Trewirgie Infant's School Calculation Policy

Foundation Stage		
In Foundation Stage, children will be given a really solid foundation in the basic building blocks of mental and practical arithmetic. Providing children with the opportunity to improve their skills in counting, understanding and using numbers and calculating simple addition and subtraction problems.		
<u>Number:</u> A focus on number recognition throughout the foundation stage. This involves children identifying which symbol represents each number and what that number actually means. By the end of Foundation Stage children should recognise and order numbers to 20 in order for them to use in calculation work in Year 1.	**<u>Addition and subtraction</u>: Children should have confidence with number facts to 20. They are taught to identify one more or one less than any given number. Children are given simple strategies to carry out basic addition/subtraction problems in a practical sense, and to understand and use the vocabulary relating to these functions by the end of their final year.**	**<u>Multiplication and division:</u> Children are taught the basic skills of doubling and halving in a practical sense.**

Foundation Stage	
	Mental calculation
FS ***30-50***	Uses some number names and number language spontaneously. • Uses some number names accurately in play. • Recites numbers in order to 10. • Knows that numbers identify how many objects are in a set. • Beginning to represent numbers using fingers, marks on paper or pictures. • Sometimes matches numeral and quantity correctly. • Shows curiosity about numbers by offering comments or asking questions. • Compares two groups of objects, saying when they have the same number. • Shows an interest in number problems. • Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same. • Shows an interest in numerals in the environment. • Shows an interest in representing numbers. • Realises not only objects, but anything can be counted, including steps, claps or jumps.

FS ***40-60*** **+**	• Recognise some numerals of personal significance. • Recognises numerals 1 to 5. • Counts up to three or four objects by saying one number name for each item. • Counts actions or objects which cannot be moved. • Counts objects to 10, and beginning to count beyond 10. • Counts out up to six objects from a larger group. • Selects the correct numeral to represent 1 to 5, then 1 to 10 objects. • Counts an irregular arrangement of up to ten objects. • Estimates how many objects they can see and checks by counting them. • Uses the language of 'more' and 'fewer' to compare two sets of objects. • Finds the total number of items in two groups by counting all of them. • Says the number that is one more than a given number. • In practical activities and discussion, beginning to use the vocabulary involved in adding. • Records, using marks that they can interpret and explain. • In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting. .

FS 40-60 -	- Finds one more or one less from a group of up to five objects, then ten objects. - In practical activities and discussion, beginning to use the vocabulary involved in subtracting. - In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting.	
FS ELG +	Children count reliably with numbers from 1 to 20, place them in order and say which number is one more than a given number. Using quantities and objects, they add two single-digit numbers and count on to find the answer. They solve problems, including doubling.	
FS ELG -	Children count reliably with numbers from 1 to 20, place them in order and say which one less than a given number. Using quantities and objects, two single-digit numbers and count to find the answer. They solve problems halving and sharing.	
FS ELG X	Children solve problems involving doubling.	
FS ELG ÷	Children solve problems involving halving and sharing.	

KEY STAGE 1

Children in Years 1 and 2 will be given a really solid foundation in the basic building blocks of mental and written arithmetic. Through being taught place value, children will develop an understanding of how numbers work, so that they are confident with 2-digit numbers and beginning to read and say numbers above 100.

Addition and Subtraction: A focus on number bonds, first via practical hands-on experiences and subsequently using memorisation techniques, enables a good grounding in these crucial facts, and ensures that all children leave Year 2 knowing the pairs of numbers which make all the numbers up to 10 at least. Children will also have experienced and been taught pairs to 20. Children's knowledge of number facts enables them to add several 1-digit numbers, and to add/subtract a 1-digit number to/from a 2-digit number. Another important conceptual tool is the ability to add/subtract 1 or 10, and to understand which digit changes and why. This understanding is extended to enable children to add and subtract multiples of 10 to and from any 2-digit number. The most important application of this knowledge is the ability to add or subtract any pair of 2-digit numbers by counting on or back in 10s and 1s. Children may extend this to adding by partitioning numbers into 10s and 1s.	**Multiplication and Division:** Children will be taught to count in 2s, 3s, 5s and 10s, and will relate this skill to repeated addition. Children will meet and begin to learn the associated ×2, ×3, ×5 and ×10 tables. Engaging in a practical way with the concept of repeated addition and the use of arrays enables children to develop a preliminary understanding of multiplication, and asking them to consider how many groups of a given number make a total will introduce them to the idea of division. Children will also be taught to double and halve numbers, and will thus experience scaling up or down as a further aspect of multiplication and division.	**Fractions:** Fractions will be introduced as numbers and as operators, specifically in relation to halves, quarters and thirds.

Year 1

	Mental calculation	Written calculation	Default for ALL children
Y1 +	Number bonds ('story' of 5, 6, 7, 8, 9 and 10) Count on in 1s from a given 2-digit number Add two 1-digit numbers Add three 1-digit numbers, spotting doubles or pairs to 10 Count on in 10s from any given 2-digit number Add 10 to any given 2-digit number Use number facts to add 1-digit numbers to 2-digit numbers e.g. *Use 4 + 3 to work out 24 + 3, 34 + 3* Add by putting the larger number first To be able to partition 2 digit numbers and know the place value of the digits up to 99	+ and = symbols Numbered number lines: drawing jumps forward on prepared lines Constructing own number lines Use of pictures and marks (e.g. draw 3 pears, draw 4 more, how many altogether?) To write numbers 0-99	Pairs with a total of 10 Count in 1s Count in 10s Count on 1 from any given 2-digit number

Y1 **–**	Number bonds ('story' of 5, 6, 7, 8, 9 and 10) Count back in 1s from a given 2-digit number Subtract one 1-digit number from another Count back in 10s from any given 2-digit number Subtract 10 from any given 2-digit number Use number facts to subtract 1-digit numbers from 2-digit numbers e.g. *Use 7 – 2 to work out 27 – 2, 37 – 2* To be able to partition 2 digit numbers and know the place value of the digits up to 99	Use of pictures and marks to cross off items - and = symbols Numbered number lines: drawing jumps backward on prepared lines Constructing own number lines To write numbers 0-99	Pairs with a total of 10 Count back in 1s from 20 to 0 Count back in 10s from 100 to 0 Count back 1 from any given 2-digit number
Y1 **×**	Begin to count in 2s, 5s and 10s Begin to say what three 5s are by counting in 5s, or what four 2s are by counting in 2s, etc. Double numbers to 10 To be able to partition 2 digit numbers and know the place value of the digits up to 99	Use of pictures and marks (eg. 4 bags with 3 sweets in each) To write numbers 0-99	Begin to count in 2s and 10s Double numbers to 5 using fingers
Y1 **÷**	Begin to count in 2s, 5s and 10s Find half of even numbers to 12 and know it is hard to halve odd numbers Find half of even numbers by sharing Begin to use visual and concrete arrays or 'sets of' to find how many sets of a small number make a larger number To be able to partition 2 digit numbers and know the place value of the digits up to 99	Use of pictures and marks (eg. 4 children get into teams of 2 – how many in each team). To write numbers 0-99	Begin to count in 2s and 10s Find half of even numbers by sharing

Year 2			
	Mental calculation	**Written calculation**	**Default for ALL children**
Y2 +	Number bonds – know all the pairs of numbers which make all the numbers to 20 Count on in 1s and 10s from any given 2-digit number Add two or three 1-digit numbers Add a 1-digit number to any 2-digit number using number facts, including bridging multiples of 10 e.g. *45 + 4* e.g. *38 + 7* Add 10 and small multiples of 10 to any given 2-digit number Add any pair of 2-digit numbers To be able to partition 2 digit numbers and know the place value of the digits up to 99	+ and = symbol Missing number problems Using number squares and number lines – marking addition by counting on.	Know pairs of numbers which make each total up to 10 Add two 1-digit numbers Add a 1-digit number to a 2-digit number by counting on in 1s Add 10 and small multiples of 10 to a 2-digit number by counting on in 10s
Y2 –	Number bonds – know all the pairs of numbers which make all the numbers to 12 Count back in 1s and 10s from any given 2-digit number Subtract a 1-digit number from any 2-digit number using number facts, including bridging multiples of 10 e.g. *56 – 3* e.g. *53 – 5* Subtract 10 and small multiples of 10 from any given 2-digit number Subtract any pair of 2-digit numbers by counting back in 10s and 1s or by counting up To be able to partition 2 digit numbers and know the place value of the digits up to 99	- and = symbols Missing number problems Using number squares and number lines – marking backwards, forwards.	Know pairs of numbers which make each total up to 10 Subtract a 1-digit number from a 2-digit number by counting back in 1s Subtract 10 and small multiples of 10 from a 2-digit number by counting back in 10s

Y2 **×**	Count in 2s, 5s and 10s Begin to count in 3s Begin to understand that multiplication is repeated addition and to use arrays e.g. *3 × 4 is three rows of 4 dots* Begin to learn the ×2, ×3, ×5 and ×10 tables, seeing these as 'lots of' e.g. *5 lots of 2, 6 lots of 2, 7 lots of 2* Double numbers up to 20 Begin to double multiples of 5 to 100 Begin to double 2-digit numbers less than 50 with 1s digits of 1, 2, 3, 4 or 5 To be able to partition 2 digit numbers and know the place value of the digits up to 99	X and = symbols Missing number problems Arrays Simple grid method Use of pictures (e.g. 4 bags, with 3 sweets in each)	Count in 2s, 5s and 10s Begin to use and understand simple arrays e.g. *2 × 4 is two lots of four* Double numbers up to 10 Double multiples of 10 to 50
Y2 **÷**	Count in 2s, 5s and 10s Begin to count in 3s Using fingers, say where a given number is in the 2s, 5s or 10s count e.g. *8 is the fourth number when I count in 2s* Relate division to grouping e.g. *How many groups of 5 in 15?* Halve numbers to 20 Begin to halve numbers to 40 and multiples of 10 to 100 Find $^1/_2$, $^1/_3$, $^1/_4$ and $^3/_4$ of a quantity of objects and of amounts (whole number answers) To be able to partition 2 digit numbers and know the place value of the digits up to 99	÷ and = symbols Missing number problems. Use of pictures (e.g. 10 sweets shared between 2 children – group into 2's)	Count in 2s, 5s and 10s Say how many rows in a given array e.g. *How many rows of 5 are in an array of 3 × 5?* Halve numbers to 12 Find $^1/_2$ of amounts