



KS1 Maths Calculations Framework



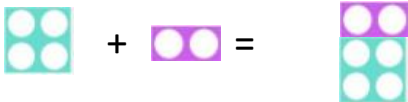
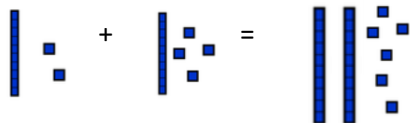
Progression of Methods for Addition, Subtraction, Multiplication and Division

Maths is taught every day at Brookfield. Children receive one formal lesson each day as well as Maths skills being woven in throughout the day in songs, rhymes and cross curricular activities.

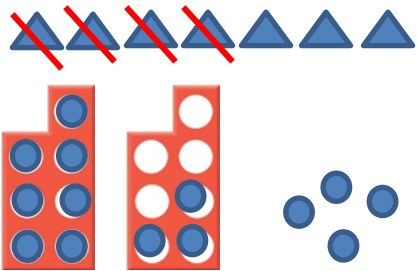
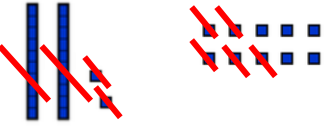
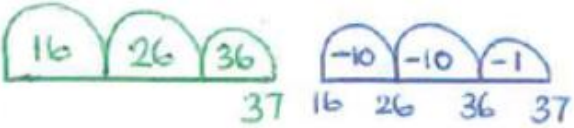
To help aid our children's Mental Maths they work their way through a series of Maths Challenges. These are short 5 minute timed challenges that move from number bonds through to times tables.

We aim to use a variety of practical, visual, auditory and written methods of teaching, whilst also encouraging children to explore and problem solve Maths for themselves

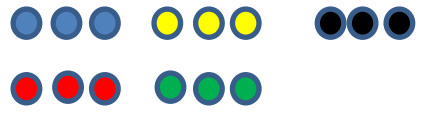
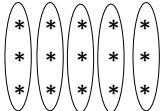
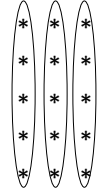
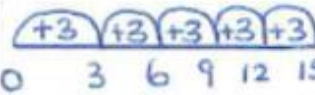
We develop the children's reasoning skills by providing them with opportunities to apply and 'master' the skills they have learnt in a variety of real life problems, deepening their understanding as well as encouraging them to explain 'how they know'.

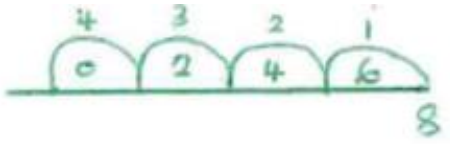
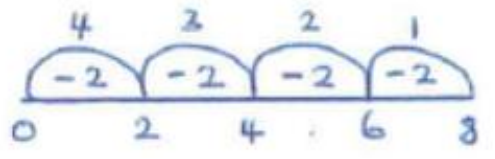
KS1 - ADDITION			
Year Group	Progression	What it looks like....	Further guidance
Reception and Year 1	Children are taught to use a range of manipulatives including everyday objects, counters, Numicon and coins to combine to find a total.	$4 + 2 = 6$  	Ensure that children understand that you are joining two sets of objects to find out how many altogether. Children may begin to understand that addition can be done in any order and the answer will still be the same.
Year 2	Children are taught to use tens and ones visuals to support their understanding of place value when adding with 2-digit numbers.	$12 + 14 = 26$ 	We sometimes call these chips and peas. <i>Some children will continue to use this method throughout Yr2.</i>
	Children move onto learning how to formally record their work using number lines. Manipulatives are used alongside this formal written method. <i>They are taught to add the ones first to prepare them for column addition in KS2.</i>	Adding 1-digit numbers: $4 + 2 =$  Adding three 1-digit numbers: $4 + 2 + 3 =$  Adding TO + O: $14 + 5 =$  Adding TO + TO $14 + 12 =$ 	Children will know that the answer will be larger. Children will understand that addition can be done in any order and the answer will still be the same. $4 + 2 = 6$ or $2 + 4 = 6$ Children must have secure knowledge of place value and be able to confidently partition the tens and ones. ← <i>(Green examples show how children's recordings will begin. Blue examples is how they should be recording by the end of the year).</i>

KS1 - SUBTRACTION

Year Group	Progression	What it looks like....	Further guidance
Reception and Year 1	Children are taught to subtract by taking away from a range of manipulatives including everyday objects, counters, Numicon and coins	$7 - 4 = 3$ 	Children understand that the answer becomes smaller. Children may begin to understand that the larger number must go first in the number sentence.
Year 2	Children are taught to use tens and ones visuals to support their understanding of place value when subtracting with 2-digit numbers. They are also taught to	$14 + 12 = 2$  Exchanging: <i>There are not enough ones in the first number to subtract so you must exchange 1 ten for 10 ones.</i> $22 - 17 =$ 	We sometimes call these chips and peas. <i>Some children will continue to use this method throughout Yr2.</i>
	Children move onto learning how to formally record their work by counting back on a number line. Manipulatives are used alongside this formal written method. Children will also be taught to count on the find the difference if the numbers are close together (eg. $17 - 15$). <i>They are taught to take away the ones first to prepare them for column subtraction in KS2.</i>	Subtracting 1-digit numbers: $7 - 4 =$  Subtracting TO - O: $17 - 4 =$  Subtracting TO - TO: $37 - 21 =$ 	Children will know that the answer will be smaller. Children will understand that subtraction cannot be done in any order. The larger number must go first. Children must have secure knowledge of place value and be able to confidently partition the tens and ones. ← <i>(Green examples show how children's recordings will begin. Blue examples is how they should be recording by the end of the year).</i>

KS1 - MULTIPLICATION

Year Group	Progression	What it looks like....	Further guidance
Reception and Year 1	Children are taught to multiply by using repeated addition followed by grouping using a range of manipulatives including everyday objects, counters, Numicon and coins. Children are taught the 2x, 5x, and 10x tables.	 $3 + 3 + 3 + 3 + 3 = 15$ $5 \times 3 = 15$	Children understand that the answer becomes larger. Children may begin to understand that multiplication is commutativity (the numbers can go in any order and the answer will still be the same). $5 \times 3 = 15$ or $3 \times 5 = 15$
Year 2	Children move onto learning how to formally record their work by using arrays and repeated addition on a number line. Manipulatives are used alongside this formal written method. Children are taught the 2x, 5x, 10x and 3x tables. <i>Children will use arrays and repeated addition in Year 2 (often independently choosing the method they prefer).</i>	$5 \times 3 =$ (5 groups of 3 or 3 groups of 5) Arrays:  $5 \times 3 = 15$  $3 \times 5 = 15$ Number Line:    	Children understand that the answer becomes larger. Children will understand the numbers can go in any order and the answer will still be the same. $5 \times 3 = 15$ or $3 \times 5 = 15$  <i>(Green examples show how children's recordings will begin. Blue examples is how they should be recording by the end of the year).</i>

KS1 - DIVISION			
Year Group	Progression	What it looks like....	Further guidance
Reception Year 1	Children are taught to divide using repeated subtraction moving onto sharing into groups, which we call a sharing bar using a range of manipulatives including everyday objects, counters, Numicon and coins	$8 \div 2 =$   4 4	Children understand that the number becomes smaller. Children will understand that all groups must be equal. Children may begin to understand that the larger number must go first in the number sentence.
Year 2	Children move onto learning how to formally record their work by using arrays and repeated subtraction on a number line. Manipulatives are used alongside this formal written method. Towards the end of Year 2, children will be introduced to finding remainders. Arrays and repeated subtraction will be used and the remainders noticed (unequal groups/arrays, being unable to reach 0 on the number line). <i>Children will use sharing groups/bubbles and repeated subtraction in Year 2 (often independently choosing the method they prefer).</i>	$8 \div 2 =$ Arrays: <pre> * * * * * * * * 4 4 </pre> Number Line:  	Children understand that the number becomes smaller. Children will understand that the larger number must go first in the number sentence. ← (Green examples show how children's recordings will begin. Blue examples is how they should be recording by the end of the year).