



## Castlefield School Early Years Curriculum: Mathematics

### **An overview of Mathematics:**

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. (Development Matters, 2021)

### **Mathematics in Context at Castlefield School:**

A high percentage of pupils start at Castlefield School with low levels of Communication and Language. This impacts greatly upon mathematical development due to the fact that many learning and development statements in Mathematics require children to be able to convey knowledge through words and use of ‘everyday language’. We have a high percentage of EAL pupils and much support is needed to ensure pupils have enough comprehension of English language to understand set tasks and challenges, and to develop vocabulary needed to verbalise their understanding of mathematical concepts.

It is crucial to deliver a strong foundation in mathematics in Early Years. Learning in mathematics should ignite interest and ensure positive attitudes to the subject, enabling children to develop the necessary building blocks to become practical problem solvers. We use a ‘Maths Mastery’ approach when planning mathematics, starting pupils on their journey to make connections between the concrete, pictorial and abstract. We encourage children ‘mathematise the world’ noticing patterns and spotting connections in their learning, urging them to talk about what they observe, not being afraid to make mistakes.

We use Power Maths resources from Reception onwards, with consistent practice in place. Children are presented with maths carpet time in Reception, followed by adult led activities which ensure pupils have opportunities to learn new mathematical ideas. In Nursery, maths is planned for as part of group time. Pupils are also provided with the materials to explore new concepts in enhanced and continuous provision and are encouraged to practise skills by using resources which interest them.



## Progression of skills and knowledge

- Development matters
- Castlefield Curriculum

	Skills	Knowledge	End points
<b>Nursery Two Year Olds will be learning to:</b>	<ul style="list-style-type: none"> <li>○ Practise touching objects as they are counted and saying one number for each item in order: 1,2,3...</li> <li>○ Develop an awareness of number and amount e.g. knowing that two children can work in the 'dark den'.</li> <li>• Practise solving 'real world' mathematical problems with numbers up to 5.</li> <li>• Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc.</li> </ul>	<ul style="list-style-type: none"> <li>○ Practise holding up and counting 'fingers' within 5.</li> <li>○ Recite numbers up to 5.</li> <li>○ Demonstrate understanding of language relating to capacity e.g. Which basket has more apples?</li> <li>• Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper.</li> <li>• Use informal language like 'pointy', 'spotty', 'blobs' etc.</li> <li>• Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal language: 'straight', 'flat', 'round'.</li> <li>○ Practise following a sequence of events, demonstrating some understanding of words such as 'first', 'then...'</li> </ul>	<ul style="list-style-type: none"> <li>➤ Develop an awareness of number and amount e.g. knowing that two children can work in the 'dark den'.</li> <li>➤ Develop an awareness of shapes within the environment</li> </ul>
<b>Nursery Three Year Olds will be learning to:</b>	<ul style="list-style-type: none"> <li>• Say one number for each item in order: 1,2,3,4,5.</li> <li>• Develop fast recognition of up to 3 objects, without having to count them individually ('Subitising').</li> <li>• Link numerals and amounts: for example, showing the right number of objects to match the numeral,</li> </ul>	<ul style="list-style-type: none"> <li>• Show 'finger numbers' up to 5.</li> <li>• Recite numbers past 5.</li> <li>• Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').</li> </ul>	<ul style="list-style-type: none"> <li>➤ Understand and count beyond 5</li> <li>➤ Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5</li> <li>➤ To subitise to 3</li> <li>➤ To notice patterns within the environment</li> </ul>



	<p>up to 5 (e.g. Knowing that 4 children can work at a learning station as stated on a classroom sign).</p> <ul style="list-style-type: none"> <li>• Experiment with their own symbols and marks as well as numerals. (e.g. – pointing at a number on a number line to represent how many goals scored)</li> <li>• Solve ‘real world’ mathematical problems with numbers up to 5, e.g. Support children to solve problems using fingers, objects and marks: “There are four of you, but there aren’t enough chairs....”</li> <li>• Combine shapes to make new ones - an arch, a bigger triangle etc.</li> <li>• Notice and correct an error in a repeating pattern.</li> </ul>	<ul style="list-style-type: none"> <li>• Compare quantities using language: ‘more than’, ‘fewer than’.</li> <li>• Make comparisons between objects relating to size, length, weight and capacity.</li> <li>• 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’.</li> <li>• Understand position through words alone – for example,</li> <li>• “The bag is under the table,” – with no pointing.</li> <li>• Describe a familiar route (e.g.- recount a route by recalling the order of things seen on the way).</li> <li>• Discuss routes and locations, using words like ‘in front of’ and ‘behind’.</li> <li>○ Show understanding of prepositions such as ‘under’, ‘on top’, ‘behind’.</li> <li>• Extend and create ABAB patterns – stick, leaf, stick, leaf.</li> <li>• Begin to describe a sequence of events, real or fictional, using words such as ‘first’, ‘then...’</li> </ul>	
<b>Reception Pupils will be learning to:</b>	<ul style="list-style-type: none"> <li>• Count objects, actions and sounds.</li> <li>• Subitise (Identify an amount by recognising a pattern e.g. Knowing that a particular piece of numicon /</li> </ul>	<ul style="list-style-type: none"> <li>• Count beyond ten (verbally).</li> <li>• Understand the ‘one more than/one less than’ relationship between consecutive numbers.</li> </ul>	➤ To be awarded the ELGs for Mathematics



	<p>pattern on a die represents a number)</p> <ul style="list-style-type: none"> <li>• Link the number symbol (numeral) with its cardinal number value.</li> <li>• Compare numbers.</li> <li>• Select, rotate and manipulate shapes in order to develop spatial reasoning skills.</li> <li>• Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.</li> <li>• Continue, copy and create repeating patterns.</li> <li>• Compare length, weight and capacity. <ul style="list-style-type: none"> <li>○ Use a number track effectively to aid counting.</li> <li>○ Use a five and ten frames and part whole models to develop mathematical skills</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Explore the composition of numbers to 10 (Emphasise the parts within the whole)</li> <li>• Automatically recall number bonds for numbers 0–10.</li> <li>• Recall doubles to 5 <ul style="list-style-type: none"> <li>○ Knows the 2D shape names – Circle, square, rectangle, triangle</li> <li>○ Knows the 3D shape names – sphere, cylinder, cube, cuboid, cone</li> <li>○ Understand and use everyday language related to time; developing understanding of the words – morning, lunchtime, afternoon, bedtime, before, after, today, yesterday, tomorrow, day, week, weekend, month</li> <li>○ Develop language to describe position such as ‘behind’, ‘next to’, ‘under’, ‘over’, ‘beside’, ‘in front of’, ‘at the side of’ etc.</li> <li>○ Develop language to talk about direction ‘forward’, ‘backwards’.</li> <li>○ Develop and use language to talk about distance e.g.- ‘far away’, ‘near’.</li> <li>○ Begin to use everyday language related to money; including coins, notes, cards.</li> <li>○ Understands the words heavy, heaviest, light, lightest in relation to weight.</li> <li>○ Have some experience of using a balance scale and shows understand of what it means to ‘balance’.</li> </ul> </li> </ul>	
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|  |  | <ul style="list-style-type: none"> <li>○ Understands the words long, short, tall.</li> <li>○ Understands the words full, empty, half full.</li> </ul> |  |
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## Mathematics- Early Learning Goals

### ELG: Number

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.

### ELG: Numerical Patterns

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.

## Planned opportunities to support Mathematics in Early Years:

- Sing counting songs and rhymes – Provide props to aid understanding of number.
- Play games which relate to number bonds, order, addition and subtraction, such as skittles and target games.
- Share stories that relate to addition and subtraction e.g. – The Shopping Basket, Handa's Surprise,
- Incorporate mathematical components to different areas of the setting e.g. – sand, water.
- Count things that are not objects, such as hops, jumps, clicks or claps.
- Create interactive maths areas that prompt children to investigate the 'properties' / 'meaning' of numbers e.g. 'Two' – Pair of shoes, wheels on a bicycle, two colours on a string, pair of scissors, letter 'B' magnet, a pair of sunglasses etc.
- Talk with children about strategies they are using e.g. to work out a solution to a simple problem by using fingers or counting aloud.



- Provide number labels for children to use in different scenarios e.g. by putting a 'numicon' label on each bike and a corresponding number on each parking space.
- Create opportunities for children to separate objects into unequal groups as well as equal groups.
- Provide role play opportunities / real life experiences which include the handling of money.
- Encourage children to record what they have done, e.g. by drawing or tallying.
- Make number lines available for reference and encourage children to use them in their own play.
- Go on 'number hunts' and encourage pupils to look for, and identify, numerals in everyday situations / familiar environments.
- Provide number tracks and basic tens frames available to support with counting and understanding of part/whole models.
- Provide opportunities to support pupils subitise e.g. – playing with dice, dominoes, numicon.
- Play hiding games with a number of objects in a box, under a cloth, in a tent, in a cave, etc.: "Seven went in the tent and 2 came out. I wonder how many are still in there?"
- Provide pictures that illustrate the use of shapes and patterns from a variety of cultures e.g. Arabic designs, Diwali patterns
- Provide opportunities for children to measure time (e.g. - sand timers), weight (e.g. - balance scales) and length (with standard and non-standard units).
- Vary the volume and capacity equipment in sand, water and other play areas.
- Invite pupils to help measure for a purpose e.g. - finding out which teddy will fit best in a bed.
- Demonstrate language for shape, position and measures in discussions.
- Play 'descriptive' games to allow pupils to hear and use properties of shape e.g. 'Shape Shop' - "I'm looking for a thick 3D shape with six flat faces. It will slide and stack but will not roll as it does not have any curved faces".
- Play games involving children positioning themselves, or an object, inside, behind, on top and so on.
- Use stories to talk about position and direction e.g. - Rosie's Walk, We're going on a Bear hunt
- Tell stories that relate to time / seasons / night and day / days of the week etc. e.g.- The Very Hungry Caterpillar, Peace at Last, Tree,
- Play 'shape reveal' games; revealing shapes a little at a time and at different angles, asking children to say what they think the shape is.
- Ask children to give you instructions to get to somewhere / Play 'hidden object' games where pupils have to find objects by following your instructions.
- Encourage children to use everyday words to describe routes taken and position, e.g. when following pathways / playing on the adventure playground / climbing equipment.
- Numbots used for home learning in Reception
- Power Maths Reception scheme utilised in Reception
- Parent workshops to support parents in helping their children with the correct vocabulary and strategies promoted in school
- Visual timetables to support understanding of times of the day

