KIWI PRIMARY SCHOOL CALCULATION POLICY

Calculation Policy 2024-25

The following Calculation Policy has been largely adapted from the White Rose Maths Calculation Policy, with additional material from NCTEM and Third Space Learning, and meets requirements of the National Curriculum 2014 for the teaching and learning of mathematics, in accordance with an increased emphasis on fluency and mastery of concepts.

It is designed to provide pupils with a clear and smooth progression of learning through KSI and KS2 and ensure that the teaching of calculation methods remains consistent across the 4 operations of addition, subtraction, multiplication and division. The consistent use of the CPA (concrete, pictorial, abstract) approach helps children develop mastery across all the operations in an efficient and reliable way. This policy shows how these methods develop children's confidence in their understanding of both written and mental methods.

The school calculation policy builds progressively from the content and methods established in EYFS, with a recognition that concrete and pictorial representations of problems continue to play a valuable role throughout all key stages.

Age-stage expectations - The calculation policy is organised according to age-stage expectations as set out in the National Curriculum (2014); however, we recognise that pupils need to be taught at an appropriate level 'based on the security of pupil's understanding and their readiness to progress to the next stage' (National Curriculum). This 'readiness to progress' is a clear focus at this challenging time and there will be a clear emphasis on recapping and reviewing methods from previous years where needed.

Context for calculation - It is crucial that children are given real-life contexts and problems in which to use and apply their calculation methods. Children subsequently develop a more secure understanding of the purpose of calculations and learn to choose their operations with accuracy. This is a priority in an increasingly-challenging curriculum, with its focus on mastery.

Choosing a calculation Method - Children must be taught and encouraged to use a simple process in deciding what approach to take to a calculation, ensuring that they select the most appropriate method for the problem, whether mental or written. Children need to be comfortable with a wide variety of strategies and representations in order to demonstrate this.

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Key Vocabulary Progression Chart

EYFS	
Number & Place Value	Number , zero, one, two, three to twenty, none, count (on/up/to/from/down), before, after, more, less, least, greater, ones, tens, numeral
Addition & Subtraction	Number bonds, number line, add, more, plus, make, sum, total, altogether, inverse, double, half, subtract, take away, minus
Year 1	
Number & Place Value	Zero, one, two, three to twenty, and beyond, many, few, fewer, fewest, smallest, lesser , equal to, the same as , odd, even, pair, ten more/less, digit, figure(s), compare (In) order/a different order, size, value, between, halfway between, above, below
Addition & Subtraction	Near doubleHalve Equals, is the same as (including equals sign) Difference between How many more to make...? How many more is...than...? How much more is...? How many fewer is...than.? How much less is...?
Multiplication & Division	Odd, even Count in twos, threes, fives Count in tens (forwards from/backwards from) How many times? Lots of, groups of Once, twice, three times, five times Multiple of, times, multiply, Repeated addition Double, halve Share, share equally Group in pairs, threes, etc. Equal groups of Divide, left, left over
Year 2	
Number & Place Value	Numbers to one hundred Hundreds Partition, recombine Hundred more/less
Four Operations	Array, row, column Multiply by Divided by Inverse
Year 3	
Number & Place Value	Numbers to one thousand
Addition & Subtraction	Column addition and subtraction

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Multiplication & Division	Product Multiples of four, eight, fifty and one hundred
Year 4	
Number & Place Value	Tenths, hundredths Decimal (places) Round (to nearest) Thousand more/less than Negative integers Count through zero Roman numerals (I to C)
Multiplication & Division	Multiplication facts (up to 12x12) Division facts Inverse Derive
Year 5	
Number & Place Value	Powers of 10
Addition & Subtraction	Efficient written method
Multiplication & Division	Factor pairs Composite numbers, prime number, prime factors, square number, cubed number Formal written method
Year 6	
Number & Place Value	Numbers to ten million
Addition & Subtraction	Order of operations BIDMAS (Brackets, Indices, Division, Multiplication, Addition, Subtraction)
Multiplication & Division	Order of operations BIDMAS (Brackets, Indices, Division, Multiplication, Addition, Subtraction)Common factors, common multiples

Kiwi Primary School Calculation Policy: ADDITION

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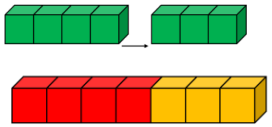
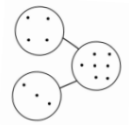
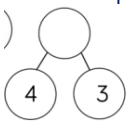
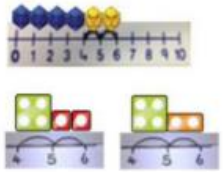
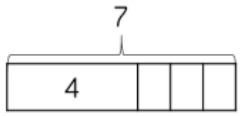
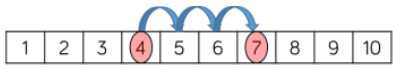
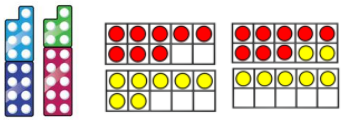
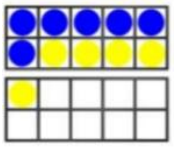
Year 1
Representation models used in year 1 : Part-whole, bar model, ten frames, numberlines

Objective/Strategy	Concrete	Pictoral	Abstract
Combining two parts to make a whole	Use cubes, objects or Numicon to add two numbers together. 	Represent cubes using dots on a representation (bar model/part whole). 	4 + 3 = 7 Four is a part, three is a part, the total is 7 
Counting on using a number lines	Use of manipulatives alongside a number line. 	Use a bar model. This encourages count on rather than counting all. 	Use of abstract number line. Consider what 3 more is than___. The sum of____and ____is. 
Regrouping to make ten	Use of ten frames and cubes and numicon 	Use ten frames templates and draw dots for representations 	Develop understanding of equality. $6 + \square = 11$ $6 + 5 = 5 + \square$ $6 + 5 = \square + 4$

STEM Sentences	The whole is_____so_____ is part and _____is a part _____is a part and_____is a part so_____is the whole The total of_____and_____is_____.

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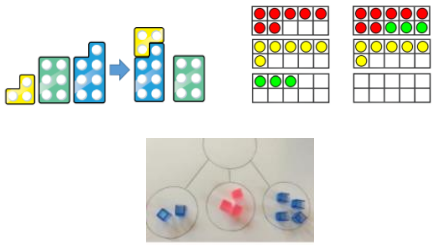
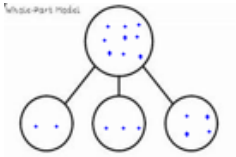
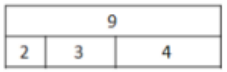
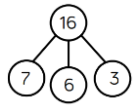
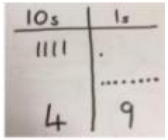
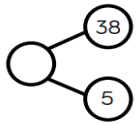
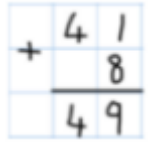
Year 2

Representation models used in year 2 : Part-whole, bar model, number line, ten frame, base 10 (dienes), place value chart

Objective/Strategy	Concrete	Pictoral	
Adding 3 single digit numbers	Use concrete resources – link to 3 part whole model and bar model 	Represent the number using dots in a part-whole model and bar model 	2 + 3 + 4 = ? Use known number fact knowledge to support  
A two digit number plus ones	Use of manipulatives to develop understanding of partitioning and place value. 	Represent resources using lines for tens and circles for ones. 	Answer a question using partitioning and column addition  
Two digit number plus a two digit number	Use of manipulatives to develop understanding of partitioning and place value.	Represent resources in a place value chart	Answer a question by using their knowledge of partitioning and bonds to ten.

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	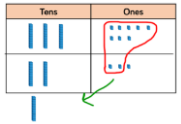	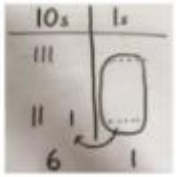	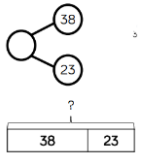  30 + 20 = 50 5 + 5 = 10 50 + 10 + 1 = 61
STEM Sentences	The whole is_____ so _____ is a part and _____ is a part. _____ is a part and _____ is a part so _____ is a whole. The total of _____ and _____ is _____.		

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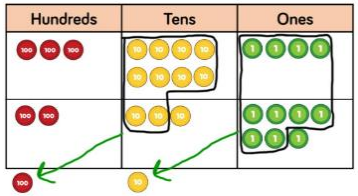
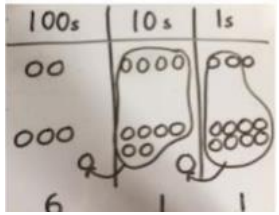
Year 3

Representation models used in year 3 : Place value counters, place value chart, column addition

Objective/Strategy	Concrete	Pictoral	
Use of place value counters to add HTO + **TO, HTO + HTO**	When there are 10 ones in the 1s column – we exchange for 1 ten; when there are 10 tens in the 10s column – we exchange for 1 hundred. 	Children to represent the counters in a place value chart, circling when they make an exchange. 	Formal Method: numbers carried over placed underneath. 384 + 237 621 1 1

STEM Sentences	
	The whole is_____ so _____ is a part and _____ is a part **(The whole is 10 so 6 is a part and 4 is a part)** **____ is a part and ____ is a part so ____ is a whole** **(7 is a part and 3 is a part so 10 is the whole)**

	The total of ____ and ____ is ____. **The sum of ____ and ____ is ____.**

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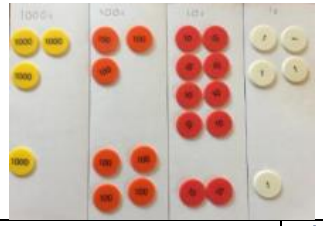
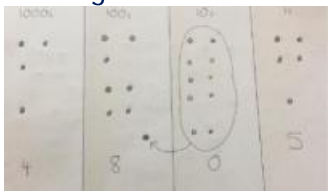
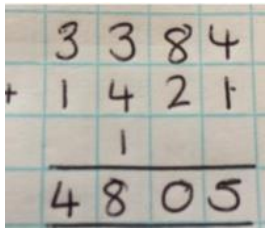
Year 4

Representation models used in year 4 : Place value counters, place value chart, column addition

Objective/Strategy	Concrete	Pictoral	
Use of place value counters to add ThHTO + TO, ThHTO + HTO, ThHTO + ThHTO etc	Use of place value counters to When there are 10 ones in the 1s column – we exchange for 1 ten; when there are 10 tens in the 10s column – we exchange for 1 hundred; when there are 10 hundreds in the 100s column – we exchange for 1 thousand. 	Children to represent the counters in a place value chart, circling when they make an exchange. 	Formal method 

STEM Sentences	
	The whole is_____ so _____ is a part and _____ is a part (The whole is 10 so 6 is a part and 4 is a part) ____ is a part and ____ is a part so ____ is a whole (7 is a part and 3 is a part so 10 is the whole) The total of ____ and ____ is ____. The sum of ____ and ____ is ____.

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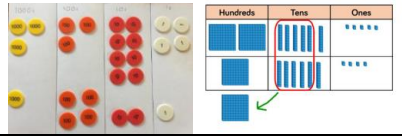
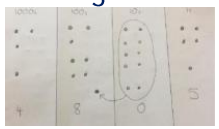
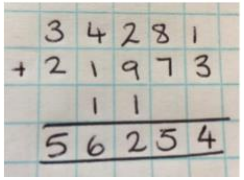
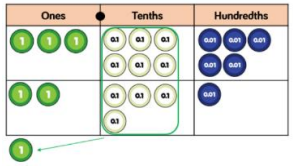
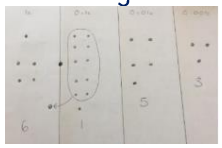
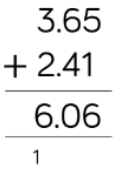
Year 5

Representation models used in year 5 : Place value counters,place value denes, place value chart, column addition

Objective/Strategy	Concrete	Pictoral	
Use of place value counters to add integers	Use of place value counters to: When there are 10 ones in the 1s column – we exchange for 1 ten; when there are 10 tens in the 10s column – we exchange for 1 hundred; when there are 10 hundreds in the 100s column – we exchange for 1 thousand. When there are 10 thousands in the thousands column we exchange for 10 thousand. 	Children to represent the counters in a place value chart, circling when they make an exchange. 	Formal Method 
Use of place values to add decimals up to 3 d.p (same number of decimal places.	Exchange counters for the next base 10 unit. 	Children to represent the counters in a place value chart, circling when they make an exchange. 	Formal Method 

STEM Sentences	
	The whole is_____ so _____ is a part and _____ is a part (The whole is 10 so 6 is a part and 4 is a part) ____ is a part and ____ is a part so ____ is a whole (7 is a part and 3 is a part so 10 is the whole) The total of ____ and ____ is ____. The sum of ____ and ____ is ____.

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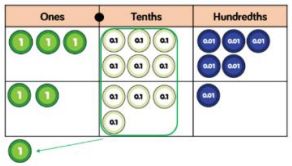
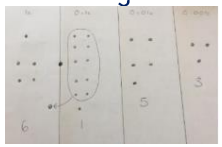
Year 6

Representation models used in year 6 : Place value counters, place value denes, place value chart, column addition

Objective/Strategy	Concrete	Pictoral	
Use of place values to add decimals up to 3 d.p (different number of decimal places.	Exchange counters for the next base 10 unit. 	Children to represent the counters in a place value chart, circling when they make 	Formal Method 3.65 + 2.41 6.06 1

STEM Sentences	The whole is_____ so _____ is a part and _____ is a part (The whole is 10 so 6 is a part and 4 is a part) ____ is a part and ____ is a part so ____ is a whole (7 is a part and 3 is a part so 10 is the whole) The total of ____ and ____ is ____. The sum of ____ and ____ is ____.