Chuckery Primary School

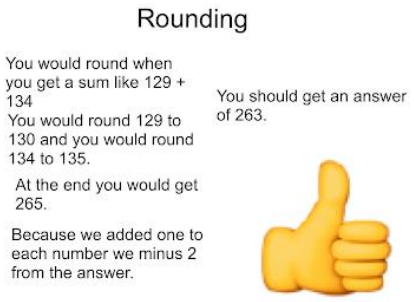
Mental Mathematics Policy

2024 - 2025

(Reviewed April 2024)

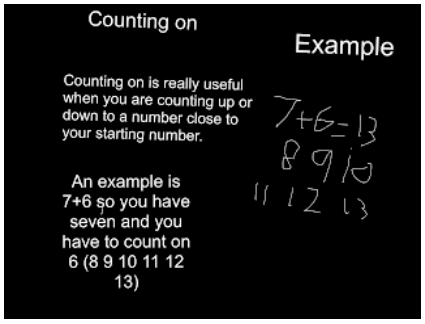
The starting point for all calculations should be,
<u>'Am I able to calculate this mentally?'</u> <u>'If so, do I need to use jottings.'
We use the acronym RAPA CODA NUMBO to indicate the different mental strategies that we use and these need to be <u>specifically taught</u> strategies.
It is very important that children understand that a mental strategy is NOT a written strategy that is completed mentally but it is a specific strategy which involves manipulation of numbers and may include the use of jottings.
(Using jottings does not turn it into a written strategy.)

RA - Round and Adjust



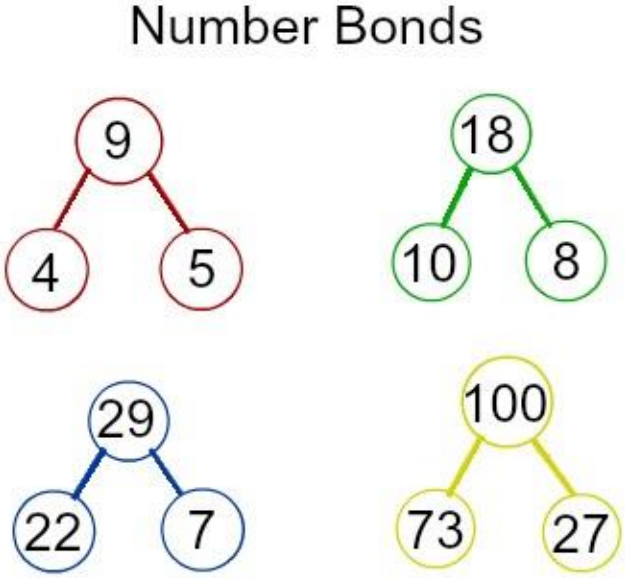
PA – Partition This may involve partitioning numbers to enable a division calculation to be done mentally which would otherwise be done using a formal written method.
Eg 378÷6 becomes (360 +18)÷6
OR 378÷7 becomes (350 +28)÷7

CO - Count On



DA-Double and Adjust Eg 29 + 29 becomes 30 + 30 and subtract 2
201 x2 becomes 200 + 200 and add 2

NUMBO-Number Bonds



Expectations for times tables for each year group	
Year 1	Count in multiples of 2, 5 and 10. Recall and use all doubles to 10 and corresponding halves.
Year 2	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. Begin to recall and use multiplication and division facts for 3 and 4 multiplication tables
Year 3	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables, including recognising odd and even numbers.
Year 4	Recall and use multiplication and division facts for multiplication tables up to 12x12
Year 5	Revision of all times tables and division facts up to 12x12
Year 6	Revision of all times tables and division facts up to 12x12

Year Group	Rapid Recall	Mental Strategies
1	**Children should be able to recall rapidly:**	**Children should be able to use the following strategies, as appropriate, for mental calculations:**
	- all pairs of numbers with a total of 10, e.g. 3+7 - addition and subtraction facts for all numbers to at least 5; - work out the corresponding subtraction facts - doubles of all numbers to at least 10 and the corresponding halves	- count on and back in 1's, 2's, 5's and 10's and use this to derive the multiples of 2, 5 and 10 to the tenth multiple - reorder numbers in a calculation; - begin to bridge through 10, and later 20, when adding a single digit number; - use known number facts and place value to add and subtract pairs of single digit numbers; - add 9 to single digit numbers by adding th10 then subtracting 1; - identify near doubles, using doubles already known; - use patterns of similar calculations. - Count reliably 20 objects - Estimate a number of objects - Relate addition to counting on - Understand that addition can be done in any order - Understand subtraction as take away – find the difference by counting on

Year Group	Rapid Recall	Mental Strategies
2	**Children should be able to recall rapidly:**	**Children should be able to use the following strategies, as appropriate, for mental calculations:**
	- addition and subtraction facts for all numbers to at least 10; - all pairs of numbers with a total of 20, e.g 13+7 - all pairs of multiples of 10 with a total of 100, eg 30+70 - multiple facts for the 2, 5 and 10 times tables and corresponding division facts; - Begin to recall and use multiplication and division facts for 3 and 4 multiplication tables - partition addition into tens and units then recombine	- count on and back in 10, 5, 2's and 1's; - find a difference by counting up from the smaller to the larger number; - reorder numbers in a calculation; - Add three small numbers by putting the largets number first and/or find a pair totalling 10; - Use known number facts and place value to add or subtract pairs of numbers; - Partition into '5 and a bit' when adding 6,7,8,or 9, then recombine; - Add or subtract 9, 19, 11 or 21 by rounding and compensating; - Identify near doubles; - Use patterns of similar calculations; - Use the relationship between addition and subtraction; - Use knowledge of number facts and place value to multiply or divide by 2,5 or 10 - Begin to recall and use multiplication and division facts for 3 and 4 multiplication tables - Recognise multiples of 2, 5 and 10 - Begin to recognise multiples of 3 and 4 - Use doubles and halves and halving as the inverse of doubling and derive and recall doubles of all numbers to 20, and the corresponding halves - Use knowledge of number facts and operations to estimate and calculate - Add/sub mentally a 1 digit number or multiple of 10 to or from any 2 digit number - Count up to 100 obj by grouping - Know the value of each digit in 2 digit numbers including where '0' is a place holder - Partition numbers in different ways

Year Group	Rapid Recall	Mental Strategies
3	**Children should be able to recall rapidly:**	**Children should be able to use the following strategies, as appropriate, for mental calculations:**
	- addition and subtraction facts for all numbers to 20; - sums and differences of multiples of 2, 5 or 10 up to 1000 - all pairs of multiples of 100 with a total of 1000; - all pairs of multiples of 5 with a total of 100; - all number pairs that total 100 eg 62+38 - multiplication facts for the 2, 3, 4, 5 and 10 times-tables and corresponding division facts. - begin to know multiplication facts for the 6 times tables; - recognise multiples of 2, 5 or 10 up to 1000	- count on or back to zero in single digit or multiples of 10; - find a small difference by counting up from the smaller to the larger number (2 dig – 1 dig) - reorder numbers in a calculation; - add three or four small numbers by putting the largest number first and/or by finding pairs totalling 9, 10 or 11; - partition into tens and units then recombine; - bridge through a multiple of 10, then adjust; - use knowledge of number facts and place value to add or subtract pairs of numbers; - partition into '5 and a bit' when adding 6, 7, 8 or 9; - add or subtract mentally a 'near multiple of 10' to or from a two-digit number; - identify near doubles; - use patterns of similar calculations; - say or write a subtraction statement corresponding to a given addition statement; - to multiply a number by10/100, shift its digits one/two places to the left; - use knowledge of number facts and place value to multiply or divide by 2, 5, 10 or 100; - use doubling or halving; - say or write a division statement corresponding to a given multiplication statement. - Use knowledge of number operations and corresponding inverses, including doubling and halving, to estimate and check calculations - Add or subtract combinations of one digit and 2 digit numbers - Find unit fractions of numbers and quantities (1/2, ¼, 1/3, & 1/6) - Read write and order whole numbers to at least 1000. position on a number line - Partition 3 digit numbers into multiples of 100, 10 & 1 in different ways

Year Group	Rapid Recall	Mental Strategies
4	**Children should be able to recall rapidly:**	**Children should be able to use the following strategies, as appropriate, for mental calculations**
	- know by heart all multiplication facts up to 10x10; and derive quickly all corresponding division facts; - recognise multiples of numbers up to the 10^{th} multiple.	- Count back in repeated steps of 1, 10 and 100; - Count through the nearest multiple of 10, 100 or 1000; - Reorder numbers in a calculation; - Add 3 or 4 small numbers, finding pairs totalling 10; - Add three two-digit multiples of 10; - Partition in to tens and units, adding the tens first; - Bridge through 100; - Use knowledge of number facts and place value to add or subtract any pair of three-digit numbers; - Use knowledge of addition and subtraction facts and place value to derive sums and differences of pairs of multiples of 10, 100 or 1000 - Add or subtract 9,19,29,11,21 or 31 by rounding and compensating; - Add or subtract the nearest multiple of 10, then adjust; - Identify near doubles; - Continue to use the relationship between addition and subtraction; - Identify the doubles of two-digit numbers; use these to calculate doubles of multiples of 10 and 100 and derive the corresponding halves - Double any two-digit number by doubling the tens first; - Use known number facts and place value to multiply or divide, including multiplying and dividing by 10 and then 100; - Partition to carry out multiplication; - Use closely related facts to carry out multiplication and division; - Use the relationship between multiplication and division. - Use knowledge of rounding, number operations and inverses to estimate and check calculations - Identify pairs of fractions that total 1 - Recognise and continue number sequences (counting on and back in steps of constant size - Add or subtract mentally pairs of 2 digit whole numbers - Multiply and divide numbers to 1000 by 10, then 100 (whole number answers) - Find fractions of numbers, quantities or shapes (e.g 1/2, 3/8)

Year Group	Rapid Recall	Mental Strategies
5	**Children should be able to recall rapidly:**	**Children should be able to use the following strategies, as appropriate, for mental calculations**
	- Multiplication facts to 10x10; - Division facts corresponding to tables up to 10x10. - Use these to multiply pairs of multiples of 10, 100 -	- Count through the next multiple of 10, 100 or 1000; - Reorder numbers in a calculation; - Partition into hundreds, tens and units, adding the most significant digit first; - Use known number facts and place value to add or subtract pairs of three-digit multiples of 10 and two-digit numbers with one decimal place; - Add or subtract the nearest multiple of 10 or 100 then adjust; - Identify near doubles; - Add several numbers; - Develop further the relationship between addition and subtraction; - Identify pairs of factors of two-digit whole numbers and find common multiples (e.g. for 6 and 9) - Partition to carry out multiplication; - Use doubling and halving; - Use closely related facts to carry out multiplication and division; - Use the relationship between multiplication and division; - Use knowledge of number facts and place value to multiply or divide. - Multiply and divide decimals by 10 or 100 and integers by 1000, explain the effect. - Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations - Use knowledge of place value and addition and subtraction to derive quickly doubles and halves of two-digit decimals eg 3.8x2, 0.76x2 - Count from any given number in whole number and decimal steps. Extend beyond zero when counting backwards. Relate these numbers to their position on a number line - multiply two digit number by one digit number, to multiply by 25, to subtract one near multiple of 1000 from another

Year Group	Rapid Recall	Mental Strategies
6	**Children should be able to recall rapidly:**	**Children should be able to use the following strategies, as appropriate, for mental calculation:**
	- Use knowledge of place value and multiplication facts to 10 × 10 to derive related multiplication and division facts involving decimals (e.g. 0.8 × 7, 4.8 ÷ 6) - Use knowledge of multiplication facts to quickly derive squares of numbers to 12 × 12 and the corresponding squares of multiples of 10	- Consolidate all strategies from previous years; - Use knowledge of number facts and place value to add or subtract pairs of three-digit multiples of 10 and two-digit numbers with one decimal place. - Add or subtract the nearest multiple of 10, 100 or 1000 then adjust; - Continue to use the relationship between addition and subtraction; - Use factors; - Partition to carry out multiplication; - Use doubling and halving; - Use closely related facts to carry out multiplication and division; - Use the relationship between multiplication and division; - Use knowledge of number facts and place value to multiply or divide. - Recognise that prime numbers have only two factors, identify prime numbers less than 100; find the prime factors of two-digit numbers - Use approximations, inverse operations and tests of divisibility to estimate and check results - Find the difference between a positive and negative integer / or 2 negative integers IN CONTEXT - Calculate TU multiplied/divided by U U.t multiplied/divided by U

Signed: 	**Signed:** 
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