use the following strategies, as appropriate, for mental calculations:	These should be in place before children can access the mental strategy:
Year 1	Represent and use number bonds and related subtraction facts within 20	Add and subtract one-digit and two-digit numbers to 20, including zero	Count on or back in ones (chain count and linked to objects – 1-1 correspondence) Reorder numbers in a calculation Partition small numbers, e.g. 8 + 3 = 8 + 2 + 1	▪ Count using one to one correspondence ▪ Count forwards and backwards in ones ▪ Understand the place value of numbers to identify which number is the greater ▪ Understand that reordering works for addition but not subtraction ▪ Partition numbers in different ways, e.g. 5 as 2 + 3 to enable 8 + 5 as 8 + 2 + 3 ▪ Know, or quickly derive, number bonds to 10

	Rapid Recall	Expectations	Mental Strategies	Prerequisite Skills
	Children should be able to recall rapidly or derive:	Children should be able to calculate mentally: *(using concrete objects and pictorial representations)*	Children should be able to use the following strategies, as appropriate, for mental calculations:	These should be in place before children can access the mental strategy:
Year 2	Recall and use addition and subtraction facts to 20 fluently Derive and use related facts up to 100	Add and subtract a two-digit number and ones Add and subtract a two-digit number and tens Add and subtract two two-digit numbers Add and subtract three one-digit numbers	Partition and combine multiples of tens and ones	▪ Count using one to one correspondence ▪ Count forwards and backwards in ones and tens from any one- or two-digit number ▪ Understand place value, understand which digit represents tens and which represents ones and identify what changes if one is added or subtracted, and what changes if ten is added or subtracted ▪ Partition numbers into tens and ones
			Reorder numbers in a calculation	▪ Understand the place value of numbers to identify which number is the greater ▪ Understand that reordering works for addition but not subtraction
			Add three small number by putting the greatest number first and/or finding a pair totalling 10	▪ Understand the place value of numbers to identify which number is the greater ▪ Know, or quickly derive, number bonds to 10
			Find a small difference by counting up from the lesser to the greater number	▪ Understand the place value of numbers to identify which number is the greater or lesser ▪ Place numbers on a partially marked and then unmarked numberline ▪ Establish whether numbers are close together ▪ Count forwards and backwards in ones and tens from any one- or two-digit number
			Begin to bridge through 10 when adding a single digit number (partitioning, e.g. 58 + 5 = 58 + 2 + 3)	▪ Partition numbers in different ways, e.g. 5 as 2 + 3 to enable 58 + 5 as 58 + 2 + 3 ▪ Know, or quickly derive, number bonds to 10
			Add or subtract 9 and 19 by rounding and compensating	▪ Understand the relationship between 9 and 10 (i.e. a difference of 1) ▪ Be able to show visually using base 10 equipment

	Rapid Recall	Expectations	Mental Strategies	Prerequisite Skills
	Children should be able to recall rapidly or derive:	Children should be able to calculate mentally: *(using concrete objects and pictorial representations)*	Children should be able to use the following strategies, as appropriate, for mental calculations:	These should be in place before children can access the mental strategy:
Year 3	Recall and use addition and subtraction facts for 100 (multiples of 5 and 10) Derive and use addition and subtraction facts for 100 Derive and use addition and subtraction facts for multiples of 100 that total 1000	Add and subtract a three-digit number and ones Add and subtract a three-digit number and tens Add and subtract a three-digit number and hundreds	Partition and combine multiples of hundreds, tens and ones Reorder numbers in a calculation Identify and use knowledge of number bonds within a calculation Find differences by counting up through the next multiple of 10 or 100 Bridge through 10 when adding or subtracting a single digit number (partitioning, e.g. 58 + 5 = 58 + 2 + 3 or 76 – 8 = 76 – 6 - 2) Add or subtract 9, 19, 29 etc by rounding and compensating	▪ Count forwards and backwards in ones, tens and hundreds from any one-, two- or three-digit number ▪ Understand place value and understand which digit changes if one, ten or hundred is added or subtracted ▪ Partition numbers into hundreds, tens and ones ▪ Understand the place value of numbers to identify which number is the greater ▪ Understand that reordering works for addition but not subtraction ▪ Know, or quickly derive, number bonds to 10 or 100 ▪ Identify number bonds within other numbers, e.g. identifying 7 + 3 within the calculation 57 + 33 ▪ Identify that when adding two two-digit numbers, that 57 + 43 = 100 but 57 + 53 does not and why ▪ Understand the place value of numbers to identify which number is the greater or lesser ▪ Establish whether numbers are close together or near to multiples of 10 or 100 ▪ Place numbers appropriately on an unmarked number line ▪ Count forwards and backwards in ones and tens ▪ Partition numbers in different ways, e.g. 5 as 2 + 3 to enable 58 + 5 as 58 + 2 + 3 ▪ Know, or quickly derive, number bonds to 10 ▪ Identify the difference between the number being added and subtracted and the multiple of 10 ▪ Understand that the adjustment needs to be the opposite of the operation carried out

	Rapid Recall	Expectations	Mental Strategies	Prerequisite Skills
	Children should be able to recall rapidly or derive:	Children should be able to calculate mentally: *(using concrete objects and pictorial representations)*	Children should be able to use the following strategies, as appropriate, for mental calculations:	These should be in place before children can access the mental strategy:
Year 4	Recall and use addition and subtraction facts for 100 Recall and use addition and subtraction facts for multiples of 100 that total 1000 Derive and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)	Add and subtract a three-digit number to or from a three-digit multiple of tens Add and subtract two three-digit numbers (where there is no carrying or exchange involved)	Partition and combine multiples of hundreds, tens and ones Reorder numbers in a calculation Identify and use knowledge of number bonds within a calculation and identify related facts, e.g. 150 + 270 from 15 + 27 Find differences by counting up through the next multiple of 10 or 100 Bridge through 10 when adding or subtracting a single digit number (partitioning, e.g. 58 + 5 = 58 + 2 + 3 or 76 – 8 = 76 – 6 - 2) Add or subtract a multiple of 10 and adjust (for those numbers close to multiples of 10)	▪ Count forwards and backwards in ones, tens and hundreds from any one-, two- or three-digit number ▪ Understand place value and understand which digit changes if one, ten or hundred is added or subtracted ▪ Partition numbers into hundreds, tens and ones ▪ Understand the place value of numbers to identify which number is the greater ▪ Understand that reordering works for addition but not subtraction ▪ Know, or quickly derive, number bonds to 10, 100 or 1000 ▪ Identify number bonds within other numbers, e.g. identifying 7 + 3 within the calculation 257 + 343 ▪ Identify that when adding two two-digit numbers, that 57 + 43 = 100 but 57 + 53 does not and why ▪ Understand the place value of numbers to identify which number is the greater or lesser ▪ Establish whether numbers are close together or near to multiples of 10 or 100 ▪ Place numbers appropriately on an unmarked number line ▪ Count forwards and backwards in ones and tens ▪ Partition numbers in different ways, e.g. 5 as 2 + 3 to enable 58 + 5 as 58 + 2 + 3 ▪ Know, or quickly derive, number bonds to 10 ▪ Identify the difference between the number being added and subtracted and the multiple of 10 ▪ Understand that the adjustment needs to be the opposite of the operation carried out

	Rapid Recall	Expectations	Mental Strategies	Prerequisite Skills
	Children should be able to recall rapidly or derive:	Children should be able to calculate mentally: *(using concrete objects and pictorial representations)*	Children should be able to use the following strategies, as appropriate, for mental calculations:	These should be in place before children can access the mental strategy:
Year 5	Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place) Derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)	Add and subtract two three-digit numbers where one or both are multiples of 10 or 100 Add and subtract two- or three-digit numbers to or from a four digit number Add and subtract two four-digit numbers (where there is no carrying or exchange involved) Add and subtract pairs of decimals to one decimal place	Partition and combine multiples of thousands hundreds, tens and ones Partition and combine multiples of ones and tenths Identify and use knowledge of number bonds within a calculation and identify related facts, e.g. 1.5 + 2.7 from 15 + 27 Find differences by counting up through the next multiple of 1, 10, 100 or 1000 Bridge through 10 when adding or subtracting a single digit number (partitioning, e.g. 58 + 5 = 58 + 2 + 3 or 76 – 8 = 76 – 6 - 2) Add or subtract a multiple of 10 and adjust (for those numbers close to multiples of 10)	▪ Count forwards and backwards in ones, tens, hundreds and thousands ▪ Understand place value and understand which digit changes if one, ten or hundred is added or subtracted ▪ Partition numbers into hundreds, tens and ones ▪ Count forwards and backwards in tenths and ones ▪ Understand place value of decimal numbers ▪ Know, or quickly derive, number bonds to 1, 10, 100 or 1000 ▪ Identify number bonds within other numbers, e.g. identifying 7 + 3 within the calculations 257 + 343 or 1.7 + 2.3 ▪ Understand the place value of numbers to identify which number is the greater or lesser ▪ Establish whether numbers are close together or near to multiples of 10 or 100 ▪ Place numbers appropriately on an unmarked number line ▪ Count forwards and backwards in ones and tens ▪ Partition numbers in different ways, e.g. 5 as 2 + 3 to enable 58 + 5 as 58 + 2 + 3 ▪ Know, or quickly derive, number bonds to 10 ▪ Identify the difference between the number being added and subtracted and the multiple of 10 ▪ Understand that the adjustment needs to be the opposite of the operation carried out

	Rapid Recall	Expectations	Mental Strategies	Prerequisite Skills
	Children should be able to recall rapidly or derive:	Children should be able to calculate mentally: *(using concrete objects and pictorial representations)*	Children should be able to use the following strategies, as appropriate, for mental calculations:	These should be in place before children can access the mental strategy:
Year 6	Recall and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)	Add and subtract two three-digit numbers where one or both are multiples of 10 or 100 Add and subtract two- or three-digit numbers to or from a four digit number Add and subtract two four-digit numbers (where there is no carrying or exchange involved) Add and subtract pairs of decimals to one decimal place	Partition and combine multiples of thousands hundreds, tens and ones Partition and combine multiples of ones and tenths Identify and use knowledge of number bonds within a calculation and identify related facts, e.g. 680 + 430, 6.8 + 4.3, 0.68 + 0.43 can all be worked out using the related calculation 68 + 43 Find differences by counting up through the next multiple of 0.1, 1, 10, 100 or 1000 Bridge through 10 when adding or subtracting a single digit number (partitioning, e.g. 58 + 5 = 58 + 2 + 3 or 76 – 8 = 76 – 6 - 2) Add or subtract a whole number and adjust e.g. 4.3 + 2.9, 6.5 – 3.8	▪ Count forwards and backwards in ones, tens, hundreds and thousands ▪ Understand place value and understand which digit changes if one, ten or hundred is added or subtracted ▪ Partition numbers into hundreds, tens and ones ▪ Count forwards and backwards in tenths and ones ▪ Understand place value of decimal numbers ▪ Know, or quickly derive, number bonds to 1, 10, 100 or 1000 ▪ Identify number bonds within other numbers, e.g. identifying 7 + 3 within the calculations 257 + 343 or 1.7 + 2.3 ▪ Understand the place value of numbers to identify which number is the greater or lesser ▪ Establish whether numbers are close together or near to multiples of 10 or 100 ▪ Place numbers appropriately on an unmarked number line ▪ Count forwards and backwards in ones and tens ▪ Partition numbers in different ways, e.g. 5 as 2 + 3 to enable 58 + 5 as 58 + 2 + 3 ▪ Know, or quickly derive, number bonds to 10 ▪ Identify the difference between the decimal and the whole number ▪ Understand that the adjustment needs to be the opposite of the operation carried out