

Mathematics in EYFS



Alexandra Park Primary School

“Care, Aspire, Achieve”

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.

This document demonstrates which statements from the 2020 Development Matters are prerequisite skills for mathematics within the national curriculum. The table below outlines the most relevant statements taken from the Early Learning Goals in the EYFS statutory framework and the Development Matters age ranges for Three and Four-Year-Olds and Reception to match the programme of study for mathematics.

The most relevant statements for mathematics are taken from the following areas of learning:

- Communication and Language
- Mathematics

This document also shows our curriculum overview for Mathematics. Please view [EYFS Curriculum Overview](#) to see our complete curriculum.

Staff use their knowledge and expertise to plan for a high-quality learning environment both indoors and outdoors which provides children with lots of opportunities to explore different aspects of number and shape, space and measures and learn new concepts.

Staff model appropriate mathematical language as they support the children in their play. Throughout the year a wide range of number songs and rhymes are shared with the children along with stories that support the children’s mathematical development. To support with sequencing our mathematics curriculum we follow Master the Curriculum in Nursery and White Rose Maths along with Mastering Number in Reception.

Mathematical Vocabulary

| | | | |
|--------------------------|----------------------------|----------|---|
| Three and Four-Year-Olds | Communication and Language | | <ul style="list-style-type: none">• Use a wider range of vocabulary.• Understand 'why' questions, like: "why do you think the caterpillar is so fat?" |
| Reception | Communication and Language | | <ul style="list-style-type: none">• Learn new vocabulary.• Use new vocabulary throughout the day. |
| ELG | Communication and Language | Speaking | <ul style="list-style-type: none">• Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary. |

Number and Place Value

Counting

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|--------------------------|-------------|--------------------|--|
| Three and Four-Year-Olds | Mathematics | | <ul style="list-style-type: none">• Recite numbers past 5.• Say one number name 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'). |
| Reception | Mathematics | | <ul style="list-style-type: none">• Count objects, actions and sounds.• Count beyond ten. |
| ELG | Mathematics | Numerical Patterns | <ul style="list-style-type: none">• Verbally count beyond 20, recognising the pattern of the counting system. |

Identifying, Representing and Estimating Numbers

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|--------------------------|-------------|--------|---|
| Three and Four-Year-Olds | Mathematics | | <ul style="list-style-type: none">• Develop fast recognition of up to 3 objects, without having to count them individually ('subitising').• 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. |
| Reception | Mathematics | | <ul style="list-style-type: none">• Subitise.• Link the number symbol (numeral) with its cardinal number value. |
| ELG | Mathematics | Number | <ul style="list-style-type: none">• Subitise (recognising quantities without counting) up to 5. |

Reading and Writing Numbers

| | | |
|--------------------------|-------------|---|
| Three and Four-Year-Olds | Mathematics | <ul style="list-style-type: none">• 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. |
| Reception | Mathematics | <ul style="list-style-type: none">• Link the number symbol (numeral) with its cardinal number value. |

Compare and Order Numbers

| | | | |
|--------------------------|-------------|---|--|
| Three and Four-Year-Olds | Mathematics | <ul style="list-style-type: none">• Compare quantities using language: 'more than', 'fewer than'. | |
| Reception | Mathematics | <ul style="list-style-type: none">• Compare numbers. | |
| ELG | Mathematics | Numerical Patterns | <ul style="list-style-type: none">• Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. |

Understanding Place Value

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|-----------|-------------|--|---|
| Reception | Mathematics | <ul style="list-style-type: none">• Understand the 'one more than/one less than' relationship between consecutive numbers.• Explore the composition of numbers to 10. | |
| ELG | Mathematics | Number | <ul style="list-style-type: none">• Have a deep understanding of numbers to 10, including the composition of each number. |

Solve Problems

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|--------------------------|-------------|--|
| Three and Four-Year-Olds | Mathematics | <ul style="list-style-type: none">• Solve real world mathematical problems with numbers up to 5. |
|--------------------------|-------------|--|

Addition and Subtraction

Mental Calculations

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|-----------|-------------|--------|--|
| Reception | Mathematics | | • Automatically recall number bonds for numbers 0-5 and some to 10. |
| ELG | Mathematics | Number | • 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. |

Solve Problems

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|-----|-------------|--------------------|--|
| ELG | Mathematics | Numerical Patterns | • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed evenly. |
|-----|-------------|--------------------|--|

Measurement

Describe, Measure, Compare and Solve (All Strands)

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|--------------------------|-------------|--|---|
| Three and Four-Year-Olds | Mathematics | | • Make comparisons between objects relating to size, length, weight and capacity. |
| Reception | Mathematics | | • Compare length, weight and capacity. |

Telling the Time

Three and Four-
Year-Olds

Mathematics

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

Properties of Shapes

Recognise 2D and 3D Shapes and their Properties

Three and Four-
Year-Olds

Mathematics

- 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'.
- Select shapes appropriately: flat surfaces for a building, a triangular pattern for a roof, etc.
- Combine shapes to make new ones - an arch, a bigger triangle, etc.

Reception

Mathematics

- Select, rotate and manipulate shapes in order to develop spatial reasoning skills.

Compare and Classify Shapes

Reception

Mathematics

- Compose and decompose shapes so that children can recognise a shape can have other shapes within it, just as numbers can.

Position and Direction

Position, Direction and Movement

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|--------------------------|-------------------------|--|
| Three and Four-Year-Olds | Mathematics | <ul style="list-style-type: none">• 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'. |
| Reception | Understanding the World | <ul style="list-style-type: none">• Draw information from a simple map. |

Patterns

| | | |
|--------------------------|-------------|--|
| Three and Four-Year-Olds | Mathematics | <ul style="list-style-type: none">• Talk about and identify 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. |
| Reception | Mathematics | <ul style="list-style-type: none">• Continue, copy and create repeating patterns. |

Statistics

Record, Present and Interpret Data

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|--------------------------|-------------|---|
| Three and Four-Year-Olds | Mathematics | <ul style="list-style-type: none">• Experiment with their own symbols and marks, as well as numerals. |
|--------------------------|-------------|---|

Nursery MATHEMATICS: □ Numerical Pattern □ Number

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 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.

| Autumn | Spring | Summer |
|---|---|--|
| <p>Master the Curriculum: Colours / Matching / Sorting - Number 1 / Number 2 / Pattern</p> <p>Numerical Pattern / Number</p> <p>Begin to compare quantities ... <i>group, lots, more, same, less</i></p> <ul style="list-style-type: none"> Sort, match and label groups Find the group with more / the same / less <p><i>Arrange things in patterns.</i> Notice, identify and talk about patterns around them</p> <p>Begin to copy and talk about a pattern – <i>ABAB</i></p> <ul style="list-style-type: none"> Patterns with objects / actions Give pattern a name... <i>spotty, stripy, zig zag</i> <p>Begin to recite numbers to 5 in correct order Explore 1:1 correspondence</p> <p>Begin to say one number for each item to 3</p> <ul style="list-style-type: none"> Join in with number rhymes / songs with props & actions Use some number names in play <p>Begin to experiment with own symbols and marks</p> <p>Shape, Space & Measure</p> <p>Begin to select shapes for appropriate tasks</p> <ul style="list-style-type: none"> Show interest in shapes in the environment <p>Begin to talk about shapes <i>round, pointy, spotty, stripy</i></p> <p>Make comparisons between objects using appropriate vocabulary</p> <ul style="list-style-type: none"> Size ... <i>big / small / bigger / smaller</i> <p>Understand positional language within daily routine ... <i>in / on / under</i></p> <p>Begin to understand the language of time within the daily routine ... <i>next, later, after</i></p> | <p>Master the Curriculum: Number 3 / Number 4 / Number 5 - Number 6 / Height and Length / Mass and Capacity</p> <p>Numerical Pattern / Number</p> <p>Name and talk about patterns... <i>ABAB</i> Recite numbers to 5 Show and join in with number rhymes to 5, using props and fingers Use fingers to represent numbers with <i>increasing accuracy</i> Use some numbers names in play <i>with some accuracy</i> Sort and match objects accordingly e.g. <i>size / shape</i></p> <p>Begin to compare quantities using ... <i>more than / fewer than</i> Fast recognition of objects up to 1 and sometimes 2 – subitising</p> <p>Begin to count up to sets of 5 objects (1:1 correspondence)</p> <p>Begin to understand and explore the 'cardinal principle' when counting objects</p> <p>Begin to represent numbers with marks</p> <p>Shape, Space & Measure</p> <p>Select shapes appropriately <i>in a range of contexts</i></p> <p>Begin to combine shapes to make new ones... <i>a longer rectangle</i></p> <p>Talk about shapes... <i>size, corners, straight</i></p> <p>Make comparisons between objects using appropriate vocabulary...</p> <ul style="list-style-type: none"> Size... <i>bigger, smaller, the same,</i> Length... <i>shorter, longer</i> <p>Begin to understand some positional language, with support within the wider environment</p> <p>Begin to use <i>some</i> language of time within the daily routine</p> <p>Begin to describe a familiar route</p> <p>Begin to describe a sequence of events ... <i>first, next</i></p> | <p>Master the Curriculum: Sequencing / Positional Language / More Than, Fewer Than / Shape 2D / Shape 3D – Number Composition / What Comes After / What Comes Before / Numbers to 5</p> <p>Numerical Pattern / Number</p> <p>Extend and create ABAB patterns Notice and correct an error in a repeating pattern Recite numbers past 5 Fast recognition of up to 3 objects - subitising 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 up to 5. Experiment with 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'</p> <p>Shape, Space & Measure</p> <p>Talk about and explore 2D and 3D shapes, using informal and mathematical language... <i>sides, corner, straight, flat, round</i></p> <p>Understand position through words alone</p> <p>Describe a familiar route</p> <p>Discuss routes and locations... <i>in front of, behind</i></p> <p>Make comparisons between objects relating to size, length, weight and capacity</p> <ul style="list-style-type: none"> Weight... <i>heavier, lighter,</i> Capacity... <i>more, lots, less</i> <p>Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc.</p> <p>Combine shapes to make new ones</p> <p>Talk about and identifies the patterns around them... <i>stripes on clothes, designs on rugs or wallpaper</i></p> <p>Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'</p> |

Reception MATHEMATICS: □ Numerical Pattern □ Number

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| Autumn | Spring | Summer |
|---|--|---|
| <p>Numerical Pattern / Number</p> <p>Recite numbers to 10</p> <ul style="list-style-type: none"> Forward & backward finger rhymes <i>forwards, backwards</i>. Break counting chain (not always starting from 1). Talk about position ... <i>before, after</i>. <p>Count objects, actions and sounds.</p> <ul style="list-style-type: none"> Up to 5 – in context of the daily routine, sharing, turn taking. Count objects in an irregular arrangement. <p>Subitise 3 / 4 objects (quick recall without counting).</p> <ul style="list-style-type: none"> Fast recognition of dice patterns <p>Link the number symbol (numeral) with its cardinal number value to 5.</p> <p>Compare quantities up to 5 ... <i>more than, less than, fewer, who has one more / less</i>.</p> <p>Understand 'one more/less than' to 5.</p> <ul style="list-style-type: none"> Use sentence with support ... <i>Three is one more than two</i> <p>Explore the composition of numbers to 5.</p> <ul style="list-style-type: none"> Recognise total is still the same. Using variety of resources ... <i>more, less, makes, equals, altogether</i>. Begin to explore number bonds to 5. Use a range of resources. <p>Shape, Space & Measure</p> <p>Select, rotate and manipulate shapes in order to develop spatial reasoning skills.</p> <ul style="list-style-type: none"> Create shape picture ...consolidate ...<i>2D shape names</i>. Put shapes together to make new shape ... <i>fit, turn</i>. <p>Continue, copy and create repeating patterns.</p> <ul style="list-style-type: none"> Talk about pattern ... <i>repeat, next, before, after, in between</i>. | <p>Numerical Pattern / Number</p> <p>Recite numbers to 20.</p> <ul style="list-style-type: none"> Backward from 10 and begin to recite backwards from 15. Break counting chain (not always starting from 1 forwards or 10 backwards). Talk about position up to 5 and begin to talk about position up to 10. <p>Count objects, actions and sounds.</p> <ul style="list-style-type: none"> Up to 10, in context of daily routine, sharing and turn taking. Count objects in an irregular arrangement. Begin to estimate number of objects up to 10 then check by counting. <p>Subitise 5 objects (quick recall without counting).</p> <p>Link the number symbol (numeral) with its cardinal number value to 10.</p> <p>Compare quantities up to 10.</p> <p>Explore the composition of numbers to 10.</p> <p>Understand 'one more/less than' to 10.</p> <ul style="list-style-type: none"> Use sentence ... <i>six is one more than five</i>. <p>Begin to explore the composition of numbers to 10.</p> <p>Recall number bonds to 5.</p> <p>Find the total number of items (up to 10) in two groups by counting all of them together, using a range of manipulatives ... <i>altogether, more/nov</i>.</p> <ul style="list-style-type: none"> Find the total number of items (up to 10) in a group by take away/subtraction, using a range of manipulatives ... <i>left</i>. <p>Begin to share, double and half up to 10 objects.</p> <p>Shape, Space & Measure</p> <p>Select, rotate and manipulate shapes in order to develop spatial reasoning skills.</p> <p>Begin to compose and decompose shapes within practical activities.</p> <p>Continue, copy and create repeating patterns.</p> <p>Compare length, height, weight and capacity.</p> | <p>Numerical Pattern / Number</p> <p>Have a deep understanding of number to 10, including the composition of each number.</p> <p>Subitise (recognise quantities without counting) up to 5.</p> <p>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>Verbally count beyond 20, recognising the pattern of the counting system.</p> <p>Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.</p> <p>Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.</p> <p>Shape, Space & Measure</p> <p>Select, rotate and manipulate shapes in order to develop spatial reasoning skills.</p> <p>Compose and decompose shapes within practical activities</p> <p>Continue, copy and create more complex repeating patterns.</p> <p>Compare length, height, weight and capacity.</p> <p>Order and sequence familiar events.</p> <ul style="list-style-type: none"> Measure and compare short periods of time. |

| | | |
|--|---|--|
| <p>Begin to compare length, weight and capacity.</p> <ul style="list-style-type: none"> Order 2-3 items by length / weight ... <i>heavier/est, lighter/est, longer/est, shorter/est.</i> | <ul style="list-style-type: none"> Order 2-3 items by capacity and height. <p>Begin to order and sequence familiar events.</p> <ul style="list-style-type: none"> Become familiar with a clock face and hands. Measure short periods of time. | |
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| <p>Mapping Curriculum Objectives How the early learning goals feed into objectives from the Year 1 National Curriculum.</p> | <p>Year 1 National Curriculum Objective</p> <p>Number and Place Value</p> <ul style="list-style-type: none"> Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens. Given a number, identify one more and one less. Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (<i>fewer</i>), most, least. Read and write numbers from 1 to 20 in numerals and words. <p>Addition and Subtraction</p> <ul style="list-style-type: none"> Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. Represent and use number bonds and related subtraction facts within 20. Add and subtract one-digit and two-digit numbers to 20, including zero. Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = [] - 9$. <p>Multiplication and Division</p> <ul style="list-style-type: none"> Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. <p>Measurement</p> |
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Compare, describe and solve practical problems for:

- lengths and heights (long/short, longer/shorter, tall/short, double/half)
- mass or weight (heavy/light, heavier than, lighter than)
- capacity/volume (full/empty, more than, less than, quarter)
- time (quicker, slower, earlier, later)

Measure and begin to record:

- lengths and heights
- mass/weight
- capacity and volume
- time (hours, minutes, seconds)
- Recognise and know the value of different denominations of coins and notes.
- Sequence events in chronological order using language, such as before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening.
- Recognise and use language relating to dates, including days of the week, weeks, months and years.
- Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.

Position and Direction

- Describe position, directions and movements, including half, quarter and three-quarter turns.

Shape

- Recognise and name common 2D and 3D shapes, including circles, triangles, rectangles (including squares), pyramids, spheres and cuboids (including cubes).