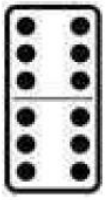
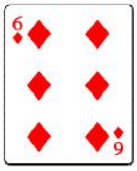
EYFS Calculation Policy

A key priority of any Primary School Maths curriculum is to ensure that children develop a strong sense of number and place value. "Mathematics plays a key role in a child's development. Mathematical understanding helps children make sense of the world around them, interpret situations and solve problems in everyday life." (*Improving Mathematics in the Early Years and Key Stage 1*, EEF). Children will continually encounter numbers in the world around them, whether that be on a bus they see in the street or on their front door at home. But the ability to recognise the symbol 5, and name it, is very different from understanding the 'fiveness' of it, and it is the development of this latter skill that is crucial to a child's mathematical ability.

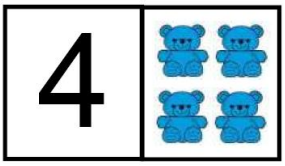
It is also important to recognise that just because a child can recite number names in order, this does not necessarily mean that they can count. As with learning the alphabet, children can recall a sequence of numbers by rote without any real grasp of understanding of what they mean (hence young children often omit numbers as they count). Gaining familiarity with number names through songs and rhymes is of course helpful, but emphasis should also be placed on helping children make links between these number names and the number of objects they equate to.

An intuitive sense of number begins at a very early age, and even before they start school, many children can identify one, two or three objects in a group, regardless of whether they can count. This ability to instantly compute the total in a small group of objects (subitising) derives from stable, mental images of number which have developed over time from a variety of experiences with different patterns of number. For example, a child might immediately recognise the 6 on a dice, domino piece or playing card:

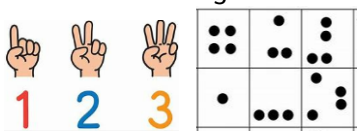
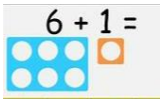
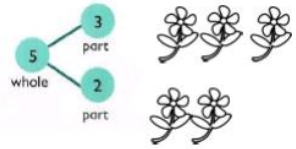
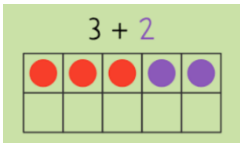
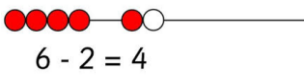
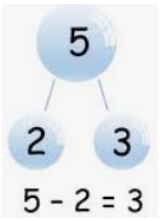
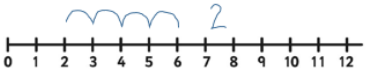
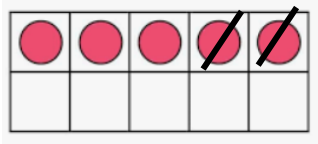
It is possible that the child has memorised this familiar arrangement of 6 dots. Alternatively, they may have mentally sub-grouped them into two sets of 3, fostering an understanding that a number can be composed of smaller parts. In both cases, no actual counting of objects is involved; instead, the child has relied on other mental strategies.

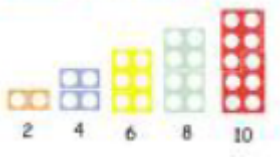
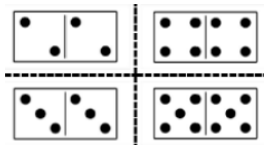
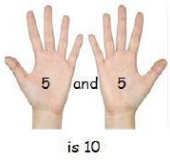
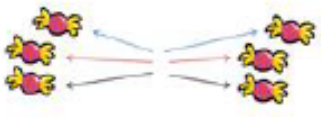
In the Early Years Foundation Stage, as well as teaching the children to count objects, significant attention is given to cultivating number recognition and the development of mental representations. In order to do this, much of their experience with number play in the early years will involve concrete, movable objects used in activities built around meaningful and real-life situations. This also enhances their greater depth knowledge of number/ Maths Mastery and supports them to solve more complex answers as their understanding improves and to develop their reasoning skills of why/how they know a particular answer.

At Kilburn Infant and Nursery School, our children begin their number journey in Nursery and Reception using CLIC Maths. This is a strong, yet simple tool to help children learn the basic skills needed for all future mathematical learning. We then use the White Rose Maths planning in Reception and KS1 as a basis for our Maths curriculum to provide our children with all the tools they need to thrive with their Maths learning.

Below is a guide to what we teach our children in the Early Years Foundation Stage to develop each aspect of calculation – Addition, Subtraction, Multiplication and Division.

Addition	Subtraction
Vocabulary: Add, more, make, sum, total, altogether, one more, two more, ten more, how many more to make..?, how many more is...than...?	**Vocabulary:** Take (away), leave, how many are left/left over?, how many have gone? one less, two less, ten less, how many fewer is..than...?
Activities: Oral and practical work Songs and rhymes   Dice and number games ICT programs e.g. Topmarks, ICT games Subitising – recognising how many in a group without counting  1:1 correspondence with recognition that the numeral matches the number of objects there are. Relate to what the number looks like   Finding one more than a given number practically using objects or a number line  Using Numicon or objects to add 2 groups together by counting all or counting on   Use part-part-whole method to understand composition and conversion of number sums  2 + 3 = 5 3 + 2 = 5 Learning number bonds to 10  Addition number stories e.g. First there were 3 people on the bus. Then 2 more got on. Now there are 5 people on the bus altogether.  Problem solving/challenge questions to further develop reasoning skills	**Activities**: Oral and practical work Songs and rhymes    Dice and number games ICT games programs e.g. Topmarks, ICT games Counting back and beginning to use a number line.  Finding one less than a given number practically using objects or by crossing out pictures   Using Numicon or objects to subtract amounts. How many are there? How many are left? (after some have been removed)   Use part-part-whole method to support take away understanding and make links to known additions  **2 + 3 = 5** **5- 2 = 3** Beginning to use a number line to count back  Subtraction number stories e.g. First there were 5 people on the bus. Then 2 got off. Now there are 3 people left on the bus.  Problem solving/challenge questions to further develop reasoning skills

Multiplication	Division
Vocabulary: Counting in ones, twos, fives, tens, double, lots of, groups of, times, multiply, repeated addition	**Vocabulary:** Halve, share, share equally, one each, two each, three each, equal groups of, left, left over
Activities: Practical activities, songs and rhymes ICT programs e.g. Topmarks, ICT games Counting/chanting in 2's, 5's, 10's  Matching pairs e.g. socks  Finding doubles e.g. dominoes, fingers, ladybird spots   Counting objects in repeated sets  Using Numicon to begin counting in repeated sets (repeated addition)  Multiplication problems set in a real-life context. Encourage visualising the problem using real objects e.g. How many fingers on two hands? How many sides on three triangles? How many legs on four ducks? Encourage reading numbers sentences aloud in different ways, e.g. 5 groups of 2 makes 10, 10 is the same as 5 groups of 2 Problem solving/challenge questions to further develop reasoning skills	**Activities:** Practical activities, songs and rhymes. ICT programs e.g. Topmarks, ICT games Halving objects / matching 2 halves of shapes  Sharing objects practically  Making use of everyday situations – sharing fruit out at snack time, sharing sweets with a friend  In the role play area – sharing objects in a practical way – e.g. sharing out cutlery and crockery items for setting a table, sharing out biscuits onto plates  Division problems set in a real-life context. Use objects to support children's understanding e.g. I have 10 sweets. If I share them with my friend, how many will we have each?  Problem solving/challenge questions to further develop reasoning skills

Early Years Outcomes

Birth to 3

- Combine objects like stacking blocks and cups. Put objects inside others and take them out again.
- Take part in finger rhymes with numbers.
- React to changes of amounts in a group of up to three items.
- Compare amounts, saying 'lots', 'more' or 'same'.
- Counting-like behaviour, such as making sounds, pointing or saying some numbers in sequence.
- Count in everyday contexts, sometimes skipping numbers - '1-2-3-5.'
- Climb and squeezing themselves into different types of spaces.
- Build with a range of resources.
- Complete inset puzzles.
- Compare sizes, weights etc. using gesture and language - 'bigger/little/smaller', 'high/low', 'tall', 'heavy'.
- Notice patterns and arrange things in patterns.

Nursery (3-4 Year Olds)

- Fast recognition of up to 3 objects, without having to count them individually ('subitising').
- Recite numbers past 5.
- Say one number for each item in order: 1,2,3,4,5.
- Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').
- Show 'finger numbers' up to 5.
- Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.
- Experiment with their own symbols and marks as well as numerals.
- Solve real world mathematical problems with numbers up to 5.
- Compare quantities using language: 'more than', 'fewer than'.
- Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'.
- Understand position through words alone – for example, "The bag is under the table," – with no pointing.
- Describe a familiar route.
- Discuss routes and locations, using words like 'in front of' and 'behind'.
- Make comparisons between objects relating to size, length, weight and capacity.
- Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc.
- Combine shapes to make new ones – an arch, a bigger triangle etc.

- Talk about and identifies the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs' etc.
- Extend and create ABAB patterns – stick, leaf, stick, leaf.
- Notice and correct an error in a repeating pattern.

. Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'

Reception (4-5 Year Olds)

- Count objects, actions and sounds.
- Subitise.
- Link the number symbol (numeral) with its cardinal number value.
- Count beyond ten.
- Compare numbers.
- Understand the 'one more than/one less than' relationship between consecutive numbers.
- Explore the composition of numbers to 10.
- Automatically recall number bonds for numbers 0–10.
- Select, rotate and manipulate shapes in order to develop spatial reasoning skills.
- Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.
- Continue, copy and create repeating patterns.
- Compare length, weight and capacity.

Early Learning Goal – Number

- Have a deep understanding of number to 10, including the composition of each number.
- Subitise (recognise quantities without counting) up to 5.
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts

Early Learning Goal – Numerical Patterns

- Verbally count beyond 20, recognising the pattern of the counting system.
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.