



# Mathematics

## Educational Programme

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 relationship 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 ten frames for organizing 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.

# Nursery

	Intent	Implementation
<b>Autumn Term</b>	<ul style="list-style-type: none"> <li>● Recognise numbers of significance</li> <li>● Begins to say numbers in order</li> <li>● Begin to understand cardinality (takes or gives two or three items from a group)</li> <li>● Subitise 1 and 2</li> <li>● Fits objects into spaces</li> </ul>	<ul style="list-style-type: none"> <li>● Count in everyday activities (ordinality)</li> <li>● Explore the collections they make (subitise and introduce cardinality)</li> <li>● Model counting on fingers</li> <li>● Encourage mark making in role play</li> <li>● Use daily routines to emphasise counting</li> </ul>
<b>Spring Term</b>	<ul style="list-style-type: none"> <li>● Begins to notice numerals in the environment</li> <li>● Counts on their fingers</li> <li>● Use language such as more, lots, the same.</li> <li>● Responds to some special or positional language</li> <li>● Understand near and far way</li> <li>● Joins in with sound and action patterns and notices patterns</li> <li>● Explores size (length, weight, capacity)</li> <li>● Begins to recognise some shapes</li> </ul>	<ul style="list-style-type: none"> <li>● As above and...</li> <li>● Singing number rhymes and asking questions such as 'how many now?'</li> <li>● Mark making items indoors and outdoors</li> <li>● Numerals matched to quantities in CP (to 5)</li> <li>● Use positional language in routines</li> <li>● Make and use obstacle courses</li> <li>● Play and construction – make roads and tracks and discuss position</li> <li>● Pattern making in CP</li> <li>● Language of shape in play</li> </ul>
<b>Summer Term</b>	<ul style="list-style-type: none"> <li>● Compares 2 groups (up to 5 objects)</li> <li>● Counts 1:1 to 5</li> <li>● Begins to recognise numbers to 10</li> <li>● Subitises up to 3 (without counting)</li> <li>● Links numerals to amounts (up to 5)</li> <li>● Understands cardinality and counts in order (up to 5)</li> <li>● Uses positional language in play</li> <li>● Creates arches and enclosures in construction</li> <li>● Creates own simple repeating patterns</li> <li>● Compare quantities saying 'more than, fewer than)</li> <li>● Talk about and explore shapes (sides, corners, straight, curved, flat, round)</li> </ul>	<ul style="list-style-type: none"> <li>● As above and...</li> <li>● Share items between two people or toys and discuss amounts (more than, fewer than, the same)</li> <li>● Count forwards and back to 10</li> <li>● Model writing the numeral in play</li> <li>● Emphasise cardinality when counting (1, 2, 3 – there are 3 cups)</li> <li>● Loose part play to encourage subitising and looking at composition of number</li> <li>● Book talk (maths stories and books)</li> <li>● Differing sized blocks and construction</li> <li>● Provide balances to explore weight</li> <li>● Provide a variety of shapes within play</li> <li>● 5 frames and 10 frames freely available in play.</li> </ul>

## Reception

	Intent	Implementation
<b>Autumn Term</b>	<ul style="list-style-type: none"> <li>● Counts to 10</li> <li>● Matches numeral to quantity to 5</li> <li>● Begins to recognise that the next number in the sequence is the number one more than.</li> <li>● Begins to understand composition of numbers to 5 (2, 2, 1)</li> <li>● Separates 3, 4 or 5 objects in different ways</li> <li>● Subitises beyond 3</li> <li>● Predicts which objects may fit into spaces and moves and rotates objects to fit.</li> <li>● Talks about everyday shapes and use mathematical language to discuss shapes in the environment (2D and some 3D).</li> <li>● Can make and talk about patterns they have made.</li> <li>● Finds the longest, shortest, heaviest, lightest within play</li> </ul>	<ul style="list-style-type: none"> <li>● As above and...</li> <li>● Counting as part of everyday activities and at least once a day taught.</li> <li>● Book talk – mathematical stories available within play</li> <li>● Loose parts play allowing collections of objects to be separated and grouped.</li> <li>● Using mathematical language (one more than, one less than)</li> <li>● Dice play and patterns readily available</li> <li>● Problem solving opportunities indoors and outdoors for comparing weight, length, capacity</li> <li>● Ordering by size within play (clothes in role play, cups, bowls and so on)</li> <li>● Subitising opportunities within play</li> <li>● Use numicon to explore numeral and quantity</li> <li>● Use 5 and 10 frames within play</li> <li>● White Rose units (Just like me: It's me 1,2,3: Light and Dark)</li> </ul>
<b>Spring Term</b>	<ul style="list-style-type: none"> <li>● Orders and counts to at least 10.</li> <li>● Subitises up to at least 4.</li> <li>● Counts up to 10 objects from a larger group.</li> <li>● Matches numeral to quantity (up to 10)</li> <li>● Follows and gives simple instructions/directions</li> <li>● Makes own models, talking about shapes and objects used.</li> <li>● Spots patterns and can identify the odd one out</li> <li>● Talks about time in everyday life (yesterday, tomorrow, morning, afternoon, evening).</li> <li>● Begins to know some doubles facts and some pairs of numbers that add together to make 5 and 10.</li> </ul>	<ul style="list-style-type: none"> <li>● As above and...</li> <li>● Variety of counting songs to count forwards and backwards to 20 (sometimes starting from different numbers).</li> <li>● Provide estimation opportunities within play.</li> <li>● Use numicon to explore numeral and quantity and pattern (staircase and odds and evens)</li> <li>● Play subitising games</li> <li>● Provide simple problem-solving opportunities (muddled up number lines, missing numbers, dropping marbles into a tin –how many)</li> <li>● Model making in large and small ways (including obstacle courses).</li> <li>● Story time discussions – encourage children to ask and answer questions.</li> </ul>

<p style="text-align: center;"><b>Summer Term</b></p>	<ul style="list-style-type: none"> <li>● To begin to count beyond 10.</li> <li>● Compare numbers</li> <li>● Understand one more/one less than in consecutive numbers.</li> <li>● To know that numbers are composed of other numbers.</li> <li>● To know some number bonds for 10.</li> <li>● To explore the composition of shapes</li> <li>● Continue, copy and create patterns</li> <li>● Compare length, weight and capacity</li> <li>● Know addition facts and subtraction for 5.</li> </ul>	<ul style="list-style-type: none"> <li>● As above and...</li> <li>● Number tracks, number lines, 100 squares to show numerical patterns in the number system.</li> <li>● Count beyond 10 in different ways (2s, 5s, 10s)</li> <li>● Provide collections to compare (small/large, more/less) and distribute items equally (sharing)</li> <li>● Provide staircase patterns in numicon to show that the next counting number is the previous number plus one)</li> <li>● Provide problem solving for bonds for 10 (6 are outside the tent, how many are inside?)</li> <li>● Use 10 frames to explore bonds and how many are missing.</li> <li>● Use 5 frames for addition and subtraction facts within play</li> <li>● Compose and decompose shapes - look for patterns (square faces in cubes, two triangles making a square or diamond)</li> <li>● Make patterns with AB, ABB, ABBC rules – making deliberate mistakes for the children to correct.</li> </ul>
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<p><b>Statutory ELG: Number</b></p>
<p>Children at the expected level of development will: - 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.</p>
<p><b>Statutory ELG: Numerical Patterns</b></p>
<p>Children at the expected level of development will: - 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.</p>