Mathematical Development

Educational Programme – statutory guidance

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

We will achieve this by supporting the children to-

- Confident, willing and happy to 'have a go' and use their understanding of numbers and mathematical language every day in purposeful learning opportunities.
- Know how to subitise
- Count reliably
- Recognise the pattern of the counting system
- Understand numbers to 10 and know number facts
- Compare quantities
- Talk about what they have done in maths - explaining their thinking.
- Feel positive about mathematics and see themselves as mathematicians.

EYFS Area of learning	Autumn	Spring	Summer
Number	-Displays fast recognition of up to 3 objects, without having to count them individually ('subitising') -Recites numbers past 5 -Can say one number for each item in order: 1,2,3,4,5 -Knows that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle') -Can show 'finger numbers' up to 5 -Can link numerals and amounts: e.g. showing the right number of objects to match the numeral, up to 5 -Is experimenting with his/her own symbols and marks as well as numerals -Is able to solve real world mathematical problems with numbers up to 5 -Can compare quantities using language such as; 'more than', 'fewer than'	-Counts objects, actions and sounds -Is able to subitise (recognise how many objects there are in a small group without counting) -Is able to link the number symbol (numeral) with its cardinal number value -Can count beyond ten -Is able to compare numbers -Understands the 'one more than/one less than' relationship between consecutive numbers -Is able to explore the composition of numbers to 10 -Begin to automatically recall number bonds for numbers 0-10	-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.
Vocabulary	Count, number, numeral, more than, less than, total, altogether, numeral, number sentence, more, less, same, equal, add, plus, total, altogether, take away, subtract, fewer, double, number bond, part, whole		
How this is covered:	-Counts to 10 -Can subitise up to 3 -Can represent up to 5 using objects, fingers etc -Beginning to write some numerals -Recognises numbers to 5 and some to 10 -Places 1 to 5 in order -Interested in counting objects, movements, claps -Interested in numbers in the environment -Compares small groups of objects	-Subitise to 5 -Counting 1:1 correspondence to 10 -Counting by rote to at least 10 and some numbers to 20 -Writes some recognisable numerals - Can work out one more or one less than to at least 10 using objects, fingers or mentally -Beginning to explore how numbers fit together up to 5, then 10	- Explore how numbers fit together up to 10 -Subitise to 5 -Explore double facts up to 10 -Can recall number bonds for numbers 0-10
Checkpoints	-Subitise to 3. -Represent 1 - 5 on fingers, on a tens frame and with objects. -Recognises numerals to 5 and some to 10 -Accurate 1:1 counting up to 5 objects -Begin to recognise parts within numbers. E.g. -Look at 4 buttons and say "I can see a group of 2 and another group of 2"	-Discuss composition of numbers to 5, showing some automatic recall of number facts. -Confidently subitise to 5 rather than count small groups of objects. -Accurate 1:1 counting up to 10 objects -Begin to composition of numbers up to 10.	ELG - Have a deep understanding of number to 10, including the composition of each number. ELG - Subitise (recognise quantities without counting) up to 5. ELG - 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

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Numerical Patterns	-Can talk about and explore 2D and 3D shapes (e.g. circles, rectangles, triangles and cuboids) using informal and mathematical language; 'sides', 'corners', 'straight', 'flat', 'round' -Understands position through words alone, e.g. "The bag is under the table," - with no pointing -Can describe a familiar route -Is able to discuss routes and locations, using words like 'in front of' and 'behind' -Can make comparisons between objects relating to size, length, weight and capacity -Selects shapes appropriately; flat surfaces for building, a triangular prism for a roof etc -Combines shapes to make new ones; an arch, a bigger triangle etc -Talks about and identifies the patterns around him/her, e.g. stripes on clothes, designs on rugs and wallpaper. He/She uses informal language like 'pointy', 'spotty', 'blobs' etc -Is beginning to describe a sequence of events, real or fictional, using words such as 'first', 'then...'	-Can select, rotate and manipulate shapes in order to develop spatial reasoning skills -Investigates composing and decomposing shapes and recognises a shape can have other shapes within it, just as numbers can -Is able to extend and create ABAB patterns, e.g. stick, leaf, stick, leaf -Notices and corrects an error in a repeating pattern -Is able to continue, copy and create repeating patterns -Can compare length, weight and capacity	-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.
Vocabulary	More than, less than, pattern, even, odd, less, more, same, equal		
How this is covered:	-Solves a simple jigsaw -Can match shapes in a game -Can play snap games -Can understand and use the language 'more' and 'fewer' than to compare 2 groups of objects -Can name the 4 basic 2D shapes -Orders 2-3 objects by weight/length/height and capacity	-Beginning to know some number bonds up to 5 -Can copy, continue and create an ABAB pattern -Can create their own repeating patterns -Can name at least 4 2D shapes and some 3D shapes	-Count forwards and backwards to 20 from any given numbers -Number sequences to 10 forwards and backwards -Recognise numbers to 20 -Order numbers to 20 - Writes most digits 0-9 accurately -Beginning to count forwards in 10s to 100 -Beginning to count forwards in 2s to 20
Checkpoints	-Join in with number songs, attempting to represent numbers using fingers where appropriate. -Recite numbers to 10 or beyond. -Demonstrate understanding that we use one number for each item, when counting. -Attempt to count objects, actions and sounds. -Use and understand the term "more" in practical contexts. - Count back from 10. -Demonstrate understanding of the cardinal principle when counting objects. Show accuracy when counting a group of up to 5 objects. -Use and understand the terms more and fewer/less in practical contexts. -Understand the term equal when comparing two groups of objects. -Describe the size or shape of real-life objects using simple mathematical vocabulary, e.g. big/small, round/straight. -Time - understand first/next -Sorting/matching - sort groups of objects according to different criteria -Time - Understand yesterday/today/tomorrow. Recite days of the week. -Shape - Identify straight and curved sides on 2D shapes, and flat and curved faces on 3D shape -Use shapes to make pictures/models. -Measure - use and understand the terms short/tall, large/small. Sequence 4 items according to these criteria.	-Recite numbers to 20 and back from 20. -Count on from a given number to 20 and back from a given number 0 - 10. -Show accuracy when counting a group of objects, showing 1 to 1 correspondence & confident application of the cardinal principle. Show accuracy when counting a group of up to 10 objects. -Say the number one more/less than a given number 1 - 10. -Explore sharing into equal groups in practical contexts, commenting on what they notice. -Demonstrate understanding of everyday prepositions - in, on, under, beside, in front, behind. -Time - Use and understand before/after -Shape - Select, rotate and manipulate shapes to match a picture, fit an outline or create patterns. -Pattern - continue a simple AB, ABC pattern	ELG - Verbally count beyond 20, recognising the pattern of the counting system. ELG - Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. ELG - Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally NO ELG FOR THIS AREA. -Use everyday language to discuss length, size, height, weight, time, position and capacity. Use this language to make simple observations, e.g. this is heavier than that. -Shape - Understand and use correct mathematical language to describe 2D and 3D shapes (e.g. vertices, sides, edges, faces, flat/curved). -Shape - Know some common 2D and 3D shapes. -Pattern - create, copy and continue a simple pattern